APPENDIX A

Wetland Delineation Report

Ralston Street Lagoon
Gary Sanitary District
Gary Township, Lake County, Indiana
May 10, 2005

Prepared For:
Gary Sanitary District
C/o Camp Dresser McKee
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Gary, Indiana 46403

LAND RESOURCE MANAGEMENT GROUP

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WETLAND DELINEATION REPORT

Ralston Street Lagoon
Lake County, Indiana
May 10, 2005

1.0 Executive Summary

LRMG (Land Resource Management Group, Inc.) completed a jurisdictional determination and delineation of the boundaries of "waters of the U.S.", including wetlands, which occur within the project area known as Ralston Street Lagoon, Gary, IN (Exhibit 1). The property is bordered to the north by a marsh that constitutes the south bank of the Grand Calumet River. The river runs through the northwest corner of the project site. The boundary to the east is a residential subdivision. The I-90 tollway makes up the entire southern boundary. The project site is in the Little Calumet/Galien Watershed. It is located in the N ½ of Section 1, T36N, R9W, Lake County, IN.

Based on our field analysis and data collections conducted on November 5, 2004, and a recent review of available resource maps, it is our conclusion that two (2) separate wetland features exist on-site (Exhibit 2). The approximate locations and boundaries of the two (2) wetland features were ground-truthed utilizing a 1998 aerial from the Lake County Surveyor. A Floristic Quality Assessment (FQA) was completed. All wetland features were found to be low quality based on inventoried plant species present (Appendix C).

The first wetland feature is a section of an extensive marsh that comprises the wetland fringe of the Grand Calumet River. The marsh extends beyond the site boundary for several hundred yards along the river. The marsh is separated from the lagoon by a man-made berm, which defines the south boundary of the marsh adjacent to the lagoon. This area meets the federal definition of wetland and is jurisdictional since it is adjacent via surface water connection to the Grand Calumet River – a navigable "waters of the U.S."

The other wetland feature is Ralston Street Lagoon itself.

Ralston Street Lagoon: The lagoon is a Toxic Substances Control Act (TSCA) regulated facility as administered by U.S. Environmental Protection Agency (USEPA). Even though the lagoon meets the federal "three criteria" definition of wetland (1987 Corps manual), it is our conclusion that the lagoon itself is considered non-jurisdictional. Ralston Street Lagoon is, by U.S. Army Corps of Engineer's (USACOE) definition, a man-made lagoon designed and maintained as a municipal waste treatment system. According to U.S. Army Corps Regulatory Program Regulations (33 CFR 328.3 Definitions of "Waters of the United States"), the lagoon does not meet the definition of "waters of the United States". Therefore, it is not regulated under section 404 of the Clean Water Act as administered by the USACOE. Additionally, the lagoon

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does not appear to be connected via surface flow to the Grand Calumet River. We understand that the berms defining the lagoon boundary are higher in elevation than the base flood elevation of the Calumet River. There is no surface flow connection between the lagoon and "waters of the U.S." Therefore, the lagoon is by definition isolated.

This report identifies the jurisdictional status of the project area (Exhibit 1) based on LRMG's best professional understanding and interpretation of the "*Corps of Engineers' Wetland Delineation Manual"* (1987) and related guidance documents and regulations. We recommend that our conclusion be verified by the Detroit District office of the USACOE prior to final site planning.

2.0 General Site Description

The project area is defined in Exhibits 1-5. The project area contains a municipal sludge disposal lagoon. The boundaries of the project area extend to the south bank of the Calumet River (northwest corner), an adjacent off-site marsh (north), and the perimeter fence of the lagoon (east, west, and south). The berm that defines the lagoon perimeter is a constructed slope of sand and gravel. Inside the perimeter fence, the berms are maintained via mowing and vegetation clearing. Adjacent to the berm on the north and west side of the lagoon is the Grand Calumet River and its adjacent marsh (On-site Wetland). The lagoon is open water with a wetland fringe dominated by Cattails (*Typha x glauca*), Common Reed (*Phragmites australis*), and Purple Loosestrife (*Lythrum salicaria*). The berm edge of the lagoon is dominated by Glossy Buckthorn (*Rhamnus frangula*), Purple Loosestrife (*Lythrum salicaria*), and Cattail (*Typha x glauca*). Immediately east of the lagoon is a small residential area. A mowed strip separates the lagoon along its south boundary from Interstate 90. An off-site ditch exists at the tow of the north slope of Interstate 90 that drains into the Grand Calumet River west of the project area. The ditch is dominated by Common Reed (*Phragmites australis*). Refer to Appendix A for detailed data sheet analysis and data point locations.

3.0 Background Information (Resource Map Review)

3.1 Lake County Soil Survey (Exhibit 3)

The county soil survey indicates the presence of two soil units within the project area. The first soil unit is classified as *Ur*, "Urban Land", encompassing areas south and east of the lagoon, and the second soil unit encompassing the north and west of the lagoon is classified as *Mh*, "Marsh". The lagoon is classified as "water."

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3.2 National Wetland Inventory (NWI) Map (Exhibit 4)

The NWI indicates two wetlands on site: the waste treatment lagoon, and the wetland fringe of the Grand Calumet River. The lagoon is labeled as L1UBx (excavated lake) and the river's wetland fringe is labeled as PEMF (freshwater emergent wetland) and PUBF (unconsolidated bottom).

3.3 Uncertified Farmed Wetland Inventory Map

The site is not actively farmed.

3.4 Aerial Photography (Exhibit 5)

A 1998 aerial (1"=400') was examined in order to evaluate the property for possible wetland signatures. Visual signatures include evidence of hydrophytic vegetation or drainage patterns associated with the site. This correlates with information gathered in the field.

4.0 Routine On-Site Determination And Photo Gallery

Following a review of available resource maps and aerial photography in order to determine potential presence of jurisdictional "waters of the U.S" including wetlands, LRMG applied the routine on-site determination method (1987 Corps Manual) in order to identify and delineate wetlands.

A total of 10 representative data point locations (Appendix A) were selected to document the wetland and/or non-wetland (upland) status of the land contained within the project area limits (Exhibit 2). Data points were also selected to confirm wetland boundaries. The following table summaries these data points.

Data Point #	Descriptive Location	Status
1	West of lagoon berm	Upland
2	Far western end of project, west of lagoon	Upland
3	Northwest berm of lagoon	Upland
4	North marsh (west)	On-site Wetland
5	North marsh (central)	On-site Wetland
6	North marsh (east)	On-site Wetland
7	East lagoon berm	Upland
8	South side lagoon	Upland
9	West – near edge of lagoon	Upland
10	North – near edge of lagoon	Upland

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The man-made berms surrounding the lagoon characterize a distinct topographic change which defines the wetland limits of the lagoon itself and also define the boundary of the wetland, which is the marsh located outside the perimeter fence north of the lagoon berm. Data 1, 2, 3, 7, 8, 9, and 10 (Appendix A) confirm upland status and wetland boundaries of the berm area surrounding the lagoon. Data points 4, 5, and 6 document the wetland status of the marsh located to the north of the berm.

Due to the lagoon's status as a TSCA-regulated facility, its water and surrounding saturated soil fringe at the inside banks of the berm were assumed to pose human safety concerns to the investigators. The presence of 100% dominance of obligate wetland vegetation and a standing pool of water allows us to assume the soils are hydric by definition.

The lagoon is a municipal sludge collection basin, consisting of open water with a narrow emergent shoreline dominated by cattails (*Typha latifolia*), Purple Loosestrife (*Lythrum salicaria*), and Common Reed (*Phragmites australis*) (See photo below). The immediate transition to the upland bank is distinct and dominated by Catnip (*Nepeta cataria*) and Glossy Buckthorn (*Rhamnus frangula*), and exhibits no hydrology indicators (data points 9 and 10).

Ralston Street Lagoon facing southwest

The marsh north and west of the lagoon is the wetland fringe of the Grand Calumet River. It is dominated by cattails (*Typha latifolia*) and Common Reed (*Phragmites australis*). Much of the marsh is open, except for a small area north of the lagoon that is sparsely wooded with low quality species dominated by Eastern Cottonwood (*Populus deltoides*) and Black Willow (*Salix nigra*) (see next two photos).

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Sparsely wooded marsh north of the lagoon facing north (On-site Wetland: North)

Open marsh facing north towards airport (Northern Marsh: North)

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A mowed area separates Interstate 90 and the lagoon outside the south perimeter fence of the lagoon (see photo below).

Mowed area facing west

5.0 Farmed Wetlands Determination

The site is not actively farmed.

6.0 Permitting Review

The delineated jurisdictional wetland, located within the Ralston Street Lagoon project area is protected under Section 404 of the Clean Water Act. Any introduction of fill or dredged material into the areas within the delineated boundaries will be considered regulated impacts and therefore will be subject to Corps of Engineers regulation and local review requirements. All efforts should be made to avoid and minimize impacts to regulated "waters of the U.S." and wetlands during the site planning and engineering process. However, in certain instances, minor impacts may be necessary and unavoidable. In these cases, wetland permitting and possible mitigation (replacement or restoration of existing) for wetland impacts is required. LRMG can assist with these permitting and mitigation cases.

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7.0 Conclusions and Recommendations

LRMG (Land Resource Management Group, Inc.) completed a jurisdictional determination and delineation of the boundaries of "waters of the U.S.", including wetlands, which occur within the project area known as Ralston Street Lagoon, Gary, IN (Exhibit 1). The property is bordered to the north by a marsh that constitutes the south bank of the Grand Calumet River. The river runs through the northwest corner of the project site. The boundary to the east is a residential subdivision. The I-90 tollway makes up the entire southern boundary. The project site is in the Little Calumet/Galien Watershed. It is located in the N ½ of Section 1, T36N, R9W, Lake County, IN.

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The jurisdictional status of the project for this report is based on LRMG's best professional understanding and interpretation of regulations and related documents. The final determination of the jurisdictional status for the project site is the authority of the Detroit District U.S. Army Corps of Engineers. Prior to final site planning, we strongly recommend that our conclusion be verified by the Corps of Engineers.

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EXHIBIT 1

Site Location

LAND RESOURCE MANAGEMENT GROUP

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Project Study Area Location Map

N

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LRMG W04-43
Map Not to Scale

Source: Mapquest

Exhibit 1: Ralston St. Lagoon
Gary, Lake County, Indiana

LRMG File # W04-43

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EXHIBIT 2

Delineation of Jurisdictional “Waters of the U.S.” Including Wetlands

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Fence

Off-site Wetland

Grande Calumet River "Waters of the U.S."

Lagoon Berm

820.00' (R)
N89°28'12"W

5260.85' (R)
N89°28'12"W

711.77' (C)
N00°28'45"E

Off-site Wetland

On-site Wetland

44.52' (C)

S00°14'18"W

Toe of Slope

Toe of Slope
(NWL of Lagoon)

147.25' (C)

Lagoon

Pier

1732.55' (R)

North Right of Way Indiana East-West Toll Road

1707.26' (C)
N89°45'00"E

Pier

Pier

S81°18'32"E

2545.38' (R)
S77°49'33"E

C/L Indiana East-West Toll Road

South Right of Way Indiana East-West Toll Road

130.56' (R)
N89°28'12"W

392.16' (R)
364.52' (M)
R=5369.58'

Oak Ridge on the Grande Calumet
Second Addition
Book 20 Page 49

506.60' (R)
S81°18'32"E

Off-site ditch

512.10' (R) 479.61' (C)
R=5729.58'

LEGEND

- Project Area
- Approximate Wetland boundary
- On-site Wetland
- Lagoon boundary
- Lagoon
- Off-site Wetland
- Fence

400 200 0 200

SCALE – FEET

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RALSTON STREET LAGOON

GARY, IN

N 1/2 OF SECTION 1 TOWNSHIP 36 NORTH, RANGE 9 WEST
IN GARY TOWNSHIP, IN LAKE COUNTY, INDIANA.

Wetland Delineation Figure

NOTES

REVISIONS

DATE	NO.	DESCRIPTION
6-21-05	1	Revised Boundary Limits

DATE: 11/10/04
JOB NO. W04-43
SCALE: 1"=400'
FILE NAME Wetland Delineation Figure
DRAWN BY: LLH

1 of 1

EXHIBIT 3

County Soil Survey Map

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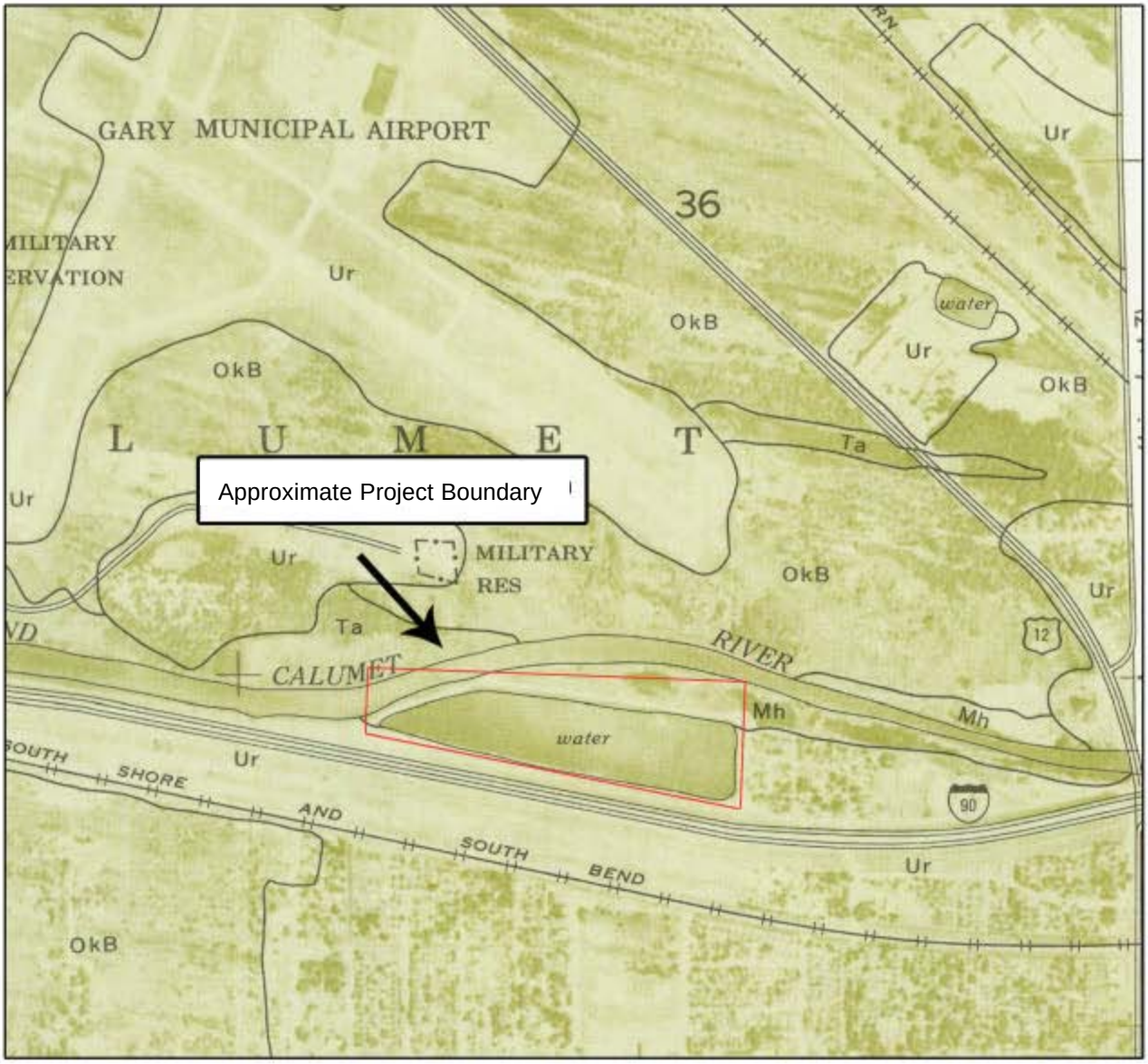
County Soil Survey Map



N

Soil Legend

Mh Marsh
Ur Urban Land

**indicates hydric soil according to USDA-SCS Publication "Hydric Soils of the U.S."

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LRMG W04-43
Map Not to Scale

Source: Lake County Soil and Water Conservation District

Exhibit 3: Ralston St. Lagoon
Gary, Lake County, Indiana

LRMG File # W04-43

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EXHIBIT 4

National Wetland Inventory
and Key to National Wetland Inventory

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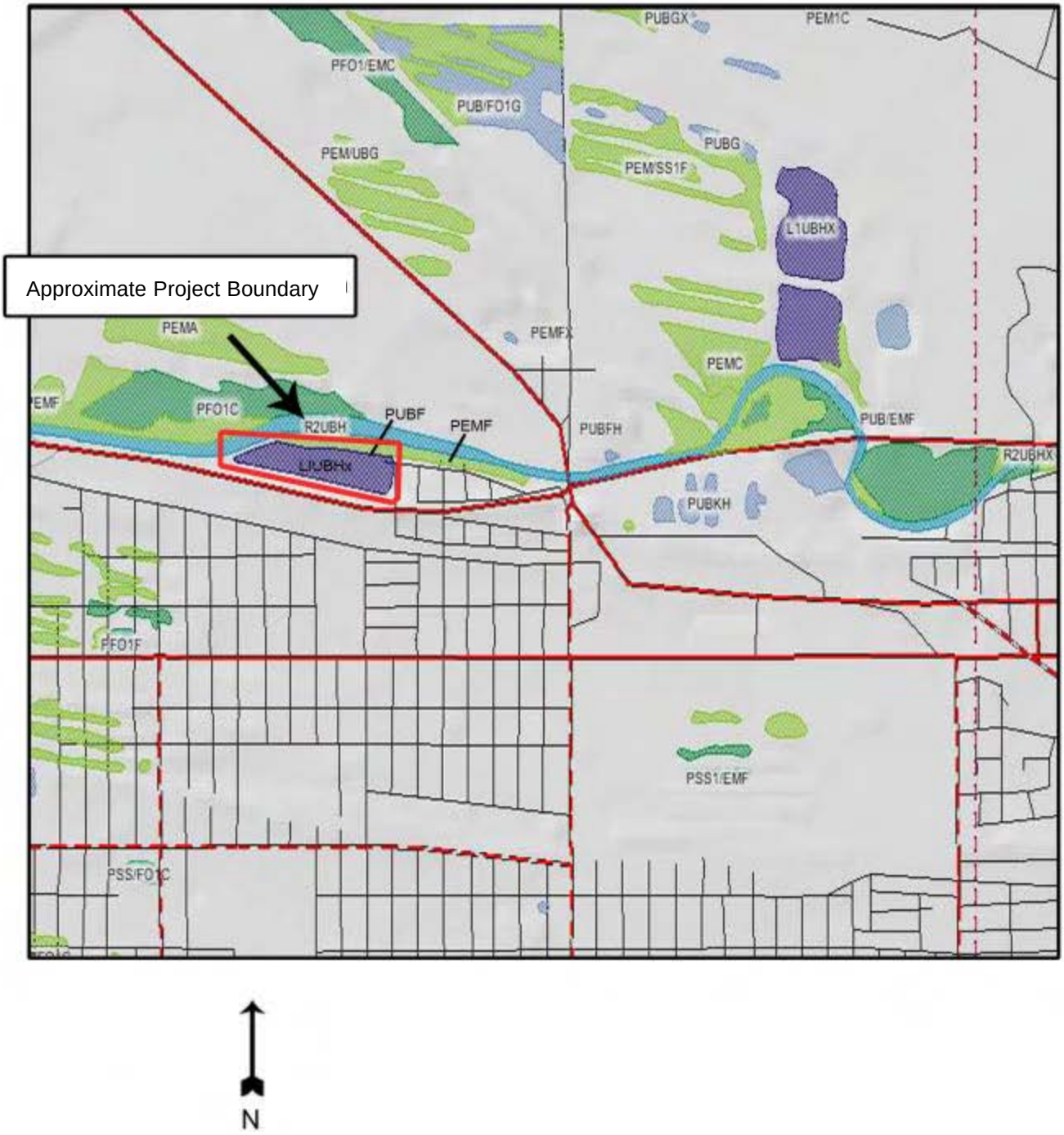
NWI Map



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LRMG W04-43
Map Not to Scale

Source: USFWS

Exhibit 4: Ralston St. Lagoon
Gary, Lake County, Indiana

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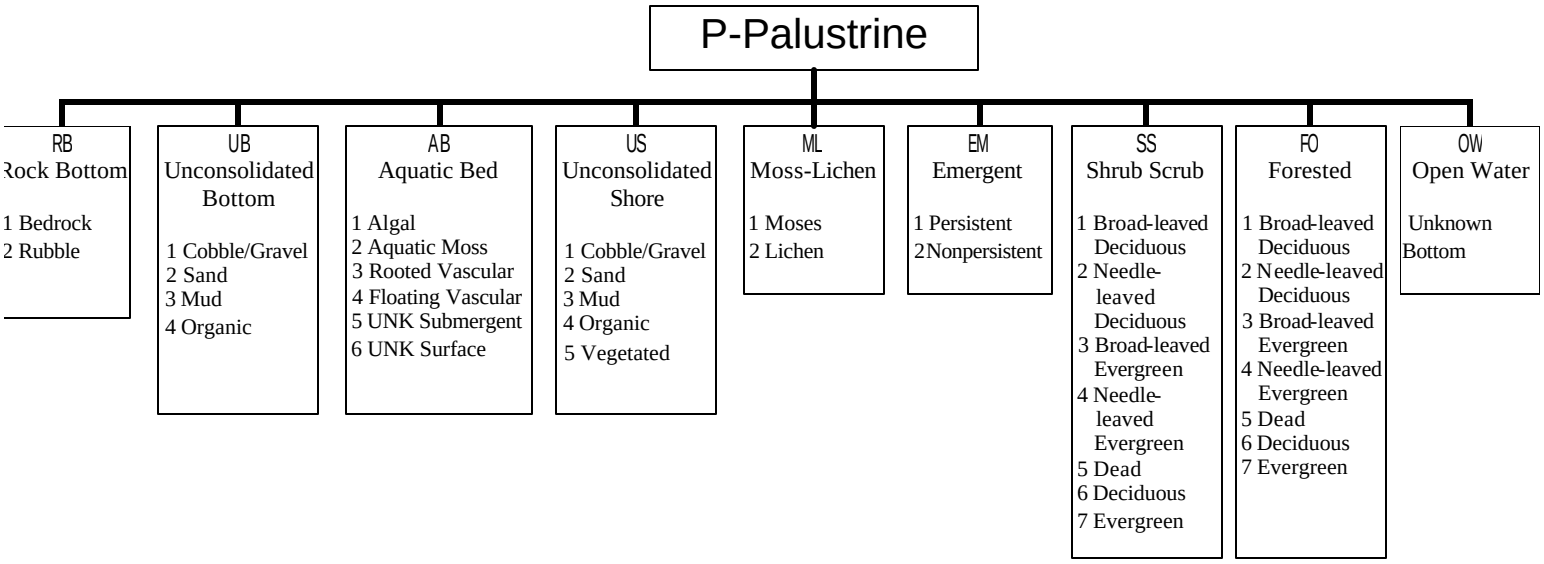
Freshwater Wetland Classification



Modifying Terms
In order to more adequately describe wetland and aquatic habitats, water regime, water chemistry, soil of modifiers may be applied.

Water Regime		Water Chemistry		Soil	Special Modifiers
Non-tidal		Inland Salinity	pH Modifiers for Freshwater		
A Temporary Flooded	J Intermittently Flooded	7 Hypersaline	a Acid	g Organic	b Beaver
B Saturated	K Artificially Flooded	8 Eusaline	t Circumneutral	n Mineral	d Part Drained/ Ditched
C Seasonally Flooded	W Intermittently Flooded Temporary	9 Mixosaline	I Alkaline		f Farmed
D Seasonally Flooded/ Drained	Y Saturated / Semi - Seasonal	0 Fresh			h Diked/Impounded
E Seasonally Flooded/ Saturated	Z Intermittently Exposed/ Permanent				r Artificial Substrate
F Semipermanently Flooded	U Unknown				s Spoil
G Intermittently Exposed					x Excavated
H Permanently Flooded					

Dominance types must be added by users

Classification of wetland and deepwater habitats of the U.S. Cowardin et. Al. 1979 as modified for national wetland inventory mapping conventions

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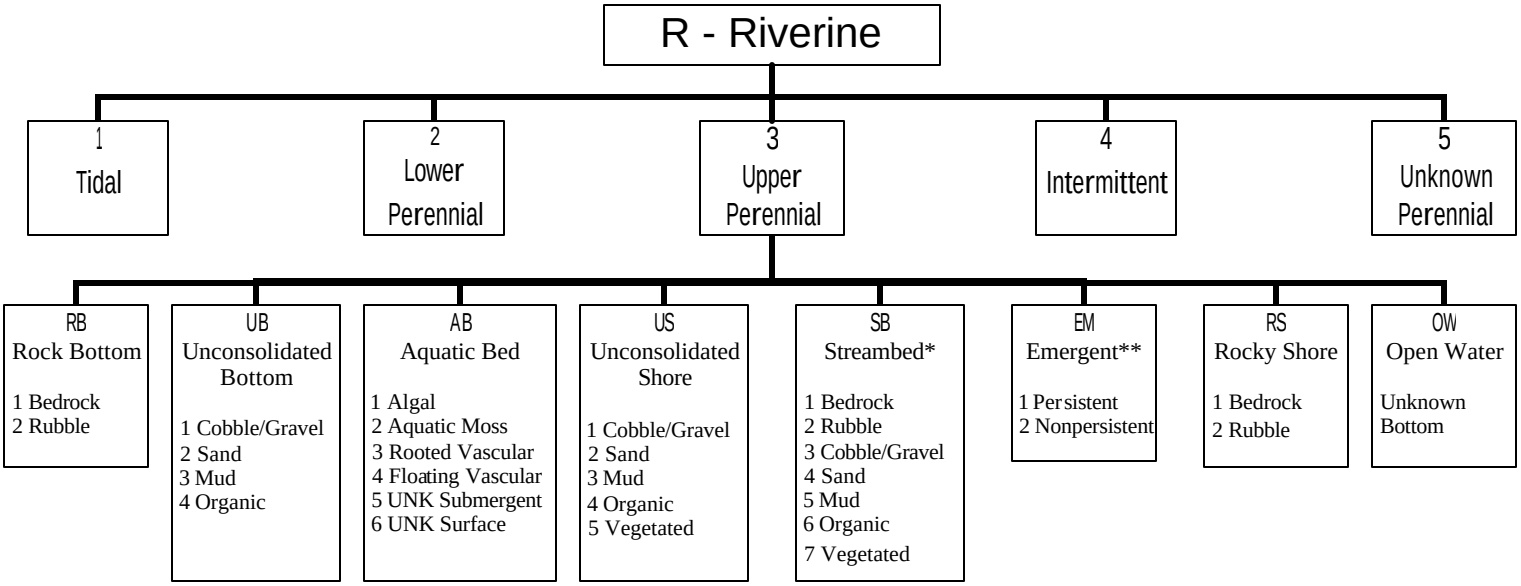
Freshwater Wetland Classification



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Dominance types must be added by users

Classification of wetland and deepwater habitats of the U.S. Cowardin et. Al. 1979 as modified for national wetland inventory mapping conventions.

* Streambed is limited to Tidal and Intermittent Subsystems, and comprises the only Class in the Intermittent Subsystem
** Emergent is limited to Tidal and Lower Perennial Subsystems. The remaining Classes are found in all Subsystems.

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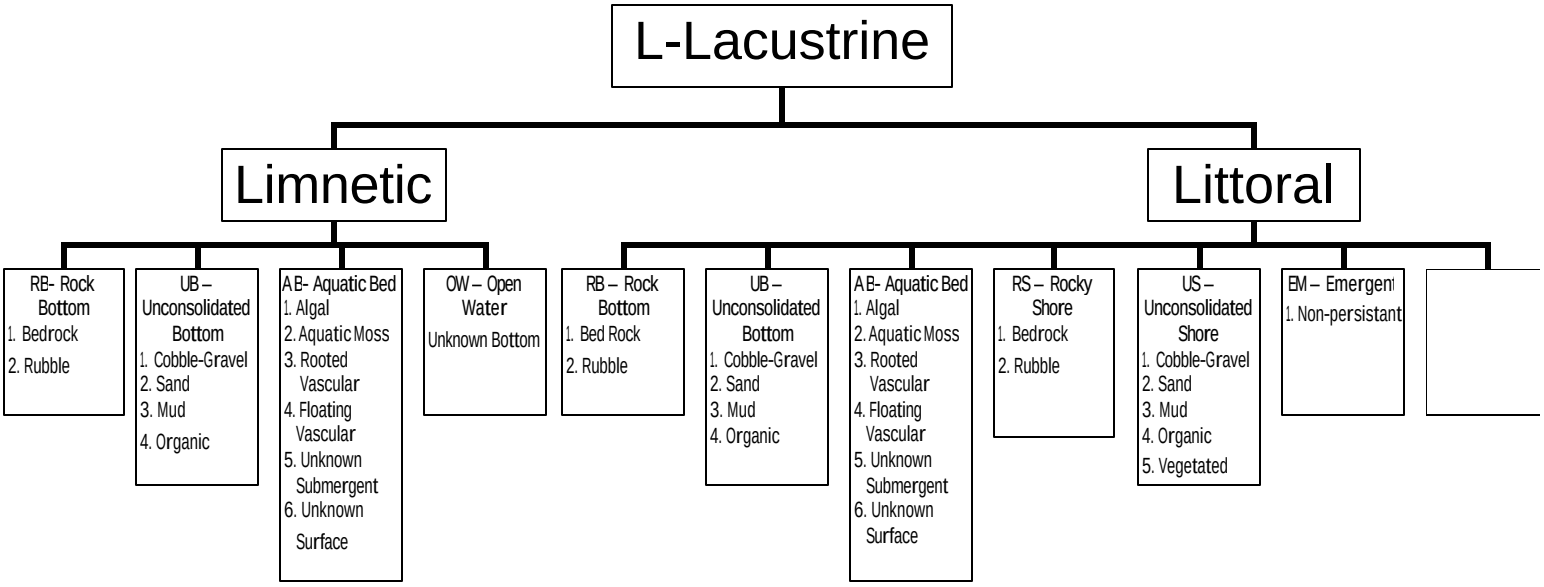
Freshwater Wetland Classification



Modifying Terms
In order to more adequately describe wetland and aquatic habitats, water regime, water chemistry, soil of modifiers may be applied.

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Non-tidal		Inland Salinity	pH Modifiers for Freshwater		
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		0 Fresh			h Diked/Impounded
D Seasonally Flooded/ Drained	Y Saturated / Semi - Seasonal				r Artificial Substrate
E Seasonally Flooded/ Saturated	Z Intermittently Exposed/ Permanent				s Spoil
					x Excavated
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EXHIBIT 5

USGS – SDDS Aerial Photograph

LAND RESOURCE MANAGEMENT GROUP

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USGS - SDDS Aerial Photograph

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LRMG W04-43
1"=700'

Source: USGS - SDDS

Exhibit 5: Ralston St. Lagoon
Gary, Lake County, Indiana

LRMG File # W04-43

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APPENDIX A

Wetland Determination Data Sheet and
Aerial with Data Point Locations

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Aerial with Data Point Locations

● Approximate data point locations

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LRMG W04-43
1"=700'

Source: USGS / SDDS

Appendix A: Ralston St. Lagoon
Gary, Lake County, Indiana

LRMG File # W04-43

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	west side lagoon berm
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	upland
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	1

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Coreopsis lanceolata*	Herb	FACU	1	*Erigeron annuus*	Herb	FAC-
2	*Andropogon scoparius*	Herb	FACU-	2	*Rhamnus frangula*	Tree	FAC+
3	*Setaria glauca*	Herb	FAC	3	*Rhus radicans*	Herb	FAC+
4				4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-): 33%

Remarks: Does not meet hydrophytic requirements for a wetland

Hydrology

_____ Recorded Data (Describe in Remarks):
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- _____ Other
- x No Recorded Data Available

Field Observations:
- Depth of Surface Water: none (in.)
- Depth to Free Water: >18 (in.)
- Depth of Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- _____ Saturated in Upper 12 Inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- _____ Oxidized Root Channels in Upper 12 Inches
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ FAC-Neutral Test _____
- _____ Other (Explain in Remarks)

Remarks: Does not meet hydrology requirements for a wetland
The lagoon is a man-induced wetland surrounded by fill consisting of sand, rubble, and rocks

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Soils

Map Unit Name
Series and Phase): Urban Land

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 6		10YR3-3			sand
6 to 18		7.5 YR 3-2			sand

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Does not meet hydric soil requirements for wetland

Wetland Determination

Hydrophytic Vegetation Present? No
Wetland Hydrology Present? No
Hydric Soils Present? No

Is This Sampling Point Within a Wetland? No

Remarks: Does not meet definition of a wetland

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	Far west corner, west of lagoon
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	upland
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	2

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Nepeta cataria*	Herb	FAC-	1			
2	*Bromus inermis*	Herb	UPL	2			
3	*Plantago lanceolata*	Herb	FAC	3			
4				4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-) 33%

Remarks: Does not meet hydrophytic requirements for a wetland

Hydrology

_____ Recorded Data (Describe in Remarks):
_____ Stream, Lake, or Tide Gauge
_____ Aerial Photographs
_____ Other
x No Recorded Data Available

Field Observations:
Depth of Surface Water: none (in.)
Depth to Free Water: >18 (in.)
Depth of Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
_____ Inundated
_____ Saturated in Upper 12 Inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
_____ Oxidized Root Channels in Upper 12 Inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ FAC-Neutral Test _____
_____ Other (Explain in Remarks)

Remarks: Does not meet hydrology requirements for a wetland

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Soils

Map Unit Name
Series and Phase): Urban Land

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 18		10YR5-2		many rocks	sand

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Does not meet hydric soil requirements for wetland

Wetland Determination

Hydrophytic Vegetation Present? No
Wetland Hydrology Present? No
Hydric Soils Present? No

Is This Sampling Point Within a Wetland? No

Remarks: Does not meet definition of a wetland

Attorney-Client Work Product - Privileged and Confidential

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	NW lagoon berm
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	upland
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	3

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Nepeta cataria*	Herb	FAC-	1			
2	*Bromus inermis*	Herb	UPL	2			
3	*Plantago lanceolata*	Herb	FAC	3			
4				4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-) 33%

Remarks: Does not meet hydrophytic requirements for a wetland

Hydrology

_____ Recorded Data (Describe in Remarks):
_____ Stream, Lake, or Tide Gauge
_____ Aerial Photographs
_____ Other
x No Recorded Data Available

Field Observations:
Depth of Surface Water: none (in.)
Depth to Free Water: >18 (in.)
Depth of Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
_____ Inundated
_____ Saturated in Upper 12 Inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
_____ Oxidized Root Channels in Upper 12 Inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ FAC-Neutral Test _____
_____ Other (Explain in Remarks)

Remarks: Does not meet hydrology requirements for a wetland

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Soils

Map Unit Name
Series and Phase): Marsh

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 18		10YR5-2		many rocks	sand

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Does not meet hydric soil requirements for wetland

Wetland Determination

Hydrophytic Vegetation Present? No
Wetland Hydrology Present? No
Hydric Soils Present? No

Is This Sampling Point Within a Wetland? No

Remarks: Does not meet definition of a wetland

Attorney-Client Work Product - Privileged and Confidential

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	north marsh (west)
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	wetland 2
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	4

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Typha latifolia*	Herb	OBL	1	*Acer negundo*	Tree	FACW-
2	*Lythrum salicaria*	Herb	OBL	2	*Solanum dulcamara*	Herb	FAC
3				3	*Phalaris arundinacea*	Herb	FACW+
4				4	*Populus deltoides*	Tree	FAC+
5				5	*Calamagrostis canadensis*	Herb	OBL
6				6	*Scirpus fluviatilis*	Herb	OBL
7				7	*Carex lacustris*	Herb	OBL
8				8	*Sambucus canadensis*	Herb	FACW-
				9	*Salix amygdaloides*	Herb	FACW

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-) 100%

Remarks: Meets hydrophytic requirements for a wetland

Hydrology

_____ Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
_____ Stream, Lake, or Tide Gauge	Primary Indicators:
_____ Aerial Photographs	x Inundated
_____ Other	x Saturated in Upper 12 Inches
x No Recorded Data Available	_____ Water Marks
	_____ Drift Lines
Field Observations:	_____ Sediment Deposits
Depth of Surface Water: 6 (in.)	_____ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water: 0 (in.)	_____ Oxidized Root Channels in Upper 12 Inches
	_____ Water-Stained Leaves
Depth of Saturated Soil: 0 (in.)	_____ Local Soil Survey Data
	_____ FAC-Neutral Test _____
	_____ Other (Explain in Remarks)

Remarks: Meets hydrology requirements for a wetland

Attorney-Client Work Product - Privileged and Confidential

Soils

Map Unit Name
Series and Phase): Marsh

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 18		10YR2-1			muck

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Meets hydric soil requirements for a wetland

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? No

Is This Sampling Point Within a Wetland? Yes

Remarks: Meets definition of a wetland

Attorney-Client Work Product - Privileged and Confidential

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	north marsh (central)
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	wetland 2
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	5

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Typha latifolia*	Herb	OBL	1	*Sparganium eurycarpum*	Herb	OBL
2	*Lythrum salicaria*	Herb	OBL	2	*Solanum dulcamara*	Herb	FAC
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-) 100%

Remarks: Meets hydrophytic requirements for a wetland

Hydrology

_____ Recorded Data (Describe in Remarks):
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- _____ Other
- x No Recorded Data Available

Field Observations:
- Depth of Surface Water: _____ (in.)
- Depth to Free Water: _____ (in.)
- Depth of Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- x Inundated
- x Saturated in Upper 12 Inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- _____ Oxidized Root Channels in Upper 12 Inches
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ FAC-Neutral Test _____
- _____ Other (Explain in Remarks)

Remarks: Meets hydrology requirements for a wetland

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Soils

Map Unit Name
Series and Phase): Marsh

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 18		10YR2-1			muck

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Meets hydric soil requirements for a wetland

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes

Is This Sampling Point Within a Wetland? Yes

Remarks: Meets definition of a wetland

Attorney-Client Work Product - Privileged and Confidential

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	north marsh (east)
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	wetland 2
Is the area a potential Problem Area?	No	Plot ID:	6
(If needed, explain on reverse.)			

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Typha latifolia*	Herb	OBL	1	*Solanum dulcamara*	Herb	FAC
2	*Phragmites australis*	Herb	FACW+	2			
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-) 100%

Remarks: Meets hydrophytic requirements for a wetland

Hydrology

Recorded Data (Describe in Remarks):
- ____ Stream, Lake, or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- x No Recorded Data Available

Field Observations:
- Depth of Surface Water: 0 (in.)
- Depth to Free Water: 0 (in.)
- Depth of Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ____ Inundated
- x Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ____ Oxidized Root Channels in Upper 12 Inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks: Meets hydrology requirements for a wetland

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Soils

Map Unit Name
Series and Phase): Marsh

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 18		10YR2-1			muck

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Meets hydric soil requirements for a wetland

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes

Is This Sampling Point Within a Wetland? Yes

Remarks: Meets definition of a wetland

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	East side lagoon berm
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	upland
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	7

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Setaria glauca*	Shrub	FAC	1	*Nepeta cataria*	Herb	FAC-
2	*Bromus inermis*	Herb	UPL	2	*Ulmus pumila*	Herb	UPL
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-) 50%

Remarks: Does not meet hydrophytic requirements for a wetland

Hydrology

_____ Recorded Data (Describe in Remarks):
_____ Stream, Lake, or Tide Gauge
_____ Aerial Photographs
_____ Other
x No Recorded Data Available

Field Observations:
Depth of Surface Water: none (in.)
Depth to Free Water: >18 (in.)
Depth of Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
_____ Inundated
_____ Saturated in Upper 12 Inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
_____ Oxidized Root Channels in Upper 12 Inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ FAC-Neutral Test _____
_____ Other (Explain in Remarks)

Remarks: Does not meet hydrology requirements for a wetland

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Soils

Map Unit Name
Series and Phase): Urban Land

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 18		10YR4-3		many rocks	sand

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Does not meet hydric soil requirements for wetland

Wetland Determination

Hydrophytic Vegetation Present? No
Wetland Hydrology Present? No
Hydric Soils Present? No

Is This Sampling Point Within a Wetland? No

Remarks: Does not meet definition of a wetland

Attorney-Client Work Product - Privileged and Confidential

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	S side of lagoon berm
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	non-wetland
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	8

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Rhamnus frangula*	Shrub	FAC+	1	*Solidago gigantea*	Herb	FACW
2	*Cornus obliqua*	Shrub	FACW+	2	*Poa* sp.	Herb	
3	*Daucus carota*	Herb	UPL	3			
4	*Plantago lanceolata*	Herb	FAC	4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-) 75%

Remarks: Meets hydrophytic requirements for a wetland, but dry man-made berm

Hydrology

_____ Recorded Data (Describe in Remarks):
_____ Stream, Lake, or Tide Gauge
_____ Aerial Photographs
_____ Other
x No Recorded Data Available

Field Observations:
Depth of Surface Water: none (in.)
Depth to Free Water: >18 (in.)
Depth of Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
_____ Inundated
_____ Saturated in Upper 12 Inches
_____ Water Marks
_____ Drift Lines
_____ Sediment Deposits
_____ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
_____ Oxidized Root Channels in Upper 12 Inches
_____ Water-Stained Leaves
_____ Local Soil Survey Data
_____ FAC-Neutral Test _____
_____ Other (Explain in Remarks)

Remarks: Does not meet hydrology requirements for a wetland

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Soils

Map Unit Name
Series and Phase): Urban Land

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 3		7.5YR 3-3			sand
3 to 18		7.5YR3-2			sand

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Does not meet hydric soil requirements for wetland

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? No
Hydric Soils Present? No

Is This Sampling Point Within a Wetland? No

Remarks: Does not meet definition of a wetland

Attorney-Client Work Product - Privileged and Confidential

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	Near west edge of lagoon water
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	upland
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	9

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Andropogon scoparius*	Herb	FACU-	1	*Monarda punctata*	Herb	UPL
2	*Equisetum arvense*	Herb	FAC	2	*Panicum villosissimum*	Herb	UPL
3	*Eupatorium altissimum*	Herb	FACU	3			
4				4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-) 33%

Remarks: Does not meet hydrophytic requirements for a wetland

Hydrology

_____ Recorded Data (Describe in Remarks):
- _____ Stream, Lake, or Tide Gauge
- _____ Aerial Photographs
- _____ Other
- x No Recorded Data Available

Field Observations:
- Depth of Surface Water: none (in.)
- Depth to Free Water: >18 (in.)
- Depth of Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- _____ Inundated
- _____ Saturated in Upper 12 Inches
- _____ Water Marks
- _____ Drift Lines
- _____ Sediment Deposits
- _____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- _____ Oxidized Root Channels in Upper 12 Inches
- _____ Water-Stained Leaves
- _____ Local Soil Survey Data
- _____ FAC-Neutral Test _____
- _____ Other (Explain in Remarks)

Remarks: Does not meet hydrology requirements for a wetland

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Soils

Map Unit Name
Series and Phase): Urban Land

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 15		10YR4-2			sand
15 to 18		10YR5-6			sand

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Does not meet hydric soil requirements for wetland

Wetland Determination

Hydrophytic Vegetation Present? No
Wetland Hydrology Present? No
Hydric Soils Present? No

Is This Sampling Point Within a Wetland? No

Remarks: Does not meet definition of a wetland

Attorney-Client Work Product - Privileged and Confidential

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Ralston Street Lagoon	Date:	11/5/2004
Applicant/Owner:	Gary Sanitary District	County:	Lake
Investigator:	MLM, WJS	State:	Indiana

Do Normal Circumstances exist on the site?	Yes	Community ID:	near north side of lagoon water
Is the site significantly disturbed (Atypical Situation)?	Yes	Transect ID:	upland
Is the area a potential Problem Area? (If needed, explain on reverse.)	No	Plot ID:	10

Vegetation

	Dominant Plant Species	Stratum	Indicator		**Also Present** Plant Species	Stratum	Indicator
1	*Verbascum thapsus*	Herb	UPL	1	*Centaurea maculosa*	Herb	UPL
2	*Nepeta cataria*	Herb	FAC-	2			
3	*Setaria glauca*	Herb	FAC	3			
4	*Solidago altissima*	Herb	FACU	4			
5				5			
6				6			
7				7			
8				8			

"Percent of Dominant Species that are OBL, FACW, or FAC" (excluding FAC-): 25%

Remarks: Does not meet hydrophytic requirements for a wetland

Hydrology

Recorded Data (Describe in Remarks):
- ____ Stream, Lake, or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- x No Recorded Data Available

Field Observations:
- Depth of Surface Water: none (in.)
- Depth to Free Water: >18 (in.)
- Depth of Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ____ Inundated
- ____ Saturated in Upper 12 Inches
- ____ Water Marks
- ____ Drift Lines
- ____ Sediment Deposits
- ____ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ____ Oxidized Root Channels in Upper 12 Inches
- ____ Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test ____
- ____ Other (Explain in Remarks)

Remarks: Does not meet hydrology requirements for a wetland

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Soils

Map Unit Name
Series and Phase): Marsh

Taxonomy (Subgroup): unknown

Drainage Class unknown
Field Observations:
Confirmed Mapped Type? No

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 to 3		10YR3-2			sand
3 to ?					concrete

Hydric Soil Indicators:

	Histosol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer in Sandy Soils
	Sulfudic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Local Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Does not meet hydric soil requirements for wetland
Concrete from fill or construction of spillway

Wetland Determination

Hydrophytic Vegetation Present? No
Wetland Hydrology Present? No
Hydric Soils Present? No

Is This Sampling Point Within a Wetland? No

Remarks: Does not meet definition of a wetland

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APPENDIX B

Glossary of Federal Manual Definitions and Methodology

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APPENDIX B: DELINEATION REPORT GLOSSARY

1. *Wetland Delineation Methodology & Authority*

This report identifies the jurisdictional status of the project based on LRMG's best professional understanding and interpretation of the *Corps of Engineers Wetland Delineation Manual* (1987) and Corps of Engineers guidance documents and regulation. Jurisdictional determinations for other "waters of the United States" were made based on definitions and guidance found in 33 CFR 328.3, Corps Regulatory Guidance Letters, and the wetland delineation manual. The Corps of Engineers administers Section 404 of the Clean Water Act, which regulates discharge of fill or dredged material into all "waters of the United States," and is the regulatory authority that must make the final determination as to the jurisdictional status of the project area.

2. *Regulatory Definitions*

2.1 Waters of the United States

"Waters of the United States" are within the jurisdiction of the Corps of Engineers under Section 404 of the Clean Water Act. "Waters of the United States" is a broad term that includes waters that are used or could be used for interstate commerce. This includes any adjacent wetlands, lagoons, lakes, territorial seas, rivers, tributary streams, including any definable intermittent waterways, and some ditches below the "Ordinary High Water Mark (OHWM)." Also included are man-made water bodies such as quarries and lagoons, which are no longer actively being mined or constructed. Wetlands, mudflats, vegetated shallows, riffle and pool complexes, coral reefs, sanctuaries, and refuges are all considered special aquatic sites that involve more rigorous regulatory permitting requirements. A specific, detailed definition of "waters of the United States" can be found in the Federal Register (33 CFR 328.3) and is further defined by the U.S. Supreme Court ruling: SWANCC vs. U.S. Army Corps of Engineers No. 99-1178 (January 9, 2001).

2.2 Wetlands

Wetlands are a category of "waters of the United States" for which specific identification methodology has been developed. As described in detail in the *Corps of Engineers Wetland Manual* (1987), wetland boundaries are delineated using three criteria; hydrophytic vegetation, hydric soils, and wetland hydrology.

2.2.1 *Hydrophytic Vegetation*

In the course of developing the wetland determination methodology; the Corps, in cooperation with the U.S. Fish and Wildlife Service, Environmental Protection Agency, and the Soil Conservation Service, compiled a comprehensive list of

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wetland vegetation. The indicator status of plant species is expressed in terms of the estimated probability of that species occurring in wetland conditions within a given region. The indicator categories as defined by the Corps are:

Obligate Wetland (OBL) – Occur almost always (estimated probability >99%) under natural conditions in wetlands.

Facultative Wetland (FACW) – Usually occur in wetlands (estimated probability 67-99%), but occasionally found in non-wetlands.

Facultative (FAC) – Equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%).

Obligate Upland (OBL) – Occur almost always (estimated probability >99%) in uplands.

Plants that are OBL, FACW, and FAC (except FAC-) are considered wetland species. Positive or negative signs indicate a tendency toward higher (+) or lower (-) frequency of occurrence within a category. The percentage of the dominant wetland species in each of the vegetation strata in the sample area determines the hydrophytic or wetland status of the plant community. Soil type and hyrdroperiod are two factors important in controlling species composition.

2.2.2 *Hydric Soils*

Hydric soils are defined as soils that are saturated, flooded, or lagooned long enough during the growing season to develop anaerobic conditions in the upper part. In general, hydric soils are flooded, lagooned, or saturated for a week or more during the growing season when temperatures are above 32° F. The anaerobic conditions created by repeated or prolonged saturation or flooding results in permanent changes in soil color and chemistry which are used to differentiate hydric form non-hydric soils.

Soil colors are described using the Munsell notation system. This method of describing soil color consists of separate notations for hue, value, and chroma that are combined in that order to form the color designation. The *hue* notation of color indicates its relation to red, yellow, green, blue, and purple; the *value* notation indicates its lightness; and the *chroma* notation indicates its strength or departure from a neutral of the same lightness.

The symbol for *hue* consists of a number from 1 to 10, followed by the letter abbreviation of the color. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The notation *value* consists of numbers from 0 for absolute black, to 10 for absolute white. The notation for *chroma* consists of numbers beginning with /0 for neutral grays and increasing at equal intervals. A soil described as 10YR 3/1 is more gray than a soil designated as

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10YR 3/6. The Corps of Engineers color criteria for hydric soils specify that the chroma must be /1 if the soil has no mottles (small variations of color), and /1 or /2 if the soil is mottled.

2.2.3 *Wetland Hydrology*

Wetland hydrology is defined as the presence of water for a significant period of time at or near the surface (within the root zone) during the growing season. Wetland hydrology is present only seasonally in many cases, and is often inferred by indirect evidence. Hydrology is controlled by such factors as seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage. Primary indicators of hydrology are inundation, soil saturation in the upper 12" of the soil, watermarks, sediment deposits, and drainage patterns. Secondary indicators such as oxidized root channels in the upper 12" of the soil, water stained leaves, local soil survey data, and the FAC-neutral vegetation test is sometimes used to identify hydrology. A primary indicator, or two or more secondary indicators are required to establish a positive indication of hydrology.

2.2.4 *Wetland Definition Summary*

In general, an area must meet all three criteria to be classified as a wetland. In certain problem areas such as seasonal wetlands, which are not wet at all times, or in, recently disturbed (atypical) situations, areas may be considered a wetland if only two criteria are met. In special situations, an area, which meets the wetland definition, may not be within the Corps of Engineers jurisdiction due to a specific regulatory exemption.

3. ***Background Information***

3.1 Existing Maps

Several sources of information were consulted to identify potential wetlands and wetland soil units on the site. These include the U.S. Fish and Wildlife Service's *National Wetland Inventory* (NWI) and the U.S. Department of Agricultural Soil Conservation Service (SCS) County *Soil Survey and Sidwell aerial photography*. These sources were used in conjunction with field reconnaissance information to identify potential wetlands and wetland soil units on the site. The Corps does not accept the use of these maps to make wetland determinations.

3.2 NWI (National Wetland Inventory) Map

The NWI maps were prepared from high altitude photography and in most cases, were not field checked. Because of this, wetlands are sometimes erroneously identified, missed, or misidentified. Additionally, the criteria used in identifying

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these wetlands were different from those currently used by the Corps of Engineers.

3.3 Soil Survey

The county soil maps were developed from actual field investigations. However, they address only one of the three required wetland criteria and may reflect historical conditions rather than current site conditions. The resolution of the soil maps limits their accuracy as well. The mapping units are often generalized based on topography, and many mapping units contain inclusions of other soil types for up to 15% of the area of the unit.

3.4 Aerial Photography

Aerial photographs are useful tools for examining sites for potential wetlands based on their aerial signatures. Possible visual signatures include, but are not limited to hydrophytic vegetation, surface water, varying color changes in vegetation and isolated areas within farmland that are not successfully cropped due to poor drainage.

4. *Site Investigation Methodologies and Description*

4.1 Non-Agricultural Lands

The delineation of wetlands and other "waters of the United States," on all non-active agricultural areas of the site was based on the methodology described in the 1987 *Corps of Engineers Wetland Delineation Manual* (Technical Report Y-87-1) as required by the current Corps of Engineers policy.

Prior to conducting fieldwork, available background information was reviewed to establish the probability and approximate location of any wetlands on site. Next, a general reconnaissance of the project area was made in order to determine site conditions. The site was then walked with the specific intent of determining wetland boundaries. Data stations were established at locations within and near the wetland areas to document soil characteristics, evidence of hydrology, and dominant vegetation. Note that no attempt was made to examine a full soil profile to confirm any soil series designations. However, soils were examined to a depth of at least 16 inches to assess soil characteristics and site hydrology. Complete descriptions of typical soil series can be found in the *county soil survey.*

4.2 Agricultural Lands

Based on a 1994 Memorandum of Agreement between the District U.S. Army Corps of Engineers and the USDA-NRCS, the NRCS has primary authority over jurisdictional wetland determinations on active agricultural land. The evaluation of agricultural lands and potential farmed wetlands was conducted according to the "Wetland Mapping Conventions, SCS, Illinois, 1994". A series of aerial slides are reviewed in order to look for the presence of wetland signatures (i.e. farmed

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wetlands) within site boundaries. Wetland signatures include visual indicators such as hydrophytic vegetation, surface water, varying color changes in vegetation and isolated areas that are farmed around. If sufficient wetland signatures are noted, the area is deemed to be a farmed wetland.

4.3 Delineation Data Sheets

Field sampling locations and information obtained at each station are summarized in field data sheets. These forms are the written documentation of how representative sample stations meet or do not meet each of the wetland criteria.

5. *Section 404 Permitting Authority*

5.1 Corps of Engineers

The Corps of Engineers has administrative authority (under Section 404 of the Clean Water Act) over the discharge of fill or dredged material into all "waters of the United States" including jurisdictional wetlands. This includes authority over any filling, mechanical land clearing, or other construction activity that occurs within the boundaries of any "waters of the United States." A Section 404 permit must be obtained from the Corps of Engineers before any of these activities can occur.

Permits can be divided into two general categories: Individual Permits and Regional General Permits. Regional General Permits have been developed for projects that meet specific criteria and are deemed to have minimal impact. These permits undergo a reduced level of regulatory scrutiny and generally require 45 to 60 days for processing. Individual Permits are required for projects that do not fall under the Regional General Permits or are deemed to have significant environmental impacts. These permits are much more difficult to obtain and receive a much higher level of regulatory agency and public scrutiny, and they may require three months to more than a year for processing.

5.2 Other Agencies

The Illinois Environmental Protection Agency (IEPA) is responsible for issuing Clean Water Act Section 401 permits known as Water Quality Certification (WQC) in conjunction with the Corps 404 permits. Most Regional General Permits have been pre-approved for WQC, but for all Individual and some Regional General Permits a separate application for WQC must be submitted directly to the IEPA.

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APPENDIX C

Floristic Quality Assessment

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Floristic Quality Assessment

Introduction

Effective January 1, 2000, the Chicago District U.S. Army Corps of Engineers implemented the new Regional Permit Program. The regional permit covers activities with minimal individual and cumulative impacts on the aquatic environment in Cook, DuPage, Kane, Lake, McHenry and Will Counties, Illinois. This permit program replaces the Nationwide Permit Program and Regional Permits 3, 15, and 16 in the Chicago District. As part of the new regional permit, applicants are required to conduct Floristic Quality Assessment (FQA) (Swink and Wilhelm, 1994), on the wetland prior to obtaining the permit. The FQA allows land managers, researchers, conservationist, etc. to analyze the native floristic integrity of a site.

Methodology

The methodology is based on the concept that each plant species displays a degree of tolerance to disturbance, as well as a specific degree of fidelity to a specific habitat. Each native species is assigned a coefficient of conservatism, C-value, ranging from 0 to 10 according to observed species fidelity to a specific habitat and degree of tolerance to disturbance. Species receiving a low C-value have a high degree of tolerance to disturbance and a low fidelity to a specific habitat. Therefore, species with low C-values can be found in any landscape regardless of the level of degradation. Species with higher C-value spectrum have a higher level of fidelity to a specific habitat type and are more intolerant of habitat degradation.

In order to obtain floristic quality assessment, a plant species inventory is obtained. Only the number of species found in wetland areas is used for calculations. After inventory the mean C is calculated. The mean C-value gives an indication of the average conservatism (floristic quality) of the species found on site. Once a mean C-value is obtained a Floristic Quality Index (FQI) value is calculated by multiplying the mean C-value by the square root of the total number of native species found on site, the FQI value distinguishes between sites with similar mean C-values by taking into consideration the quality and diversity of the site. The Floristic Quality Assessment is the interpretation of both the mean C-value and FQI value.

Results and Discussion

The following table summarizes results LRMG has determined from field analysis on November 5, 2004 and application of Floristic Quality Assessment software based on a methodology presented in *Plants of Chicago Region* (Swink & Wilhelm, 1994).

Our results show that the marsh north of the lagoon has a mean C of 2.4 and a total FQI value of 7.6. The dominance of cattails in this area prevents other competitive species from succeeding in the marsh and suggests why this area has a low FQI value.

Swink and Wilhelm propose that an area with a mean C of greater than 3.5 or an FQI of greater than 35 only suggests a marginal natural quality or sufficient floristic

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quality. Our results indicate the site is degraded due the low floristic quality and man-induced conditions of the lagoon.

TABLE 1 Inventory of the Wetland

ON-SITE WETLAND

Scientific Name	Common Name	C	Indicator
Calamagrostis canadensis	Blue Joint Grass	3	OBL
Carex lacustris	Common Lake Sedge	6	OBL
Lythrum salicaria	Purple Loosestrife	*	OBL
Phalaris arundinacea	Reed Canary Grass	*	FACW+
Phragmites australis	Common Reed	2	FACW+
Populus deltoides	Eastern Cottonwood	2	FAC+
Sambucus canadensis	Elderberry	1	FACW-
Scirpus fluviatilis	River Bulrush	4	OBL
Sparganium eurycarpum	Common Bur Reed	6	OBL
Typha latifolia	Broad-leaved Cattail	1	OBL

***** Denotes non-native species

TABLE 2 Summary

ON-SITE WETLAND

Number of Species	Native Mean C	Total Mean C	Native FQI Value	Total FQI Value	% Native Species
10	3.0	2.4	8.5	7.6	80%

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APPENDIX B

Gary Sanitary District

Ralston Street Lagoon Groundwater Monitoring Well Network Improvements

October 2005

CDM

Technical Memorandum

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Section 1
Introduction

This Technical Memorandum presents a summary of the monitoring well network rehabilitation and monitoring well installation activities conducted on the Ralston Street Lagoon (RSL) property located in the northwest portion of the City of Gary, Indiana. The monitoring well network activities were performed as part of Gary Sanitary District (GSD) Project No. 04-08, Contract Agreement – Amendment No. 1, associated with the Ralston Street Lagoon Remediation Preliminary Engineering Report (GSD Project # 04-08). The objectives of the monitoring well network rehabilitation and installation activities were to:

- Achieve high quality groundwater analytical results within the monitoring well network at the RSL that will assist GSD in implementing a Technical and Cost Assessment (TCA) under United States Environmental Protection Agency (US EPA) Toxic Substances Control Act (TSCA).

- Obtain valuable information and analytical data relating to soil and groundwater conditions at the RSL.

1.1 Site History

The RSL was originally used as a borrow pit by the State of Indiana Toll Road Commission to provide fill material during toll road construction. The maximum excavation depth of the borrow pit was approximately 27 feet below the water table (Fluor Daniel, 1997.) The City of Gary acquired the borrow pit in 1962 and used it as a lagoon for storage of sewage sludge generated at the Gary Sanitary District's wastewater treatment plant until 1988. The original groundwater monitoring well network was installed by Canonie Engineers in two phases, Phase I in 1983 and Phase II in 1986.

1.2 Site Location

The RSL is located within the northwest portion of the City of Gary, Indiana, between Toll Road I-90 to the south and the Grand Calumet River to the north, as shown in **Figure 1-1**. The land use surrounding the site is mixed with residential, light industrial and commercial properties.

The berm of the RSL consists of beds of fill, sand and clay. Generally, the first 6 to 8 feet of the berm consists of loose sand and slag/clinker material, with the exception being a peat layer that ranges in thickness between 1 and 6 feet along the northern berm. This fill and/or organic material is underlain by dense, fine sand - silty sand ranging in thickness from 25 to 40 feet, which is underlain by grey silt clay to a limestone bedrock that was encountered at approximately 113 feet. Depending on location within the site, subsurface water is encountered at between 2 and 8 feet below grade.

Figure 1-1. Ralston Street Lagoon

Section 2
Field Activities

This section describes field activity methodologies used during CDM's site activities at RSL. These activities included monitoring well abandonment and rehabilitation; soil borehole advancement; soil sampling and analysis; monitoring well installation; monitoring well survey; installation of river staff gages; and groundwater sampling and analysis. Camp Dresser & McKee (CDM) subcontracted the drilling activities to Environmental Drilling and Contracting, Inc. (EDAC). The CDM Health & Safety Plan was followed during the field activities and is included as **Appendix A.**

2.1 Monitoring Well Abandonment

At the direction of CDM, EDAC abandoned monitoring wells 3M, 3D, 5M, 5D, 6M, 7M, and 7D. Prior to any abandonment activities, EDAC measured the depth of the well to be abandoned. **Table 2-1** below presents the overdrilling depth for each of the wells abandoned.

Table 2-1. Monitoring Well Abandonment Details

Well ID	Well Depth Prior to Removal	Well Length	Well Diameter	Screen Length (Slot Size)	Material
3M	7.19'	~21'	2"	NA (well material not recovered)	
3D	33.18'	33.18'	2"	5' (0.010)	Galvanized Steel (stainless steel screen)
5D	32.6'	33'	2"	5' (0.010)	Galvanized Steel (stainless steel screen)
5M	NA (not recorded before removal)	19'	2"	5' (0.010)	PVC
6M	15.6'	20'	2"	5' (0.010)	PVC
7M	5.5'	20'	2"	5' (0.010)	Galvanized Steel (stainless steel screen)
7D	0' (filled to surface with soil)	33'	2"	5' (0.010)	Galvanized Steel (stainless steel screen)

Abandonment activities included overdrilling the existing well, removing the well and associated materials by hydraulic pull, and then grouting the borehole. The concrete pad and/or well protective materials were broken up and removed from around the wellhead by either using a crowbar or drilling. Once the materials were removed, EDAC attempted to hydraulically pull the existing 2-inch diameter well from the borehole. If the entire well could not be hydraulically removed, the borehole was overdrilled using 8 ¼-inch inner diameter (ID) hollow stem augers (HSA). Upon

reaching the estimated drilling depth, the augers were rotated until all well materials were removed from the borehole. EDAC removed the well casing and materials from the inside of the HSA and cut the well riser and screens to lengths of approximately 4 feet. The HSA were then fitted with a bottom plug and advanced back to the depth previously drilled.

EDAC filled the augers with potable water, and knocked the bottom plug out, thereby opening the bottom of the augers to allow for grouting operations. Each borehole was pressure grouted from the bottom of the borehole to the ground surface using a tremie pipe and non-shrink cement-bentonite grout. The augers were filled with the grout and pulled from the borehole. While removing the augers, grout was added to the augers so that the grout level within the augers was at the ground surface. The cement-bentonite grout was mixed according to a 7:1 ratio; approximately 1 bag (94 pounds) of Type I/II Portland Cement to 7 gallons of potable water to 2% of bentonite. When all the augers were removed from the borehole, the borehole was topped off with grout to the ground surface. During abandonment activities, the grout in some boreholes settled to several feet below ground surface. As a result, EDAC topped off each borehole with grout or concrete mix at the end of the well construction activities.

EDAC Drill Rig While Hydraulically Pulling Well from the Ground

2.2 Monitoring Well Rehabilitation

EDAC rehabilitated existing monitoring wells 2M, 3S, 5S, and 7S. Rehabilitation activities included repairing the existing well riser, removing all material within the well by using airlifting techniques, and installing both a new plastic locking well cap and protective flush mount cover at each location (in the case of MW-2M, three concrete filled metal bumper posts and a new metal stickup protective case was installed). Prior to conducting any rehabilitation activities, EDAC measured the depth of the wells and recorded those measurements as 16 feet for 2M, 5.5 feet for 3S, and 8.67 feet for 5S; 7S was filled to the surface with soil.

The method EDAC followed to rehabilitate the four 2-inch diameter well casings is summarized below. Depending upon the condition of a given well, repairing the 2-inch diameter well riser involved removing all surface debris and the remains of the previous protective casing from around the well. Wherever the existing well riser was bent or too tall, the riser pipe was cut straight below the damaged section or at an appropriate height, as in the case of 3S, 5S, and 7S. If the well riser was too short, as with 2M, appropriate pipe threads were cut onto the upper 2 inches of the riser to

accept a union couple with a PVC riser. Wherever any action was undertaken with the well, EDAC took extra precaution to prevent foreign material from entering the well from the operations of repairing the riser pipe.

Material located within the well was removed by air lifting techniques. An air compressor was fitted with an oil-air separator on the discharge air to prevent the introduction of compressor oil into the well. A 1-inch nominal steel threaded pipe was then attached to the airline and lowered within the well. The compressor was then started and the debris within the well was then airlifted (blown) out. Airlifting continued until the steel pipe reached the original well depth as provided from the original well log, and the discharge water was sediment-free and had low turbidity. During the downhole cleaning process, the airline was raised and lowered to remove any material within the air column. If an obstacle was encountered during the cleaning, the airline pipe was raised and dropped until the obstruction was crushed or removed.

After the well was cleaned, EDAC installed a plastic expandable cap with a keyed alike lock and protective covers for each well. In addition, EDAC hammered a steel fence post in the side of the embankment indicating the location of each well and labeled each with the appropriate well identification number.

2.3 Monitoring Well Installation

At the direction of CDM, EDAC drilled nine soil borings that were subsequently converted into monitoring wells. Six (3MR, 4MR, 6MR, 7MR, 9M, and 10M) were drilled to medium (define) depths and noted by an "M"; and three (5DR, 7DR, and 9D) to deeper (define) depths, marked with a "D" notation. Well locations are noted on **Figure 3-1**. Whenever a well was nested, the newly installed monitoring well was located approximately 10 feet apart from the existing well or new well.

The borings were drilled using 4 ¼-inch ID HSA. EDAC collected continuous split spoon samples from the ground surface to the total depth of the borehole during the advancement of the borehole at seven locations indicated in **Table 2-2** using a split-spoon soil sampler.

Table 2-2. Monitoring Well Installation Details

Well Number	Well Type	Well Depth	Continuous Split Spoon Sampling	Total Depth Drilling (Ft)	Screen Interval (Ft)
3MR	Replacement	Intermediate	Yes	21.5	18.25 - 21
4MR	Replacement	Intermediate	Yes	26.5	23.25 - 26
5DR	Replacement	Deep	Yes	36	29.25 - 32
6MR	Replacement	Intermediate	Yes	24	18.25 - 21
7MR	Replacement	Intermediate	No	20	17.25 - 20
7DR	Replacement	Deep	Yes	34	28.25 - 31
9M	New	Intermediate	No	20	17.25 - 20
9D	New	Deep	Yes	34	28.25 - 31
10M	New	Intermediate	Yes	21	18.25 - 21

A 34-inch long, 2-inch diameter split-spoon sampler was used for soil sample collection. Each split-spoon was driven into undisturbed sediments using a 140 pound hammer falling 30 inches until either 24 inches have been penetrated or 100 blows have been applied. EDAC recorded the number of blows per six inches of penetration or fraction thereof. EDAC then brought the sample to the surface and CDM described the soils recovered as to composition structure, consistency, color and condition. The sample was preserved in Ziplock sample bags and field screened using a photoionization detector (PID) meter. All drill cuttings and water were placed into the lagoon near the point of generation.

As previously noted, all of these borings were converted into monitoring wells, constructed using 2-inch nominal ID, Schedule 40, stainless steel flush threaded well riser casing fitted with O-rings at each joint, and a #10 slot sized continuous wire wrap stainless steel screen with a 3-ft-long end cap. The well screen was lowered to the bottom of the borehole and centralized with the borehole. The monitoring well riser casing and screen were hung in-place and not allowed to rest under their own weight within the borehole during installation, allowing for sand placement below the end cap.

Once the well casing was lowered to the desired screen depth, EDAC began placing the clean, #5 silica sand filter pack in the annulus between the well casing and borehole. The filter pack was installed from the base of the well casing to approximately two feet above the top of the well screen, approximately 6-inches of fine sand on top of the filter pack. A minimum of two feet of time-delayed bentonite pellets were set on the fine sand layer, fresh potable water was used to hydrate the bentonite pellets, and they were allowed to hydrate for a minimum of two hours before placement of the grout. During the installation of the gravel pack and bentonite pellets, the HSA casings were extracted at a rate to ensure that the top of the gravel pack and bentonite were always above the base of the HSA.

The remaining annulus was filled with a non-shrink cement-bentonite grout to the ground surface. The cement-bentonite grout was pressure-tremied (via a side-exit port at the base of the tremie pipe) from a depth several feet above the top of the bentonite layer.

Depending upon the location, the monitoring wells were completed as flush mount or as stickup. The stickup protective casing was fitted with a hinged lockable lid that prevents the entry of precipitation and a 0.25-inch diameter "weep hole" near the top of the surface pad. The flush-mount boxes consist of an approximate 1-foot diameter by 1- to 1.5-foot carbon steel/metal vault set in concrete that has been placed above the bentonite-cement grout. The boxes feature watertight bolted down lids and are rated for vehicle traffic. Steel fence posts were driven in the side of the embankment indicating the location of each well and were labeled with the appropriate well identification number. EDAC also installed plastic, lockable, expandable well caps on all new wells, including a master keyed alike lock.

Due to their location, a set of three bumper posts were set around 2M and 10M, in order to prevent possible damage by vehicle traffic. Each set of the three posts was made of 6-inch diameter, 8 feet long steel sections of pipe. The bumper posts were located at an equal distance from each other within 5 feet of the well and were concreted several feet below the ground surface. Each post was filled with cement and painted with exterior epoxy high visibility paint.

2.3.1 Monitoring Well Development

After resting a minimum of 24 hours, to ensure that annular grout and hydraulic seals had set, each well was developed using pump and surge techniques. A submersible pump was lowered into the well and periodically raised and lowered over the entire screened interval. Water was pumped until the produced water was visibly free of silt and fines, and a minimum of three well volumes were removed. Developed water was contained in 5-gallon buckets to ensure that a sufficient quantity of water was removed and subsequently discharged into the lagoon near the point of generation. After each well was developed, the submersible pump was washed with a non-phosphate detergent and water solution, followed by a fresh water rinse. During well development, CDM documented the developed water characteristics (i.e. color, turbidity, presence of odor/sheen), and measured and recorded the total volume of water purged from each well. This information is presented on the Monitoring Well Construction Summary Logs, included as **Appendix B.**

2.4 Additional Soil Borings

Seven soil borings (3MR, 4MR, 6MR, 5DR, 7DR, 9D, 10M) were drilled between February 2 and 4, 2005. None of these were converted into monitoring wells. Four additional borings (labeled PB-1, PB-2, PB-3, PB-4) were drilled on the northwest berm around well cluster 9 for the sole purpose of investigating the reported presence of automobile parts. These four PB-designated borings were drilled to 20 feet and no

split spoon samples were collected. The investigation did not yield any suspected automobile parts in the berm.

Three other soil borings (labeled PB-5, PB-6, PB-7) were advanced on February 3 and 4, 2005 to investigate the peat layer on the northern berm of the lagoon. The objective of the borings was to collect a Shelby tube or 3-inch split spoon sample for hydraulic conductivity laboratory tests on the peat layer. The 3-inch split spoon sample with polycarbonate liner tube was used versus the Shelby tube since more recovery was observed using this method. PB-5 was located approximately 40 (feet?) west of RS-9 boring. As no peat was encountered at this boring, a second location (PB-6) was drilled approximately 40 feet west of 5D. Peat was encountered at PB-6 and a sample was collected from the 11-13 feet interval. A third boring (PB-7) was drilled approximately 12 feet west of PB-6. A peat layer was also observed in this boring and two samples were collected, one from the 9-11 feet interval and another from 13-15 feet. The peat samples were picked up by K&S Engineering and Testing for compressive strength analysis.

2.5 Monitoring Well Survey

After all of the soil borings and monitoring well installations were completed, Robinson Engineering surveyed and recorded the coordinates and ground elevations of each monitoring well. Survey information included the elevations of the top of the stainless steel well casings, the top of the outer protective casing, and the ground surface. Monitoring well survey data is included as **Appendix C.**

2.6 Sampling and Analysis

2.6.1 Soil Sampling

As discussed in Section 2.3, soil samples were collected during the boring advancement directly from the 2-ft-long, stainless steel split spoons, and placed directly in Ziploc plastic bags. The soil samples were then field screened using a PID meter. If the screening indicated a presence of organic vapors or if there were any other observations that would indicate the presence of polychlorinated biphenyls (PCBs), CDM oversight personnel collected a soil sample for analytical tests

e-Lab Groundwater Sampling Equipment Setup at MW-7 Cluster

A total of ten soil samples were collected during the soil boring advancement. One sample was collected at 4MR from the 14 to 16 feet interval and nine samples were collected at 9D from 14 to 16 feet, 18 to 20 feet, 22 to 24 feet, and continuously from 26 to 36 feet. The samples were sent to e-Lab Analytical, Inc. (e-Lab) for Aroclor PCB analysis by EPA Method 8082 and moisture content by EPA Method 160.3. The results of these soil samples are discussed in Section 3.5.

2.6.2 Groundwater Sampling

The first round of groundwater sampling occurred on February 24 and 25, 2005. The sampling and analytical was performed by e-Lab Analytical, Inc. CDM provided oversight of the sampling on February 24, 2005. Two additional groundwater sampling events were conducted by e-Lab Analytical on May 30, 2005 and August 30, 2005.

Groundwater sampling followed the sampling and measurement procedures from the RSL-specific standard operating procedures (Section 1.0 of Exhibit B of e-Lab's subcontract with CDM), with one exception. Volatile organic carbon (VOC) samples were collected after all the sample bottles were filled using a disposable polyethylene bailer. Each well was purged using a peristaltic pump at a flow rate of approximately 500 mL/minute. The wells were purged until a minimum of three well volumes had been removed. After three well volumes were removed, e-Lab measured pH, conductivity, and temperature of the discharged water using a YSI Sonde. A sample was collected after three consecutive readings were within the following ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm,; and temperature = ± 0.5°C. Purged water from wells within the perimeter was discharged back to the lagoon, while water from 10M (background well) was discharged to the ground away from the well.

2.7 Soil and Groundwater Disposal and Equipment Decontamination

Soil, wash water and groundwater generated during field activities were placed back into the lagoon after completion of site activities. EDAC decontaminated the drill rig, HAS's and all downhole equipment between drilling and abandonment locations with a high-pressure steam cleaner. Decontamination was conducted at each drill site, and generated decontamination fluids and sediments were discharged to the adjacent lagoon area. Sample equipment (i.e., split-spoons) was cleaned between each use by scrubbing the equipment with a bristled brush using a non-phosphate detergent (e.g., Liquinox® or Alconox®) and potable water solution, then a fresh water rinse. EDAC used potable water from a fire hydrant located near the site.

Section 3
Results & Discussion

This section provides a synopsis of results and presents a narrative discussion of information obtained during the monitoring well network rehabilitation and monitoring well installation at the RSL property. Topics include geological and hydrogeological conditions and physical and analytical results of soil and groundwater.

3.1 Berm Soil Conditions

Twenty-one soil borings have been drilled into the berm surrounding the RSL during November 2004 through January 2005. Three of the borings were drilled to a depth of only 20 feet, 17 were drilled to depths of between 40 and 50 feet and the final boring was drilled to a depth of approximately 113 feet and was terminated in the limestone bedrock (CDM, 2005).

Soil boring logs note fill material present in all borings, generally to a depth of five feet or less, with an exception being RS-8 where the fill was present to a depth of 9 feet. In the borings along the northern side of the berm (RS7, RS8, C-5, A-4, RS9, C-4, RS10 and A-6) the fill was underlain by a layer of peat that is predominantly two feet thick, but considerably thicker in borings C-4 (4') and A-4 (8'). The fill, and peat if present, is underlain by a layer of sand that extends to an average depth of 33 feet, and this sand is underlain by clay that appears to be continuous across the site. The single boring (C-5) that was drilled beyond 50 feet indicates that the clay is contiguous to a depth of approximately 105 feet, when limestone bedrock was encountered, and this limestone was noted to the final boring depth of approximately 113 feet.

3.2 Soil Analytical Data

PCB analytical results of the ten soil samples collected during the monitoring well installation are shown in **Table 3-1.** The sample at 4M from 14 to 16 feet below ground surface (bgs) had the maximum PID reading for the entire boring, at 5.7 parts per million (ppm); however, the sample did not contain PCB concentrations above method detection limits (95 ug/kg, parts per billion). **Table 3-1** also shows that eight out of nine samples from 9D were above method detection limits and the total detected PCB concentrations ranged from 260 to 17,000 ug/kg. The highest concentration was detected from 28 to 30 feet bgs and the lowest from 36 to 38 feet bgs. Three consecutive 2-foot interval split spoon samples from 26 to 32 feet bgs had the highest total PCB concentrations at 8,800, 17,000 and 2,800 ug/kg, respectively. These results may indicate that the majority of the PCB contamination exists at these intervals. A petroleum odor was noted during the boring installation continuously from 10 to 34 feet bgs. In addition, the PID readings from 10 to 34 feet bgs ranged from 0.8 to 5.2 ppm.

3.3 Monitoring Well Network

There are 12 monitoring wells that were drilled and completed in the berm surrounding the RSL in December 2004 and January 2005, with a 13th background/upgradient well (MW-10M) drilled south of Interstate 90, which make up the RSL rehabilitated monitoring well network. The locations of these monitoring wells are shown on **Figure 3-1**. Of these 12 wells surrounding the lagoon, nine wells were constructed within four monitoring well nests. These wells can be classified as shallow monitoring wells (MW-3S, -5S, and -7S); intermediate wells (MW-2M, -3MR, -4MR, -6MR, -7MR, -9M, and -10M); and deep monitoring wells (MW-5DR, -7DR, and -9D), based upon the vertical position of their respective well screens. These wells have been screened in three distinct zones, in order to determine the vertical as well as the horizontal groundwater flow gradient. In addition to these monitoring wells, there are three stage gages located along the Grand Calumet River (two upriver and one adjacent to the RSL area) and a fourth within the lagoon area.

Depth to water level data has been collected and recorded for four events in 2005, and the collection dates and other pertinent well information are noted in **Table 3-2**. With the exception of the February 11, 2005 event, groundwater samples were collected in conjunction with the water level data and submitted to e-Lab for chemical analysis.

3.4 Site Hydrogeology

Site geology and elevation of the piezometric surface indicate that the RSL is situated within an unconfined aquifer. While the previously mentioned peat layer may have a localized effect, separating the flow paths into two partially connected hydraulic units, the majority of the aquifer consists of fine to course well graded, gray to grayish brown sands.

A comparison of the historical data to the recent water level data indicates a continual lowering of the water level in all monitoring wells. Between February 11, 2005 and August 30, 2005, the decline in water levels ranged between 0.8 feet at MW-9D and 3.41 feet within well MW-10M. The average water level decline during this period was 1.59 feet. The decline is most likely due to seasonal variations from winter to the summer months, where drier conditions prevail.

The August 30, 2005 data indicate that the groundwater elevations ranged from a high of 584.31 feet above mean sea level (amsl) from the background well (MW-10M) to a low of 581.85 feet amsl from the shallow monitoring well (MW-3S) located in the northeast corner of the lagoon. The depth to the piezometric water surface varied from 2.0 feet along the southern berm of the lagoon to a depth of 7.8 feet from the background well.

As expected, the data collected from the shallow monitoring wells indicate a radial flow regime centered and radiating from the ponded lagoon surface water. In addition, since the screen interval for the intermediate wells is above the bottom of

the lagoon area (elevation varies 564 and 559 feet amsl, the groundwater in the immediate vicinity of the lagoon area is affected by the radial flow from the lagoon.

Based on the water level data collected from the rehabilitated monitoring well network, the groundwater flow direction is as expected northward and toward the Grand Calumet River. The elevation difference in the piezometric surface using the water level data collected from the deeper monitoring wells is approximately 0.87 feet measured over a distance of approximately 195 feet, resulting in an estimated horizontal flow gradient of 0.0045 feet/feet. The piezometric map(s) representing the groundwater flow regime(s) are presented in **Figures 3-2** through **3-5.**

The static groundwater measurements obtained from the nested monitoring wells were used to determine the vertical hydraulic gradient at these locations. These well locations included the following well nests: MW-3S/MW-3M(R), MW-5S/MW-5D(R), MW-7S/MW-7M(R)/MW-7D(R), and MW-9M/MW-9D. The water level measurements and vertical hydraulic gradients are presented in **Table 3-1**. The water level data collected on August 30, 2005 from all the well nests except for nest MW-7S/MW-7M(R) indicate an upward gradient varying from 0.0057 to 0.0287 feet/feet. The direction of these gradients was consistent with the water level data collected on May 30, 2005. However, the vertical gradients calculated using the February 24, 2005 water level data indicate a possible change in gradients most likely due to seasonal fluctuations in the groundwater levels.

3.5 Groundwater Analytical Data

Groundwater samples were collected during three events in 2005; February 24-25, 2005; May 31, 2005; and August 30-31, 2005. **Tables 3-3, 3-4 and 3-5** present the analytes that were detected above method detection limits for samples collected during the February 2005, May 2005 and August 2005 events, respectively. These analytes, which are discussed in detail below, were Benzene, Carbazole, Dibenzofuran, Naphthalene, Phenanthrene, Antimony, and Arsenic.

Antimony was detected in six out of 44 samples, ranging from 0.00052 ug/L to 0.026 ug/L. Of the six samples that were above detection limits, three were above the 0.006 ug/L residential closure criteria. No samples were above the residential closure criteria of 0.041 ug/L. Two of the exceedances were reported from MW-10M (upgradient well) in the February and August sampling events. The other well with an exceedance was also in February, at MW-7MR. The MW-7 cluster is located downgradient and within the flow path of MW-10M. The Antimony exceedances at MW-7M may be attributed to upstream sources. It is interesting to note that for both the February and August events, the concentration at MW-7M was approximately 20 percent that of MW-10M.

Arsenic was detected in 43 out of 44 samples, ranging from 0.00068 ug/L to 0.083 ug/L at MW-7DR. Four of the 43 samples that were above detection limits were also above the 0.05 ug/L residential and industrial closure criteria. Exceedances were

reported for MW-7DR, one from each of the sampling events in April, May, and August, and from MW-5DR. Concentrations at MW-7DR were almost 1.5 times higher than at MW-5DR, which is downgradient of MW-7DR.

Benzene was detected in six out of 44 samples, ranging from 16 ug/L to 100 ug/L at MW-9D. Four of the six samples that were above detection limits were above the 52 ug/L industrial closure criteria, and all six samples were above the 5 ug/L residential closure criteria. All exceedances were reported for the MW-9 cluster, with MW-9M reporting a 17 ug/L concentration in the August event. Benzene concentrations in MW-9DR have decreased with each of the last three sampling events, with the lowest concentrations reported in August. However, MW-9M did not have a detection of Benzene until the August event.

Carbazole was detected in four out of 44 samples, ranging from 94 ug/L to 130 ug/L at MW-9D. All four samples that were above detection limits were also above the 43 ug/L residential closure criteria, however, no samples exceeded the 140 ug/L industrial closure criteria. Carbazole was only detected at MW-9D. The sample from MW-9D in August was non-detect; however, the sample had a detection limit (100 ug/L) greater than the residential closure criteria.

Dibenzofuran was detected in eight out of 44 samples, ranging from 12 ug/L to 110 ug/L. Six of the eight samples that were above detection limits were also above the 15 ug/L residential closure criteria; however, no samples exceeded the 200 ug/L industrial closure criteria. Dibenzofuran exceeded criteria at MW-9M and MW-9D, with the highest concentrations reported at MW-9D. Dibenzofuran concentrations in MW-9D have decreased in each event from February to August.

Naphthalene was detected in seven out of 44 samples, ranging from 1.3 ug/L to 500 ug/L. Four of the eight samples that were above detection limits were also above the 8.3 ug/L residential closure criteria; however, no samples exceeded the 2000 ug/L industrial closure criteria. Naphthalene exceeded criteria at MW-9D and was detected at MW-9M during all three events. Naphthalene concentrations in MW-9D have increased since the first event in February.

Phenanthrene was detected in eight out of 44 samples, ranging from 22 ug/L to 56 ug/L. Seven of the eight samples that were above detection limits were also above the 23 ug/L residential closure criteria; however, no samples exceeded the 200 ug/L industrial closure criteria. Phenanthrene exceeded criteria at MW-9M and MW-9D, with the highest concentrations reported at MW-9D. Phenanthrene concentrations in both MW-9M and MW-9D have decreased in each event from February to August.

It is important to note that the MW-9 cluster contained a color-rich, oily substance with a strong petroleum-like odor during well installation and development. The oily substance and strong odor was still present after several hours of purging the wells. MW-9M and MW-9D were the only two wells that consistently had detections of BTEX compounds (Benzene, Toluene, Ethylbenzene, Xylenes). These two wells are

located in the northwest portion of the berm, where it was thought automotive parts were buried. However, these claims could not be confirmed after four borings in the area were completed without any evidence of automotive parts.

Ammonia ranged from 0.034 to 160 mg/L. COD ranged from 8.3 to 93 mg/L. Chloride from 7.9 to 660 mg/L.

TABLE 3-1
Ralston Street Lagoon
Soil Analytical Results

Well ID	Client ID	Lab Sample ID	Top Depth (ft)	Bottom Depth (ft)	PID Reading (ppm)	% Moisture	Aroclor 1016 (ug/kg)	Aroclor 1221 (ug/kg)	Aroclor 1232 (ug/kg)	Aroclor 1242 (ug/kg)	Aroclor 1248 (ug/kg)	Aroclor 1254 (ug/kg)	Aroclor 1260 (ug/kg)	Total PCB (ug/kg)
4M	4MR-14'-16'RSL	0501445-01	14	16	5.7	38	*ND(95)*	*ND(95)*	*ND(95)*	*ND(95)*	*ND(95)*	*ND(95)*	*ND(95)*	*ND(95)*
9D	9D - 14'	0502035-01	14	16	1.2	6.8	*ND(57)*	*ND(57)*	*ND(57)*	*ND(57)*	**790**	*ND(57)*	*ND(57)*	**790**
9D	9D - 18'	0502035-02	18	20	1.2	17	*ND(64)*	*ND(64)*	*ND(64)*	*ND(64)*	**1,300**	*ND(64)*	*ND(64)*	**1,300**
9D	9D - 22'	0502035-03	22	24	4.1	25	*ND(69)*	*ND(69)*	*ND(69)*	*ND(69)*	**1,300**	*ND(69)*	*ND(69)*	**1,300**
9D	9D - 26'	0502035-04	26	28	-	37	*ND(80)*	*ND(80)*	*ND(80)*	*ND(80)*	**8,800**	*ND(80)*	*ND(80)*	**8,800**
9D	9D - 28'	0502035-05	28	30	0.8	32	*ND(74)*	*ND(74)*	*ND(74)*	*ND(74)*	**17,000**	*ND(74)*	*ND(74)*	**17,000**
9D	9D - 30'	0502035-06	30	32	1.2	37	*ND(78)*	*ND(78)*	*ND(78)*	*ND(78)*	**2,800**	*ND(78)*	*ND(78)*	**2,800**
9D	9D - 32'	0502035-07	32	34	5.2	19	*ND(61)*	*ND(61)*	*ND(61)*	*ND(61)*	**1,300**	*ND(61)*	*ND(61)*	**1,300**
9D	9D - 34'	0502035-08	34	36	0.2	21	*ND(62)*	*ND(62)*	*ND(62)*	*ND(62)*	*ND(62)*	*ND(62)*	*ND(62)*	*ND(62)*
9D	9D - 36'	0502035-09	36	38	0.2	20	*ND(59)*	*ND(59)*	*ND(59)*	*ND(59)*	**260**	*ND(59)*	*ND(59)*	**260**

TABLE 3-2
RALSTON STREET LAGOON
Monitoring Well Nest Summary Under Static Conditions

Nest Number	Well Number	Screen Elevation*	Screened Formation	Screened Across Peat Layer	Vertical Difference In Screen Saturation (Feet)	February 24, 2005		May 30, 2005		August 30, 2005	
						Water Elevation*	Vertical Gradient (Feet/Feet)	Water Elevation*	Vertical Gradient (Feet/Feet)	Water Elevation*	Vertical Gradient (Feet/Feet)
	MW-3S	583.50 - 578.50	Alluvium			582.45		582.15		581.85	
1	MW-3M(R)	568.18 - 565.43	Alluvium	Yes	14.2	583.07	-0.0439	582.59	-0.0313	582.19	-0.0242
	MW-5S	582.80 - 577.80	Alluvium			583.76		582.59		581.89	
2	MW-5D(R)	556.60 - 553.85	Alluvium	Yes	25.1	583.15	0.0243	582.55	0.0019	582.04	-0.0057
	MW-7S	583.70 - 578.70	Alluvium			585.36		584.66		583.83	
3	MW-7M(R)	569.31 - 566.56	Alluvium	NA	13.3	585.55	-0.0147	584.73	-0.0056	583.55	0.0207
	MW-7M(R)	569.31 - 566.56	Alluvium			585.55		584.73		583.55	
4	MW-7D(R)	558.12 - 555.37	Alluvium	NA	11.2	585.42	0.0122	584.77	-0.0037	583.87	-0.0287
	MW-9M	569.29 - 566.54	Alluvium			582.89		582.58		582.29	
5	MW-9D	558.42 - 555.67	Alluvium	NA	10.9	583.18	-0.0272	582.59	-0.0016	582.35	-0.0061

Notes:

* = Elevation in Feet, AMSL

NA = Not Applicable, Peat Layer Is Not Present

Pos. Grad. = Downward

TABLE 3-3

Groundwater Analytical Data - February 2005

Test Name	Analyte	Units	Monitoring Well ID												
			MW-10M	MW-2M	MW-3MR	MW-3S	MW-4MR	MW-5DR	MW-5S	MW-6MR	MW-7DR	MW-7MR	MW-7S	MW-9D	MW-9M
Anions by Ion Chromatography	Chloride	mg/L	20	660	270	240	190	360	190	410	49	69	450	280	240
Chemical Oxygen Demand	Chemical Oxygen Demand	mg/L	87	41	66	54	82	54	36	38	15	ND	31	38	36
Cyanide, Total	Cyanide, Total	mg/L	0.0052	0.027	ND	ND	ND	ND	ND	ND	ND	0.012	0.0082	ND	0.0092
Mercury by CVAA (dissolved)	Mercury	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals Analysis by ICP-MS (dissolved)	Antimony	mg/L	0.026	0.00058	ND	ND	ND	ND	ND	ND	0.0029	0.0064	0.0015	ND	ND
	Arsenic	mg/L	0.0063	0.0032	0.0051	0.0017	0.013	0.023	0.0026	0.019	0.056	0.0045	0.00076	0.0037	0.0019
	Cadmium	mg/L	0.00043	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	mg/L	0.00054	ND	0.00069	ND	0.00090	ND	ND	ND	ND	ND	ND	ND	ND
	Copper	mg/L	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Lead	mg/L	0.00040	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Nickel	mg/L	0.0062	0.00096	0.0062	ND	0.0067	0.0030	ND	0.0014	ND	ND	ND	0.0014	ND
	Selenium	mg/L	0.0045	0.00079	ND	ND	ND	ND	ND	ND	ND	0.0013	ND	ND	ND
	Silver	mg/L	0.00043	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Thallium	mg/L	0.00054	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Zinc	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrogen, Ammonia	Nitrogen, Ammonia	mg/L	0.20	0.14	93	20	160	40	1.6	8.5	1.2	0.49	0.17	24	11
Nitrogen, Nitrate-Nitrite	Nitrogen, Nitrate-Nitrite	mg/L	0.31	0.18	ND	ND	ND	ND	0.022	ND	0.011	0.018	0.098	ND	ND
PCBs	Aroclor 1016, 1221, 1242. 1248, 1254 and 1260	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
pH (field)	pH (field)	s.u.	7.5	7.4	7.0	7.4	6.8	7.0	7.6	8.2	7.3	7.7	7.6	8.1	9.2
Phenolics, Total	Phenolics, Total	mg/L	0.0042	ND	0.0059	ND	ND	ND	0.0041	0.0041	ND	ND	ND	0.0094	ND
Priority Pollutant Pesticides	All Parameters	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Specific Conductance (field)	Specific Conductance (field)	µmhos/cm	555.0	2,890	2,010	1,380	2,200	2,370	1,010	2,100	561.0	540.0	2,300	1,490	1,160
Target Compound List (TCL) - VOC	2-Butanone	µg/L	ND	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Benzene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	ND
	Chloroform	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	2.2	ND	ND	ND	ND
	Ethylbenzene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18	ND
	m,p-Xylene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	ND
	o-Xylene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.8	ND
	Toluene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.5	ND
	Xylenes, Total	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19	ND
Target Compound List (TCL) - SVOC	2-Methylnaphthalene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	65	5.6
	Acenaphthene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	140	20
	Acenaphthylene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.63	ND
	Anthracene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.8	2.5
	Bis(2-ethylhexyl)phthalate	µg/L	4.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Carbazole	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	130	ND
	Dibenzofuran	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	12
	Fluoranthene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.0	1.9
	Fluorene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	87	17
	Naphthalene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	270	1.3
	Phenanthrene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	56	25
	Pyrene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.8	1.2
Well Depth (field)	Well Depth (field)	ft.	22.74	19.51	20.58	7.700	25.28	31.68	8.200	20.20	30.41	19.40	8.100	30.41	19.29
Groundwater Levels (field)	Static Water Level (field)	ft.	4.51	2.99	2.88	3.74	3.31	2.55	1.62	1.15	0.460	0.750	1.08	3.04	3.02
Temperature (field)	Temperature	°C	11.6	9.70	12.5	7.60	11.5	12.3	4.10	11.0	11.8	11.2	8.10	11.8	8.50
Total Dissolved Solids	Total Dissolved Solids	mg/L	450	1,500	700	650	680	1,100	460	1,000	430	390	1,200	720	600
Total Suspended Solids	Total Suspended Solids	mg/L	5.0	6.8	30	14	48	33	12	ND	18	ND	ND	11	ND

denotes analyte with value other than non-detect

TABLE 3-4

Groundwater Analytical Data - May 2005

Test Name	Analyte	Units	Monitoring Well ID												
			MW-10M	MW-2M	MW-3MR	MW-3S	MW-4MR	MW-5DR	MW-5S	MW-6MR	MW-7DR	MW-7MR	MW-7S	MW-9D	MW-9M
Anions by Ion Chromatography	Chloride	mg/L	7.9	650	260	270	210	350	250	430	65	78	560	290	260
	Nitrogen, Nitrate	mg/L	ND	0.41	ND	ND	ND	ND	ND	ND	ND	ND	0.23	ND	ND
	Nitrogen, Nitrite	mg/L	ND	0.012	ND	ND	ND	ND	ND	ND	ND	ND	0.027	ND	ND
Chemical Oxygen Demand	Chemical Oxygen Demand	mg/L	50	11	46	35	66	23	35	22	16	11	8.3	30	36
Cyanide, Total	Cyanide, Total	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0092	ND
Mercury by CVAA (dissolved)	Mercury	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals Analysis by ICP-MS (dissolved)	Antimony	mg/L	0.00090	0.00052	0.0010	0.00079	0.0031	ND	ND	ND	ND	ND	ND	ND	ND
	Arsenic	mg/L	0.015	0.017	0.0070	0.016	0.027	0.029	0.016	0.038	0.083	0.016	0.013	0.0042	0.0030
	Chromium	mg/L	0.0013	0.00047	0.00098	0.00058	0.0012	0.00065	0.00075	0.00047	0.00053	0.00070	ND	0.00018	0.00041
	Copper	mg/L	0.0026	0.00059	ND	ND	ND	0.0015	0.00093	ND	ND	ND	0.00074	ND	ND
	Nickel	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0017	ND	ND	ND
	Selenium	mg/L	ND	0.0011	ND	ND	0.00099	ND	ND	ND	ND	ND	ND	ND	ND
	Zinc	mg/L	0.035	ND	ND	ND	ND	ND	0.0058	ND	0.0027	ND	ND	ND	0.0019
Nitrogen, Ammonia	Nitrogen, Ammonia	mg/L	0.036	0.092	120	26	150	45	4.2	7.8	1.1	0.37	0.041	28	11
PCBs	Aroclor 1016, 1221, 1242. 1248, 1254 and 1260	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
pH (field)	pH (field)	s.u.	7.3	8.1	7.6	7.6	7.4	7.6	7.6	8.8	7.7	8.2	8.2	8.5	9.4
Phenolics, Total	Phenolics, Total	mg/L	ND	ND	ND	0.029	ND	ND	ND	ND	0.013	ND	ND	ND	ND
Priority Pollutant Pesticides	All Parameters	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Specific Conductance (field)	Specific Conductance (field)	µmhos/cm	0.3400	2.300	1.700	1.210	1.810	1.720	1.100	1.760	0.5800	0.5400	2.100	1.220	1.020
Target Compound List (TCL) - VOC	1,2-Dichloroethane	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND
	2-Butanone	µg/L	ND	28,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Acetone	µg/L	ND	37	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Benzene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	93	ND
	Bromodichloromethane	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	1.0	ND	ND	ND	1.2
	Carbon disulfide	µg/L	ND	ND	ND	ND	ND	0.66	ND	ND	ND	ND	0.51	ND	ND
	Chloroform	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND	1.9
	Dibromochloromethane	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	0.50	ND	ND	ND	0.60
	Ethylbenzene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17	ND
	m,p-Xylene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.6	ND
	o-Xylene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.8	ND
	Tetrachloroethene	µg/L	ND	ND	ND	ND	ND	14	ND	ND	ND	ND	ND	ND	ND
	Toluene	µg/L	0.97	ND	ND	ND	ND	0.73	ND	ND	ND	ND	ND	1.8	0.72
	Xylenes, Total	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	ND
Target Compound List (TCL) - SVOC	2-Methylnaphthalene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	120	5.8
	Acenaphthene	µg/L	ND	ND	ND	0.67	ND	ND	ND	ND	ND	ND	ND	180	29
	Acenaphthylene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND
	Anthracene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.8	3.2
	Bis(2-ethylhexyl)phthalate	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.5	ND
	Carbazole	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	ND
	Dibenzofuran	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	110	18
	Fluoranthene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.0	2.0
	Fluorene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	96	22
	Naphthalene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	500	3.2
	Phenanthrene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	49	25
	Pyrene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.7	0.95
Well Depthr (field)	Well Depth (field)	ft.	22.74	19.59	20.58	7.770	25.28	31.68	8.200	20.20	30.41	19.40	8.100	30.41	19.29
Groundwater Levels (field)	Static Water Level (field)	ft.	6.3700	3.6700	3.3500	4.0500	3.3000	3.1400	3.4300	2.8800	1.1000	1.4200	1.7700	3.6100	3.5100
Temperature (field)	Temperature	°C	11.9	11.6	12.2	11.7	11.2	12.3	14.0	10.7	12.2	11.3	11.8	11.7	10.1
Total Dissolved Solids	Total Dissolved Solids	mg/L	320	1,400	660	720	730	950	640	1,100	450	380	1,300	670	660
Total Suspended Solids	Total Suspended Solids	mg/L	5.2	5.2	36	16	50	29	23	ND	22	ND	4.8	12	ND

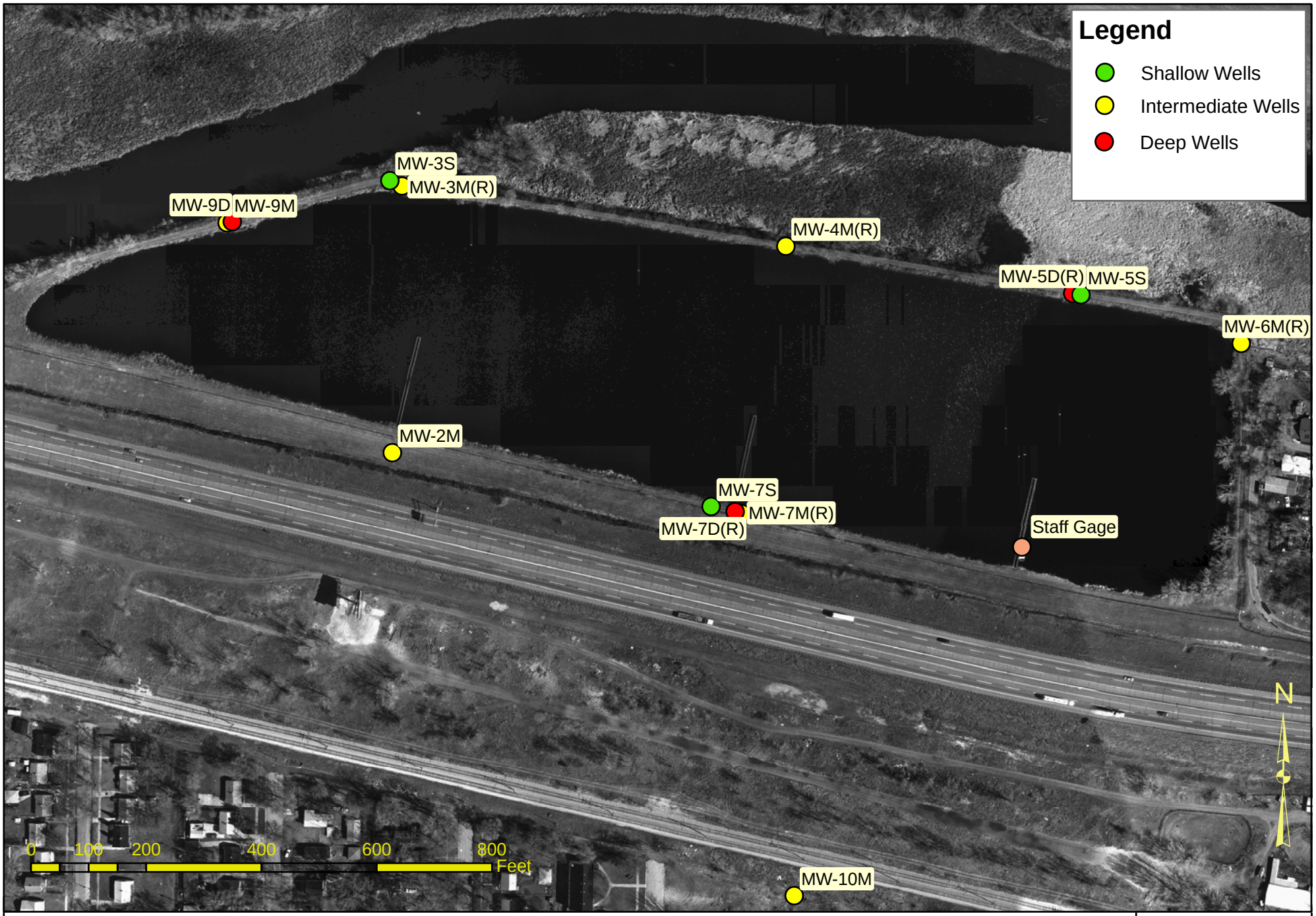
denotes analyte with value other than non-detect

TABLE 3-5

Groundwater Analytical Data - August 2005

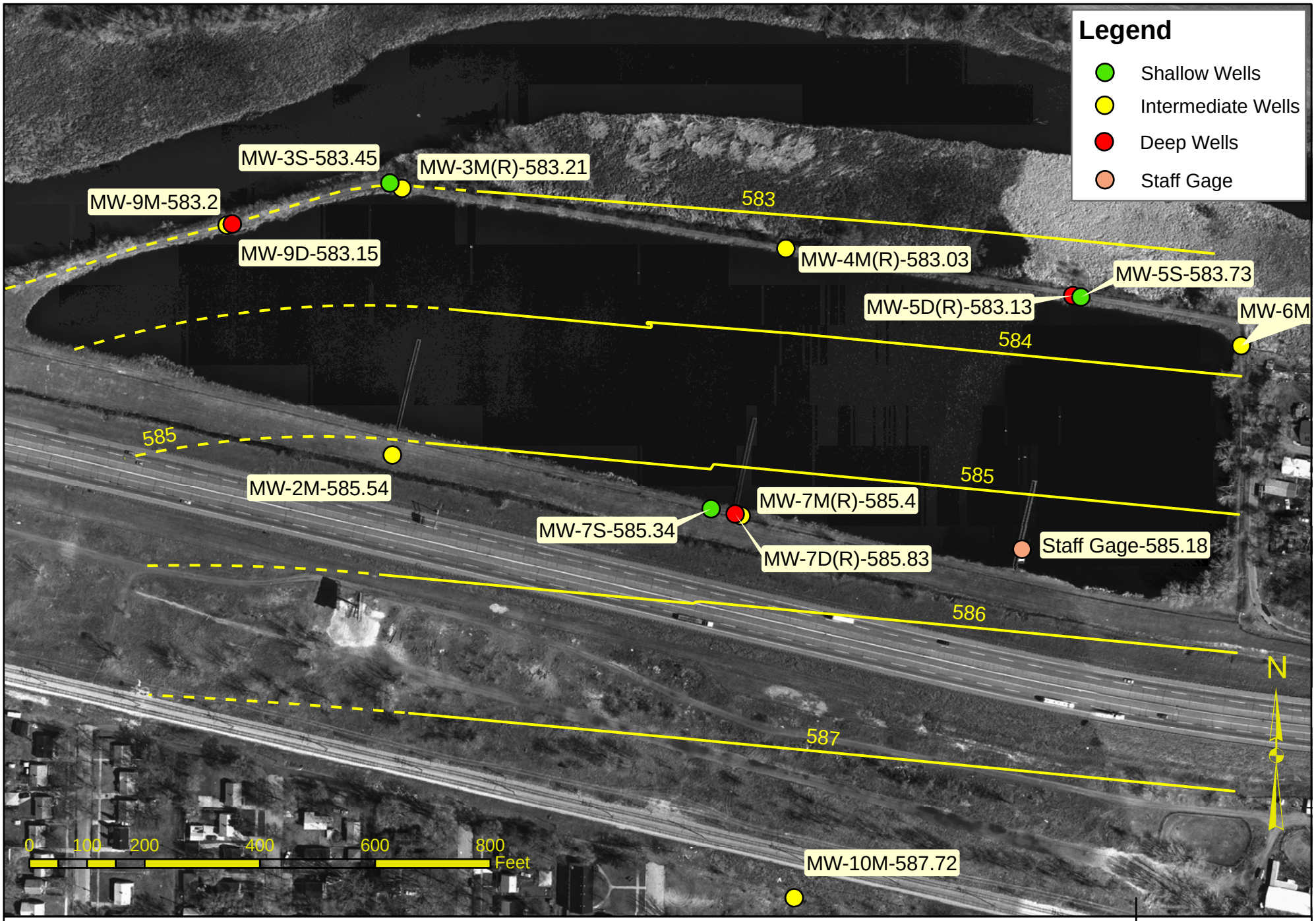
Test Name	Analyte	Units	Monitoring Well ID												
			MW-10M	MW-2M	MW-3MR	MW-3S	MW-4MR	MW-5DR	MW-5S	MW-6MR	MW-7DR	MW-7MR	MW-7S	MW-9D	MW-9M
Anions by Ion Chromatography	Chloride	mg/L	12	350	270	270	190	390	270	410	58	87	280	300	270
	Nitrogen, Nitrate	mg/L	ND	0.29	ND	ND	ND	ND	ND	0.36	ND	ND	0.41	ND	ND
	Nitrogen, Nitrite	mg/L						ND							
Chemical Oxygen Demand	Chemical Oxygen Demand	mg/L	79	19	53	46	93	42	60	49	19	23	21	39	56
Cyanide, Total	Cyanide, Total	mg/L	ND	ND	ND	0.0084	0.0084	0.053	ND	ND	ND	ND	ND	0.0084	ND
Mercury by CVAA (dissolved)	Mercury	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals Analysis by ICP-MS (dissolved)	Antimony	mg/L	0.0062	0.0015	ND	ND	ND	ND	0.0013	ND	0.0013	0.0014	ND	ND	ND
	Arsenic	mg/L	0.0073	0.0026	0.0049	0.00076	0.012	0.024	0.0059	0.015	0.062	0.0050	ND	0.0031	0.0033
	Chromium	mg/L	0.0011	ND	ND	ND	ND	0.0039	ND	ND	ND	ND	ND	ND	ND
	Copper	mg/L	ND	ND	ND	ND	ND	0.0045	ND	ND	ND	ND	ND	ND	ND
	Nickel	mg/L	ND	0.0015	0.0027	0.0024	0.0045	0.042	ND	0.0019	0.0010	0.0013	0.0020	0.0026	0.0030
	Silver	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	0.00060	0.0012	ND	ND	ND
	Zinc	mg/L	ND	ND	ND	ND	0.0070	0.0018	ND	0.0031	ND	ND	ND	ND	ND
Nitrogen, Ammonia	Nitrogen, Ammonia	mg/L	0.057	0.034	85	34	140	49	17	8.0	1.0	0.38	0.035	24	16
Nitrogen, Nitrite	Nitrogen, Nitrite	mg/L	0.011	ND	ND	ND	ND		ND	0.0042	ND	ND	0.048	ND	0.0035
PCBs	Aroclor 1016, 1221, 1242. 1248, 1254 and 1260	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
pH (field)	pH (field)	s.u.	7.7	7.5	7.1	7.0	6.9	7.0	6.8	8.0	7.3	7.7	7.6	8.0	8.8
Phenolics, Total	Phenolics, Total	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Priority Pollutant Pesticides	All Parameters	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Specific Conductance (field)	Specific Conductance (field)	µmhos/cm	0.3580	1.660	1.520	1.340	2.200	2.010	1.330	1.980	0.5930	0.5580	1.450	1.360	1.160
Target Compound List (TCL) - VOC	Benzene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16	17
	Bromodichloromethane	µg/L	ND	0.66	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chloroform	µg/L	ND	3.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Ethylbenzene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.70	0.54
	m,p-Xylene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	1.2
	Methylene chloride	µg/L	ND	0.65	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND
	Toluene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	1.3
	Xylenes, Total	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	1.2
Target Compound List (TCL) - SVOC	2-Methylnaphthalene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	99	4.1
	Acenaphthene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	130	19
	Anthracene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.5	2.1
	Dibenzofuran	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	89	13
	Fluoranthene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.0	1.6
	Fluorene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	75	18
	Naphthalene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	320	1.8
	Phenanthrene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	48	22
	Pyrene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.7	ND
Well Depth	Well Depth	ft.	22.75	19.78	20.6	7.7	26.3	31.7	8.9	20.95	30.4	19.08	8.15	30.45	19.3
Groundwater Levels (field)	Static Water Level (field)	ft.	7.8000	4.5800	3.7500	4.3500	5.3500	3.6500	4.1300	3.0500	2.0000	2.6000	2.6000	3.8500	3.8000
Temperature (field)	Temperature	°C	14.7	14.8	13.9	18.3	14.5	13.8	20.8	13.1	14.2	14.6	19.0	13.4	13.4
Total Dissolved Solids	Total Dissolved Solids	mg/L	300	910	570	700	690	1,100	740	1,100	440	400	840	700	650
Total Suspended Solids	Total Suspended Solids	mg/L	6.0	ND	19	14	48	27	20	ND	19	ND	ND	11	ND

denotes analyte with value other than non-detect



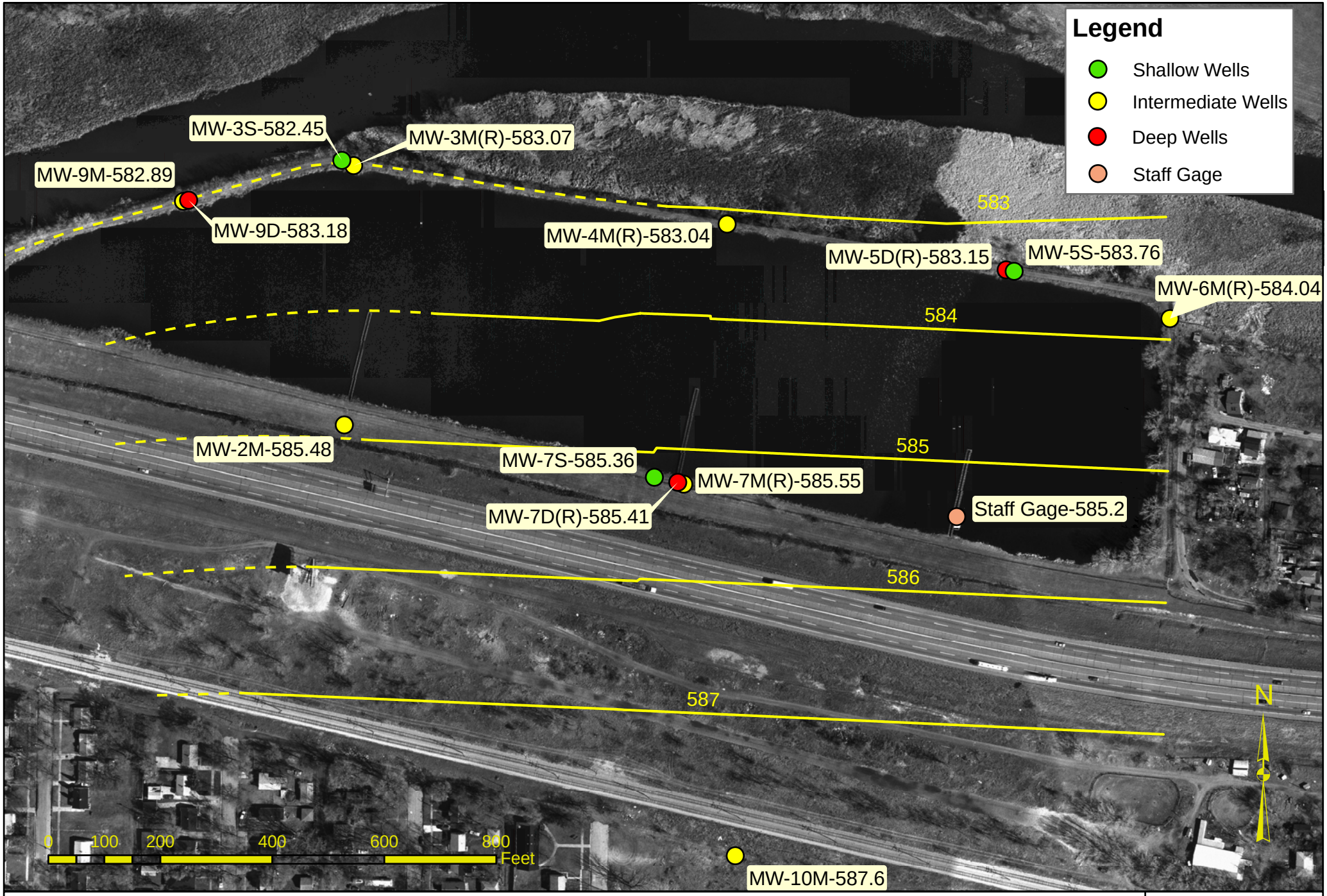
Ralston Street Lagoon
Monitoring Well Network as of January 2005

Figure 3-1



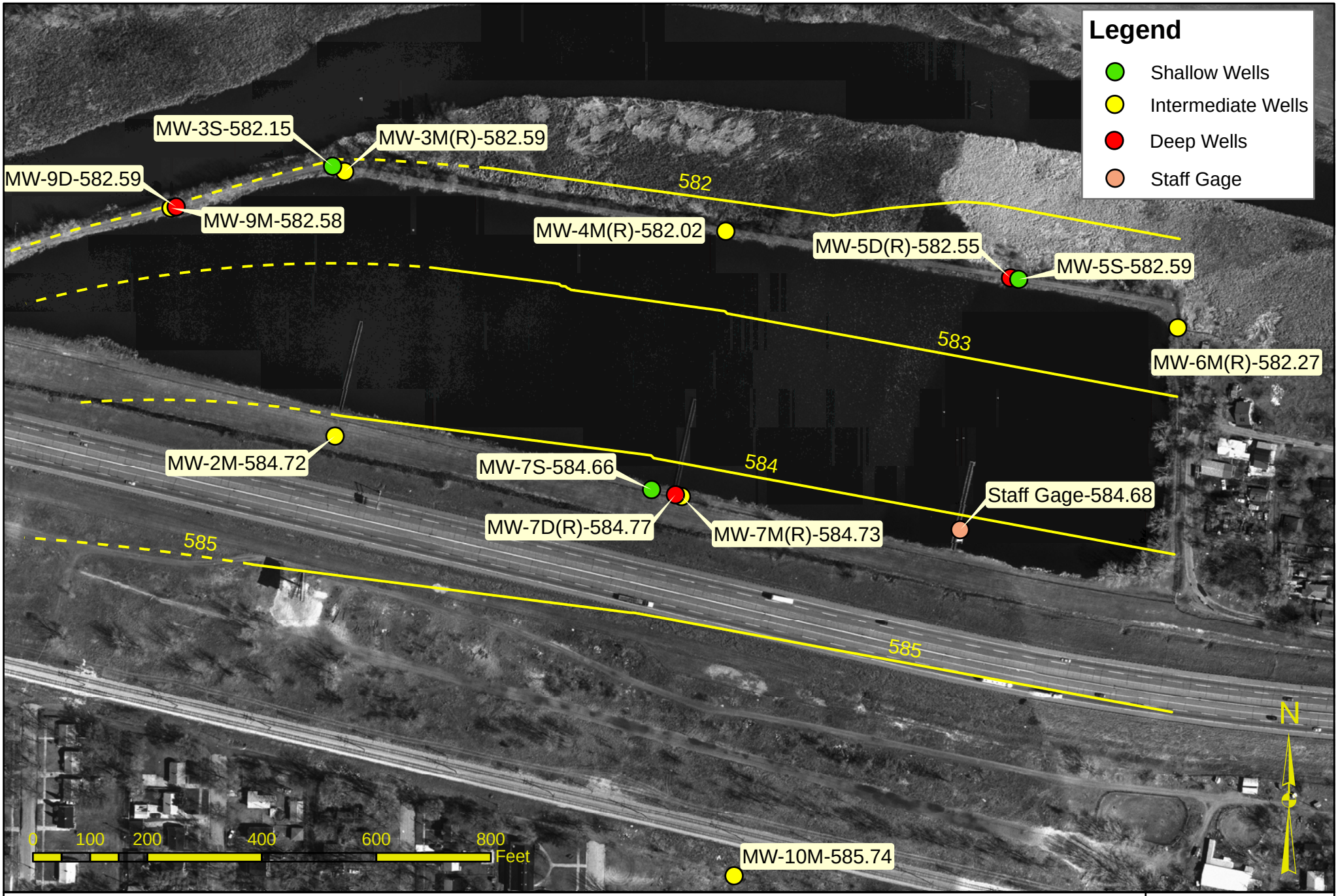
Ralston Street Lagoon
Piezometric Contours Representing Monitoring Wells
February 11, 2005

Figure 3-2



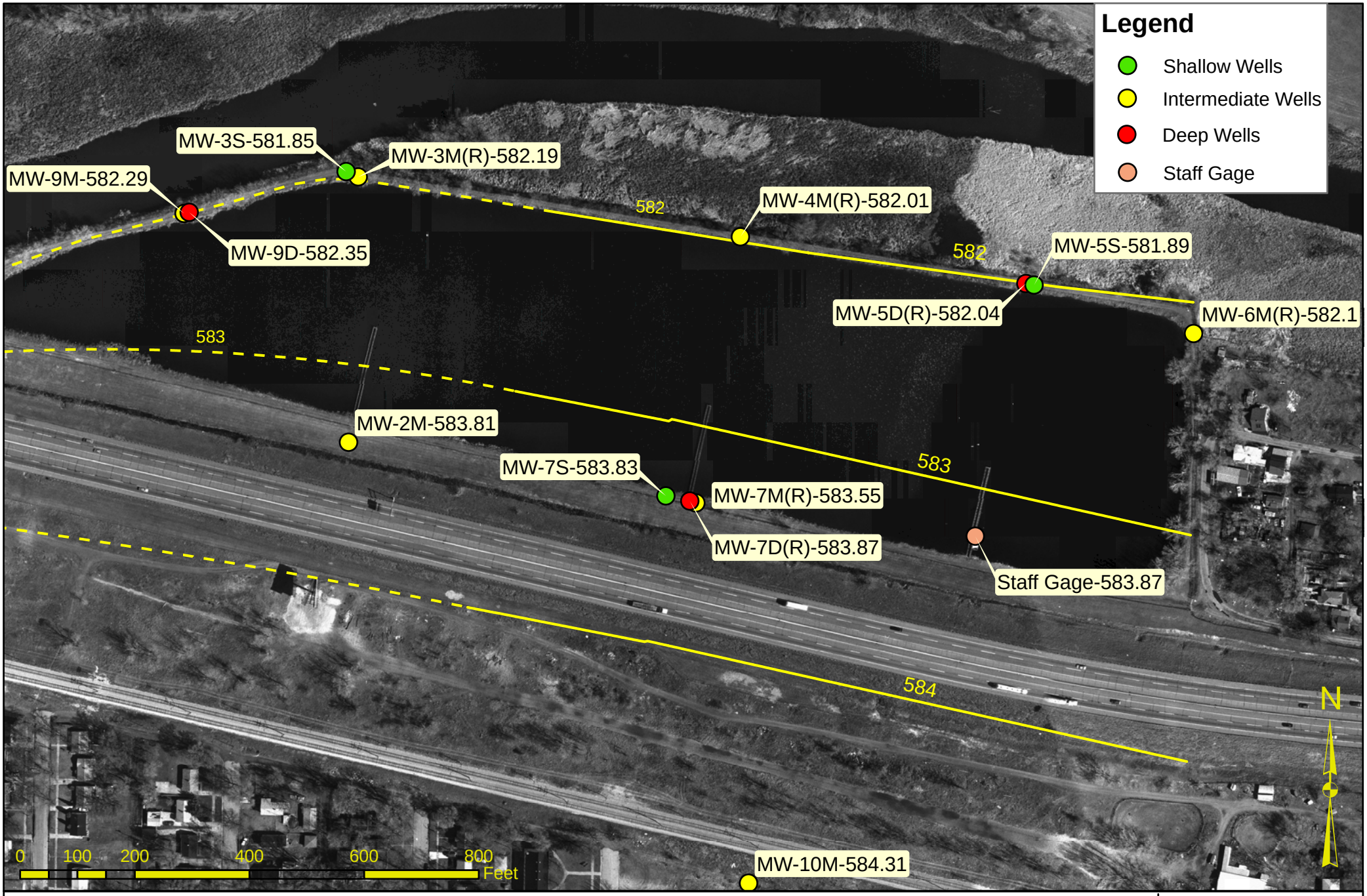
Ralston Street Lagoon
Piezometric Contours Representing Monitoring Wells
February 24, 2005

Figure 3-3



Ralston Street Lagoon
Piezometric Contours Representing Monitoring Wells
May 30, 2005

Figure 3-4



Ralston Street Lagoon
Piezometric Contours Representing Monitoring Wells
August 30, 2005

Figure 3-5

APPENDIX A

Monitoring Well Network Improvements

HEALTH AND SAFETY PLAN FORM
CDM Health and Safety Program

This document is for the exclusive use of CDM and its subcontractors

CAMP DRESSER & McKEE
PROJECT DOCUMENT #:

PROJECT NAME	Ralston Street Lagoon	**PROJECT #**	29021-44113	**REGION**	NCR
JOBSITE ADDRESS	Riverside Drive and Ralston Street Gary, IN 46406	**CLIENT**		Gary Sanitary District	
		CLIENT CONTACT		Charles G. "Spike" Peller, Director	
		CLIENT CONTACT PHONE #		219-944-1211	

( ) AMENDMENT TO EXISTING APPROVED H&SP?
( ) H&SP AMENDMENT NUMBER? _____ **( ) DATE EXISTING APPROVED H&SP** _____

OBJECTIVES OF FIELD WORK:
(e.g. collect surface soil samples):

Activities to take place are as follows:

1. Oversee drilling operations.
2. Describe and prepare soil samples for lab analysis, and ship samples to lab as required.
3. Collect water samples from monitoring wells.
4. Surveying (non-hazardous activity)

TYPE *Check as many as applicable*

Active	( )	Landfill	( )	Unknown	( )
Inactive	(x)	Uncontrolled	( )	Military	( )
Secure	(x)	Industrial	( )	Other (specify)	Wastewater treatment facility sludge
Unsecure	( )	Recovery	( )		
Enclosed space	( )	Well Field	( )		

All requirements described in the CDM Health and Safety Assurance Manual for Hazardous Waste Operations are incorporated in this health and safety plan by reference.

DESCRIPTION AND FEATURES: *Include principal operations and unusual features (containers, buildings, dikes, power lines, hillslopes, rivers, etc.)*

The field work takes place on an approximately 22 acre site, on which the lagoon is contained. The lagoon has a surface area of ~18.5 acres and approximately 600,000 cubic yards of sludge have been pumped into the lagoon to an average depth of ~20 feet.

SURROUNDING POPULATION: (x) Residential ( ) Industrial ( ) Commercial (x) Rural ( ) Urban OTHER:

Date October 24, 2005

HEALTH AND SAFETY PLAN FORM	*This document is for the exclusive*	**CAMP DRESSER & McKEE INC.**
CDM Health and Safety Program	*use of CDM and its subcontractors*	**PROJECT DOCUMENT #:**

HISTORY: *Summarize conditions that relate to hazard. Include citizen complaints, spills, previous investigations or agency actions, known injuries, etc.*

The Ralston Street Lagoon is located in Gary, Indiana, approximately one mile west of the Gary Wastewater Treatment Plant. The lagoon is bounded on the north and west by the Grand Calumet River and its surrounding wetlands; the Indiana East-West toll road bounds the lagoon on the south; Ralston Street (residential area) forms the eastern boundry. The Ralston Lagoon, aquired by the city in 1962, was once used by the wastewater treatment facility for the disposal of sludge. In the 1980s, PCBs were discovered in the sediment. The lagoon has a surface area of ~18.5 acres and approximately 600,000 cubic yards of sludge have been pumped into the lagoon to an average depth of ~20 feet. Investigations have shown an average concentration of 220-240 mg/L (ppm).

WASTE TYPES: ( ) Liquid ( ) Solid (x) Sludge ( ) Gas ( ) Unknown ( ) Other, specify:

WASTE CHARACT ( ) Flammable *Check as many as applicable.*

( ) Flammable

( ) Corrosive ( ) Flammable ( ) Radioactive

(x) Toxic ( ) Volatile ( ) Reactive

( ) Inert Gas ( ) Unknown ( ) Other, specify:

WORK ZONES: *Describe the Exclusion, Contamination Reduction, and Support Zones in terms on-site personnel will recognize*

CDM Personnel will observe the exclusion, contamination reduction and support zones established by the contractor unless the contractor's practices are inadequate to control the contaminants. In that case, CDM will establish its own support and exclusion zone.

HAZARDS OF CONCERN:

(x) Heat Stress *attach guidelines*
(x) Cold Stress *attach guidelines*
( ) Explosive/Flammable
( ) Oxygen Deficient
( ) Radiological
( ) Biological
(x) Other - specify: engulfment, drowning
(x) Noise
(x) Inorganic Chemicals
( ) Organic Chemicals
(x) Motorized Traffic
(x) Heavy Machinery
(x) Slips, Trips, & Falls

FACILITY'S PAST AND PRESENT DISPOSAL METHODS AND PRACTICES:

Past practices included the disposal of sludge generated by the City of Gary municipal wastewater treatment facility. During the 1980s, PCBs were discovered in the sediment. As of 1988, the wastewater treatment facility no longer disposed of sludge in this lagoon.

Date October 24, 2005

HAZARDOUS MATERIAL SUMMARY: *Circle waste type and estimate amounts by category.*

CHEMICALS: *Amount/Units:*	**SOLIDS:** *Amount/Units:*	**SLUDGES:** *Amount/Units:*	**SOLVENTS:** *Amount/Units:*	**OILS:** *Amount/Units:*	**OTHER:** *Amount/Units:*
Acids	Flyash **Used by contractor**	Paints	Halogenated (chloro, bromo)	Oily Wastes	Laboratory
Pickling Liquors	Mill or Mine Tailings	Pigments	Solvents	Gasoline	Pharmaceutical
Caustics	Asbestos	Metals Sludges	Hydrocarbons	Diesel Oil	Hospital
Pesticides	Ferrous Smelter	POTW Sludge	Alcohols	Lubricants	Radiological
Dyes/Inks	Non-Ferrous Smelter	Distillation Bottoms	Ketones	Polynuclear Aromatics	Municipal
Cyanides	Metals	Aluminum	Esters	PCBs	Construction
Phenols	Other *specify:*	Other	Ethers	Heating Oil	Munitions
Halogens		**Total PCB Material 60,000 pounds**	Other *specify:*	Other *specify:*	Other *specify:*
Dioxins					
Other *specify:*					

OVERALL HAZARD EVALUATION: ( ) High ( ) Medium (x) Low ( ) Unknown *(Where tasks have different hazards, evaluate each.)*
JUSTIFICATION: Contaminants are bound in soil resulting in no free material.

FIRE/EXPLOSION POTENTIAL: ( ) High ( ) Medium ( ) Low (x) Unknown

BACKGROUND REVIEW: ( ) Complete (x) Incomplete

KNOWN CONTAMINANTS	HIGHEST OBSERVED CONCENTRATION *(specify units and media)*	PEL/TLV *ppm or mg/m3 (specify)*	IDLH *ppm or mg/m3 (specify)*	WARNING CONCENTRATION *(in ppm)*	SYMPTOMS & EFFECTS OF ACUTE EXPOSURE	PHOTO IONIZATION POTENTIAL
	(SOIL)					
Polychlorinated biphenyl (PCBs - skin)	730 ppm/ SL	500 ug/mg3	5 mg/m3	mist	Eye irritation, Chloracne	mist
Barium (sulfate) (dust)	5 ppm/S	5 mg/m3	NE	Dust	Few symptoms, chronic b	Dust
Copper (dust)	100 ppm/SL	1 mg/m3	NE	Dust	Nasal perforation, metal t	Dust
Lead compounds	100 ppm,SL	50 µg/m3	100 mg/m3	Dust	Fatigue, pallor, colic, insomnia	Dust
Methane	UNKNOWN	3000 ppm	6,250 ppm	No odor	No toxicity, explosive	12.80
Ammonia	UNKNOWN	25 ppm	300 ppm	17 ppm	Irritated nose & throat, ch	10.18
Hydrogen sulfide	UNKNOWN	10 ppm	100 ppm	9.4 ppb	Conjunctivitis, headache,	10.46

NA = Not Available **NE = None Established** **U = Unknown** Attach, to this plan, an MSDS for each chemical you will use at the site.

S = Soil SW = Surface Water T = Tailings W = Waste TK = Tanks SD = Sediment
A = Air GW = Ground Water SL = Sludge D = Drums L = Lagoons OFF = Off-Site

Date October 24, 2005

HEALTH AND SAFETY PLAN FORM **CDM Health and Safety Program**	*This document is for the exclusive use of CDM and its subcontractors*	**CAMP DRESSER & McKEE INC.** **PROJECT DOCUMENT #:**

TASK DESCRIPTION/SPECIFIC TECHNIQUE/SITE LOCATION *(attach additional sheets as necessary)*	**Type**	**Primary**	**Contingency**	**HAZARD & SCHEDULE**
1. Oversight of drilling operations and well installation. Observe and log soil types during drilling and well installation activities.	Intrusive Non-intrusive	A B C D Modified	A B C D Exit Area	Hi Med Low 01/05-02/05
2. Describe and prepare soil samples for lab analysis, Log the type of soil material that are sent for lab analysis.	Intrusive Non-intrusive	A B C D Modified	A B C D Exit Area	Hi Med Low 01/05-02/05
3. Collection of water samples from monitoring wells. Collect groundwater samples from monitoring wells through the use of a bailer and/or pumps.	Intrusive Non-intrusive	A B C D Modified	A B C D Exit Area	Hi Med Low Quarterly, starting approx 2/05
4. Surveying (non-hazardous activity) A subcontractor will survey monitoring wells on the site.	Intrusive Non-intrusive	A B C D Modified	A B C D Exit Area	Hi Med Low Feb-05
	Intrusive Non-intrusive	A B C D Modified	A B C D Exit Area	Hi Med Low
	Intrusive Non-intrusive	A B C D Modified	A B C D Exit Area	Hi Med Low
	Intrusive Non-intrusive	A B C D Modified	A B C D Exit Area	Hi Med Low

PERSONNEL AND RESPONSIBILITIES

NAME (MODIFY LIST)	**FIRM/DIVISION**	**CLEARANCE**	**RESPONSIBILITIES**	**On Site?**
Dan Vicari	CDM/NCR	D-S	Project Manager	**1, 2, 3, & 4**
Andrew Santini	CDM/NCR	D-S	Site Health & Safety Coordinator	**1, 2, & 3**
Ian Gillis	CDM/NCR	D-S	Alt. Health & Safety Coordinator	**1, 2, & 3**
Justin Woods	CDM/NCR	D-S	Alt. Health & Safety Coordinator	**1, 2, & 3**
Todd King	CDM/NCR	D-S	Site Engineer	**1, 2, & 3**
Ron French	CDM/NCR	D-S	Site Engineer	**1, 2, & 3**

*: May not work on site without a qualified safety and health coordinator

Date October 24, 2005

PROTECTIVE EQUIPMENT: *Specify by task. Indicate type and/or material, as necessary. Group tasks if possible. Use copies of this sheet if needed.*

BLOCK A

TASKS: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10
LEVEL: A - B - C - D - Modified
( ) Primary ( ) Contingency

Respiratory: (x) Not needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not needed
(**XX**) Safety Glasses:
( ) Face Shield:
( ) Goggles:
(x) Hard Hat:
( ) Other:

Boots: ( ) Not needed
(x) Steel-Toe (x) Steel Shank
(x) Rubber ( ) Leather
(x) Overboots:

Prot. Clothing: ( ) Not needed
( ) Encapsulated Suit:
( ) Splash Suit
( ) Apron:
(x) Tyvek Coverall or
( ) Saranex Coverall
(x) Cloth Coverall:
( ) Other:work clothes

Gloves: ( ) Not needed
(x) Undergloves:
( ) Gloves:
( ) Overgloves:

Other: specify below
(x) Tick Spray
(x) Flotation Device If Over Water
( ) Heating Protection
(x) Sun Screen

BLOCK B

TASKS: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10
LEVEL: A - B - C - D - Modified
( ) Primary ( ) Contingency

Respiratory: ( ) Not needed
( ) S
( ) A A Full
( ) C IC
( ) E
( ) O

Head and Eye: ( ) Not needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( )
( )

B) ed
(hank
( )
(bo

Prot. Clothing: ( ) Not needed
( ) ps uit:
(l
(n:
(k (or
(ex ll
(C
( ) Other:

Gloves: ( ) Not needed
( ) Undergloves: PVC
( ) Gloves:
( ) Overgloves: Ni

Other: specify below
( ) Tick Spray
( ) Flotation Device
( ) Heating Protection
( ) Sun Screen

BLOCK C

TASKS: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10
LEVEL: A - B - C - D - Modified
( ) Primary ( ) Contingency

Respiratory: ( ) Not needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

Boots: ( ) Not needed
( ) Steel-Toe ( ) Steel Shank
( ) Rubber ( ) Leather
( ) Overboots:

Prot. Clothing: ( ) Not needed
( ) Encapsulated Suit:
( ) Splash Suit
( ) Apron:personal pref.
( ) Tyvek Coverall
( ) Saranex Coverall
( ) Cloth Coverall:
( ) Other: work clothes

Gloves: ( ) Not needed
( ) Undergloves:
( ) Gloves: surgical/nitrile
( ) Overgloves:

Other: specify below
( ) Tick Spray
( ) Flotation Device
( ) Heating Protection
( ) Sun Screen

BLOCK D

TASKS: 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10
LEVEL: A - B - C - D - Modified
( ) Primary ( ) Contingency

Respiratory: ( ) Not needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

Boots: ( ) Not needed
( ) Steel-Toe ( ) Steel Shank
( ) Rubber ( ) Leather
( ) Overboots:

Prot. Clothing: ( ) Not needed
( ) Encapsulated Suit:
( ) Splash Suit
( ) Apron:
( ) Tyvek Coverall
( ) Saranex Coverall
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not needed
( ) Undergloves:
( ) Gloves:
( ) Overgloves:

Other: specify below
( ) Tick Spray
( ) Flotation Device
( ) Heating Protection
( ) Sun Screen

Exit Area

HEALTH AND SAFETY PLAN FORM **CDM Health and Safety Program**	*This document is for the exclusive use of CDM and its subcontractors*	**CAMP DRESSER & McKEE INC.** **PROJECT DOCUMENT #:**

MONITORING EQUIPMENT: *Specify by task. Indicate type as necessary. Attach additional sheets if needed.*

INSTRUMENT	**TASK**	**ACTION GUIDELINES**		**COMMENTS** *(When and how will you use the monitor?)*
Combustible Gas Indicator	**1 and 3**	0-10% LEL 10-25% LEL >25% LEL 21.0% O2 <21.0% O2 <19.5% O2	*No explosion hazard* *Potential explosion hazard; notify SHSC* *Explosion hazard; interrupt task/evacuate* *Oxygen normal* *Oxygen deficient; notify SHSC* *Interrupt task/evacuate*	( ) Not Needed
Radiation Survey Meter	1-2-3-4-5-6-7-8	3 x Background: >2mR/hr:	*Notify HSM* *Establish REZ*	(x) Not Needed
Photoionization Detector _____eV Lamp Type ____	**1 and 3**	*Specify:* 0 to 1 ppm: Level D. 1 to 20 ppm: Level D, use detector tubes >20 ppm: Leave area. Call HSM		( ) Not Needed Monitor breathing zone continuously. Compare action levels to time-averaged breathing zone measurements
Flame Ionization Detector Type_____	1-2-3-4-5-6-7-8	*Specify:*		(x) Not Needed
Single Gas Type__H2S_____ Type_____	**1 and 3**	*Specify:* <5 ppm: Level D >5 ppm: Leave area. Call HSM		( ) Not Needed Team will monitor for hydrogen sulfide continuously
Respirable Dust Monitor Type_____ Type_____	1-2-3-4-5-6-7-8	If team observes visible concentrations of dust or dry windy conditions produce dust, they will leave the area.		(x) Not Needed
Other *Specify:*	1-2-3-4-5-6-7-8	If the team notices unusual odors or irritation of the eyes or throat, they will leave the area.		

Date October 24, 2005

DECONTAMINATION PROCEDURES

ATTACH SITE MAP INDICATING EXCLUSION, DECONTAMINATION, AND SUPPORT ZONES AS PAGE TWO

Personnel Decontamination	**Sampling Equipment Decontamination**	**Heavy Equipment Decontamination**
Summarize below or attach diagram; Removal of boot covers if worn Remove outer gloves and coverall Hard hat removal Remove under glove Wash Hands and Face ( ) Not Needed	*Summarize below or attach diagram;* Decon sampling trowels and lexan coring devices by: - physical removal, - water rinse, - alconox / water wash, and - water rinse ( ) Not Needed	*Summarize below or attach diagram;* Remediation Contractor is responsible for this task ( ) Not Needed
Containment and Disposal Method Disposal of gloves and disposable coveralls will be in containers provided by the Remediation Contractor.	**Containment and Disposal Method** Remediation Contractor is responsible for this task. Gloves will be disposed of immediately after sample have been taken. Clean gloves will be used as needed.	**Containment and Disposal Method** Remediation Contractor is responsible for this task

Date October 24, 2005

EMERGENCY CONTACTS

Water Supply	
Site Telephone (Cell)	517-795-4954 (Andrew Santini)
EPA Release Report #:	(800) 424 - 8802
CDM 24-Hour Emergency #:	(800) 313 - 5593
Facility Management	
Other (specify)	
CHEMTREC Emergency #:	(800) 424 - 9300

CDM Cell Phone Numbers:

Dan Vicari	(219) 746-1432
Andrew Santini	(313) 969-9713
Ian Gillis	(517) 795-4954

CONTINGENCY PLANS: *Summarize below*

If work team observes hazards for which they have not prepared, they will withdraw from the area and call the health and safety manager. No team member will enter or remain on the site unless accompanied by another.

CDM staff may rely on instruments operated by contractor personnel only upon HSM approval SHSC will designate evacuation routes at the morning safety meeting. Teams will cease work if they see lightning or thunder stoms in the area.

Contractor will be expected to inspect its equipment and certify its suitability for the project to the CDM site health and safety coordinator. Contractor will provide a a "competent person" to oversee excavation safety. Each day work proceeds, CDM staff will ask this person to advise them on significant or changed excavation hazards.

HEALTH AND SAFETY PLAN APPROVALS (H&S Mgr must sign each plan)

Prepared by:	Nicole Ivers	Date	1/6/2005
Revised by:	Chris Marlowe	Date	1/7/2005
DHSC Signature		Date	
HSM Signature		Date	

Date October 24, 2005

EMERGENCY CONTACTS	**NAME**	**PHONE**
Health and Safety Manager	Chris Marlowe	732-225-7042 x 332
Project Manager	Dan Vicari	219-939-9473
Site Safety Coordinator	Andrew Santini	517-795-4954
Client Contact	Spike Pellar	219-944-1211
Othe *(specify)*		
Federal Environmental Agency		800-424-8802
State Spill Number		800-292-4706
Fire Department		911
Police Department		911
State Police		911
Gary Health Department		(219) 882-5565
Poison Control Center		(312) 942-5969
Occupational Physician	Kenneth Chase	(800) 777 - WOHA
See attached phone list		

MEDICAL EMERGENCY		**PHONE**
Hospital Name:	Methodist Hospital	(219) 886 - 4209
Hospital Address	650 Grant Street, Gary, IN	

Name of Contact at Hospital:
Name of 24-Hour Ambulance: Superior Ambulance (219) 923-9199
Site Location: Riverside and Ralston

Route to Hospital:
Starting on W RIVERSIDE DR going towards HANLEY ST - 0.1 mile
W RIVERSIDE DR becomes **DURBIN ST** - go **0.4** mi
Turn left on **US-20 EAST** - go **2.2** mi
Turn right on **GRANT ST** - go **0.2** mi
Arrive at Methodist Hospitals

Distance to Hospital Approx. 3 miles

HEALTH AND SAFETY PLAN SIGNATURE FORM

CDM Health and Safety Program

All site personnel must sign this form indicating receipt of the H&SP. Keep this original on site. It becomes part of the permanent project files. Send a copy to the Health and Safety Manager (HSM).

SITE NAME/NUMBER: Ralston Street Lagoon

DIVISION/LOCATION: Gary, Indiana

CERTIFICATION:

I understand, and agree to comply with, the provisions of the above referenced H&SP for work activities on this project. I agree to report any injuries, illnesses or exposure incidents to the site Health and Safety Coordinator (SHSC). I agree to inform the SHSC about any drugs (legal and illegal) that I take within three days of site work.

PRINTED NAME	SIGNATURE	DATE

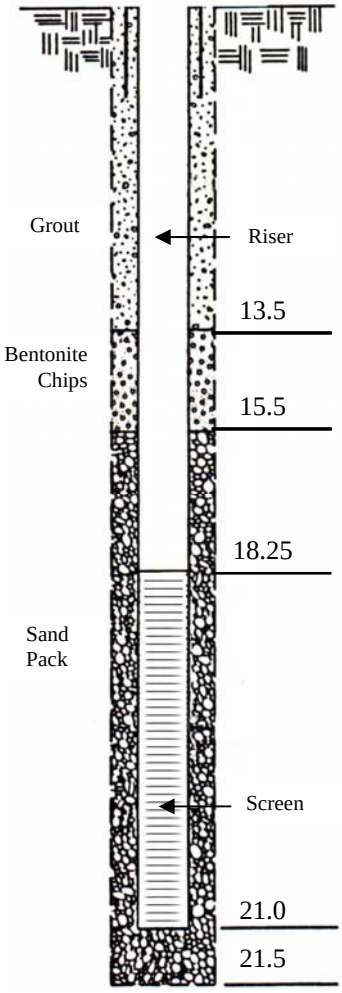
APPENDIX B

Monitoring Well Network Improvements

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **3MR**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 21.5 ft Depth to Water: NA
Supervisory Geologist: Nick Simons (CDM)

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 17.58 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 18.25 – 21.0 ft bgs
Filter Material: #5 Global Filter Sand Setting: 15.5 – 21.5 ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 13.5 – 15.5 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 13.5 ft bgs
Surface Casing Material: NA Setting: NA
Notes:

TIME LOG	**Started**	**Completed**
Drilling and Installation:	1/28/05	1/28/05
Development:	2/4/05	2/4/05

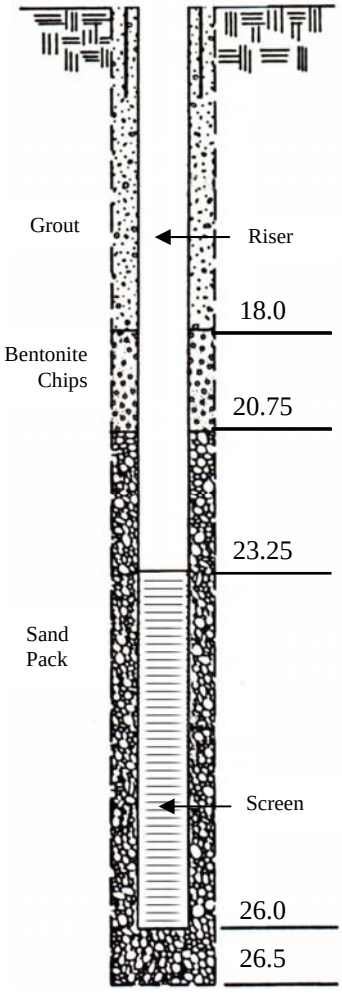
WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 27 min Specific Capacity: NA
Volume Pumped: 35 gal

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **4MR**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 26.5 ft Depth to Water: NA
Supervisory Geologist: Nick Simons (CDM)

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 22.28 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 23.25 – 26.0 ft bgs
Filter Material: #7 Global Filter Sand Setting: 20.75 – 26.5 ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 18.0 – 20.75 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 18.0 ft bgs
Surface Casing Material: NA Setting: NA
Notes:

TIME LOG	Started	Completed
Drilling and Installation:	1/18/05	1/19/05
Development:	2/4/05	2/4/05

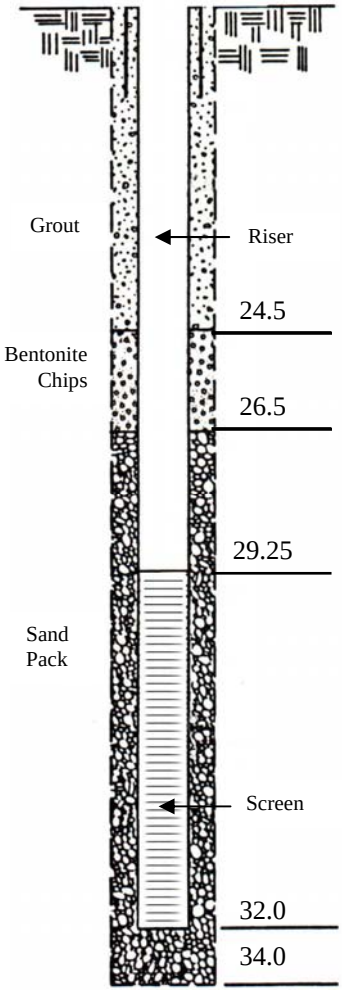
WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 35 min Specific Capacity: NA
Volume Pumped: 40 gal

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **5DR**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 36 ft Depth to Water: NA
Supervisory Geologist: Nick Simons (CDM)

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 28.68 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 29.25 – 32.0 ft bgs
Filter Material: #5 Global Filter Sand Setting: 26.5 – 34.0 ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 24.5 – 26.5 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 24.5 ft bgs
Surface Casing Material: NA Setting: NA
Notes: Well drilled to 36 ft, therefore, bentonite pellet seal from 34 – 36 ft bgs

TIME LOG	**Started**	**Completed**
Drilling and Installation:	1/20/05	1/20/05
Development:	2/4/05	2/4/05

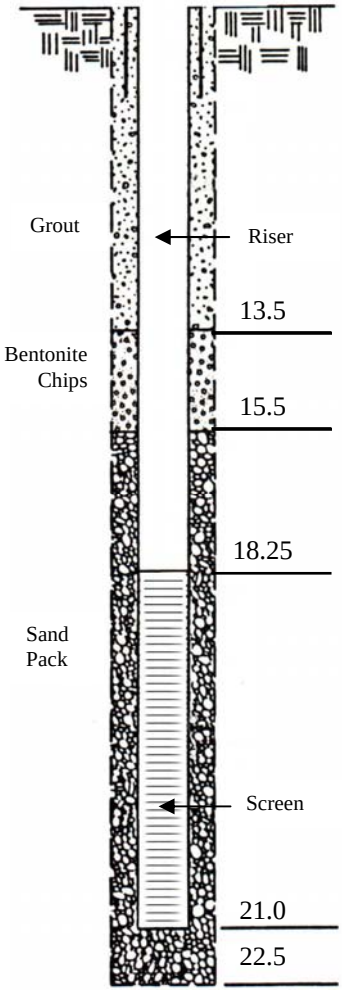
WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 60 min Specific Capacity: NA
Volume Pumped: 70 gal

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **6MR**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 24 ft Depth to Water: NA
Supervisory Geologist: Nick Simons

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 17.20 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 18.25 – 21.0 ft bgs
Filter Material: #5 Global Filter Sand Setting: 15.5 – 22.5ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 13.5 – 15.5 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 13.5 ft bgs
Surface Casing Material: NA Setting: NA
Notes: Well drilled to 24 ft, therefore, bentonite pellet seal from 22.5 - 24 ft bgs

TIME LOG	**Started**	**Completed**
Drilling and Installation:	1/21/05	1/28/05
Development:	2/4/05	2/4/05

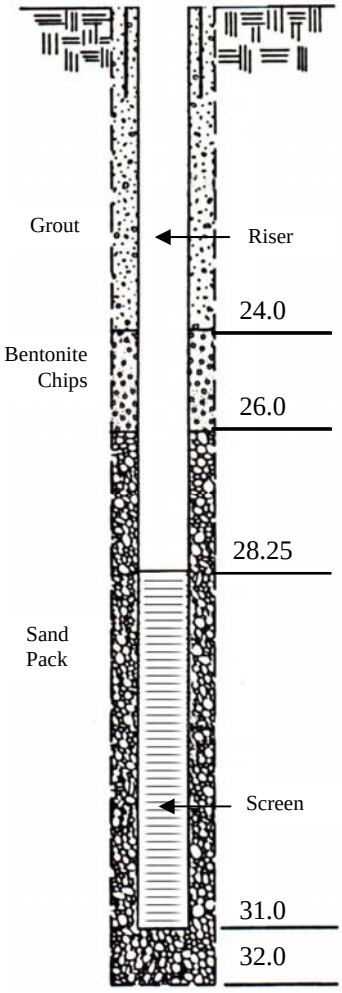
WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 10 min Specific Capacity: NA
Volume Pumped: 15 gal

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **7DR**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 34 ft Depth to Water: NA
Supervisory Geologist: Justin Woods (CDM)

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 27.41 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 28.25 – 31.0 ft bgs
Filter Material: #5 Global Filter Sand Setting: 26.0 – 32.0 ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 24.0 – 26.0 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 24.0 ft bgs
Surface Casing Material: NA Setting: NA
Notes: Well drilled to 34 ft, therefore, bentonite pellet seal from 32 – 34 ft bgs

TIME LOG	**Started**	**Completed**
Drilling and Installation:	2/1/05	2/1/05
Development:	2/4/05	2/4/05

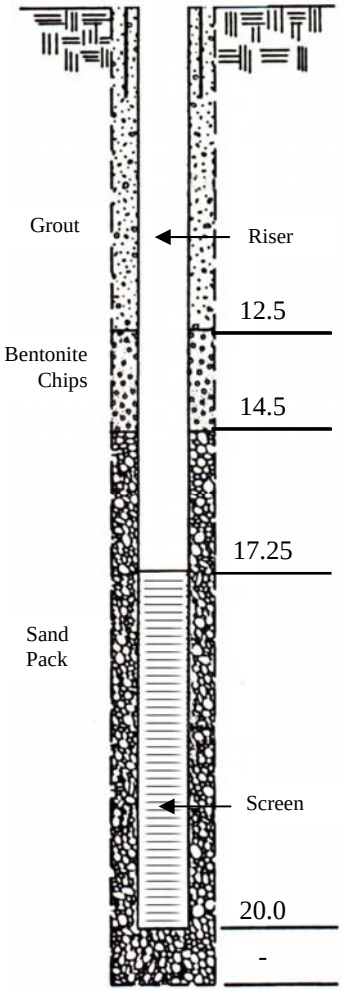
WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 45 min Specific Capacity: NA
Volume Pumped: Not Recorded

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **7MR**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 20 ft Depth to Water: NA
Supervisory Geologist: Justin Woods (CDM)

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 16.4 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 17.25 – 20.0 ft bgs
Filter Material: #5 Global Filter Sand Setting: 14.5 – 20.0 ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 12.5 – 14.5 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 12.5 ft bgs
Surface Casing Material: NA Setting: NA
Notes:

TIME LOG	**Started**	**Completed**
Drilling and Installation:	2/1/05	2/1/05
Development:	2/4/05	2/4/05

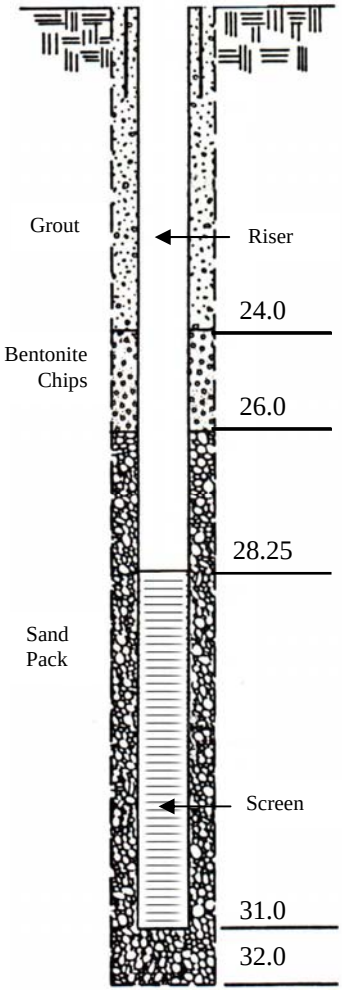
WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 60 min Specific Capacity: NA
Volume Pumped: Not Recorded

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **9D**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 34 ft Depth to Water: NA
Supervisory Geologist: Justin Woods (CDM)

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 27.41 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 28.25 – 31.0 ft bgs
Filter Material: #5 Global Filter Sand Setting: 26.0 – 32.0 ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 24.0 – 26.0 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 24.0 ft bgs
Surface Casing Material: NA Setting: NA
Notes: Well drilled to 34 ft, therefore, bentonite pellet seal from 32 – 34 ft bgs

TIME LOG	**Started**	**Completed**
Drilling and Installation:	1/31/05	1/31/05
Development:	2/4/05	2/4/05

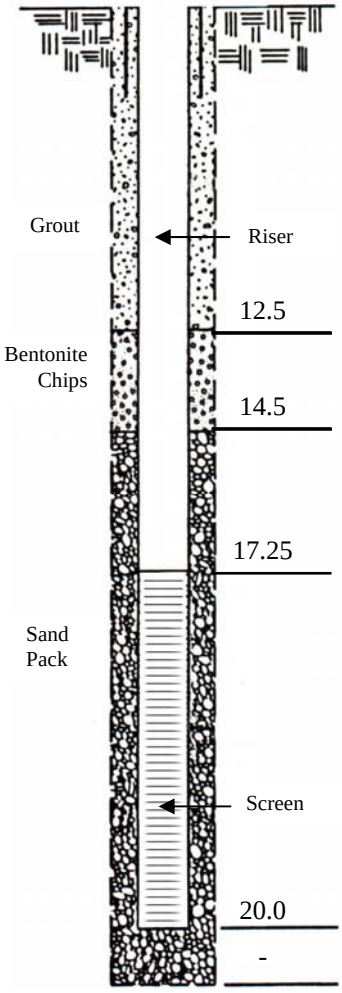
WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 190 min Specific Capacity: NA
Volume Pumped: 225 gal

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **9M**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 20 ft Depth to Water: NA
Supervisory Geologist: Justin Woods (CDM)

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 16.26 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 17.25 – 20.0 ft bgs
Filter Material: #5 Global Filter Sand Setting: 14.5 – 20.0 ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 12.5 – 14.5 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 12.5 ft bgs
Surface Casing Material: NA Setting: NA
Notes:

TIME LOG	**Started**	**Completed**
Drilling and Installation:	1/31/05	1/31/05
Development:	2/4/05	2/4/05

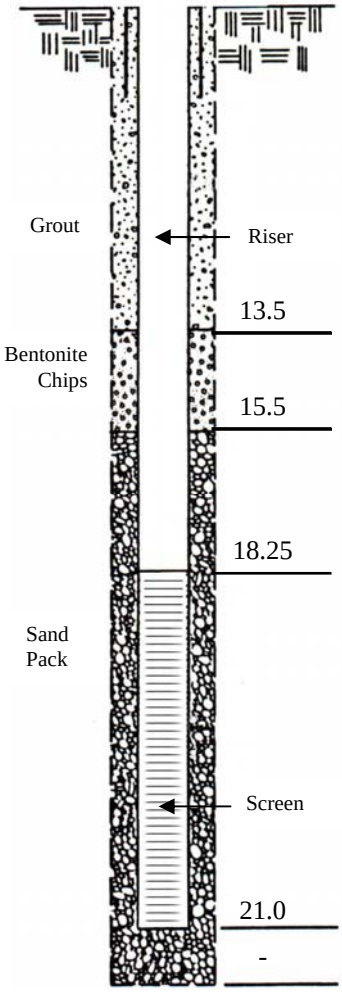
WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 132 min Specific Capacity: NA
Volume Pumped: 175 gal

CDM

WELL CONSTRUCTION SUMMARY

Project: **Ralston St. Lagoon Remediation - GSD Project No. 04-08** **Client:** **Gary Sanitary District** **Well No:** **10M**



DRILLING SUMMARY

Drilling Co: Environmental Drilling and Contracting, Inc. Drillers: Bob Miller, Jamie Brunrsema
Drill Rig Make/Model: GP-1000
Borehole Diameters: 8 ¼ in Drilling Fluid: NA
Bits/Depths: 4 ¼ in HSAs
Total Depth: 21 ft Depth to Water: NA
Supervisory Geologist: Justin Woods (CDM)

WELL DESIGN

Casing Material: Schedule 55 SS Diameter: 2 in Length: 19.74 ft
Screen Material SS Diameter: 2 in Length: 3.0 ft
Slot Size: 10 slot w/ 0.25 ft blank Setting: 18.25 – 21.0 ft bgs
Filter Material: #5 Global Filter Sand Setting: 15.5 – 21.0 ft bgs
Seals Material: ¼ in bentonite coated pellets (CETCO) Setting: 13.5 – 15.5 ft bgs
Grout: Portand Cement and bentonite (Quick-Gel) mix Setting: 0 – 13.5 ft bgs
Surface Casing Material: NA Setting: NA
Notes:

TIME LOG	**Started**	**Completed**
Drilling and Installation:	2/2/05	2/2/05
Development:	2/4/05	2/4/05

WELL DEVELOPMENT

Method: Pump and Surge
Static Depth to Water: NA
Pumping Depth to Water: NA
Pumping Duration: 90 min Specific Capacity: NA
Volume Pumped: 162 gal

APPENDIX C

Monitoring Well Network Improvements

Appendix C. Ralston Street Lagoon Monitoring Well Survey Data

Well ID	Northing	Easting	Pro Cover Elevation (ft AMSL)	Ground Elevation (ft AMSL)	Casing Elevation (ft AMSL)
MW-2M	2,316,793.53	2,864,056.90	589.623	586.111	588.394
MW-3S	2,317,266.27	2,864,044.81	586.410	586.325	586.198
MW-3M(R)	2,317,257.28	2,864,066.03	586.525	586.436	585.946
MW-4M(R)	2,317,163.48	2,864,733.73	587.609	587.479	587.358
MW-5S	2,317,087.66	2,865,246.96	586.364	586.178	586.024
MW-5D(R)	2,317,089.98	2,865,232.62	586.063	586.062	585.686
MW-6M(R)	2,317,007.65	2,865,526.29	586.328	586.196	585.196
MW-7S	2,316,709.05	2,864,611.39	586.695	586.714	586.427
MW-7M(R)	2,316,697.69	2,864,663.96	586.569	586.569	586.152
MW-7D(R)	2,316,700.70	2,864,653.27	586.365	586.378	585.873
MW-9M	2,317,188.29	2,863,763.65	586.575	586.548	586.086
MW-9D	2,317,190.38	2,863,772.69	586.712	586.678	586.203
MW-10M	2,316,035.19	2,864,766.68	593.030	589.990	592.110

CDM

SANITARY DISTRICT
GARY
STORM WATER MANAGEMENT DISTRICT

APPENDIX C

February 2005 Groundwater Sampling and Analysis

e-Lab Analytical received 16 samples on February 25, 2005 for analyses identified as Project GSD-Ralston Street Lagoon GW. No anomalies or discrepancies were noted between sample identity and the chain-of-custody. The samples were received in good condition with the following exception:
One glass container was broken upon receipt. The container label indicated that the sample was for "Extractable Organics" from sample ID MW-7S-02. There was sufficient sample volume to complete the requested tasks.

SAMPLE COLLECTION NARRATIVE
Samples were collected by e-Lab Analytical in accordance with the Camp Dresser & McKee groundwater sampling Standard Operating Procedures. CDM provided oversight of the sampling procedures.

Upon arrival at the site on Thursday, February 24, the well caps were opened and field measurements were taken immediately from each well to determine the presence of organic vapors. In all cases, readings were zero, except as noted on the field data sheets.

Static water and well depths were measured following the wellhead testing. All wells were measured and noted in the field logbooks of both CDM and e-Lab prior to commencement of sampling.

The samples identified as MW-7S-01 and MW-7S-02 are field duplicates (e-Lab Analytical samples 0502441-04 and 0502441-05).
The samples identified as MW-9D-01 and MW-9D-02 are field duplicates (e-Lab Analytical samples 0502441-13 and 0502441-14). Matrix spike (MS) and matrix spike duplicate (MSD) samples were collected and associated with MW-9D-01.

To ensure the integrity of the field duplicate procedure, field staff did not indicate to the laboratory that field duplicates were collected.

ANALTYICAL DATA NARRATIVE
All Quality Assurance/Quality Control criteria were acceptable with the following qualifications noted:

Metals by ICP-MS:

The MS/MSD pair in batch #5950 yielded a slightly elevated recovery for antimony (with acceptable precision) and was qualified accordingly. The method blank, laboratory control samples, and post digestion spikes yielded acceptable accuracy and precision.

All other parameters yielded acceptable accuracy and precision. All data are considered valid and usable

without qualification.

Semi Volatiles by GC/MS:

Due to improvements in the extraction process, 4-nitrophenol and pentachlorophenol exhibited recovery above charted control limits. (Due to insufficient data points, chart limits have not yet been updated.) This qualification does not affect data quality.

Phenol was qualified in the MSD due to a calculated value below the Practical Quantitation Limit (PQL) but above the Method Detection Limit (MDL). This qualification does not affect data quality.

Volatiles by GC/MS:

The Laboratory Control Sample Duplicate (LCSD) exhibited elevated recovery for 2-hexanone and vinyl chloride. These analytes were not detected in any applicable field samples, and as such, the noted anomaly does not affect data quality.

The MS/MSD yielded elevated recovery for benzene as a result of high parent sample concentration (greater than 5 times the spike level). All other analytes were within defined acceptance criteria.

Total Suspended Solids:

The duplicate sample analyzed on 03/01/05 yielded precision outside defined acceptance criteria as a result of low solids content (at or near the reporting limit). The batch duplicate analyzed on 03/02/05 was received outside of the recommended hold time and was qualified accordingly. Neither anomaly affects data quality.

Phenols:

The MS/MSD was qualified as a result of high parent sample concentration (greater than 5 times the spike level). This anomaly does not affect data quality.

Cyanide:

The MS yielded accuracy below the defined acceptance criteria as the result of a poor vacuum connection during the distillation process. Review of associated batch QC indicated this was an isolated incident and does not adversely impact data quality.

e-Lab Analytical, Inc

3352 128th Avenue Holland, Michigan 49424-9263 616-399-6070 Fax 616-399-6185

March 14, 2005

Dan Vicari
Camp Dresser & McKee, Inc.
563 South Lake Street
Gary, IN 46403

Tel: (219) 939-9473
Fax:

Re: GSD - RSL GROUNDWATER Work Order : **0502441**

Dear Dan,

e-Lab Analytical, Inc received 16 samples on 2/28/2005 8:00:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from e-Lab Analytical, Inc. The total number of pages in this report is 141.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Les Arnold

Electronically approved by: Les Arnold

Les Arnold
Laboratory Director

CC: Todd King

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Project: GSD - RSL GROUNDWATER
Work Order: **0502441**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0502441-01	MW-10M-01	Groundwater		2/25/2005 13:06	2/28/2005 08:00	☐
0502441-02	MW-7MR-01	Groundwater		2/24/2005 15:08	2/28/2005 08:00	☐
0502441-03	MW-7DR-01	Groundwater		2/24/2005 17:43	2/28/2005 08:00	☐
0502441-04	MW-7S-01	Groundwater		2/25/2005 07:04	2/28/2005 08:00	☐
0502441-05	MW-7S-02	Groundwater		2/25/2005 07:37	2/28/2005 08:00	☐
0502441-06	MW-2M-01	Groundwater		2/25/2005 08:50	2/28/2005 08:00	☐
0502441-07	MW-5S-01	Groundwater		2/25/2005 10:35	2/28/2005 08:00	☐
0502441-08	MW-6M-01	Groundwater		2/25/2005 09:33	2/28/2005 08:00	☐
0502441-09	MW-5D-01	Groundwater		2/25/2005 11:08	2/28/2005 08:00	☐
0502441-10	MW-3M-01	Groundwater		2/25/2005 13:03	2/28/2005 08:00	☐
0502441-11	MW-3S-01	Groundwater		2/25/2005 13:37	2/28/2005 08:00	☐
0502441-12	MW-4M-01	Groundwater		2/25/2005 12:42	2/28/2005 08:00	☐
0502441-13	MW-9D-01	Groundwater		2/25/2005 14:30	2/28/2005 08:00	☐
0502441-14	MW-9D-02	Groundwater		2/25/2005 14:50	2/28/2005 08:00	☐
0502441-15	MW-9M-01	Groundwater		2/25/2005 15:00	2/28/2005 08:00	☐
0502441-16	Trip Blank	Trip Blank		2/25/2005	2/28/2005 08:00	☐

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-01

Client Sample ID: MW-10M-01
Collection Date: 2/25/2005 1:06:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	80.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 7:01:27 PM
Surr: Decachlorobiphenyl	72.0	40-140		%REC	1	3/3/2005	3/6/2005 7:01:27 PM
Surr: Tetrachloro-m-xylene	60.0	40-140		%REC	1	3/3/2005	3/6/2005 7:01:27 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:26:50 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	0.026	0.0050		mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Arsenic	0.0063	0.0050		mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Cadmium	0.00043	0.0020	J	mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Chromium	0.00054	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:26:00 PM

Qualifiers:
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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-01

Client Sample ID: MW-10M-01
Collection Date: 2/25/2005 1:06:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Lead	0.00040	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Nickel	0.0062	0.0050		mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Selenium	0.0045	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Silver	0.00043	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Thallium	0.00054	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 5:26:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	22.74			ft.	1		2/24/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.5			s.u.	1		2/24/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	555.0			µmhos/cm	1		2/24/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	4.51			ft.	1		2/24/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	11.6			°C	1		2/24/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
3-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-01

Client Sample ID: MW-10M-01
Collection Date: 2/25/2005 1:06:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
4-Chloroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
4-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
4-Nitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Acenaphthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Anthracene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Bis(2-ethylhexyl)phthalate	4.8	5.0	J	µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Carbazole	U	10		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Chrysene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Diethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Fluorene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Isophorone	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Naphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Pentachlorophenol	U	20		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM

Qualifiers:
U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
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* - Value exceeds Maximum Contaminant Level
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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-01

Client Sample ID: MW-10M-01
Collection Date: 2/25/2005 1:06:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Phenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Pyrene	U	5.0		µg/L	1	3/3/2005	3/4/2005 2:55:00 PM
Surr: 2,4,6-Tribromophenol	77.6	10-123		%REC	1	3/3/2005	3/4/2005 2:55:00 PM
Surr: 2-Fluorophenol	33.1	7-75		%REC	1	3/3/2005	3/4/2005 2:55:00 PM
Surr: Phenol-d6	24.1	3-67		%REC	1	3/3/2005	3/4/2005 2:55:00 PM
Surr: 2-Fluorobiphenyl	59.0	20-122		%REC	1	3/3/2005	3/4/2005 2:55:00 PM
Surr: 4-Terphenyl-d14	65.1	22-172		%REC	1	3/3/2005	3/4/2005 2:55:00 PM
Surr: Nitrobenzene-d5	50.2	8-115		%REC	1	3/3/2005	3/4/2005 2:55:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/2/2005 11:40:00 PM
2-Butanone	U	5.0		µg/L	1		3/2/2005 11:40:00 PM
2-Hexanone	U	5.0		µg/L	1		3/2/2005 11:40:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/2/2005 11:40:00 PM
Acetone	U	20		µg/L	1		3/2/2005 11:40:00 PM
Benzene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Bromoform	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Bromomethane	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/2/2005 11:40:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Chloroethane	U	1.0		µg/L	1		3/10/2005 8:56:00 PM
Chloroform	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Chloromethane	U	1.0		µg/L	1		3/10/2005 8:56:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/2/2005 11:40:00 PM
Methylene chloride	U	5.0		µg/L	1		3/2/2005 11:40:00 PM
o-Xylene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Styrene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/2/2005 11:40:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-01

Client Sample ID: MW-10M-01
Collection Date: 2/25/2005 1:06:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Trichloroethene	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/2/2005 11:40:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/2/2005 11:40:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/2/2005 11:40:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/2/2005 11:40:00 PM
Surr: 1,2-Dichloroethane-d4	98.8	70-130		%REC	1		3/10/2005 8:56:00 PM
Surr: 1,2-Dichloroethane-d4	115	70-130		%REC	1		3/2/2005 11:40:00 PM
Surr: 4-Bromofluorobenzene	94.3	70-130		%REC	1		3/10/2005 8:56:00 PM
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1		3/2/2005 11:40:00 PM
Surr: Dibromofluoromethane	105	70-130		%REC	1		3/2/2005 11:40:00 PM
Surr: Dibromofluoromethane	102	70-130		%REC	1		3/10/2005 8:56:00 PM
Surr: Toluene-d8	96.3	70-130		%REC	1		3/10/2005 8:56:00 PM
Surr: Toluene-d8	80.6	70-130		%REC	1		3/2/2005 11:40:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **BAT**
Cyanide, Total	0.0052	0.0050		mg/L	2		3/4/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	87	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	20	10		mg/L	10		3/2/2005 8:49:27 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	0.20	0.050		mg/L	1		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	0.31	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	0.0042	0.010	J	mg/L	1		3/4/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	450	5.0		mg/L	1		3/4/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **JA**
Total Suspended Solids	5.0	3.0		mg/L	1		3/1/2005

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-02

Client Sample ID: MW-7MR-01
Collection Date: 2/24/2005 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	79.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 7:37:58 PM
Surr: Decachlorobiphenyl	71.0	40-140		%REC	1	3/3/2005	3/6/2005 7:37:58 PM
Surr: Tetrachloro-m-xylene	56.0	40-140		%REC	1	3/3/2005	3/6/2005 7:37:58 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:29:09 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	0.0064	0.0050		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Arsenic	0.0045	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-02

Client Sample ID: MW-7MR-01
Collection Date: 2/24/2005 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Nickel	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Selenium	0.0013	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 5:31:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	19.40			ft.	1		2/24/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.7			s.u.	1		2/24/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	540.0			µmhos/cm	1		2/24/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	0.750			ft.	1		2/24/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	11.2			°C	1		2/24/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
3-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-02

Client Sample ID: MW-7MR-01
Collection Date: 2/24/2005 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
4-Chloroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
4-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
4-Nitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Acenaphthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Anthracene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Carbazole	U	10		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Chrysene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Diethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Fluorene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Isophorone	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Naphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Pentachlorophenol	U	20		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-02

Client Sample ID: MW-7MR-01
Collection Date: 2/24/2005 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Phenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Pyrene	U	5.0		µg/L	1	3/3/2005	3/4/2005 3:26:00 PM
Surr: 2,4,6-Tribromophenol	75.4	10-123		%REC	1	3/3/2005	3/4/2005 3:26:00 PM
Surr: 2-Fluorophenol	35.0	7-75		%REC	1	3/3/2005	3/4/2005 3:26:00 PM
Surr: Phenol-d6	24.9	3-67		%REC	1	3/3/2005	3/4/2005 3:26:00 PM
Surr: 2-Fluorobiphenyl	62.2	20-122		%REC	1	3/3/2005	3/4/2005 3:26:00 PM
Surr: 4-Terphenyl-d14	70.4	22-172		%REC	1	3/3/2005	3/4/2005 3:26:00 PM
Surr: Nitrobenzene-d5	55.1	8-115		%REC	1	3/3/2005	3/4/2005 3:26:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/3/2005 12:14:00 PM
2-Butanone	U	5.0		µg/L	1		3/3/2005 12:14:00 PM
2-Hexanone	U	5.0		µg/L	1		3/3/2005 12:14:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/3/2005 12:14:00 PM
Acetone	U	20		µg/L	1		3/3/2005 12:14:00 PM
Benzene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Bromoform	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Bromomethane	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/3/2005 12:14:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Chloroethane	U	1.0		µg/L	1		3/10/2005 9:25:00 PM
Chloroform	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Chloromethane	U	1.0		µg/L	1		3/10/2005 9:25:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/3/2005 12:14:00 PM
Methylene chloride	U	5.0		µg/L	1		3/3/2005 12:14:00 PM
o-Xylene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Styrene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/3/2005 12:14:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-02

Client Sample ID: MW-7MR-01
Collection Date: 2/24/2005 3:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Trichloroethene	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/3/2005 12:14:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/3/2005 12:14:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/3/2005 12:14:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/3/2005 12:14:00 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1		3/10/2005 9:25:00 PM
Surr: 1,2-Dichloroethane-d4	114	70-130		%REC	1		3/3/2005 12:14:00 PM
Surr: 4-Bromofluorobenzene	95.2	70-130		%REC	1		3/10/2005 9:25:00 PM
Surr: 4-Bromofluorobenzene	94.9	70-130		%REC	1		3/3/2005 12:14:00 PM
Surr: Dibromofluoromethane	112	70-130		%REC	1		3/3/2005 12:14:00 PM
Surr: Toluene-d8	96.3	70-130		%REC	1		3/10/2005 9:25:00 PM
Surr: Toluene-d8	89.5	70-130		%REC	1		3/3/2005 12:14:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **BAT**
Cyanide, Total	0.012	0.0050		mg/L	2		3/4/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	U	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	69	10		mg/L	10		3/2/2005 9:04:01 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	0.49	0.25		mg/L	5		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	0.018	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.010		mg/L	1		3/4/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	390	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **JA**
Total Suspended Solids	U	3.0		mg/L	1		3/1/2005

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-03

Client Sample ID: MW-7DR-01
Collection Date: 2/24/2005 5:43:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 8:14:37 PM
Surr: Decachlorobiphenyl	72.0	40-140		%REC	1	3/3/2005	3/6/2005 8:14:37 PM
Surr: Tetrachloro-m-xylene	64.0	40-140		%REC	1	3/3/2005	3/6/2005 8:14:37 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:31:27 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	0.0029	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Arsenic	0.056	0.0050		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-03

Client Sample ID: MW-7DR-01
Collection Date: 2/24/2005 5:43:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Nickel	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 5:36:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	30.41			ft.	1		2/24/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.3			s.u.	1		2/24/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	561.0			µmhos/cm	1		2/24/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	0.460			ft.	1		2/24/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	11.8			°C	1		2/24/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
3-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM

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P - Dual Column results percent difference > 40%
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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-03

Client Sample ID: MW-7DR-01
Collection Date: 2/24/2005 5:43:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
4-Chloroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
4-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
4-Nitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Acenaphthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Anthracene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Carbazole	U	10		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Chrysene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Diethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Fluorene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Isophorone	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Naphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Pentachlorophenol	U	20		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-03

Client Sample ID: MW-7DR-01
Collection Date: 2/24/2005 5:43:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Phenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Pyrene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:02:00 PM
Surr: 2,4,6-Tribromophenol	86.4	10-123		%REC	1	3/3/2005	3/4/2005 7:02:00 PM
Surr: 2-Fluorophenol	34.3	7-75		%REC	1	3/3/2005	3/4/2005 7:02:00 PM
Surr: Phenol-d6	24.6	3-67		%REC	1	3/3/2005	3/4/2005 7:02:00 PM
Surr: 2-Fluorobiphenyl	58.5	20-122		%REC	1	3/3/2005	3/4/2005 7:02:00 PM
Surr: 4-Terphenyl-d14	73.3	22-172		%REC	1	3/3/2005	3/4/2005 7:02:00 PM
Surr: Nitrobenzene-d5	53.7	8-115		%REC	1	3/3/2005	3/4/2005 7:02:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/3/2005 12:48:00 PM
2-Butanone	U	5.0		µg/L	1		3/3/2005 12:48:00 PM
2-Hexanone	U	5.0		µg/L	1		3/3/2005 12:48:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/3/2005 12:48:00 PM
Acetone	U	20		µg/L	1		3/3/2005 12:48:00 PM
Benzene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Bromoform	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Bromomethane	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/3/2005 12:48:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Chloroethane	U	1.0		µg/L	1		3/10/2005 9:53:00 PM
Chloroform	2.2	1.0		µg/L	1		3/3/2005 12:48:00 PM
Chloromethane	U	1.0		µg/L	1		3/10/2005 9:53:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/3/2005 12:48:00 PM
Methylene chloride	U	5.0		µg/L	1		3/3/2005 12:48:00 PM
o-Xylene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Styrene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/3/2005 12:48:00 PM

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-03

Client Sample ID: MW-7DR-01
Collection Date: 2/24/2005 5:43:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Trichloroethene	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/3/2005 12:48:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/3/2005 12:48:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/3/2005 12:48:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/3/2005 12:48:00 PM
Surr: 1,2-Dichloroethane-d4	108	70-130		%REC	1		3/10/2005 9:53:00 PM
Surr: 1,2-Dichloroethane-d4	111	70-130		%REC	1		3/3/2005 12:48:00 PM
Surr: 4-Bromofluorobenzene	94.7	70-130		%REC	1		3/10/2005 9:53:00 PM
Surr: 4-Bromofluorobenzene	87.8	70-130		%REC	1		3/3/2005 12:48:00 PM
Surr: Dibromofluoromethane	117	70-130		%REC	1		3/3/2005 12:48:00 PM
Surr: Dibromofluoromethane	103	70-130		%REC	1		3/10/2005 9:53:00 PM
Surr: Toluene-d8	92.8	70-130		%REC	1		3/10/2005 9:53:00 PM
Surr: Toluene-d8	85.3	70-130		%REC	1		3/3/2005 12:48:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **BAT**
Cyanide, Total	U	0.0050		mg/L	2		3/4/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	15	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	49	10		mg/L	10		3/2/2005 9:18:35 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	1.2	0.25		mg/L	5		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	0.011	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.010		mg/L	1		3/4/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	430	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **JA**
Total Suspended Solids	18	3.0		mg/L	1		3/1/2005

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-04

Client Sample ID: MW-7S-01
Collection Date: 2/25/2005 7:04:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	93.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 8:51:09 PM
Surr: Decachlorobiphenyl	83.0	40-140		%REC	1	3/3/2005	3/6/2005 8:51:09 PM
Surr: Tetrachloro-m-xylene	69.0	40-140		%REC	1	3/3/2005	3/6/2005 8:51:09 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:33:46 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	0.0015	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Arsenic	0.00076	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-04

Client Sample ID: MW-7S-01
Collection Date: 2/25/2005 7:04:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Nickel	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 5:41:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	8.100			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.6			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	2,300			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	1.08			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	8.10			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
3-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-04

Client Sample ID: MW-7S-01
Collection Date: 2/25/2005 7:04:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
4-Chloroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
4-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
4-Nitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Acenaphthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Anthracene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Carbazole	U	10		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Chrysene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Diethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Fluorene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Isophorone	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Naphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Pentachlorophenol	U	20		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-04

Client Sample ID: MW-7S-01
Collection Date: 2/25/2005 7:04:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Phenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Pyrene	U	5.0		µg/L	1	3/3/2005	3/4/2005 7:33:00 PM
Surr: 2,4,6-Tribromophenol	66.4	10-123		%REC	1	3/3/2005	3/4/2005 7:33:00 PM
Surr: 2-Fluorophenol	27.8	7-75		%REC	1	3/3/2005	3/4/2005 7:33:00 PM
Surr: Phenol-d6	21.3	3-67		%REC	1	3/3/2005	3/4/2005 7:33:00 PM
Surr: 2-Fluorobiphenyl	54.6	20-122		%REC	1	3/3/2005	3/4/2005 7:33:00 PM
Surr: 4-Terphenyl-d14	72.1	22-172		%REC	1	3/3/2005	3/4/2005 7:33:00 PM
Surr: Nitrobenzene-d5	48.7	8-115		%REC	1	3/3/2005	3/4/2005 7:33:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/3/2005 8:52:00 PM
2-Butanone	U	5.0		µg/L	1		3/3/2005 8:52:00 PM
2-Hexanone	U	5.0		µg/L	1		3/3/2005 8:52:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/3/2005 8:52:00 PM
Acetone	U	20		µg/L	1		3/3/2005 8:52:00 PM
Benzene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Bromoform	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Bromomethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/3/2005 8:52:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Chloroethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Chloroform	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Chloromethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/3/2005 8:52:00 PM
Methylene chloride	U	5.0		µg/L	1		3/3/2005 8:52:00 PM
o-Xylene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Styrene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/3/2005 8:52:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-04

Client Sample ID: MW-7S-01
Collection Date: 2/25/2005 7:04:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Trichloroethene	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/3/2005 8:52:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/3/2005 8:52:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/3/2005 8:52:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/3/2005 8:52:00 PM
Surr: 1,2-Dichloroethane-d4	87.9	70-130		%REC	1		3/3/2005 8:52:00 PM
Surr: 4-Bromofluorobenzene	112	70-130		%REC	1		3/3/2005 8:52:00 PM
Surr: Dibromofluoromethane	110	70-130		%REC	1		3/3/2005 8:52:00 PM
Surr: Toluene-d8	100	70-130		%REC	1		3/3/2005 8:52:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **BAT**
Cyanide, Total	0.0082	0.0050		mg/L	2		3/4/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	31	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	450	100		mg/L	100		3/3/2005 2:04:42 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	0.17	0.050		mg/L	1		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	0.098	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.010		mg/L	1		3/7/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	1,200	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **JA**
Total Suspended Solids	U	3.0		mg/L	1		3/1/2005

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-05

Client Sample ID: MW-7S-02
Collection Date: 2/25/2005 7:37:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	87.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 9:27:46 PM
Surr: Decachlorobiphenyl	77.0	40-140		%REC	1	3/3/2005	3/6/2005 9:27:46 PM
Surr: Tetrachloro-m-xylene	62.0	40-140		%REC	1	3/3/2005	3/6/2005 9:27:46 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:36:05 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	0.00092	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Arsenic	0.00068	0.0050	J	mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-05

Client Sample ID: MW-7S-02
Collection Date: 2/25/2005 7:37:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Nickel	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
Zinc	0.0028	0.010	J	mg/L	1	2/28/2005	3/2/2005 5:46:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	8.510			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.6			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	2,300			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	1.08			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	8.10			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2-Chloronaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2-Chlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2-Methylnaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
2-Nitrophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM

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* - Value exceeds Maximum Contaminant Level
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P - Dual Column results percent difference > 40%
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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-05

Client Sample ID: MW-7S-02
Collection Date: 2/25/2005 7:37:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
4-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Acenaphthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Acenaphthylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Anthracene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Carbazole	U	10		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Chrysene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Dibenzofuran	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Fluorene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Hexachlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Hexachlorobutadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Hexachloroethane	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Isophorone	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Naphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Nitrobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-05

Client Sample ID: MW-7S-02
Collection Date: 2/25/2005 7:37:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Phenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Pyrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 10:34:00 AM
Surr: 2,4,6-Tribromophenol	67.7	10-123		%REC	1	3/4/2005	3/7/2005 10:34:00 AM
Surr: 2-Fluorophenol	34.9	7-75		%REC	1	3/4/2005	3/7/2005 10:34:00 AM
Surr: Phenol-d6	23.6	3-67		%REC	1	3/4/2005	3/7/2005 10:34:00 AM
Surr: 2-Fluorobiphenyl	57.8	20-122		%REC	1	3/4/2005	3/7/2005 10:34:00 AM
Surr: 4-Terphenyl-d14	62.9	22-172		%REC	1	3/4/2005	3/7/2005 10:34:00 AM
Surr: Nitrobenzene-d5	53.8	8-115		%REC	1	3/4/2005	3/7/2005 10:34:00 AM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/3/2005 9:26:00 PM
2-Butanone	U	5.0		µg/L	1		3/3/2005 9:26:00 PM
2-Hexanone	U	5.0		µg/L	1		3/3/2005 9:26:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/3/2005 9:26:00 PM
Acetone	U	20		µg/L	1		3/3/2005 9:26:00 PM
Benzene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Bromoform	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Bromomethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/3/2005 9:26:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Chloroethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Chloroform	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Chloromethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/3/2005 9:26:00 PM
Methylene chloride	U	5.0		µg/L	1		3/3/2005 9:26:00 PM
o-Xylene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Styrene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/3/2005 9:26:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-05

Client Sample ID: MW-7S-02
Collection Date: 2/25/2005 7:37:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Trichloroethene	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/3/2005 9:26:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/3/2005 9:26:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/3/2005 9:26:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/3/2005 9:26:00 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1		3/3/2005 9:26:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1		3/3/2005 9:26:00 PM
Surr: Dibromofluoromethane	114	70-130		%REC	1		3/3/2005 9:26:00 PM
Surr: Toluene-d8	92.7	70-130		%REC	1		3/3/2005 9:26:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **BAT**
Cyanide, Total	0.010	0.0050		mg/L	2		3/4/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	27	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	450	100		mg/L	100		3/3/2005 2:19:17 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	0.17	0.050		mg/L	1		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	0.089	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.010		mg/L	1		3/7/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	1,100	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **JA**
Total Suspended Solids	U	3.0		mg/L	1		3/1/2005

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-06

Client Sample ID: MW-2M-01
Collection Date: 2/25/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	92.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 10:04:00 PM
Surr: Decachlorobiphenyl	80.0	40-140		%REC	1	3/3/2005	3/6/2005 10:04:00 PM
Surr: Tetrachloro-m-xylene	67.0	40-140		%REC	1	3/3/2005	3/6/2005 10:04:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00025		mg/L	1	3/9/2005	3/9/2005 2:38:25 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	0.00058	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Arsenic	0.0032	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:17:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-06

Client Sample ID: MW-2M-01
Collection Date: 2/25/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Nickel	0.00096	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Selenium	0.00079	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:17:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	19.51			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.4			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	2,890			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	2.99			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	9.70			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2-Chloronaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2-Chlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2-Methylnaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
2-Nitrophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM

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* - Value exceeds Maximum Contaminant Level
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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-06

Client Sample ID: MW-2M-01
Collection Date: 2/25/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
4-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Acenaphthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Acenaphthylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Anthracene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Carbazole	U	10		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Chrysene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Dibenzofuran	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Fluorene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Hexachlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Hexachlorobutadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Hexachloroethane	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Isophorone	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Naphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Nitrobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-06

Client Sample ID: MW-2M-01
Collection Date: 2/25/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Phenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Pyrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 11:06:00 AM
Surr: 2,4,6-Tribromophenol	68.8	10-123		%REC	1	3/4/2005	3/7/2005 11:06:00 AM
Surr: 2-Fluorophenol	38.3	7-75		%REC	1	3/4/2005	3/7/2005 11:06:00 AM
Surr: Phenol-d6	26.3	3-67		%REC	1	3/4/2005	3/7/2005 11:06:00 AM
Surr: 2-Fluorobiphenyl	61.6	20-122		%REC	1	3/4/2005	3/7/2005 11:06:00 AM
Surr: 4-Terphenyl-d14	59.5	22-172		%REC	1	3/4/2005	3/7/2005 11:06:00 AM
Surr: Nitrobenzene-d5	58.0	8-115		%REC	1	3/4/2005	3/7/2005 11:06:00 AM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/3/2005 10:01:00 PM
2-Butanone	25	5.0		µg/L	1		3/3/2005 10:01:00 PM
2-Hexanone	U	5.0		µg/L	1		3/3/2005 10:01:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/3/2005 10:01:00 PM
Acetone	U	20		µg/L	1		3/3/2005 10:01:00 PM
Benzene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Bromoform	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Bromomethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/3/2005 10:01:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Chloroethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Chloroform	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Chloromethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/3/2005 10:01:00 PM
Methylene chloride	U	5.0		µg/L	1		3/3/2005 10:01:00 PM
o-Xylene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Styrene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/3/2005 10:01:00 PM

Qualifiers:
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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-06

Client Sample ID: MW-2M-01
Collection Date: 2/25/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Trichloroethene	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/3/2005 10:01:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/3/2005 10:01:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/3/2005 10:01:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/3/2005 10:01:00 PM
Surr: 1,2-Dichloroethane-d4	92.2	70-130		%REC	1		3/3/2005 10:01:00 PM
Surr: 4-Bromofluorobenzene	99.1	70-130		%REC	1		3/3/2005 10:01:00 PM
Surr: Dibromofluoromethane	109	70-130		%REC	1		3/3/2005 10:01:00 PM
Surr: Toluene-d8	94.2	70-130		%REC	1		3/3/2005 10:01:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **BAT**
Cyanide, Total	0.027	0.0050		mg/L	2		3/4/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	41	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	660	100		mg/L	100		3/3/2005 2:33:51 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	0.14	0.050		mg/L	1		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	0.18	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.010		mg/L	1		3/7/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	1,500	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **JA**
Total Suspended Solids	6.8	3.0		mg/L	1		3/1/2005

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-07

Client Sample ID: MW-5S-01
Collection Date: 2/25/2005 10:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	89.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 10:40:00 PM
Surr: Decachlorobiphenyl	79.0	40-140		%REC	1	3/3/2005	3/6/2005 10:40:00 PM
Surr: Tetrachloro-m-xylene	65.0	40-140		%REC	1	3/3/2005	3/6/2005 10:40:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:40:41 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Arsenic	0.0026	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-07

Client Sample ID: MW-5S-01
Collection Date: 2/25/2005 10:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Nickel	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:22:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	8.200			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.6			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	1,010			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	1.62			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	4.10			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
1,2-Dichlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
1,3-Dichlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
1,4-Dichlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2,4,5-Trichlorophenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2,4,6-Trichlorophenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2,4-Dimethylphenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2,4-Dinitrotoluene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2,6-Dinitrotoluene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2-Chloronaphthalene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2-Chlorophenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2-Methylnaphthalene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2-Methylphenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
2-Nitrophenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-07

Client Sample ID: MW-5S-01
Collection Date: 2/25/2005 10:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
4-Chloro-3-methylphenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
4-Chlorophenyl phenyl ether	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
4-Methylphenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Acenaphthene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Acenaphthylene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Anthracene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Benzo(g,h,i)perylene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Benzo(k)fluoranthene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Bis(2-chloroethoxy)methane	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Bis(2-chloroethyl)ether	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Bis(2-chloroisopropyl)ether	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Bis(2-ethylhexyl)phthalate	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Butyl benzyl phthalate	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Carbazole	U	10		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Chrysene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Di-n-butyl phthalate	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Di-n-octyl phthalate	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Dibenzofuran	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Fluoranthene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Fluorene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Hexachlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Hexachlorobutadiene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Hexachlorocyclopentadiene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Hexachloroethane	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Isophorone	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
N-Nitrosodi-n-propylamine	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
N-Nitrosodiphenylamine	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Naphthalene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Nitrobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM

Qualifiers:
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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-07

Client Sample ID: MW-5S-01
Collection Date: 2/25/2005 10:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Phenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Pyrene	U	5.1		µg/L	1	3/4/2005	3/7/2005 11:37:00 AM
Surr: 2,4,6-Tribromophenol	69.7	10-123		%REC	1	3/4/2005	3/7/2005 11:37:00 AM
Surr: 2-Fluorophenol	39.4	7-75		%REC	1	3/4/2005	3/7/2005 11:37:00 AM
Surr: Phenol-d6	26.8	3-67		%REC	1	3/4/2005	3/7/2005 11:37:00 AM
Surr: 2-Fluorobiphenyl	51.4	20-122		%REC	1	3/4/2005	3/7/2005 11:37:00 AM
Surr: 4-Terphenyl-d14	53.3	22-172		%REC	1	3/4/2005	3/7/2005 11:37:00 AM
Surr: Nitrobenzene-d5	50.3	8-115		%REC	1	3/4/2005	3/7/2005 11:37:00 AM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/3/2005 10:35:00 PM
2-Butanone	U	5.0		µg/L	1		3/3/2005 10:35:00 PM
2-Hexanone	U	5.0		µg/L	1		3/3/2005 10:35:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/3/2005 10:35:00 PM
Acetone	U	20		µg/L	1		3/3/2005 10:35:00 PM
Benzene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Bromoform	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Bromomethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/3/2005 10:35:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Chloroethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Chloroform	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Chloromethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/3/2005 10:35:00 PM
Methylene chloride	U	5.0		µg/L	1		3/3/2005 10:35:00 PM
o-Xylene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Styrene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/3/2005 10:35:00 PM

Qualifiers:
U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-07

Client Sample ID: MW-5S-01
Collection Date: 2/25/2005 10:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Trichloroethene	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/3/2005 10:35:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/3/2005 10:35:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/3/2005 10:35:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/3/2005 10:35:00 PM
Surr: 1,2-Dichloroethane-d4	95.2	70-130		%REC	1		3/3/2005 10:35:00 PM
Surr: 4-Bromofluorobenzene	109	70-130		%REC	1		3/3/2005 10:35:00 PM
Surr: Dibromofluoromethane	111	70-130		%REC	1		3/3/2005 10:35:00 PM
Surr: Toluene-d8	90.4	70-130		%REC	1		3/3/2005 10:35:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **BAT**
Cyanide, Total	U	0.0050		mg/L	2		3/4/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	36	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	190	10		mg/L	10		3/2/2005 10:16:50 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	1.6	0.25		mg/L	5		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	0.022	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	0.0041	0.010	J	mg/L	1		3/7/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	460	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **JA**
Total Suspended Solids	12	3.0		mg/L	1		3/1/2005

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-08

Client Sample ID: MW-6M-01
Collection Date: 2/25/2005 9:33:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	89.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 11:17:00 PM
Surr: Decachlorobiphenyl	79.0	40-140		%REC	1	3/3/2005	3/6/2005 11:17:00 PM
Surr: Tetrachloro-m-xylene	61.0	40-140		%REC	1	3/3/2005	3/6/2005 11:17:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:49:50 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Arsenic	0.019	0.0050		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-08

Client Sample ID: MW-6M-01
Collection Date: 2/25/2005 9:33:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Nickel	0.0014	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:27:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	20.20			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	8.2			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	2,100			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	1.15			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	11.0			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-08

Client Sample ID: MW-6M-01
Collection Date: 2/25/2005 9:33:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Acenaphthene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Anthracene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Carbazole	U	10		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Chrysene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Fluoranthene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Fluorene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Isophorone	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Naphthalene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-08

Client Sample ID: MW-6M-01
Collection Date: 2/25/2005 9:33:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Phenol	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Pyrene	U	5.0		µg/L	1	3/4/2005	3/4/2005 6:31:00 PM
Surr: 2,4,6-Tribromophenol	76.4	10-123		%REC	1	3/4/2005	3/4/2005 6:31:00 PM
Surr: 2-Fluorophenol	32.9	7-75		%REC	1	3/4/2005	3/4/2005 6:31:00 PM
Surr: Phenol-d6	23.5	3-67		%REC	1	3/4/2005	3/4/2005 6:31:00 PM
Surr: 2-Fluorobiphenyl	56.8	20-122		%REC	1	3/4/2005	3/4/2005 6:31:00 PM
Surr: 4-Terphenyl-d14	55.4	22-172		%REC	1	3/4/2005	3/4/2005 6:31:00 PM
Surr: Nitrobenzene-d5	50.3	8-115		%REC	1	3/4/2005	3/4/2005 6:31:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/3/2005 11:09:00 PM
2-Butanone	U	5.0		µg/L	1		3/3/2005 11:09:00 PM
2-Hexanone	U	5.0		µg/L	1		3/3/2005 11:09:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/3/2005 11:09:00 PM
Acetone	U	20		µg/L	1		3/3/2005 11:09:00 PM
Benzene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Bromoform	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Bromomethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/3/2005 11:09:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Chloroethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Chloroform	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Chloromethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/3/2005 11:09:00 PM
Methylene chloride	U	5.0		µg/L	1		3/3/2005 11:09:00 PM
o-Xylene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Styrene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/3/2005 11:09:00 PM

Qualifiers:
U - Analyzed for but Not Detected
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P - Dual Column results percent difference > 40%
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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-08

Client Sample ID: MW-6M-01
Collection Date: 2/25/2005 9:33:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Trichloroethene	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/3/2005 11:09:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/3/2005 11:09:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/3/2005 11:09:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/3/2005 11:09:00 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1		3/3/2005 11:09:00 PM
Surr: 4-Bromofluorobenzene	94.6	70-130		%REC	1		3/3/2005 11:09:00 PM
Surr: Dibromofluoromethane	97.3	70-130		%REC	1		3/3/2005 11:09:00 PM
Surr: Toluene-d8	82.6	70-130		%REC	1		3/3/2005 11:09:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	U	0.0050		mg/L	2		3/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	38	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	410	100		mg/L	100		3/3/2005 2:48:22 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	8.5	1.2		mg/L	25		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	U	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	0.0041	0.010	J	mg/L	1		3/7/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	1,000	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **JA**
Total Suspended Solids	U	3.0		mg/L	1		3/1/2005

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-09

Client Sample ID: MW-5D-01
Collection Date: 2/25/2005 11:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	90.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Endrin	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/6/2005 11:53:00 PM
Surr: Decachlorobiphenyl	80.0	40-140		%REC	1	3/3/2005	3/6/2005 11:53:00 PM
Surr: Tetrachloro-m-xylene	62.0	40-140		%REC	1	3/3/2005	3/6/2005 11:53:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:52:08 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Arsenic	0.023	0.0050		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-09

Client Sample ID: MW-5D-01
Collection Date: 2/25/2005 11:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Nickel	0.0030	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:33:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	31.68			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.0			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	2,370			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	2.55			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	12.3			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-09

Client Sample ID: MW-5D-01
Collection Date: 2/25/2005 11:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Acenaphthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Anthracene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Carbazole	U	10		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Chrysene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Fluorene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Isophorone	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Naphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-09

Client Sample ID: MW-5D-01
Collection Date: 2/25/2005 11:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Phenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Pyrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:08:00 PM
Surr: 2,4,6-Tribromophenol	89.0	10-123		%REC	1	3/4/2005	3/7/2005 12:08:00 PM
Surr: 2-Fluorophenol	41.4	7-75		%REC	1	3/4/2005	3/7/2005 12:08:00 PM
Surr: Phenol-d6	28.2	3-67		%REC	1	3/4/2005	3/7/2005 12:08:00 PM
Surr: 2-Fluorobiphenyl	69.9	20-122		%REC	1	3/4/2005	3/7/2005 12:08:00 PM
Surr: 4-Terphenyl-d14	53.8	22-172		%REC	1	3/4/2005	3/7/2005 12:08:00 PM
Surr: Nitrobenzene-d5	62.5	8-115		%REC	1	3/4/2005	3/7/2005 12:08:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/3/2005 11:43:00 PM
2-Butanone	U	5.0		µg/L	1		3/3/2005 11:43:00 PM
2-Hexanone	U	5.0		µg/L	1		3/3/2005 11:43:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/3/2005 11:43:00 PM
Acetone	U	20		µg/L	1		3/3/2005 11:43:00 PM
Benzene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Bromoform	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Bromomethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/3/2005 11:43:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Chloroethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Chloroform	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Chloromethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/3/2005 11:43:00 PM
Methylene chloride	U	5.0		µg/L	1		3/3/2005 11:43:00 PM
o-Xylene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Styrene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/3/2005 11:43:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-09

Client Sample ID: MW-5D-01
Collection Date: 2/25/2005 11:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Trichloroethene	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/3/2005 11:43:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/3/2005 11:43:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/3/2005 11:43:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/3/2005 11:43:00 PM
Surr: 1,2-Dichloroethane-d4	99.5	70-130		%REC	1		3/3/2005 11:43:00 PM
Surr: 4-Bromofluorobenzene	93.8	70-130		%REC	1		3/3/2005 11:43:00 PM
Surr: Dibromofluoromethane	105	70-130		%REC	1		3/3/2005 11:43:00 PM
Surr: Toluene-d8	84.2	70-130		%REC	1		3/3/2005 11:43:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	U	0.0050		mg/L	2		3/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	54	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	360	100		mg/L	100		3/3/2005 3:02:56 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	40	31		mg/L	625		3/9/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	U	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.010		mg/L	1		3/7/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	1,100	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **KAE**
Total Suspended Solids	33	3.0		mg/L	1		3/2/2005

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-10

Client Sample ID: MW-3M-01
Collection Date: 2/25/2005 1:03:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	84.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Endrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/7/2005 12:30:00 AM
Surr: Decachlorobiphenyl	75.0	40-140		%REC	1	3/3/2005	3/7/2005 12:30:00 AM
Surr: Tetrachloro-m-xylene	59.0	40-140		%REC	1	3/3/2005	3/7/2005 12:30:00 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:54:27 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Arsenic	0.0051	0.0050		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Chromium	0.00069	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:38:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-10

Client Sample ID: MW-3M-01
Collection Date: 2/25/2005 1:03:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Nickel	0.0062	0.0050		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:38:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	20.58			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.0			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	2,010			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	2.88			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	12.5			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-10

Client Sample ID: MW-3M-01
Collection Date: 2/25/2005 1:03:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Acenaphthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Anthracene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Carbazole	U	10		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Chrysene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Fluorene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Isophorone	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Naphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-10

Client Sample ID: MW-3M-01
Collection Date: 2/25/2005 1:03:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Phenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Pyrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 12:39:00 PM
Surr: 2,4,6-Tribromophenol	95.6	10-123		%REC	1	3/4/2005	3/7/2005 12:39:00 PM
Surr: 2-Fluorophenol	44.0	7-75		%REC	1	3/4/2005	3/7/2005 12:39:00 PM
Surr: Phenol-d6	20.7	3-67		%REC	1	3/4/2005	3/7/2005 12:39:00 PM
Surr: 2-Fluorobiphenyl	59.9	20-122		%REC	1	3/4/2005	3/7/2005 12:39:00 PM
Surr: 4-Terphenyl-d14	79.4	22-172		%REC	1	3/4/2005	3/7/2005 12:39:00 PM
Surr: Nitrobenzene-d5	56.9	8-115		%REC	1	3/4/2005	3/7/2005 12:39:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/4/2005 12:18:00 PM
2-Butanone	U	5.0		µg/L	1		3/4/2005 12:18:00 PM
2-Hexanone	U	5.0		µg/L	1		3/4/2005 12:18:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/4/2005 12:18:00 PM
Acetone	U	20		µg/L	1		3/4/2005 12:18:00 PM
Benzene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Bromoform	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Bromomethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/4/2005 12:18:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Chloroethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Chloroform	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Chloromethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/4/2005 12:18:00 PM
Methylene chloride	U	5.0		µg/L	1		3/4/2005 12:18:00 PM
o-Xylene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Styrene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/4/2005 12:18:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-10

Client Sample ID: MW-3M-01
Collection Date: 2/25/2005 1:03:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Trichloroethene	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/4/2005 12:18:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/4/2005 12:18:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/4/2005 12:18:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/4/2005 12:18:00 PM
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%REC	1		3/4/2005 12:18:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1		3/4/2005 12:18:00 PM
Surr: Dibromofluoromethane	115	70-130		%REC	1		3/4/2005 12:18:00 PM
Surr: Toluene-d8	86.0	70-130		%REC	1		3/4/2005 12:18:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	U	0.0050		mg/L	2		3/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	66	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	270	100		mg/L	100		3/3/2005 3:17:30 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	93	31		mg/L	625		3/9/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	U	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	0.0059	0.010	J	mg/L	1		3/7/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	700	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **KAE**
Total Suspended Solids	30	3.0		mg/L	1		3/2/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-11

Client Sample ID: MW-3S-01
Collection Date: 2/25/2005 1:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	85.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Endrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/7/2005 1:07:05 AM
Surr: Decachlorobiphenyl	74.0	40-140		%REC	1	3/3/2005	3/7/2005 1:07:05 AM
Surr: Tetrachloro-m-xylene	53.0	40-140		%REC	1	3/3/2005	3/7/2005 1:07:05 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:56:45 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Arsenic	0.0017	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-11

Client Sample ID: MW-3S-01
Collection Date: 2/25/2005 1:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	0.0020	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Nickel	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:43:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	7.700			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	7.4			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	1,380			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	3.74			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	7.60			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-11

Client Sample ID: MW-3S-01
Collection Date: 2/25/2005 1:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Acenaphthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Anthracene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Carbazole	U	10		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Chrysene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Fluorene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Isophorone	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Naphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM

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Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-11

Client Sample ID: MW-3S-01
Collection Date: 2/25/2005 1:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Phenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Pyrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 1:54:00 PM
Surr: 2,4,6-Tribromophenol	87.9	10-123		%REC	1	3/4/2005	3/7/2005 1:54:00 PM
Surr: 2-Fluorophenol	38.0	7-75		%REC	1	3/4/2005	3/7/2005 1:54:00 PM
Surr: Phenol-d6	27.3	3-67		%REC	1	3/4/2005	3/7/2005 1:54:00 PM
Surr: 2-Fluorobiphenyl	50.7	20-122		%REC	1	3/4/2005	3/7/2005 1:54:00 PM
Surr: 4-Terphenyl-d14	71.5	22-172		%REC	1	3/4/2005	3/7/2005 1:54:00 PM
Surr: Nitrobenzene-d5	49.8	8-115		%REC	1	3/4/2005	3/7/2005 1:54:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/9/2005 3:00:00 PM
2-Butanone	U	5.0		µg/L	1		3/9/2005 3:00:00 PM
2-Hexanone	U	5.0		µg/L	1		3/9/2005 3:00:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/9/2005 3:00:00 PM
Acetone	U	20		µg/L	1		3/9/2005 3:00:00 PM
Benzene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Bromoform	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Bromomethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/9/2005 3:00:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Chloroethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Chloroform	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Chloromethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/9/2005 3:00:00 PM
Methylene chloride	U	5.0		µg/L	1		3/9/2005 3:00:00 PM
o-Xylene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Styrene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/9/2005 3:00:00 PM

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-11

Client Sample ID: MW-3S-01
Collection Date: 2/25/2005 1:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Trichloroethene	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/9/2005 3:00:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/9/2005 3:00:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/9/2005 3:00:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/9/2005 3:00:00 PM
Surr: 1,2-Dichloroethane-d4	90.8	70-130		%REC	1		3/9/2005 3:00:00 PM
Surr: 4-Bromofluorobenzene	92.2	70-130		%REC	1		3/9/2005 3:00:00 PM
Surr: Dibromofluoromethane	101	70-130		%REC	1		3/9/2005 3:00:00 PM
Surr: Toluene-d8	101	70-130		%REC	1		3/9/2005 3:00:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	U	0.0050		mg/L	2		3/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	54	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	240	50		mg/L	50		3/3/2005 4:15:44 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	20	2.5		mg/L	50		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	U	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.012		mg/L	1.25		3/11/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	650	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **KAE**
Total Suspended Solids	14	3.0		mg/L	1		3/2/2005

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U - Analyzed for but Not Detected
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-12

Client Sample ID: MW-4M-01
Collection Date: 2/25/2005 12:42:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	87.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Endrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/7/2005 1:43:34 AM
Surr: Decachlorobiphenyl	76.0	40-140		%REC	1	3/3/2005	3/7/2005 1:43:34 AM
Surr: Tetrachloro-m-xylene	57.0	40-140		%REC	1	3/3/2005	3/7/2005 1:43:34 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 2:59:04 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Arsenic	0.013	0.0050		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Chromium	0.00090	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:48:00 PM

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P - Dual Column results percent difference > 40%
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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-12

Client Sample ID: MW-4M-01
Collection Date: 2/25/2005 12:42:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Nickel	0.0067	0.0050		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:48:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	25.28			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	6.8			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	2,200			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	3.31			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	11.5			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2-Methylnaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-12

Client Sample ID: MW-4M-01
Collection Date: 2/25/2005 12:42:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Acenaphthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Acenaphthylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Anthracene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Carbazole	U	10		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Chrysene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Dibenzofuran	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Fluorene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Isophorone	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Naphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-12

Client Sample ID: MW-4M-01
Collection Date: 2/25/2005 12:42:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Phenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Pyrene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:27:00 PM
Surr: 2,4,6-Tribromophenol	101	10-123		%REC	1	3/4/2005	3/7/2005 3:27:00 PM
Surr: 2-Fluorophenol	40.4	7-75		%REC	1	3/4/2005	3/7/2005 3:27:00 PM
Surr: Phenol-d6	30.2	3-67		%REC	1	3/4/2005	3/7/2005 3:27:00 PM
Surr: 2-Fluorobiphenyl	55.4	20-122		%REC	1	3/4/2005	3/7/2005 3:27:00 PM
Surr: 4-Terphenyl-d14	75.1	22-172		%REC	1	3/4/2005	3/7/2005 3:27:00 PM
Surr: Nitrobenzene-d5	51.0	8-115		%REC	1	3/4/2005	3/7/2005 3:27:00 PM
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
1,1-Dichloroethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
1,1-Dichloroethene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
1,2-Dichloroethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
1,2-Dichloropropane	U	2.0		µg/L	1		3/4/2005 2:34:00 AM
2-Butanone	U	5.0		µg/L	1		3/4/2005 2:34:00 AM
2-Hexanone	U	5.0		µg/L	1		3/4/2005 2:34:00 AM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/4/2005 2:34:00 AM
Acetone	U	20		µg/L	1		3/4/2005 2:34:00 AM
Benzene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Bromodichloromethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Bromoform	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Bromomethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Carbon disulfide	U	2.5		µg/L	1		3/4/2005 2:34:00 AM
Carbon tetrachloride	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Chlorobenzene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Chloroethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Chloroform	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Chloromethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Dibromochloromethane	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Ethylbenzene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
m,p-Xylene	U	2.0		µg/L	1		3/4/2005 2:34:00 AM
Methylene chloride	U	5.0		µg/L	1		3/4/2005 2:34:00 AM
o-Xylene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Styrene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Tetrachloroethene	U	2.0		µg/L	1		3/4/2005 2:34:00 AM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-12

Client Sample ID: MW-4M-01
Collection Date: 2/25/2005 12:42:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Trichloroethene	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
Vinyl chloride	U	1.0		µg/L	1		3/4/2005 2:34:00 AM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/4/2005 2:34:00 AM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/4/2005 2:34:00 AM
Xylenes, Total	U	3.0		µg/L	1		3/4/2005 2:34:00 AM
Surr: 1,2-Dichloroethane-d4	93.3	70-130		%REC	1		3/4/2005 2:34:00 AM
Surr: 4-Bromofluorobenzene	96.3	70-130		%REC	1		3/4/2005 2:34:00 AM
Surr: Dibromofluoromethane	99.3	70-130		%REC	1		3/4/2005 2:34:00 AM
Surr: Toluene-d8	86.7	70-130		%REC	1		3/4/2005 2:34:00 AM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	U	0.0050		mg/L	2		3/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	82	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	190	50		mg/L	50		3/3/2005 4:30:22 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	160	31		mg/L	625		3/9/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	U	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.012		mg/L	1.25		3/11/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	680	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **KAE**
Total Suspended Solids	48	3.0		mg/L	1		3/3/2005

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-13

Client Sample ID: MW-9D-01
Collection Date: 2/25/2005 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	83.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Endrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/7/2005 2:20:11 AM
Surr: Decachlorobiphenyl	76.0	40-140		%REC	1	3/3/2005	3/7/2005 2:20:11 AM
Surr: Tetrachloro-m-xylene	53.0	40-140		%REC	1	3/3/2005	3/7/2005 2:20:11 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 3:01:24 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Arsenic	0.0037	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-13

Client Sample ID: MW-9D-01
Collection Date: 2/25/2005 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Nickel	0.0014	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:53:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	30.41			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	8.1			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	1,490			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	3.04			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	11.8			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2,4-Dichlorophenol	U	10		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2,4-Dinitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2-Chloronaphthalene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2-Chlorophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2-Methylnaphthalene	65	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
2-Nitrophenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
3-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-13

Client Sample ID: MW-9D-01
Collection Date: 2/25/2005 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
4-Chloroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
4-Methylphenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
4-Nitroaniline	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
4-Nitrophenol	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Acenaphthene	140	50		µg/L	10	3/3/2005	3/4/2005 2:24:00 PM
Acenaphthylene	0.63	5.0	J	µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Anthracene	9.8	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Benzo(a)anthracene	U	1.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Benzo(a)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Carbazole	130	100		µg/L	10	3/3/2005	3/4/2005 2:24:00 PM
Chrysene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Dibenzofuran	100	50		µg/L	10	3/3/2005	3/4/2005 2:24:00 PM
Diethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Dimethyl phthalate	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Fluoranthene	8.0	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Fluorene	87	50		µg/L	10	3/3/2005	3/4/2005 2:24:00 PM
Hexachlorobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Hexachlorobutadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Hexachloroethane	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Isophorone	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Naphthalene	270	50		µg/L	10	3/3/2005	3/4/2005 2:24:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Pentachlorophenol	U	20		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-13

Client Sample ID: MW-9D-01
Collection Date: 2/25/2005 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	56	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Phenol	U	5.0		µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Pyrene	4.8	5.0	J	µg/L	1	3/3/2005	3/4/2005 10:17:00 AM
Surr: 2,4,6-Tribromophenol	93.7	10-123		%REC	1	3/3/2005	3/4/2005 10:17:00 AM
Surr: 2-Fluorophenol	26.2	7-75		%REC	1	3/3/2005	3/4/2005 10:17:00 AM
Surr: Phenol-d6	19.5	3-67		%REC	1	3/3/2005	3/4/2005 10:17:00 AM
Surr: 2-Fluorobiphenyl	44.7	20-122		%REC	1	3/3/2005	3/4/2005 10:17:00 AM
Surr: 4-Terphenyl-d14	67.3	22-172		%REC	1	3/3/2005	3/4/2005 10:17:00 AM
Surr: Nitrobenzene-d5	48.3	8-115		%REC	1	3/3/2005	3/4/2005 10:17:00 AM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**					Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/8/2005 7:25:00 PM
2-Butanone	U	5.0		µg/L	1		3/8/2005 7:25:00 PM
2-Hexanone	U	5.0		µg/L	1		3/8/2005 7:25:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/8/2005 7:25:00 PM
Acetone	U	20		µg/L	1		3/8/2005 7:25:00 PM
Benzene	100	10		µg/L	10		3/9/2005 3:48:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Bromoform	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Bromomethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/8/2005 7:25:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Chloroethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Chloroform	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Chloromethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Ethylbenzene	18	1.0		µg/L	1		3/8/2005 7:25:00 PM
m,p-Xylene	10	2.0		µg/L	1		3/8/2005 7:25:00 PM
Methylene chloride	U	5.0		µg/L	1		3/8/2005 7:25:00 PM
o-Xylene	8.8	1.0		µg/L	1		3/8/2005 7:25:00 PM
Styrene	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/8/2005 7:25:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-13

Client Sample ID: MW-9D-01
Collection Date: 2/25/2005 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	2.5	1.0		µg/L	1		3/8/2005 7:25:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Trichloroethene	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/8/2005 7:25:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/8/2005 7:25:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/8/2005 7:25:00 PM
Xylenes, Total	19	3.0		µg/L	1		3/8/2005 7:25:00 PM
Surr: 1,2-Dichloroethane-d4	108	70-130		%REC	1		3/8/2005 7:25:00 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	10		3/9/2005 3:48:00 PM
Surr: 4-Bromofluorobenzene	96.4	70-130		%REC	1		3/8/2005 7:25:00 PM
Surr: 4-Bromofluorobenzene	94.2	70-130		%REC	10		3/9/2005 3:48:00 PM
Surr: Dibromofluoromethane	103	70-130		%REC	10		3/9/2005 3:48:00 PM
Surr: Dibromofluoromethane	106	70-130		%REC	1		3/8/2005 7:25:00 PM
Surr: Toluene-d8	99.7	70-130		%REC	1		3/8/2005 7:25:00 PM
Surr: Toluene-d8	101	70-130		%REC	10		3/9/2005 3:48:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	U	0.0050		mg/L	2		3/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	38	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	280	50		mg/L	50		3/3/2005 4:44:50 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	24	6.2		mg/L	125		3/9/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	U	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	0.0094	0.010	J	mg/L	1		3/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	720	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **KAE**
Total Suspended Solids	11	3.0		mg/L	1		3/3/2005

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-14

Client Sample ID: MW-9D-02
Collection Date: 2/25/2005 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	90.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Endrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/7/2005 4:11:20 AM
Surr: Decachlorobiphenyl	80.0	40-140		%REC	1	3/3/2005	3/7/2005 4:11:20 AM
Surr: Tetrachloro-m-xylene	61.0	40-140		%REC	1	3/3/2005	3/7/2005 4:11:20 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 3:08:20 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Arsenic	0.0039	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Cadmium	0.00028	0.0020	J	mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-14

Client Sample ID: MW-9D-02
Collection Date: 2/25/2005 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Nickel	0.0018	0.0050	J	mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 6:58:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	30.41			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	8.1			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	1,490			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	3.04			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	11.8			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
1,2-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
1,3-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
1,4-Dichlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2,4,5-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2,4,6-Trichlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2,4-Dimethylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2,4-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2,6-Dinitrotoluene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2-Chloronaphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2-Chlorophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2-Methylnaphthalene	2.8	5.0	J	µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
2-Nitrophenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-14

Client Sample ID: MW-9D-02
Collection Date: 2/25/2005 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
4-Chloro-3-methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
4-Chlorophenyl phenyl ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
4-Methylphenol	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Acenaphthene	180	50		µg/L	10	3/4/2005	3/9/2005 11:50:00 AM
Acenaphthylene	0.82	5.0	J	µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Anthracene	9.7	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Benzo(g,h,i)perylene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Benzo(k)fluoranthene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Bis(2-chloroethoxy)methane	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Bis(2-chloroethyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Bis(2-chloroisopropyl)ether	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Bis(2-ethylhexyl)phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Butyl benzyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Carbazole	94	100	J	µg/L	10	3/4/2005	3/9/2005 11:50:00 AM
Chrysene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Di-n-butyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Di-n-octyl phthalate	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Dibenzofuran	110	50		µg/L	10	3/4/2005	3/9/2005 11:50:00 AM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Fluoranthene	8.4	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Fluorene	110	50		µg/L	10	3/4/2005	3/9/2005 11:50:00 AM
Hexachlorobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Hexachlorobutadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Hexachlorocyclopentadiene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Hexachloroethane	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Isophorone	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
N-Nitrosodi-n-propylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
N-Nitrosodiphenylamine	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Naphthalene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Nitrobenzene	U	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-14

Client Sample ID: MW-9D-02
Collection Date: 2/25/2005 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	55	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Phenol	1.6	5.0	J	µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Pyrene	5.0	5.0		µg/L	1	3/4/2005	3/7/2005 3:59:00 PM
Surr: 2,4,6-Tribromophenol	99.8	10-123		%REC	1	3/4/2005	3/7/2005 3:59:00 PM
Surr: 2-Fluorophenol	42.3	7-75		%REC	1	3/4/2005	3/7/2005 3:59:00 PM
Surr: Phenol-d6	31.3	3-67		%REC	1	3/4/2005	3/7/2005 3:59:00 PM
Surr: 2-Fluorobiphenyl	54.7	20-122		%REC	1	3/4/2005	3/7/2005 3:59:00 PM
Surr: 4-Terphenyl-d14	72.2	22-172		%REC	1	3/4/2005	3/7/2005 3:59:00 PM
Surr: Nitrobenzene-d5	56.1	8-115		%REC	1	3/4/2005	3/7/2005 3:59:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**					Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/8/2005 7:54:00 PM
2-Butanone	U	5.0		µg/L	1		3/8/2005 7:54:00 PM
2-Hexanone	U	5.0		µg/L	1		3/8/2005 7:54:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/8/2005 7:54:00 PM
Acetone	U	20		µg/L	1		3/8/2005 7:54:00 PM
Benzene	100	10		µg/L	10		3/9/2005 4:16:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Bromoform	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Bromomethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/8/2005 7:54:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Chloroethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Chloroform	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Chloromethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Ethylbenzene	17	1.0		µg/L	1		3/8/2005 7:54:00 PM
m,p-Xylene	11	2.0		µg/L	1		3/8/2005 7:54:00 PM
Methylene chloride	U	5.0		µg/L	1		3/8/2005 7:54:00 PM
o-Xylene	8.6	1.0		µg/L	1		3/8/2005 7:54:00 PM
Styrene	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/8/2005 7:54:00 PM

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-14

Client Sample ID: MW-9D-02
Collection Date: 2/25/2005 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	2.5	1.0		µg/L	1		3/8/2005 7:54:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Trichloroethene	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/8/2005 7:54:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/8/2005 7:54:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/8/2005 7:54:00 PM
Xylenes, Total	19	3.0		µg/L	1		3/8/2005 7:54:00 PM
Surr: 1,2-Dichloroethane-d4	108	70-130		%REC	1		3/8/2005 7:54:00 PM
Surr: 1,2-Dichloroethane-d4	98.7	70-130		%REC	10		3/9/2005 4:16:00 PM
Surr: 4-Bromofluorobenzene	95.3	70-130		%REC	1		3/8/2005 7:54:00 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	10		3/9/2005 4:16:00 PM
Surr: Dibromofluoromethane	103	70-130		%REC	10		3/9/2005 4:16:00 PM
Surr: Dibromofluoromethane	103	70-130		%REC	1		3/8/2005 7:54:00 PM
Surr: Toluene-d8	98.3	70-130		%REC	1		3/8/2005 7:54:00 PM
Surr: Toluene-d8	99.7	70-130		%REC	10		3/9/2005 4:16:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	0.016	0.0050		mg/L	2		3/9/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	36	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	290	50		mg/L	50		3/3/2005 4:59:19 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	13	6.2		mg/L	125		3/9/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	U	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	0.0074	0.012	J	mg/L	1.25		3/11/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	720	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **KAE**
Total Suspended Solids	10	3.0		mg/L	1		3/3/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-15

Client Sample ID: MW-9M-01
Collection Date: 2/25/2005 3:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1221	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1232	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1242	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1248	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1254	U	0.40		µg/L	1	3/3/2005	3/6/2005
Aroclor 1260	U	0.40		µg/L	1	3/3/2005	3/6/2005
Surr: Decachlorobiphenyl	86.0	40-140		%REC	1	3/3/2005	3/6/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**				Analyst: **RM**
4,4´-DDD	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
4,4´-DDE	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
4,4´-DDT	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Aldrin	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
alpha-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
beta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Chlordane, Technical	U	0.50		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
delta-BHC	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Dieldrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Endosulfan I	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Endosulfan II	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Endosulfan sulfate	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Endrin	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Endrin aldehyde	U	0.020		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
gamma-BHC (Lindane)	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Heptachlor	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Heptachlor epoxide	U	0.010		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Methoxychlor	U	0.040		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Toxaphene	U	2.0		µg/L	1	3/3/2005	3/7/2005 4:49:51 AM
Surr: Decachlorobiphenyl	76.0	40-140		%REC	1	3/3/2005	3/7/2005 4:49:51 AM
Surr: Tetrachloro-m-xylene	55.0	40-140		%REC	1	3/3/2005	3/7/2005 4:49:51 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**				Analyst: **DB**
Mercury	U	0.00020		mg/L	1	3/9/2005	3/9/2005 3:10:37 PM
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**				Analyst: **JDA**
Antimony	U	0.0050		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Arsenic	0.0019	0.0050	J	mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Beryllium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Cadmium	U	0.0020		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Chromium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM

Qualifiers:
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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-15

Client Sample ID: MW-9M-01
Collection Date: 2/25/2005 3:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Copper	U	0.0050		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Lead	U	0.0050		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Nickel	U	0.0050		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Selenium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Silver	U	0.0050		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Thallium	U	0.0050		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
Zinc	U	0.010		mg/L	1	2/28/2005	3/2/2005 7:03:00 PM
DEPTH TO WATER (FIELD)			**TAPE**				Analyst: **LA**
Well Depth (field)	19.29			ft.	1		2/25/2005
PH (FIELD)			**EPA 150.1**				Analyst: **LA**
pH (field)	9.2			s.u.	1		2/25/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**				Analyst: **LA**
Specific Conductance (field)	1,160			µmhos/cm	1		2/25/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**				Analyst: **LA**
Static Water Level (field)	3.02			ft.	1		2/25/2005
TEMPERATURE (FIELD)			**THERMOMETER**				Analyst: **LA**
Temperature	8.50			°C	1		2/25/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
1,2-Dichlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
1,3-Dichlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
1,4-Dichlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2,4,5-Trichlorophenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2,4,6-Trichlorophenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2,4-Dichlorophenol	U	10		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2,4-Dimethylphenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2,4-Dinitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2,4-Dinitrotoluene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2,6-Dinitrotoluene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2-Chloronaphthalene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2-Chlorophenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2-Methylnaphthalene	5.6	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2-Methylphenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
2-Nitrophenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
3,3´-Dichlorobenzidine	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
3-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
4,6-Dinitro-2-methylphenol	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-15

Client Sample ID: MW-9M-01
Collection Date: 2/25/2005 3:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
4-Bromophenyl phenyl ether	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
4-Chloro-3-methylphenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
4-Chloroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
4-Chlorophenyl phenyl ether	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
4-Methylphenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
4-Nitroaniline	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
4-Nitrophenol	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Acenaphthene	20	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Acenaphthylene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Anthracene	2.5	5.1	J	µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Benzo(a)anthracene	U	1.0		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Benzo(a)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Benzo(b)fluoranthene	U	2.0		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Benzo(g,h,i)perylene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Benzo(k)fluoranthene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Bis(2-chloroethoxy)methane	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Bis(2-chloroethyl)ether	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Bis(2-chloroisopropyl)ether	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Bis(2-ethylhexyl)phthalate	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Butyl benzyl phthalate	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Carbazole	U	10		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Chrysene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Di-n-butyl phthalate	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Di-n-octyl phthalate	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Dibenzo(a,h)anthracene	U	2.0		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Dibenzofuran	12	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Diethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Dimethyl phthalate	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Fluoranthene	1.9	5.1	J	µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Fluorene	17	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Hexachlorobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Hexachlorobutadiene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Hexachlorocyclopentadiene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Hexachloroethane	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Indeno(1,2,3-cd)pyrene	U	2.0		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Isophorone	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
N-Nitrosodi-n-propylamine	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
N-Nitrosodiphenylamine	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Naphthalene	1.3	5.1	J	µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Nitrobenzene	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Pentachlorophenol	U	20		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-15

Client Sample ID: MW-9M-01
Collection Date: 2/25/2005 3:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Phenanthrene	25	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Phenol	U	5.1		µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Pyrene	1.2	5.1	J	µg/L	1	3/4/2005	3/7/2005 4:30:00 PM
Surr: 2,4,6-Tribromophenol	88.9	10-123		%REC	1	3/4/2005	3/7/2005 4:30:00 PM
Surr: 2-Fluorophenol	39.2	7-75		%REC	1	3/4/2005	3/7/2005 4:30:00 PM
Surr: Phenol-d6	28.8	3-67		%REC	1	3/4/2005	3/7/2005 4:30:00 PM
Surr: 2-Fluorobiphenyl	50.4	20-122		%REC	1	3/4/2005	3/7/2005 4:30:00 PM
Surr: 4-Terphenyl-d14	73.4	22-172		%REC	1	3/4/2005	3/7/2005 4:30:00 PM
Surr: Nitrobenzene-d5	49.9	8-115		%REC	1	3/4/2005	3/7/2005 4:30:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**					Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/8/2005 8:22:00 PM
2-Butanone	U	5.0		µg/L	1		3/8/2005 8:22:00 PM
2-Hexanone	U	5.0		µg/L	1		3/8/2005 8:22:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/8/2005 8:22:00 PM
Acetone	U	20		µg/L	1		3/8/2005 8:22:00 PM
Benzene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Bromoform	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Bromomethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/8/2005 8:22:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Chloroethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Chloroform	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Chloromethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/8/2005 8:22:00 PM
Methylene chloride	U	5.0		µg/L	1		3/8/2005 8:22:00 PM
o-Xylene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Styrene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/8/2005 8:22:00 PM

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e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-15

Client Sample ID: MW-9M-01
Collection Date: 2/25/2005 3:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Toluene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Trichloroethene	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/8/2005 8:22:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/8/2005 8:22:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/8/2005 8:22:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/8/2005 8:22:00 PM
Surr: 1,2-Dichloroethane-d4	107	70-130		%REC	1		3/8/2005 8:22:00 PM
Surr: 4-Bromofluorobenzene	98.1	70-130		%REC	1		3/8/2005 8:22:00 PM
Surr: Dibromofluoromethane	103	70-130		%REC	1		3/8/2005 8:22:00 PM
Surr: Toluene-d8	100	70-130		%REC	1		3/8/2005 8:22:00 PM
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	0.0092	0.0050		mg/L	2		3/9/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	36	5.0		mg/L	1		3/9/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **MB**
Chloride	240	50		mg/L	50		3/3/2005 5:13:53 PM
NITROGEN, AMMONIA			**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	11	2.5		mg/L	50		3/7/2005
NITROGEN, NITRATE-NITRITE			**EPA 353.3**				Analyst: **MB**
Nitrogen, Nitrate-Nitrite	U	0.010		mg/L	1		3/11/2005
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **MB**
Phenolics, Total	U	0.012		mg/L	1.25		3/11/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**				Analyst: **KAE**
Total Dissolved Solids	600	5.0		mg/L	1		3/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**				Analyst: **KAE**
Total Suspended Solids	U	3.0		mg/L	1		3/3/2005

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-16

Client Sample ID: Trip Blank
Collection Date: 2/25/2005
Matrix: TRIP BLANK

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
TARGET COMPOUND LIST (TCL) - VOC			**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
1,1,2,2-Tetrachloroethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
1,1,2-Trichloroethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
1,1-Dichloroethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
1,1-Dichloroethene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
1,2-Dichloroethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
1,2-Dichloropropane	U	2.0		µg/L	1		3/8/2005 6:28:00 PM
2-Butanone	U	5.0		µg/L	1		3/8/2005 6:28:00 PM
2-Hexanone	U	5.0		µg/L	1		3/8/2005 6:28:00 PM
4-Methyl-2-pentanone	U	5.0		µg/L	1		3/8/2005 6:28:00 PM
Acetone	U	20		µg/L	1		3/8/2005 6:28:00 PM
Benzene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Bromodichloromethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Bromoform	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Bromomethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Carbon disulfide	U	2.5		µg/L	1		3/8/2005 6:28:00 PM
Carbon tetrachloride	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Chlorobenzene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Chloroethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Chloroform	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Chloromethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
cis-1,2-Dichloroethene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
cis-1,3-Dichloropropene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Dibromochloromethane	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Ethylbenzene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
m,p-Xylene	U	2.0		µg/L	1		3/8/2005 6:28:00 PM
Methylene chloride	1.4	5.0	J	µg/L	1		3/8/2005 6:28:00 PM
o-Xylene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Styrene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Tetrachloroethene	U	2.0		µg/L	1		3/8/2005 6:28:00 PM
Toluene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
trans-1,2-Dichloroethene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
trans-1,3-Dichloropropene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Trichloroethene	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
Vinyl chloride	U	1.0		µg/L	1		3/8/2005 6:28:00 PM
1,2-Dichloroethene, Total	U	2.0		µg/L	1		3/8/2005 6:28:00 PM
1,3-Dichloropropene, Total	U	2.0		µg/L	1		3/8/2005 6:28:00 PM
Xylenes, Total	U	3.0		µg/L	1		3/8/2005 6:28:00 PM
Surr: 1,2-Dichloroethane-d4	106	70-130		%REC	1		3/8/2005 6:28:00 PM

Qualifiers:
U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *March 14, 2005*

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER
Lab ID: 0502441-16

Client Sample ID: Trip Blank
Collection Date: 2/25/2005
Matrix: TRIP BLANK

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
Surr: 4-Bromofluorobenzene	99.1	70-130		%REC	1		3/8/2005 6:28:00 PM
Surr: Dibromofluoromethane	101	70-130		%REC	1		3/8/2005 6:28:00 PM
Surr: Toluene-d8	101	70-130		%REC	1		3/8/2005 6:28:00 PM

Qualifiers:

U - Analyzed for but Not Detected
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

Date: *Mar 14 2005*

QC BATCH REPORT

Batch ID: **5963** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-5963** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **03/06/05 16:35**

Client ID: Run ID: **GC4_050306A** SeqNo: **409070** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	U	0.020								
4,4´-DDE	U	0.020								
4,4´-DDT	U	0.020								
Aldrin	U	0.010								
alpha-BHC	U	0.010								
beta-BHC	U	0.010								
Chlordane, Technical	U	0.50								
delta-BHC	U	0.010								
Dieldrin	U	0.020								
Endosulfan I	U	0.020								
Endosulfan II	U	0.020								
Endosulfan sulfate	U	0.020								
Endrin	U	0.020								
Endrin aldehyde	U	0.020								
gamma-BHC (Lindane)	U	0.010								
Heptachlor	U	0.010								
Heptachlor epoxide	U	0.010								
Methoxychlor	U	0.040								
Toxaphene	U	2.0								
Surr: Decachlorobiphenyl	0.076	0	0.1	0	76	50-130		0		
Surr: Tetrachloro-m-xylene	0.064	0	0.1	0	64	50-130		0		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5963** InstrumentID: **GC4**

LCS Sample ID: **PLCSW1-5963** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **03/06/05 17:11**

Client ID: Run ID: **GC4_050306A** SeqNo: **409071** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.084	0.020	0.1	0	84	50-130	0			
4,4´-DDE	0.103	0.020	0.1	0	103	50-130	0			
4,4´-DDT	0.097	0.020	0.1	0	97	50-130	0			
Aldrin	0.073	0.010	0.1	0	73	50-130	0			
alpha-BHC	0.081	0.010	0.1	0	81	50-130	0			
beta-BHC	0.074	0.010	0.1	0	74	50-130	0			
delta-BHC	0.09	0.010	0.1	0	90	50-130	0			
Dieldrin	0.084	0.020	0.1	0	84	50-130	0			
Endosulfan I	0.078	0.020	0.1	0	78	50-130	0			
Endosulfan II	0.083	0.020	0.1	0	83	50-130	0			
Endosulfan sulfate	0.077	0.020	0.1	0	77	50-130	0			
Endrin	0.083	0.020	0.1	0	83	50-130	0			
Endrin aldehyde	0.076	0.020	0.1	0	76	50-130	0			
gamma-BHC (Lindane)	0.08	0.010	0.1	0	80	50-130	0			
Heptachlor	0.078	0.010	0.1	0	78	50-130	0			
Heptachlor epoxide	0.078	0.010	0.1	0	78	50-130	0			
Methoxychlor	0.085	0.040	0.1	0	85	50-130	0			
Surr: Decachlorobiphenyl	0.084	0	0.1	0	84	50-130	0			
Surr: Tetrachloro-m-xylene	0.073	0	0.1	0	73	50-130	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5963** InstrumentID: **GC4**

LCSD Sample ID: **PLCSDW1-5963** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **03/06/05 17:48**

Client ID: Run ID: **GC4_050306A** SeqNo: **409072** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.104	0.020	0.1	0	104	50-130	0.084	21.3	50	
4,4´-DDE	0.115	0.020	0.1	0	115	50-130	0.103	11	50	
4,4´-DDT	0.109	0.020	0.1	0	109	50-130	0.097	11.7	50	
Aldrin	0.078	0.010	0.1	0	78	50-130	0.073	6.62	50	
alpha-BHC	0.088	0.010	0.1	0	88	50-130	0.081	8.28	50	
beta-BHC	0.098	0.010	0.1	0	98	50-130	0.074	27.9	50	
delta-BHC	0.109	0.010	0.1	0	109	50-130	0.09	19.1	50	
Dieldrin	0.098	0.020	0.1	0	98	50-130	0.084	15.4	50	
Endosulfan I	0.085	0.020	0.1	0	85	50-130	0.078	8.59	50	
Endosulfan II	0.098	0.020	0.1	0	98	50-130	0.083	16.6	50	
Endosulfan sulfate	0.107	0.020	0.1	0	107	50-130	0.077	32.6	50	
Endrin	0.098	0.020	0.1	0	98	50-130	0.083	16.6	50	
Endrin aldehyde	0.106	0.020	0.1	0	106	50-130	0.076	33	50	
gamma-BHC (Lindane)	0.087	0.010	0.1	0	87	50-130	0.08	8.38	50	
Heptachlor	0.082	0.010	0.1	0	82	50-130	0.078	5	50	
Heptachlor epoxide	0.094	0.010	0.1	0	94	50-130	0.078	18.6	50	
Methoxychlor	0.1	0.040	0.1	0	100	50-130	0.085	16.2	50	
Surr: Decachlorobiphenyl	0.083	0	0.1	0	83	50-130	0.084	1.2	50	
Surr: Tetrachloro-m-xylene	0.065	0	0.1	0	65	50-130	0.073	11.6	50	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5963** InstrumentID: **GC4**

MS Sample ID: **0502441-13B MS** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **03/07/05 2:56**

Client ID: **MW-9D-01** Run ID: **GC4_050306A** SeqNo: **409081** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.3	0.080	0.4	0	75	40-140	0			
4,4´-DDE	0.328	0.080	0.4	0	82	40-140	0			
4,4´-DDT	0.328	0.080	0.4	0	82	40-140	0			
Aldrin	0.256	0.040	0.4	0	64	40-140	0			
alpha-BHC	0.28	0.040	0.4	0	70	40-140	0			
beta-BHC	0.248	0.040	0.4	0	62	40-140	0			
delta-BHC	0.308	0.040	0.4	0	77	40-140	0			
Dieldrin	0.304	0.080	0.4	0	76	40-140	0			
Endosulfan I	0.264	0.080	0.4	0	66	40-140	0			
Endosulfan II	0.304	0.080	0.4	0	76	40-140	0			
Endosulfan sulfate	0.304	0.080	0.4	0	76	40-140	0			
Endrin	0.296	0.080	0.4	0	74	40-140	0			
Endrin aldehyde	0.248	0.080	0.4	0	62	40-140	0			
gamma-BHC (Lindane)	0.268	0.040	0.4	0	67	40-140	0			
Heptachlor	0.248	0.040	0.4	0	62	40-140	0			
Heptachlor epoxide	0.264	0.040	0.4	0	66	40-140	0			
Methoxychlor	0.292	0.16	0.4	0	73	40-140	0			
Surr: Decachlorobiphenyl	0.312	0	0.4	0	78	40-140	0			
Surr: Tetrachloro-m-xylene	0.228	0	0.4	0	57	40-140	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5963** InstrumentID: **GC4**

MSD Sample ID: **0502441-13B MSD** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **03/07/05 3:34**

Client ID: **MW-9D-01** Run ID: **GC4_050306A** SeqNo: **409082** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.3	0.080	0.4	0	75	40-140	0.3	0	50	
4,4´-DDE	0.324	0.080	0.4	0	81	40-140	0.328	1.23	50	
4,4´-DDT	0.328	0.080	0.4	0	82	40-140	0.328	0	50	
Aldrin	0.248	0.040	0.4	0	62	40-140	0.256	3.17	50	
alpha-BHC	0.268	0.040	0.4	0	67	40-140	0.28	4.38	50	
beta-BHC	0.24	0.040	0.4	0	60	40-140	0.248	3.28	50	
delta-BHC	0.3	0.040	0.4	0	75	40-140	0.308	2.63	50	
Dieldrin	0.3	0.080	0.4	0	75	40-140	0.304	1.32	50	
Endosulfan I	0.264	0.080	0.4	0	66	40-140	0.264	0	50	
Endosulfan II	0.3	0.080	0.4	0	75	40-140	0.304	1.32	50	
Endosulfan sulfate	0.284	0.080	0.4	0	71	40-140	0.304	6.8	50	
Endrin	0.3	0.080	0.4	0	75	40-140	0.296	1.34	50	
Endrin aldehyde	0.244	0.080	0.4	0	61	40-140	0.248	1.63	50	
gamma-BHC (Lindane)	0.26	0.040	0.4	0	65	40-140	0.268	3.03	50	
Heptachlor	0.244	0.040	0.4	0	61	40-140	0.248	1.63	50	
Heptachlor epoxide	0.26	0.040	0.4	0	65	40-140	0.264	1.53	50	
Methoxychlor	0.288	0.16	0.4	0	72	40-140	0.292	1.38	50	
Surr: Decachlorobiphenyl	0.308	0	0.4	0	77	40-140	0.312	1.29	50	
Surr: Tetrachloro-m-xylene	0.236	0	0.4	0	59	40-140	0.228	3.45	50	

The following samples were analyzed in this batch:

0502441-01B	0502441-02B	0502441-03B
0502441-04B	0502441-05B	0502441-06B
0502441-07B	0502441-08B	0502441-09B
0502441-10B	0502441-11B	0502441-12B
0502441-13B	0502441-14B	0502441-15B

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5964** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-5964** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **03/06/05 0:00**

Client ID: Run ID: **GC4_050306B** SeqNo: **410529** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	U	0.40								
Aroclor 1221	U	0.40								
Aroclor 1232	U	0.40								
Aroclor 1242	U	0.40								
Aroclor 1248	U	0.40								
Aroclor 1254	U	0.40								
Aroclor 1260	U	0.40								
Surr: Decachlorobiphenyl	0.089	0	0.1	0	89	50-130	0			

LCS Sample ID: **PLCSW2-5964** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **03/06/05 0:00**

Client ID: Run ID: **GC4_050306B** SeqNo: **410531** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	2.16	0.40	2.5	0	86.4	50-130	0			
Aroclor 1260	2.353	0.40	2.5	0	94.1	50-130	0			
Surr: Decachlorobiphenyl	0.092	0	0.1	0	92	50-130	0			

LCSD Sample ID: **PLCSDW2-5964** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **03/06/05 0:00**

Client ID: Run ID: **GC4_050306B** SeqNo: **410530** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	2.071	0.40	2.5	0	82.8	50-130	2.16	4.21	25	
Aroclor 1260	2.292	0.40	2.5	0	91.7	50-130	2.353	2.63	25	
Surr: Decachlorobiphenyl	0.085	0	0.1	0	85	50-130	0.092	7.91	25	

MS Sample ID: **0502441-13B MS** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **03/06/05 0:00**

Client ID: **MW-9D-01** Run ID: **GC4_050306B** SeqNo: **410525** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	7.84	1.6	10	0	78.4	40-140	0			
Aroclor 1260	9.62	1.6	10	0	96.2	40-140	0			
Surr: Decachlorobiphenyl	0.376	0	0.4	0	94	40-140	0			

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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5964** InstrumentID: **GC4**

MSD Sample ID: **0502441-13B MSD** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **03/06/05 0:00**

Client ID: **MW-9D-01** Run ID: **GC4_050306B** SeqNo: **410526** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	7.6	1.7	10.42	0	73	40-140	7.84	3.11	50	
Aroclor 1260	9.338	1.7	10.42	0	89.6	40-140	9.62	2.98	50	
Surr: Decachlorobiphenyl	0.3417	0	0.4167	0	82	40-140	0.376	9.57	50	

The following samples were analyzed in this batch:

0502441-01B	0502441-02B	0502441-03B
0502441-04B	0502441-05B	0502441-06B
0502441-07B	0502441-08B	0502441-09B
0502441-10B	0502441-11B	0502441-12B
0502441-13B	0502441-14B	0502441-15B

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6014** InstrumentID: **HG1**

MBLK Sample ID: **MB-6014** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **03/09/05 14:19**
Client ID: Run ID: **HG1_050309B** SeqNo: **410024** Prep Date: **3/9/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.00020	0	0	0	0-0		0		

LCS Sample ID: **LCS-6014** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **03/09/05 14:22**
Client ID: Run ID: **HG1_050309B** SeqNo: **410025** Prep Date: **3/9/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00209	0.00020	0.002	0	104	80-120		0		

LCSD Sample ID: **LCSD-6014** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **03/09/05 14:24**
Client ID: Run ID: **HG1_050309B** SeqNo: **410026** Prep Date: **3/9/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00205	0.00020	0.002	0	102	80-120	0.00209	1.93	20	

MS Sample ID: **0502441-13C MS** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **03/09/05 15:03**
Client ID: **MW-9D-01** Run ID: **HG1_050309B** SeqNo: **410043** Prep Date: **3/9/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002325	0.00025	0.0025	-0.000005	93.2	75-125		0		

MS Sample ID: **0503057-01A MS** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **03/09/05 15:29**
Client ID: Run ID: **HG1_050309B** SeqNo: **410054** Prep Date: **3/9/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002375	0.00025	0.0025	0.000002	94.9	75-125		0		

MSD Sample ID: **0502441-13C MSD** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **03/09/05 15:06**
Client ID: **MW-9D-01** Run ID: **HG1_050309B** SeqNo: **410044** Prep Date: **3/9/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002438	0.00025	0.0025	-0.000005	97.7	75-125	0.002325	4.72	20	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6014** InstrumentID: **HG1**

MSD Sample ID: **0503057-01A MSD** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **03/09/05 15:31**

Client ID: Run ID: **HG1_050309B** SeqNo: **410055** Prep Date: **3/9/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0024	0.00025	0.0025	0.000002	95.9	75-125	0.002375	1.05	20	

The following samples were analyzed in this batch:

0502441-01C	0502441-02C	0502441-03C
0502441-04C	0502441-05C	0502441-06C
0502441-07C	0502441-08C	0502441-09C
0502441-10C	0502441-11C	0502441-12C
0502441-13C	0502441-14C	0502441-15C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5950** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW2-022805** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **03/02/05 17:01**

Client ID: Run ID: **ICPMS1_050302A** SeqNo: **407950** Prep Date: **2/28/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	U	0.0050								
Arsenic	U	0.0050								
Beryllium	U	0.0020								
Cadmium	U	0.0020								
Chromium	U	0.0050								
Copper	U	0.0050								
Lead	U	0.0050								
Nickel	U	0.0050								
Selenium	U	0.0050								
Silver	U	0.0050								
Thallium	U	0.0050								
Zinc	U	0.010								

LCSD Sample ID: **MLCSDW2-022805** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **03/02/05 17:11**

Client ID: Run ID: **ICPMS1_050302A** SeqNo: **407952** Prep Date: **2/28/2005** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	1.004	0.050	1	0	100	80-120	0.882	12.9	20	
Arsenic	0.8729	0.050	1	0	87.3	80-120	0.8703	0.298	20	
Beryllium	0.9125	0.020	1	0	91.2	80-120	0.9169	0.481	20	
Cadmium	0.8854	0.020	1	0	88.5	80-120	0.8844	0.113	20	
Chromium	0.8794	0.050	1	0	87.9	80-120	0.878	0.159	20	
Copper	0.8983	0.050	1	0	89.8	80-120	0.9098	1.27	20	
Lead	0.9	0.050	1	0	90	80-120	0.8941	0.658	20	
Nickel	0.9005	0.050	1	0	90	80-120	0.9091	0.95	20	
Selenium	0.8611	0.050	1	0	86.1	80-120	0.8575	0.419	20	
Silver	1.003	0.050	1	0	100	80-120	1.002	0.0998	20	
Thallium	0.8175	0.050	1	0	81.8	80-120	0.8157	0.22	20	
Zinc	0.8346	0.10	1	0	83.5	80-120	0.8396	0.597	20	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5950** InstrumentID: **ICPMS1**

MS Sample ID: **0502441-13CMS** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **03/02/05 19:34**

Client ID: **MW-9D-01** Run ID: **ICPMS1_050302A** SeqNo: **407978** Prep Date: **2/28/2005** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	1.308	0.050	1	-0.0008755	131	80-120	0			S
Arsenic	0.9097	0.050	1	0.003677	90.6	80-120	0			
Beryllium	0.9079	0.020	1	-6.064E-06	90.8	80-120	0			
Cadmium	0.9323	0.020	1	-2.085E-06	93.2	80-120	0			
Chromium	0.9147	0.050	1	-0.00003134	91.5	80-120	0			
Copper	0.8859	0.050	1	-0.001231	88.7	80-120	0			
Lead	0.9485	0.050	1	-0.00009459	94.9	80-120	0			
Nickel	0.9331	0.050	1	0.001416	93.2	80-120	0			
Selenium	0.9058	0.050	1	0.0003331	90.5	80-120	0			
Silver	1.031	0.050	1	-0.00008795	103	80-120	0			
Thallium	0.8313	0.050	1	-6.638E-06	83.1	80-120	0			
Zinc	0.8864	0.10	1	-0.001814	88.8	80-120	0			

MSD Sample ID: **0502441-13CMSD** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **03/02/05 19:39**

Client ID: **MW-9D-01** Run ID: **ICPMS1_050302A** SeqNo: **407979** Prep Date: **2/28/2005** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	1.321	0.050	1	-0.0008755	132	80-120	1.308	0.989	20	S
Arsenic	0.909	0.050	1	0.003677	90.5	80-120	0.9097	0.077	20	
Beryllium	0.9104	0.020	1	-6.064E-06	91	80-120	0.9079	0.275	20	
Cadmium	0.9285	0.020	1	-2.085E-06	92.9	80-120	0.9323	0.408	20	
Chromium	0.9185	0.050	1	-0.00003134	91.9	80-120	0.9147	0.415	20	
Copper	0.8757	0.050	1	-0.001231	87.7	80-120	0.8859	1.16	20	
Lead	0.9601	0.050	1	-0.00009459	96	80-120	0.9485	1.22	20	
Nickel	0.926	0.050	1	0.001416	92.5	80-120	0.9331	0.764	20	
Selenium	0.9205	0.050	1	0.0003331	92	80-120	0.9058	1.61	20	
Silver	1.027	0.050	1	-0.00008795	103	80-120	1.031	0.389	20	
Thallium	0.8417	0.050	1	-6.638E-06	84.2	80-120	0.8313	1.24	20	
Zinc	0.8939	0.10	1	-0.001814	89.6	80-120	0.8864	0.843	20	

The following samples were analyzed in this batch:

0502441-01C	0502441-02C	0502441-03C
0502441-04C	0502441-05C	0502441-06C
0502441-07C	0502441-08C	0502441-09C
0502441-10C	0502441-11C	0502441-12C
0502441-13C	0502441-14C	0502441-15C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5973** InstrumentID: **SVMS4**

MBLK Sample ID: **SBLKW1-5973** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 12:20**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408623** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	U	5.0								
2,4,5-Trichlorophenol	U	5.0								
2,4,6-Trichlorophenol	U	5.0								
2,4-Dinitrotoluene	U	5.0								
2-Methylphenol	U	5.0								
4-Methylphenol	U	5.0								
Hexachlorobenzene	U	5.0								
Hexachlorobutadiene	U	5.0								
Hexachloroethane	U	5.0								
Nitrobenzene	U	5.0								
Pentachlorophenol	U	20								
Surr: 2,4,6-Tribromophenol	34.86	0	50	0	69.7	4-158		0		
Surr: 2-Fluorobiphenyl	28.66	0	50	0	57.3	22-148		0		
Surr: 2-Fluorophenol	21.63	0	50	0	43.3	8-104		0		
Surr: 4-Terphenyl-d14	36.69	0	50	0	73.4	41-156		0		
Surr: Nitrobenzene-d5	30.31	0	50	0	60.6	6-142		0		
Surr: Phenol-d6	15.39	0	50	0	30.8	1-120		0		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
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E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5973** InstrumentID: **SVMS4**

MBLK Sample ID: **SBLKW1-5973** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 12:20**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408912** Prep Date: **3/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2,4,5-Trichlorophenol	U	5.0								
2,4,6-Trichlorophenol	U	5.0								
2,4-Dichlorophenol	U	10								
2,4-Dimethylphenol	U	5.0								
2,4-Dinitrophenol	U	20								
2,4-Dinitrotoluene	U	5.0								
2,6-Dinitrotoluene	U	5.0								
2-Chloronaphthalene	U	5.0								
2-Chlorophenol	U	5.0								
2-Methylnaphthalene	U	5.0								
2-Methylphenol	U	5.0								
2-Nitroaniline	U	20								
2-Nitrophenol	U	5.0								
3,3´-Dichlorobenzidine	U	20								
3-Nitroaniline	U	20								
4,6-Dinitro-2-methylphenol	U	20								
4-Bromophenyl phenyl ether	U	5.0								
4-Chloro-3-methylphenol	U	5.0								
4-Chloroaniline	U	20								
4-Chlorophenyl phenyl ether	U	5.0								
4-Methylphenol	U	5.0								
4-Nitroaniline	U	20								
4-Nitrophenol	U	20								
Acenaphthene	U	5.0								
Acenaphthylene	U	5.0								
Anthracene	U	5.0								
Benzo(a)anthracene	U	1.0								
Benzo(a)pyrene	U	2.0								
Benzo(b)fluoranthene	U	2.0								
Benzo(g,h,i)perylene	U	5.0								
Benzo(k)fluoranthene	U	5.0								
Bis(2-chloroethoxy)methane	U	5.0								
Bis(2-chloroethyl)ether	U	5.0								
Bis(2-chloroisopropyl)ether	U	5.0								
Bis(2-ethylhexyl)phthalate	U	5.0								
Butyl benzyl phthalate	U	5.0								
Carbazole	U	10								
Chrysene	U	5.0								

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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

QC BATCH REPORT

Batch ID: **5973** InstrumentID: **SVMS4**

Di-n-butyl phthalate	U	5.0					
Di-n-octyl phthalate	U	5.0					
Dibenzo(a,h)anthracene	U	2.0					
Dibenzofuran	U	5.0					
Diethyl phthalate	U	20					
Dimethyl phthalate	U	20					
Fluoranthene	U	5.0					
Fluorene	U	5.0					
Hexachlorobenzene	U	5.0					
Hexachlorobutadiene	U	5.0					
Hexachlorocyclopentadiene	U	5.0					
Hexachloroethane	U	5.0					
Indeno(1,2,3-cd)pyrene	U	2.0					
Isophorone	U	5.0					
N-Nitrosodi-n-propylamine	U	5.0					
N-Nitrosodiphenylamine	U	5.0					
Naphthalene	U	5.0					
Nitrobenzene	U	5.0					
Pentachlorophenol	U	20					
Phenanthrene	U	5.0					
Phenol	U	5.0					
Pyrene	U	5.0					
Surr: 2,4,6-Tribromophenol	34.86	0	50	0	69.7	10-123	0
Surr: 2-Fluorophenol	21.63	0	50	0	43.3	7-75	0
Surr: Phenol-d6	15.39	0	50	0	30.8	3-67	0
Surr: 2-Fluorobiphenyl	28.66	0	50	0	57.3	20-122	0
Surr: 4-Terphenyl-d14	36.69	0	50	0	73.4	22-172	0
Surr: Nitrobenzene-d5	30.31	0	50	0	60.6	8-115	0

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5973** InstrumentID: **SVMS4**

LCS Sample ID: **SLCSW1-5973** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 8:09**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408615** Prep Date: **3/3/2005** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	37.3	10	100	0	37.3	7-118	0			
2,4,5-Trichlorophenol	37.88	10	60	0	63.1	17-154	0			
2,4,6-Trichlorophenol	36.08	10	60	0	60.1	1-138	0			
2,4-Dinitrotoluene	65.98	10	100	0	66	4-151	0			
2-Methylphenol	26.48	10	60	0	44.1	10-130	0			
4-Methylphenol	25.24	10	60	0	42.1	11-130	0			
Hexachlorobenzene	51.34	10	60	0	85.6	23-157	0			
Hexachlorobutadiene	19.6	10	60	0	32.7	1-128	0			
Hexachloroethane	20	10	60	0	33.3	7-119	0			
Nitrobenzene	29.48	10	60	0	49.1	10-117	0			
Pentachlorophenol	62.94	40	100	0	62.9	1-144	0			
Surr: 2,4,6-Tribromophenol	32.96	0	50	0	65.9	4-158	0			
Surr: 2-Fluorobiphenyl	24.62	0	50	0	49.2	22-148	0			
Surr: 2-Fluorophenol	17.56	0	50	0	35.1	8-104	0			
Surr: 4-Terphenyl-d14	44.88	0	50	0	89.8	41-156	0			
Surr: Nitrobenzene-d5	25.14	0	50	0	50.3	6-142	0			
Surr: Phenol-d6	11.4	0	50	0	22.8	1-120	0			

LCS Sample ID: **SLCSW1-5973** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 8:09**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408907** Prep Date: **3/3/2005** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	14.5	10	40	0	36.2	33-78	0			
1,4-Dichlorobenzene	37.3	10	100	0	37.3	29-74	0			
2,4-Dinitrotoluene	65.98	10	100	0	66	24-96	0			
2-Chlorophenol	20.52	10	40	0	51.3	25-85	0			
4-Chloro-3-methylphenol	25.38	10	40	0	63.4	19-103	0			
4-Nitrophenol	12.92	40	40	0	32.3	1-58	0			J
Acenaphthene	24.2	10	40	0	60.5	30-108	0			
N-Nitrosodi-n-propylamine	22.08	10	40	0	55.2	24-82	0			
Pentachlorophenol	62.94	40	100	0	62.9	9-103	0			
Phenol	9.84	10	40	0	24.6	12-43	0			J
Pyrene	34.08	10	40	0	85.2	35-135	0			
Surr: 2,4,6-Tribromophenol	32.96	0	50	0	65.9	10-123	0			
Surr: 2-Fluorophenol	17.56	0	50	0	35.1	7-75	0			
Surr: Phenol-d6	11.4	0	50	0	22.8	3-67	0			
Surr: 2-Fluorobiphenyl	24.62	0	50	0	49.2	20-122	0			
Surr: 4-Terphenyl-d14	44.88	0	50	0	89.8	22-172	0			
Surr: Nitrobenzene-d5	25.14	0	50	0	50.3	8-115	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5973** InstrumentID: **SVMS4**

LCSD Sample ID: **SLCSDW1-5973** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 8:40**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408616** Prep Date: **3/3/2005** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	47.06	10	100	0	47.1	7-118	37.3	23.1	61	
2,4,5-Trichlorophenol	47.06	10	60	0	78.4	17-154	37.88	21.6	53	
2,4,6-Trichlorophenol	45.32	10	60	0	75.5	1-138	36.08	22.7	54	
2,4-Dinitrotoluene	72.62	10	100	0	72.6	4-151	65.98	9.58	47	
2-Methylphenol	35.86	10	60	0	59.8	10-130	26.48	30.1	41	
4-Methylphenol	35.74	10	60	0	59.6	11-130	25.24	34.4	41	
Hexachlorobenzene	52.3	10	60	0	87.2	23-157	51.34	1.85	44	
Hexachlorobutadiene	28.82	10	60	0	48	1-128	19.6	38.1	61	
Hexachloroethane	26.98	10	60	0	45	7-119	20	29.7	60	
Nitrobenzene	40.18	10	60	0	67	10-117	29.48	30.7	56	
Pentachlorophenol	71.84	40	100	0	71.8	1-144	62.94	13.2	42	
Surr: 2,4,6-Tribromophenol	36.96	0	50	0	73.9	4-158	32.96	11.4	50	
Surr: 2-Fluorobiphenyl	30.38	0	50	0	60.8	22-148	24.62	20.9	50	
Surr: 2-Fluorophenol	22.4	0	50	0	44.8	8-104	17.56	24.2	50	
Surr: 4-Terphenyl-d14	45.34	0	50	0	90.7	41-156	44.88	1.02	50	
Surr: Nitrobenzene-d5	33.22	0	50	0	66.4	6-142	25.14	27.7	50	
Surr: Phenol-d6	15.46	0	50	0	30.9	1-120	11.4	30.2	50	

LCSD Sample ID: **SLCSDW1-5973** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 8:40**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408908** Prep Date: **3/3/2005** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	18.98	10	40	0	47.4	33-78	14.5	26.8	30	
1,4-Dichlorobenzene	47.06	10	100	0	47.1	29-74	37.3	23.1	27	
2,4-Dinitrotoluene	72.62	10	100	0	72.6	24-96	65.98	9.58	35	
2-Chlorophenol	26.8	10	40	0	67	25-85	20.52	26.5	32	
4-Chloro-3-methylphenol	30.94	10	40	0	77.4	19-103	25.38	19.7	31	
4-Nitrophenol	14.76	40	40	0	36.9	1-58	12.92	0	43	J
Acenaphthene	28.82	10	40	0	72	30-108	24.2	17.4	44	
N-Nitrosodi-n-propylamine	27.08	10	40	0	67.7	24-82	22.08	20.3	36	
Pentachlorophenol	71.84	40	100	0	71.8	9-103	62.94	13.2	34	
Phenol	13.44	10	40	0	33.6	12-43	9.84	30.9	34	
Pyrene	34.92	10	40	0	87.3	35-135	34.08	2.43	22	
Surr: 2,4,6-Tribromophenol	36.96	0	50	0	73.9	10-123	32.96	11.4	40	
Surr: 2-Fluorophenol	22.4	0	50	0	44.8	7-75	17.56	24.2	40	
Surr: Phenol-d6	15.46	0	50	0	30.9	3-67	11.4	30.2	40	
Surr: 2-Fluorobiphenyl	30.38	0	50	0	60.8	20-122	24.62	20.9	40	
Surr: 4-Terphenyl-d14	45.34	0	50	0	90.7	22-172	44.88	1.02	40	
Surr: Nitrobenzene-d5	33.22	0	50	0	66.4	8-115	25.14	27.7	40	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5973** InstrumentID: **SVMS4**

MS Sample ID: **0502441-13B MS** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 9:11**

Client ID: **MW-9D-01** Run ID: **SVMS4_050304A** SeqNo: **408617** Prep Date: **3/3/2005** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	90.84	20	200	0	45.4	7-118	0			
2,4,5-Trichlorophenol	96.32	20	120	0	80.3	17-154	0			
2,4,6-Trichlorophenol	84.4	20	120	0	70.3	1-138	0			
2,4-Dinitrotoluene	157.8	20	200	0	78.9	4-151	0			*
2-Methylphenol	55.04	20	120	0	45.9	10-94	0			
4-Methylphenol	52.36	20	120	0	43.6	11-120	0			
Hexachlorobenzene	101	20	120	0	84.2	23-157	0			
Hexachlorobutadiene	58.16	20	120	0	48.5	1-128	0			
Hexachloroethane	53.84	20	120	0	44.9	7-119	0			
Nitrobenzene	64.36	20	120	0	53.6	10-117	0			
Pentachlorophenol	226.8	80	200	0	113	1-144	0			
Surr: 2,4,6-Tribromophenol	89.76	0	100	0	89.8	4-158	0			
Surr: 2-Fluorobiphenyl	52.8	0	100	0	52.8	22-148	0			
Surr: 2-Fluorophenol	31.68	0	100	0	31.7	8-104	0			
Surr: 4-Terphenyl-d14	85.08	0	100	0	85.1	41-156	0			
Surr: Nitrobenzene-d5	53.96	0	100	0	54	6-142	0			
Surr: Phenol-d6	22.32	0	100	0	22.3	1-120	0			

MS Sample ID: **0502441-13B MS** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 9:11**

Client ID: **MW-9D-01** Run ID: **SVMS4_050304A** SeqNo: **408915** Prep Date: **3/3/2005** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.16	20	80	0	51.4	33-78	0			
1,4-Dichlorobenzene	90.84	20	200	0	45.4	29-74	0			
2,4-Dinitrotoluene	157.8	20	200	0	78.9	24-96	0			
2-Chlorophenol	40.48	20	80	0	50.6	25-85	0			
4-Chloro-3-methylphenol	56.4	20	80	0	70.5	19-103	0			
4-Nitrophenol	49.64	80	80	0	62	1-58	0			JS
Acenaphthene	213.3	20	80	143	87.9	30-108	0			
N-Nitrosodi-n-propylamine	42.64	20	80	0	53.3	24-82	0			
Pentachlorophenol	226.8	80	200	0	113	9-103	0			S
Phenol	20.16	20	80	0	25.2	12-110	0			
Pyrene	76.68	20	80	0	95.8	35-135	0			
Surr: 2,4,6-Tribromophenol	89.76	0	100	0	89.8	10-123	0			
Surr: 2-Fluorophenol	31.68	0	100	0	31.7	7-75	0			
Surr: Phenol-d6	22.32	0	100	0	22.3	3-67	0			
Surr: 2-Fluorobiphenyl	52.8	0	100	0	52.8	20-122	0			
Surr: 4-Terphenyl-d14	85.08	0	100	0	85.1	22-172	0			
Surr: Nitrobenzene-d5	53.96	0	100	0	54	8-115	0			

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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5973** InstrumentID: **SVMS4**

MSD Sample ID: **0502441-13B MSD** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 9:41**

Client ID: **MW-9D-01** Run ID: **SVMS4_050304A** SeqNo: **408618** Prep Date: **3/3/2005** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	75.79	21	208.3	0	36.4	7-118	90.84	18.1	61	
2,4,5-Trichlorophenol	92.29	21	125	0	73.8	17-154	96.32	4.27	53	
2,4,6-Trichlorophenol	77.08	21	125	0	61.7	1-138	84.4	9.06	54	
2,4-Dinitrotoluene	153.7	21	208.3	0	73.8	4-151	157.8	2.68	47	*
2-Methylphenol	51.38	21	125	0	41.1	10-94	55.04	6.89	41	
4-Methylphenol	48.33	21	125	0	38.7	11-120	52.36	8	41	
Hexachlorobenzene	97.46	21	125	0	78	23-157	101	3.57	44	
Hexachlorobutadiene	45.88	21	125	0	36.7	1-128	58.16	23.6	61	
Hexachloroethane	41.29	21	125	0	33	7-119	53.84	26.4	60	
Nitrobenzene	56.33	21	125	0	45.1	10-117	64.36	13.3	56	
Pentachlorophenol	224.8	83	208.3	0	108	1-144	226.8	0.889	42	
Surr: 2,4,6-Tribromophenol	89.46	0	104.2	0	85.9	4-158	89.76	0.337	50	
Surr: 2-Fluorobiphenyl	47.17	0	104.2	0	45.3	22-148	52.8	11.3	50	
Surr: 2-Fluorophenol	28.92	0	104.2	0	27.8	8-104	31.68	9.12	50	
Surr: 4-Terphenyl-d14	95.29	0	104.2	0	91.5	41-156	85.08	11.3	50	
Surr: Nitrobenzene-d5	48.62	0	104.2	0	46.7	6-142	53.96	10.4	50	
Surr: Phenol-d6	20.29	0	104.2	0	19.5	1-120	22.32	9.52	50	

MSD Sample ID: **0502441-13B MSD** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 9:41**

Client ID: **MW-9D-01** Run ID: **SVMS4_050304A** SeqNo: **408916** Prep Date: **3/3/2005** DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	34.67	21	83.33	0	41.6	33-78	41.16	17.1	30	
1,4-Dichlorobenzene	75.79	21	208.3	0	36.4	29-74	90.84	18.1	27	
2,4-Dinitrotoluene	153.7	21	208.3	0	73.8	24-96	157.8	2.68	38	
2-Chlorophenol	37.38	21	83.33	0	44.8	25-85	40.48	7.98	40	
4-Chloro-3-methylphenol	54.96	21	83.33	0	65.9	19-103	56.4	2.59	42	
4-Nitrophenol	49.75	83	83.33	0	59.7	1-58	49.64	0	50	JS
Acenaphthene	193.9	21	83.33	143	61.1	30-108	213.3	9.53	31	
N-Nitrosodi-n-propylamine	38.08	21	83.33	0	45.7	24-82	42.64	11.3	38	
Pentachlorophenol	224.8	83	208.3	0	108	9-103	226.8	0.889	50	S
Phenol	18.29	21	83.33	0	21.9	12-110	20.16	0	42	J
Pyrene	79.21	21	83.33	0	95	35-135	76.68	3.24	31	
Surr: 2,4,6-Tribromophenol	89.46	0	104.2	0	85.9	10-123	89.76	0.337	40	
Surr: 2-Fluorophenol	28.92	0	104.2	0	27.8	7-75	31.68	9.12	40	
Surr: Phenol-d6	20.29	0	104.2	0	19.5	3-67	22.32	9.52	40	
Surr: 2-Fluorobiphenyl	47.17	0	104.2	0	45.3	20-122	52.8	11.3	40	
Surr: 4-Terphenyl-d14	95.29	0	104.2	0	91.5	22-172	85.08	11.3	40	
Surr: Nitrobenzene-d5	48.62	0	104.2	0	46.7	8-115	53.96	10.4	40	

The following samples were analyzed in this batch:

0502441-01B	0502441-02B	0502441-03B
0502441-04B	0502441-13B	

ND - Not Detected at the Reporting Limit
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P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5975** InstrumentID: **SVMS4**

MBLK Sample ID: **SBLKW1-5975** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 15:57**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408921** Prep Date: **3/4/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2,4,5-Trichlorophenol	U	5.0								
2,4,6-Trichlorophenol	U	5.0								
2,4-Dichlorophenol	U	10								
2,4-Dimethylphenol	U	5.0								
2,4-Dinitrophenol	U	20								
2,4-Dinitrotoluene	U	5.0								
2,6-Dinitrotoluene	U	5.0								
2-Chloronaphthalene	U	5.0								
2-Chlorophenol	U	5.0								
2-Methylnaphthalene	U	5.0								
2-Methylphenol	U	5.0								
2-Nitroaniline	U	20								
2-Nitrophenol	U	5.0								
3,3´-Dichlorobenzidine	U	20								
3-Nitroaniline	U	20								
4,6-Dinitro-2-methylphenol	U	20								
4-Bromophenyl phenyl ether	U	5.0								
4-Chloro-3-methylphenol	U	5.0								
4-Chloroaniline	U	20								
4-Chlorophenyl phenyl ether	U	5.0								
4-Methylphenol	U	5.0								
4-Nitroaniline	U	20								
4-Nitrophenol	U	20								
Acenaphthene	U	5.0								
Acenaphthylene	U	5.0								
Anthracene	U	5.0								
Benzo(a)anthracene	U	1.0								
Benzo(a)pyrene	U	2.0								
Benzo(b)fluoranthene	U	2.0								
Benzo(g,h,i)perylene	U	5.0								
Benzo(k)fluoranthene	U	5.0								
Bis(2-chloroethoxy)methane	U	5.0								
Bis(2-chloroethyl)ether	U	5.0								
Bis(2-chloroisopropyl)ether	U	5.0								
Bis(2-ethylhexyl)phthalate	U	5.0								
Butyl benzyl phthalate	U	5.0								
Carbazole	U	10								
Chrysene	U	5.0								

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QC BATCH REPORT

Batch ID: **5975** InstrumentID: **SVMS4**

Di-n-butyl phthalate	U	5.0					
Di-n-octyl phthalate	U	5.0					
Dibenzo(a,h)anthracene	U	2.0					
Dibenzofuran	U	5.0					
Diethyl phthalate	U	20					
Dimethyl phthalate	U	20					
Fluoranthene	U	5.0					
Fluorene	U	5.0					
Hexachlorobenzene	U	5.0					
Hexachlorobutadiene	U	5.0					
Hexachlorocyclopentadiene	U	5.0					
Hexachloroethane	U	5.0					
Indeno(1,2,3-cd)pyrene	U	2.0					
Isophorone	U	5.0					
N-Nitrosodi-n-propylamine	U	5.0					
N-Nitrosodiphenylamine	U	5.0					
Naphthalene	U	5.0					
Nitrobenzene	U	5.0					
Pentachlorophenol	U	20					
Phenanthrene	U	5.0					
Phenol	U	5.0					
Pyrene	U	5.0					
Surr: 2,4,6-Tribromophenol	34.89	0	50	0	69.8	10-123	0
Surr: 2-Fluorophenol	21.87	0	50	0	43.7	7-75	0
Surr: Phenol-d6	15.23	0	50	0	30.5	3-67	0
Surr: 2-Fluorobiphenyl	26.89	0	50	0	53.8	20-122	0
Surr: 4-Terphenyl-d14	27.22	0	50	0	54.4	22-172	0
Surr: Nitrobenzene-d5	30	0	50	0	60	8-115	0

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5975** InstrumentID: **SVMS4**

LCS Sample ID: **SLCSW1-5975** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 16:28**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408922** Prep Date: **3/4/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	15.36	5.0	40	0	38.4	33-78	0			
1,4-Dichlorobenzene	13.42	5.0	40	0	33.6	29-74	0			
2,4-Dinitrotoluene	25.64	5.0	40	0	64.1	24-96	0			
2-Chlorophenol	23.7	5.0	40	0	59.2	25-85	0			
4-Chloro-3-methylphenol	26.67	5.0	40	0	66.7	19-103	0			
4-Nitrophenol	12.61	20	40	0	31.5	1-58	0			J
Acenaphthene	24.14	5.0	40	0	60.4	30-108	0			
N-Nitrosodi-n-propylamine	26	5.0	40	0	65	24-82	0			
Pentachlorophenol	27.74	20	40	0	69.4	9-103	0			
Phenol	10.97	5.0	40	0	27.4	12-43	0			
Pyrene	27.37	5.0	40	0	68.4	35-135	0			
Surr: 2,4,6-Tribromophenol	35.37	0	50	0	70.7	10-123	0			
Surr: 2-Fluorophenol	19.98	0	50	0	40	7-75	0			
Surr: Phenol-d6	13.02	0	50	0	26	3-67	0			
Surr: 2-Fluorobiphenyl	26.37	0	50	0	52.7	20-122	0			
Surr: 4-Terphenyl-d14	26.19	0	50	0	52.4	22-172	0			
Surr: Nitrobenzene-d5	29.43	0	50	0	58.9	8-115	0			

LCSD Sample ID: **SLCSDW1-5975** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 16:59**

Client ID: Run ID: **SVMS4_050304A** SeqNo: **408923** Prep Date: **3/4/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	17.85	5.0	40	0	44.6	33-78	15.36	15	30	
1,4-Dichlorobenzene	15.57	5.0	40	0	38.9	29-74	13.42	14.8	27	
2,4-Dinitrotoluene	27.34	5.0	40	0	68.4	24-96	25.64	6.42	35	
2-Chlorophenol	24.81	5.0	40	0	62	25-85	23.7	4.58	32	
4-Chloro-3-methylphenol	27.84	5.0	40	0	69.6	19-103	26.67	4.29	31	
4-Nitrophenol	13.51	20	40	0	33.8	1-58	12.61	0	43	J
Acenaphthene	26.1	5.0	40	0	65.2	30-108	24.14	7.8	44	
N-Nitrosodi-n-propylamine	27.78	5.0	40	0	69.4	24-82	26	6.62	36	
Pentachlorophenol	30.12	20	40	0	75.3	9-103	27.74	8.23	34	
Phenol	11.44	5.0	40	0	28.6	12-43	10.97	4.19	34	
Pyrene	29.33	5.0	40	0	73.3	35-135	27.37	6.91	22	
Surr: 2,4,6-Tribromophenol	35.83	0	50	0	71.7	10-123	35.37	1.29	40	
Surr: 2-Fluorophenol	20.15	0	50	0	40.3	7-75	19.98	0.847	40	
Surr: Phenol-d6	13.3	0	50	0	26.6	3-67	13.02	2.13	40	
Surr: 2-Fluorobiphenyl	28.16	0	50	0	56.3	20-122	26.37	6.57	40	
Surr: 4-Terphenyl-d14	27.93	0	50	0	55.9	22-172	26.19	6.43	40	
Surr: Nitrobenzene-d5	30.37	0	50	0	60.7	8-115	29.43	3.14	40	

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5975** InstrumentID: **SVMS4**

MS Sample ID: **0502441-08B MS** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 17:30**

Client ID: **MW-6M-01** Run ID: **SVMS4_050304A** SeqNo: **408924** Prep Date: **3/4/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	32.56	10	80	0	40.7	33-78	0			
1,4-Dichlorobenzene	29.48	10	80	0	36.8	29-74	0			
2,4-Dinitrotoluene	52.96	10	80	0	66.2	24-96	0			
2-Chlorophenol	37.92	10	80	0	47.4	25-85	0			
4-Chloro-3-methylphenol	51	10	80	0	63.8	19-103	0			
4-Nitrophenol	31.3	40	80	0	39.1	1-58	0			J
Acenaphthene	41.52	10	80	0	51.9	30-108	0			
N-Nitrosodi-n-propylamine	39.4	10	80	0	49.2	24-82	0			
Pentachlorophenol	76.58	40	80	0	95.7	9-103	0			
Phenol	16.94	10	80	0	21.2	12-110	0			
Pyrene	59	10	80	0	73.8	35-135	0			
Surr: 2,4,6-Tribromophenol	78.7	0	100	0	78.7	10-123	0			
Surr: 2-Fluorophenol	29.86	0	100	0	29.9	7-75	0			
Surr: Phenol-d6	19.6	0	100	0	19.6	3-67	0			
Surr: 2-Fluorobiphenyl	46.18	0	100	0	46.2	20-122	0			
Surr: 4-Terphenyl-d14	52.48	0	100	0	52.5	22-172	0			
Surr: Nitrobenzene-d5	47.06	0	100	0	47.1	8-115	0			

MSD Sample ID: **0502441-08B MSD** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **03/04/05 18:01**

Client ID: **MW-6M-01** Run ID: **SVMS4_050304A** SeqNo: **408925** Prep Date: **3/4/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	32.71	10	80.81	0	40.5	33-78	32.56	0.451	30	
1,4-Dichlorobenzene	29.7	10	80.81	0	36.7	29-74	29.48	0.733	27	
2,4-Dinitrotoluene	53.37	10	80.81	0	66	24-96	52.96	0.778	38	
2-Chlorophenol	37.43	10	80.81	0	46.3	25-85	37.92	1.29	40	
4-Chloro-3-methylphenol	48.89	10	80.81	0	60.5	19-103	51	4.23	42	
4-Nitrophenol	33.01	40	80.81	0	40.8	1-58	31.3	0	50	J
Acenaphthene	42.28	10	80.81	0	52.3	30-108	41.52	1.82	31	
N-Nitrosodi-n-propylamine	38.71	10	80.81	0	47.9	24-82	39.4	1.77	38	
Pentachlorophenol	80.18	40	80.81	0	99.2	9-103	76.58	4.6	50	
Phenol	16.51	10	80.81	0	20.4	12-110	16.94	2.6	42	
Pyrene	61.13	10	80.81	0	75.6	35-135	59	3.55	31	
Surr: 2,4,6-Tribromophenol	78.99	0	101	0	78.2	10-123	78.7	0.368	40	
Surr: 2-Fluorophenol	30.26	0	101	0	30	7-75	29.86	1.34	40	
Surr: Phenol-d6	19.58	0	101	0	19.4	3-67	19.6	0.124	40	
Surr: 2-Fluorobiphenyl	46.2	0	101	0	45.7	20-122	46.18	0.0477	40	
Surr: 4-Terphenyl-d14	53.56	0	101	0	53	22-172	52.48	2.03	40	
Surr: Nitrobenzene-d5	47.07	0	101	0	46.6	8-115	47.06	0.0227	40	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **5975** InstrumentID: **SVMS4**

The following samples were analyzed in this batch:

0502441-05B	0502441-06B	0502441-07B
0502441-08B	0502441-09B	0502441-10B
0502441-11B	0502441-12B	0502441-14B
0502441-15B		

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27650** InstrumentID: **VMS5**

MBLK Sample ID: **VBLKW1-050302** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/02/05 15:25**

Client ID: Run ID: **VMS5_050302A** SeqNo: **407988** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	2.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	20								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	2.5								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Dibromochloromethane	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methylene chloride	U	5.0								
o-Xylene	U	1.0								
Styrene	U	1.0								
Tetrachloroethene	U	2.0								
Toluene	U	1.0								
trans-1,2-Dichloroethene	U	1.0								
trans-1,3-Dichloropropene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
1,2-Dichloroethene, Total	U	2.0								
1,3-Dichloropropene, Total	U	2.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	115.9	0	100	0	116	80-120		0		
Surr: 4-Bromofluorobenzene	113.4	0	100	0	113	80-120		0		
Surr: Dibromofluoromethane	109.2	0	100	0	109	80-120		0		
Surr: Toluene-d8	96.08	0	100	0	96.1	80-120		0		

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B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27650** InstrumentID: **VMS5**

LCS Sample ID: **VLCSW1-050302** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/02/05 16:32**

Client ID: Run ID: **VMS5_050302A** SeqNo: **407989** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.39	1.0	20	0	107	80-120	0			
1,1,2,2-Tetrachloroethane	18.22	1.0	20	0	91.1	80-120	0			
1,1,2-Trichloroethane	20.93	1.0	20	0	105	80-120	0			
1,1-Dichloroethane	21.57	1.0	20	0	108	80-120	0			
1,1-Dichloroethene	19.6	1.0	20	0	98	80-120	0			
1,2-Dichloroethane	22.31	1.0	20	0	112	80-120	0			
1,2-Dichloropropane	17.18	2.0	20	0	85.9	80-120	0			
2-Butanone	22.81	5.0	20	0	114	80-120	0			
2-Hexanone	19.31	5.0	20	0	96.6	80-120	0			
4-Methyl-2-pentanone	16.67	5.0	20	0	83.4	80-120	0			
Benzene	18.4	1.0	20	0	92	80-120	0			
Bromodichloromethane	19.79	1.0	20	0	98.9	80-120	0			
Bromoform	16.64	1.0	20	0	83.2	80-120	0			
Carbon disulfide	17.05	2.5	20	0	85.2	80-120	0			
Carbon tetrachloride	23.09	1.0	20	0	115	80-120	0			
Chlorobenzene	17.62	1.0	20	0	88.1	80-120	0			
Chloroethane	20.11	1.0	20	0	101	80-120	0			
Chloroform	18.18	1.0	20	0	90.9	80-120	0			
cis-1,2-Dichloroethene	16.72	1.0	20	0	83.6	80-120	0			
cis-1,3-Dichloropropene	17.26	1.0	20	0	86.3	80-120	0			
Dibromochloromethane	16.93	1.0	20	0	84.6	80-120	0			
Ethylbenzene	17.7	1.0	20	0	88.5	80-120	0			
m,p-Xylene	39.6	2.0	40	0	99	80-120	0			
Methylene chloride	22.75	5.0	20	0	114	80-120	0			
o-Xylene	18.05	1.0	20	0	90.2	80-120	0			
Styrene	16.47	1.0	20	0	82.4	80-120	0			
Tetrachloroethene	17.92	2.0	20	0	89.6	80-120	0			
Toluene	18.38	1.0	20	0	91.9	80-120	0			
trans-1,2-Dichloroethene	20.7	1.0	20	0	103	80-120	0			
trans-1,3-Dichloropropene	20.66	1.0	20	0	103	80-120	0			
Trichloroethene	17.4	1.0	20	0	87	80-120	0			
Vinyl chloride	20.48	1.0	20	0	102	80-120	0			
Surr: 1,2-Dichloroethane-d4	105.3	0	100	0	105	80-120	0			
Surr: 4-Bromofluorobenzene	87.37	0	100	0	87.4	80-120	0			
Surr: Dibromofluoromethane	96.24	0	100	0	96.2	80-120	0			
Surr: Toluene-d8	91.88	0	100	0	91.9	80-120	0			

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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27650** InstrumentID: **VMS5**

LCSD Sample ID: **VLCSDW1-050302** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/02/05 17:06**

Client ID: Run ID: **VMS5_050302A** SeqNo: **407990** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23.68	1.0	20	0	118	80-120	21.39	10.2	30	
1,1,2,2-Tetrachloroethane	17.14	1.0	20	0	85.7	80-120	18.22	6.11	30	
1,1,2-Trichloroethane	20.21	1.0	20	0	101	80-120	20.93	3.5	30	
1,1-Dichloroethane	22.66	1.0	20	0	113	80-120	21.57	4.93	30	
1,1-Dichloroethene	16.6	1.0	20	0	83	80-120	19.6	16.6	30	
1,2-Dichloroethane	23.72	1.0	20	0	119	80-120	22.31	6.13	30	
1,2-Dichloropropane	19.01	2.0	20	0	95	80-120	17.18	10.1	30	
2-Butanone	21.26	5.0	20	0	106	80-120	22.81	7.03	30	
2-Hexanone	19.44	5.0	20	0	97.2	80-120	19.31	0.671	30	
4-Methyl-2-pentanone	17.91	5.0	20	0	89.6	80-120	16.67	7.17	30	
Benzene	17.44	1.0	20	0	87.2	80-120	18.4	5.36	30	
Bromodichloromethane	20.55	1.0	20	0	103	80-120	19.79	3.77	30	
Bromoform	16.2	1.0	20	0	81	80-120	16.64	2.68	30	
Carbon disulfide	16.32	2.5	20	0	81.6	80-120	17.05	4.38	30	
Carbon tetrachloride	22.12	1.0	20	0	111	80-120	23.09	4.29	30	
Chlorobenzene	19.32	1.0	20	0	96.6	80-120	17.62	9.2	30	
Chloroethane	19.2	1.0	20	0	96	80-120	20.11	4.63	30	
Chloroform	22.08	1.0	20	0	110	80-120	18.18	19.4	30	
cis-1,2-Dichloroethene	16.62	1.0	20	0	83.1	80-120	16.72	0.6	30	
cis-1,3-Dichloropropene	22.27	1.0	20	0	111	80-120	17.26	25.3	30	
Dibromochloromethane	19.36	1.0	20	0	96.8	80-120	16.93	13.4	30	
Ethylbenzene	18.74	1.0	20	0	93.7	80-120	17.7	5.71	30	
m,p-Xylene	42.24	2.0	40	0	106	80-120	39.6	6.45	30	
Methylene chloride	23.99	5.0	20	0	120	80-120	22.75	5.31	30	
o-Xylene	19.67	1.0	20	0	98.4	80-120	18.05	8.59	30	
Styrene	18.5	1.0	20	0	92.5	80-120	16.47	11.6	30	
Tetrachloroethene	19.67	2.0	20	0	98.4	80-120	17.92	9.31	30	
Toluene	19.48	1.0	20	0	97.4	80-120	18.38	5.81	30	
trans-1,2-Dichloroethene	18.43	1.0	20	0	92.2	80-120	20.7	11.6	30	
trans-1,3-Dichloropropene	17.36	1.0	20	0	86.8	80-120	20.66	17.4	30	
Trichloroethene	18.54	1.0	20	0	92.7	80-120	17.4	6.34	30	
Vinyl chloride	18.7	1.0	20	0	93.5	80-120	20.48	9.09	30	
Surr: 1,2-Dichloroethane-d4	115.3	0	100	0	115	80-120	105.3	9.06	30	
Surr: 4-Bromofluorobenzene	89.42	0	100	0	89.4	80-120	87.37	2.32	30	
Surr: Dibromofluoromethane	101	0	100	0	101	80-120	96.24	4.87	30	
Surr: Toluene-d8	107.8	0	100	0	108	80-120	91.88	16	30	

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R - RPD outside accepted recovery limits
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27650** InstrumentID: **VMS5**

MS Sample ID: **0502441-03A MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/03/05 1:22**

Client ID: **MW-7DR-01** Run ID: **VMS5_050302A** SeqNo: **408202** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.85	1.0	20	0	114	70-130	0			
Benzene	20.3	1.0	20	0	102	70-130	0			
Chlorobenzene	19.47	1.0	20	0	97.4	70-130	0			
Toluene	18.76	1.0	20	0	93.8	70-130	0			
Trichloroethene	16.18	1.0	20	0	80.9	70-130	0			
Surr: 1,2-Dichloroethane-d4	110.4	0	100	0	110	70-130	0			
Surr: 4-Bromofluorobenzene	77.44	0	100	0	77.4	70-130	0			
Surr: Dibromofluoromethane	90.09	0	100	0	90.1	70-130	0			
Surr: Toluene-d8	98.66	0	100	0	98.7	70-130	0			

MSD Sample ID: **0502441-03A MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/03/05 1:56**

Client ID: **MW-7DR-01** Run ID: **VMS5_050302A** SeqNo: **408203** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20.46	1.0	20	0	102	70-130	22.85	11	30	
Benzene	18.18	1.0	20	0	90.9	70-130	20.3	11	30	
Chlorobenzene	18.62	1.0	20	0	93.1	70-130	19.47	4.46	30	
Toluene	19.24	1.0	20	0	96.2	70-130	18.76	2.53	30	
Trichloroethene	18.35	1.0	20	0	91.8	70-130	16.18	12.6	30	
Surr: 1,2-Dichloroethane-d4	98.7	0	100	0	98.7	70-130	110.4	11.2	30	
Surr: 4-Bromofluorobenzene	82.14	0	100	0	82.1	70-130	77.44	5.89	30	
Surr: Dibromofluoromethane	93.83	0	100	0	93.8	70-130	90.09	4.07	30	
Surr: Toluene-d8	94.43	0	100	0	94.4	70-130	98.66	4.38	30	

The following samples were analyzed in this batch: 0502441-01A 0502441-02A 0502441-03A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27707** InstrumentID: **VMS5**

MBLK Sample ID: **VBLKW2-050303** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/03/05 18:02**

Client ID: Run ID: **VMS5_050303A** SeqNo: **408929** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	2.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	20								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	2.5								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Dibromochloromethane	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methylene chloride	U	5.0								
o-Xylene	U	1.0								
Styrene	U	1.0								
Tetrachloroethene	U	2.0								
Toluene	U	1.0								
trans-1,2-Dichloroethene	U	1.0								
trans-1,3-Dichloropropene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
1,2-Dichloroethene, Total	U	2.0								
1,3-Dichloropropene, Total	U	2.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	92.17	0	100	0	92.2	80-120		0		
Surr: 4-Bromofluorobenzene	105.5	0	100	0	106	80-120		0		
Surr: Dibromofluoromethane	95.2	0	100	0	95.2	80-120		0		
Surr: Toluene-d8	87.38	0	100	0	87.4	80-120		0		

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27707** InstrumentID: **VMS5**

LCS Sample ID: **VLCSW1-050303** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/03/05 19:10**

Client ID: Run ID: **VMS5_050303A** SeqNo: **408930** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.05	1.0	20	0	105	80-120	0			
1,1,2,2-Tetrachloroethane	22.8	1.0	20	0	114	80-120	0			
1,1,2-Trichloroethane	20.81	1.0	20	0	104	80-120	0			
1,1-Dichloroethane	18.41	1.0	20	0	92	80-120	0			
1,1-Dichloroethene	21.5	1.0	20	0	108	80-120	0			
1,2-Dichloroethane	22.65	1.0	20	0	113	80-120	0			
1,2-Dichloropropane	19.99	2.0	20	0	99.9	80-120	0			
2-Butanone	21.7	5.0	20	0	108	80-120	0			
2-Hexanone	19.37	5.0	20	0	96.8	80-120	0			
4-Methyl-2-pentanone	16.13	5.0	20	0	80.6	80-120	0			
Benzene	23.52	1.0	20	0	118	80-120	0			
Bromodichloromethane	22.5	1.0	20	0	112	80-120	0			
Bromoform	22.94	1.0	20	0	115	80-120	0			
Carbon disulfide	17.18	2.5	20	0	85.9	80-120	0			
Carbon tetrachloride	23.58	1.0	20	0	118	80-120	0			
Chlorobenzene	21.77	1.0	20	0	109	80-120	0			
Chloroethane	19.87	1.0	20	0	99.4	80-120	0			
Chloroform	19.68	1.0	20	0	98.4	80-120	0			
cis-1,2-Dichloroethene	21.3	1.0	20	0	106	80-120	0			
cis-1,3-Dichloropropene	20.81	1.0	20	0	104	80-120	0			
Dibromochloromethane	21.19	1.0	20	0	106	80-120	0			
Ethylbenzene	20.82	1.0	20	0	104	80-120	0			
m,p-Xylene	46.33	2.0	40	0	116	80-120	0			
Methylene chloride	22.84	5.0	20	0	114	80-120	0			
o-Xylene	22.61	1.0	20	0	113	80-120	0			
Styrene	20.89	1.0	20	0	104	80-120	0			
Tetrachloroethene	22.36	2.0	20	0	112	80-120	0			
Toluene	23.15	1.0	20	0	116	80-120	0			
trans-1,2-Dichloroethene	20.41	1.0	20	0	102	80-120	0			
trans-1,3-Dichloropropene	19.29	1.0	20	0	96.4	80-120	0			
Trichloroethene	21.27	1.0	20	0	106	80-120	0			
Vinyl chloride	17.08	1.0	20	0	85.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	95.62	0	100	0	95.6	80-120	0			
Surr: 4-Bromofluorobenzene	101.9	0	100	0	102	80-120	0			
Surr: Dibromofluoromethane	100.1	0	100	0	100	80-120	0			
Surr: Toluene-d8	95.96	0	100	0	96	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27707** InstrumentID: **VMS5**

LCSD Sample ID: **VLCSDW1-050303** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/03/05 19:44**

Client ID: Run ID: **VMS5_050303A** SeqNo: **408931** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.82	1.0	20	0	99.1	80-120	21.05	6.02	30	
1,1,2,2-Tetrachloroethane	22.52	1.0	20	0	113	80-120	22.8	1.24	30	
1,1,2-Trichloroethane	20.87	1.0	20	0	104	80-120	20.81	0.288	30	
1,1-Dichloroethane	20.27	1.0	20	0	101	80-120	18.41	9.62	30	
1,1-Dichloroethene	21.89	1.0	20	0	109	80-120	21.5	1.8	30	
1,2-Dichloroethane	19.59	1.0	20	0	98	80-120	22.65	14.5	30	
1,2-Dichloropropane	16.84	2.0	20	0	84.2	80-120	19.99	17.1	30	
2-Butanone	22.39	5.0	20	0	112	80-120	21.7	3.13	30	
2-Hexanone	16.3	5.0	20	0	81.5	80-120	19.37	17.2	30	
4-Methyl-2-pentanone	17.31	5.0	20	0	86.6	80-120	16.13	7.06	30	
Benzene	22.27	1.0	20	0	111	80-120	23.52	5.46	30	
Bromodichloromethane	17.18	1.0	20	0	85.9	80-120	22.5	26.8	30	
Bromoform	23.76	1.0	20	0	119	80-120	22.94	3.51	30	
Carbon disulfide	17.48	2.5	20	0	87.4	80-120	17.18	1.73	30	
Carbon tetrachloride	23.45	1.0	20	0	117	80-120	23.58	0.553	30	
Chlorobenzene	21.91	1.0	20	0	110	80-120	21.77	0.641	30	
Chloroethane	19.81	1.0	20	0	99	80-120	19.87	0.302	30	
Chloroform	20.41	1.0	20	0	102	80-120	19.68	3.64	30	
cis-1,2-Dichloroethene	20.88	1.0	20	0	104	80-120	21.3	1.99	30	
cis-1,3-Dichloropropene	20.47	1.0	20	0	102	80-120	20.81	1.65	30	
Dibromochloromethane	20.07	1.0	20	0	100	80-120	21.19	5.43	30	
Ethylbenzene	20.41	1.0	20	0	102	80-120	20.82	1.99	30	
m,p-Xylene	46.75	2.0	40	0	117	80-120	46.33	0.902	30	
Methylene chloride	23.02	5.0	20	0	115	80-120	22.84	0.785	30	
o-Xylene	21.68	1.0	20	0	108	80-120	22.61	4.2	30	
Styrene	20.88	1.0	20	0	104	80-120	20.89	0.0479	30	
Tetrachloroethene	21.74	2.0	20	0	109	80-120	22.36	2.81	30	
Toluene	23.24	1.0	20	0	116	80-120	23.15	0.388	30	
trans-1,2-Dichloroethene	22.45	1.0	20	0	112	80-120	20.41	9.52	30	
trans-1,3-Dichloropropene	18.84	1.0	20	0	94.2	80-120	19.29	2.36	30	
Trichloroethene	21.7	1.0	20	0	108	80-120	21.27	2	30	
Vinyl chloride	17.06	1.0	20	0	85.3	80-120	17.08	0.117	30	
Surr: 1,2-Dichloroethane-d4	103.5	0	100	0	103	80-120	95.62	7.91	30	
Surr: 4-Bromofluorobenzene	99.9	0	100	0	99.9	80-120	101.9	1.97	30	
Surr: Dibromofluoromethane	101.1	0	100	0	101	80-120	100.1	0.964	30	
Surr: Toluene-d8	100.7	0	100	0	101	80-120	95.96	4.83	30	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27707** InstrumentID: **VMS5**

MS Sample ID: **0502441-11A MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/04/05 3:43**

Client ID: **MW-3S-01** Run ID: **VMS5_050303A** SeqNo: **408946** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.44	1.0	20	0	112	70-130	0			
Benzene	22.04	1.0	20	0	110	70-130	0			
Chlorobenzene	22.55	1.0	20	0	113	70-130	0			
Toluene	23.34	1.0	20	0	117	70-130	0			
Trichloroethene	19.1	1.0	20	0	95.5	70-130	0			
Surr: 1,2-Dichloroethane-d4	99.73	0	100	0	99.7	70-130	0			
Surr: 4-Bromofluorobenzene	86.01	0	100	0	86	70-130	0			
Surr: Dibromofluoromethane	108.9	0	100	0	109	70-130	0			
Surr: Toluene-d8	94.79	0	100	0	94.8	70-130	0			

MSD Sample ID: **0502441-11A MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/04/05 4:17**

Client ID: **MW-3S-01** Run ID: **VMS5_050303A** SeqNo: **408947** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	24.74	1.0	20	0	124	70-130	22.44	9.75	30	
Benzene	26.17	1.0	20	0	131	70-130	22.04	17.1	30	S
Chlorobenzene	26.84	1.0	20	0	134	70-130	22.55	17.4	30	S
Toluene	26.67	1.0	20	0	133	70-130	23.34	13.3	30	S
Trichloroethene	24.35	1.0	20	0	122	70-130	19.1	24.2	30	
Surr: 1,2-Dichloroethane-d4	116.2	0	100	0	116	70-130	99.73	15.2	30	
Surr: 4-Bromofluorobenzene	88.78	0	100	0	88.8	70-130	86.01	3.17	30	
Surr: Dibromofluoromethane	119.8	0	100	0	120	70-130	108.9	9.57	30	
Surr: Toluene-d8	96.88	0	100	0	96.9	70-130	94.79	2.18	30	

The following samples were analyzed in this batch:

0502441-04A	0502441-05A	0502441-06A
0502441-07A	0502441-08A	0502441-09A
0502441-10A	0502441-11A	0502441-12A

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27762** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW1-050308** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/08/05 10:36**

Client ID: Run ID: **VMS2_050308A** SeqNo: **409357** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	2.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	20								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	2.5								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Dibromochloromethane	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methylene chloride	1.44	5.0								J
o-Xylene	U	1.0								
Styrene	U	1.0								
Tetrachloroethene	U	2.0								
Toluene	U	1.0								
trans-1,2-Dichloroethene	U	1.0								
trans-1,3-Dichloropropene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
1,2-Dichloroethene, Total	U	2.0								
1,3-Dichloropropene, Total	U	2.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	94.63	0	100	0	94.6	80-120		0		
Surr: 4-Bromofluorobenzene	96.16	0	100	0	96.2	80-120		0		
Surr: Dibromofluoromethane	99.78	0	100	0	99.8	80-120		0		
Surr: Toluene-d8	101.2	0	100	0	101	80-120		0		

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27762** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050308** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/08/05 11:45**

Client ID: Run ID: **VMS2_050308A** SeqNo: **409358** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.51	1.0	20	0	103	80-120	0			
1,1,2,2-Tetrachloroethane	22.07	1.0	20	0	110	80-120	0			
1,1,2-Trichloroethane	21.73	1.0	20	0	109	80-120	0			
1,1-Dichloroethane	20.49	1.0	20	0	102	80-120	0			
1,1-Dichloroethene	17.2	1.0	20	0	86	80-120	0			
1,2-Dichloroethane	20.02	1.0	20	0	100	80-120	0			
1,2-Dichloropropane	23.7	2.0	20	0	118	80-120	0			
2-Butanone	22.11	5.0	20	0	111	80-120	0			
2-Hexanone	23.65	5.0	20	0	118	80-120	0			
4-Methyl-2-pentanone	19.9	5.0	20	0	99.5	80-120	0			
Benzene	22.74	1.0	20	0	114	80-120	0			
Bromodichloromethane	19.33	1.0	20	0	96.6	80-120	0			
Bromoform	20.49	1.0	20	0	102	80-120	0			
Carbon disulfide	17.27	2.5	20	0	86.4	80-120	0			
Carbon tetrachloride	19.32	1.0	20	0	96.6	80-120	0			
Chlorobenzene	22.16	1.0	20	0	111	80-120	0			
Chloroethane	16.9	1.0	20	0	84.5	80-120	0			
Chloroform	19.95	1.0	20	0	99.8	80-120	0			
cis-1,2-Dichloroethene	20.84	1.0	20	0	104	80-120	0			
cis-1,3-Dichloropropene	21.73	1.0	20	0	109	80-120	0			
Dibromochloromethane	20.55	1.0	20	0	103	80-120	0			
Ethylbenzene	19.58	1.0	20	0	97.9	80-120	0			
m,p-Xylene	40.66	2.0	40	0	102	80-120	0			
Methylene chloride	17.1	5.0	20	0	85.5	80-120	0			
o-Xylene	21.42	1.0	20	0	107	80-120	0			
Styrene	20.96	1.0	20	0	105	80-120	0			
Tetrachloroethene	19.09	2.0	20	0	95.4	80-120	0			
Toluene	20.53	1.0	20	0	103	80-120	0			
trans-1,2-Dichloroethene	18.52	1.0	20	0	92.6	80-120	0			
trans-1,3-Dichloropropene	23.48	1.0	20	0	117	80-120	0			
Trichloroethene	21.41	1.0	20	0	107	80-120	0			
Vinyl chloride	16.21	1.0	20	0	81	80-120	0			
Surr: 1,2-Dichloroethane-d4	97.09	0	100	0	97.1	80-120	0			
Surr: 4-Bromofluorobenzene	99.93	0	100	0	99.9	80-120	0			
Surr: Dibromofluoromethane	97.75	0	100	0	97.8	80-120	0			
Surr: Toluene-d8	100.9	0	100	0	101	80-120	0			

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27762** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW1-050308** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/08/05 13:10**

Client ID: Run ID: **VMS2_050308A** SeqNo: **409359** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.92	1.0	20	0	105	80-120	20.51	1.98	30	
1,1,2,2-Tetrachloroethane	21.71	1.0	20	0	109	80-120	22.07	1.64	30	
1,1,2-Trichloroethane	21.76	1.0	20	0	109	80-120	21.73	0.138	30	
1,1-Dichloroethane	19.86	1.0	20	0	99.3	80-120	20.49	3.12	30	
1,1-Dichloroethene	17.39	1.0	20	0	87	80-120	17.2	1.1	30	
1,2-Dichloroethane	18.91	1.0	20	0	94.6	80-120	20.02	5.7	30	
1,2-Dichloropropane	22.61	2.0	20	0	113	80-120	23.7	4.71	30	
2-Butanone	17.29	5.0	20	0	86.4	80-120	22.11	24.5	30	
2-Hexanone	22.04	5.0	20	0	110	80-120	23.65	7.05	30	
4-Methyl-2-pentanone	16.73	5.0	20	0	83.6	80-120	19.9	17.3	30	
Benzene	23.27	1.0	20	0	116	80-120	22.74	2.3	30	
Bromodichloromethane	19.92	1.0	20	0	99.6	80-120	19.33	3.01	30	
Bromoform	20.75	1.0	20	0	104	80-120	20.49	1.26	30	
Carbon disulfide	16.89	2.5	20	0	84.4	80-120	17.27	2.22	30	
Carbon tetrachloride	19.61	1.0	20	0	98	80-120	19.32	1.49	30	
Chlorobenzene	22.38	1.0	20	0	112	80-120	22.16	0.988	30	
Chloroethane	16.33	1.0	20	0	81.6	80-120	16.9	3.43	30	
Chloroform	19.96	1.0	20	0	99.8	80-120	19.95	0.0501	30	
cis-1,2-Dichloroethene	21.58	1.0	20	0	108	80-120	20.84	3.49	30	
cis-1,3-Dichloropropene	21.54	1.0	20	0	108	80-120	21.73	0.878	30	
Dibromochloromethane	20.98	1.0	20	0	105	80-120	20.55	2.07	30	
Ethylbenzene	23.81	1.0	20	0	119	80-120	19.58	19.5	30	
m,p-Xylene	47.81	2.0	40	0	120	80-120	40.66	16.2	30	
Methylene chloride	16.53	5.0	20	0	82.6	80-120	17.1	3.39	30	
o-Xylene	21.28	1.0	20	0	106	80-120	21.42	0.656	30	
Styrene	21	1.0	20	0	105	80-120	20.96	0.191	30	
Tetrachloroethene	19.88	2.0	20	0	99.4	80-120	19.09	4.05	30	
Toluene	21.54	1.0	20	0	108	80-120	20.53	4.8	30	
trans-1,2-Dichloroethene	18.55	1.0	20	0	92.8	80-120	18.52	0.162	30	
trans-1,3-Dichloropropene	23.49	1.0	20	0	117	80-120	23.48	0.0426	30	
Trichloroethene	22.48	1.0	20	0	112	80-120	21.41	4.88	30	
Vinyl chloride	17.05	1.0	20	0	85.2	80-120	16.21	5.05	30	
Surr: 1,2-Dichloroethane-d4	90.78	0	100	0	90.8	80-120	97.09	6.72	30	
Surr: 4-Bromofluorobenzene	97.27	0	100	0	97.3	80-120	99.93	2.7	30	
Surr: Dibromofluoromethane	98.89	0	100	0	98.9	80-120	97.75	1.16	30	
Surr: Toluene-d8	101.4	0	100	0	101	80-120	100.9	0.465	30	

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27762** InstrumentID: **VMS2**

MS Sample ID: **0503078-01F MS** Test Code: **EPA 624** Units: **µg/L** Analysis Date: **03/08/05 21:47**

Client ID: Run ID: **VMS2_050308A** SeqNo: **409764** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	17.97	1.0	20	0	89.8	70-130	0			
Benzene	23.33	1.0	20	0	117	70-130	0			
Chlorobenzene	23.18	1.0	20	0	116	70-130	0			
Toluene	22.27	1.0	20	1.62	103	70-130	0			
Trichloroethene	21.5	1.0	20	0	108	70-130	0			
Surr: 1,2-Dichloroethane-d4	96.41	0	100	0	96.4	70-130	0			
Surr: 4-Bromofluorobenzene	102.6	0	100	0	103	70-130	0			
Surr: Dibromofluoromethane	95.24	0	100	0	95.2	70-130	0			
Surr: Toluene-d8	91.83	0	100	0	91.8	70-130	0			

MSD Sample ID: **0503078-01F MSD** Test Code: **EPA 624** Units: **µg/L** Analysis Date: **03/08/05 22:16**

Client ID: Run ID: **VMS2_050308A** SeqNo: **409765** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	18.25	1.0	20	0	91.2	70-130	17.97	1.55	30	
Benzene	23.86	1.0	20	0	119	70-130	23.33	2.25	30	
Chlorobenzene	21.51	1.0	20	0	108	70-130	23.18	7.47	30	
Toluene	20.02	1.0	20	1.62	92	70-130	22.27	10.6	30	
Trichloroethene	22.15	1.0	20	0	111	70-130	21.5	2.98	30	
Surr: 1,2-Dichloroethane-d4	101.7	0	100	0	102	70-130	96.41	5.31	30	
Surr: 4-Bromofluorobenzene	102.1	0	100	0	102	70-130	102.6	0.498	30	
Surr: Dibromofluoromethane	99.38	0	100	0	99.4	70-130	95.24	4.25	30	
Surr: Toluene-d8	91.56	0	100	0	91.6	70-130	91.83	0.294	30	

The following samples were analyzed in this batch:

0502441-13A 0502441-14A 0502441-15A
0502441-16A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27795** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW1-050309** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/09/05 10:44**

Client ID: Run ID: **VMS2_050309A** SeqNo: **409767** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	2.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	20								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	2.5								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Dibromochloromethane	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methylene chloride	U	5.0								
o-Xylene	U	1.0								
Styrene	U	1.0								
Tetrachloroethene	U	2.0								
Toluene	U	1.0								
trans-1,2-Dichloroethene	U	1.0								
trans-1,3-Dichloropropene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
1,2-Dichloroethene, Total	U	2.0								
1,3-Dichloropropene, Total	U	2.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	98.95	0	100	0	99	80-120		0		
Surr: 4-Bromofluorobenzene	93.8	0	100	0	93.8	80-120		0		
Surr: Dibromofluoromethane	102.2	0	100	0	102	80-120		0		
Surr: Toluene-d8	100.1	0	100	0	100	80-120		0		

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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27795** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050309** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/09/05 13:11**

Client ID: Run ID: **VMS2_050309A** SeqNo: **409768** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23.09	1.0	20	0	115	80-120	0			
1,1,2,2-Tetrachloroethane	21.89	1.0	20	0	109	80-120	0			
1,1,2-Trichloroethane	21.92	1.0	20	0	110	80-120	0			
1,1-Dichloroethane	21.17	1.0	20	0	106	80-120	0			
1,1-Dichloroethene	20.61	1.0	20	0	103	80-120	0			
1,2-Dichloroethane	18.7	1.0	20	0	93.5	80-120	0			
1,2-Dichloropropane	23.74	2.0	20	0	119	80-120	0			
2-Butanone	20.94	5.0	20	0	105	80-120	0			
2-Hexanone	23.46	5.0	20	0	117	80-120	0			
4-Methyl-2-pentanone	18.81	5.0	20	0	94	80-120	0			
Benzene	23.11	1.0	20	0	116	80-120	0			
Bromodichloromethane	21.39	1.0	20	0	107	80-120	0			
Bromoform	22.1	1.0	20	0	110	80-120	0			
Carbon disulfide	18.15	2.5	20	0	90.8	80-120	0			
Carbon tetrachloride	22.89	1.0	20	0	114	80-120	0			
Chlorobenzene	23.56	1.0	20	0	118	80-120	0			
Chloroethane	20.23	1.0	20	0	101	80-120	0			
Chloroform	20.38	1.0	20	0	102	80-120	0			
cis-1,2-Dichloroethene	20.58	1.0	20	0	103	80-120	0			
cis-1,3-Dichloropropene	23.21	1.0	20	0	116	80-120	0			
Dibromochloromethane	21.55	1.0	20	0	108	80-120	0			
Ethylbenzene	23.49	1.0	20	0	117	80-120	0			
m,p-Xylene	44.13	2.0	40	0	110	80-120	0			
Methylene chloride	19.62	5.0	20	0	98.1	80-120	0			
o-Xylene	23.85	1.0	20	0	119	80-120	0			
Styrene	23.61	1.0	20	0	118	80-120	0			
Tetrachloroethene	22.88	2.0	20	0	114	80-120	0			
Toluene	23.82	1.0	20	0	119	80-120	0			
trans-1,2-Dichloroethene	20.18	1.0	20	0	101	80-120	0			
trans-1,3-Dichloropropene	23.54	1.0	20	0	118	80-120	0			
Trichloroethene	23.26	1.0	20	0	116	80-120	0			
Vinyl chloride	19.76	1.0	20	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	86.16	0	100	0	86.2	80-120	0			
Surr: 4-Bromofluorobenzene	101.9	0	100	0	102	80-120	0			
Surr: Dibromofluoromethane	93.95	0	100	0	94	80-120	0			
Surr: Toluene-d8	103.1	0	100	0	103	80-120	0			

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27795** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW2-050309** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/09/05 13:49**

Client ID: Run ID: **VMS2_050309A** SeqNo: **409769** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23.46	1.0	20	0	117	80-120	23.09	1.59	30	
1,1,2,2-Tetrachloroethane	22.77	1.0	20	0	114	80-120	21.89	3.94	30	
1,1,2-Trichloroethane	23.62	1.0	20	0	118	80-120	21.92	7.47	30	
1,1-Dichloroethane	22.29	1.0	20	0	111	80-120	21.17	5.15	30	
1,1-Dichloroethene	21.25	1.0	20	0	106	80-120	20.61	3.06	30	
1,2-Dichloroethane	21.53	1.0	20	0	108	80-120	18.7	14.1	30	
1,2-Dichloropropane	23.27	2.0	20	0	116	80-120	23.74	2	30	
2-Butanone	21.18	5.0	20	0	106	80-120	20.94	1.14	30	
2-Hexanone	24.79	5.0	20	0	124	80-120	23.46	5.51	30	S
4-Methyl-2-pentanone	21.44	5.0	20	0	107	80-120	18.81	13.1	30	
Benzene	23.22	1.0	20	0	116	80-120	23.11	0.475	30	
Bromodichloromethane	21.18	1.0	20	0	106	80-120	21.39	0.987	30	
Bromoform	23.05	1.0	20	0	115	80-120	22.1	4.21	30	
Carbon disulfide	19.74	2.5	20	0	98.7	80-120	18.15	8.39	30	
Carbon tetrachloride	22.02	1.0	20	0	110	80-120	22.89	3.87	30	
Chlorobenzene	23.46	1.0	20	0	117	80-120	23.56	0.425	30	
Chloroethane	17.45	1.0	20	0	87.2	80-120	20.23	14.8	30	
Chloroform	21.74	1.0	20	0	109	80-120	20.38	6.46	30	
cis-1,2-Dichloroethene	23.25	1.0	20	0	116	80-120	20.58	12.2	30	
cis-1,3-Dichloropropene	23.24	1.0	20	0	116	80-120	23.21	0.129	30	
Dibromochloromethane	22.34	1.0	20	0	112	80-120	21.55	3.6	30	
Ethylbenzene	23.56	1.0	20	0	118	80-120	23.49	0.298	30	
m,p-Xylene	43.28	2.0	40	0	108	80-120	44.13	1.94	30	
Methylene chloride	18.44	5.0	20	0	92.2	80-120	19.62	6.2	30	
o-Xylene	22.48	1.0	20	0	112	80-120	23.85	5.91	30	
Styrene	22.76	1.0	20	0	114	80-120	23.61	3.67	30	
Tetrachloroethene	20.35	2.0	20	0	102	80-120	22.88	11.7	30	
Toluene	21.85	1.0	20	0	109	80-120	23.82	8.63	30	
trans-1,2-Dichloroethene	21.33	1.0	20	0	107	80-120	20.18	5.54	30	
trans-1,3-Dichloropropene	23.98	1.0	20	0	120	80-120	23.54	1.85	30	
Trichloroethene	23.96	1.0	20	0	120	80-120	23.26	2.96	30	
Vinyl chloride	24.32	1.0	20	0	122	80-120	19.76	20.7	30	S
Surr: 1,2-Dichloroethane-d4	108.2	0	100	0	108	80-120	86.16	22.6	30	
Surr: 4-Bromofluorobenzene	98.74	0	100	0	98.7	80-120	101.9	3.19	30	
Surr: Dibromofluoromethane	100.5	0	100	0	101	80-120	93.95	6.75	30	
Surr: Toluene-d8	98.42	0	100	0	98.4	80-120	103.1	4.62	30	

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27795** InstrumentID: **VMS2**

MS Sample ID: **0502441-13A MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/09/05 21:41**

Client ID: **MW-9D-01** Run ID: **VMS2_050309A** SeqNo: **410575** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.32	1.0	20	0	107	70-130	0			
Benzene	134.3	1.0	20	103.8	152	70-130	0			SEO
Chlorobenzene	22.42	1.0	20	0	112	70-130	0			
Toluene	25.55	1.0	20	0	128	70-130	0			
Trichloroethene	23.87	1.0	20	0	119	70-130	0			
Surr: 1,2-Dichloroethane-d4	99.71	0	100	0	99.7	70-130	0			
Surr: 4-Bromofluorobenzene	101.5	0	100	0	101	70-130	0			
Surr: Dibromofluoromethane	101.3	0	100	0	101	70-130	0			
Surr: Toluene-d8	102.7	0	100	0	103	70-130	0			

MSD Sample ID: **0502441-13A MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/09/05 22:09**

Client ID: **MW-9D-01** Run ID: **VMS2_050309A** SeqNo: **410576** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20.63	1.0	20	0	103	70-130	21.32	3.29	30	
Benzene	140.7	1.0	20	103.8	184	70-130	134.3	4.63	30	SEO
Chlorobenzene	22.34	1.0	20	0	112	70-130	22.42	0.357	30	
Toluene	23.8	1.0	20	0	119	70-130	25.55	7.09	30	
Trichloroethene	23.78	1.0	20	0	119	70-130	23.87	0.378	30	
Surr: 1,2-Dichloroethane-d4	107.6	0	100	0	108	70-130	99.71	7.65	30	
Surr: 4-Bromofluorobenzene	104.2	0	100	0	104	70-130	101.5	2.62	30	
Surr: Dibromofluoromethane	104.2	0	100	0	104	70-130	101.3	2.78	30	
Surr: Toluene-d8	100.5	0	100	0	101	70-130	102.7	2.14	30	

The following samples were analyzed in this batch: 0502441-11A 0502441-13A 0502441-14A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27849** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW2-050310** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/10/05 14:21**

Client ID: Run ID: **VMS2_050310A** SeqNo: **410700** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	2.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	20								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	2.5								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Dibromochloromethane	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methylene chloride	U	5.0								
o-Xylene	U	1.0								
Styrene	U	1.0								
Tetrachloroethene	U	2.0								
Toluene	U	1.0								
trans-1,2-Dichloroethene	U	1.0								
trans-1,3-Dichloropropene	U	1.0								
Trichloroethene	U	1.0								
Vinyl chloride	U	1.0								
1,2-Dichloroethene, Total	U	2.0								
1,3-Dichloropropene, Total	U	2.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	101.1	0	100	0	101	80-120		0		
Surr: 4-Bromofluorobenzene	95.55	0	100	0	95.6	80-120		0		
Surr: Dibromofluoromethane	103.8	0	100	0	104	80-120		0		
Surr: Toluene-d8	102.6	0	100	0	103	80-120		0		

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27849** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050310** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/10/05 11:15**

Client ID: Run ID: **VMS2_050310A** SeqNo: **410698** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.67	1.0	20	0	108	80-120	0			
1,1,2,2-Tetrachloroethane	19.66	1.0	20	0	98.3	80-120	0			
1,1,2-Trichloroethane	20.98	1.0	20	0	105	80-120	0			
1,1-Dichloroethane	21.78	1.0	20	0	109	80-120	0			
1,1-Dichloroethene	19.39	1.0	20	0	97	80-120	0			
1,2-Dichloroethane	21.18	1.0	20	0	106	80-120	0			
1,2-Dichloropropane	21.86	2.0	20	0	109	80-120	0			
2-Butanone	20.13	5.0	20	0	101	80-120	0			
2-Hexanone	17.85	5.0	20	0	89.2	80-120	0			
4-Methyl-2-pentanone	18.68	5.0	20	0	93.4	80-120	0			
Benzene	23.87	1.0	20	0	119	80-120	0			
Bromodichloromethane	20.44	1.0	20	0	102	80-120	0			
Bromoform	19.06	1.0	20	0	95.3	80-120	0			
Carbon disulfide	17.75	2.5	20	0	88.8	80-120	0			
Carbon tetrachloride	20.63	1.0	20	0	103	80-120	0			
Chlorobenzene	21.41	1.0	20	0	107	80-120	0			
Chloroethane	16.54	1.0	20	0	82.7	80-120	0			
Chloroform	21.14	1.0	20	0	106	80-120	0			
cis-1,2-Dichloroethene	22.22	1.0	20	0	111	80-120	0			
cis-1,3-Dichloropropene	23.23	1.0	20	0	116	80-120	0			
Dibromochloromethane	19.89	1.0	20	0	99.4	80-120	0			
Ethylbenzene	23.41	1.0	20	0	117	80-120	0			
m,p-Xylene	44.28	2.0	40	0	111	80-120	0			
Methylene chloride	18.71	5.0	20	0	93.6	80-120	0			
o-Xylene	20.99	1.0	20	0	105	80-120	0			
Styrene	21.9	1.0	20	0	110	80-120	0			
Tetrachloroethene	19.33	2.0	20	0	96.6	80-120	0			
Toluene	20.68	1.0	20	0	103	80-120	0			
trans-1,2-Dichloroethene	20.28	1.0	20	0	101	80-120	0			
trans-1,3-Dichloropropene	23.64	1.0	20	0	118	80-120	0			
Trichloroethene	22.66	1.0	20	0	113	80-120	0			
Vinyl chloride	23.3	1.0	20	0	116	80-120	0			
Surr: 1,2-Dichloroethane-d4	101.5	0	100	0	101	80-120	0			
Surr: 4-Bromofluorobenzene	100.2	0	100	0	100	80-120	0			
Surr: Dibromofluoromethane	101.2	0	100	0	101	80-120	0			
Surr: Toluene-d8	98.42	0	100	0	98.4	80-120	0			

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CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27849** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW1-050310** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/10/05 12:38**

Client ID: Run ID: **VMS2_050310A** SeqNo: **410699** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.39	1.0	20	0	107	80-120	21.67	1.3	30	
1,1,2,2-Tetrachloroethane	21.22	1.0	20	0	106	80-120	19.66	7.63	30	
1,1,2-Trichloroethane	21.57	1.0	20	0	108	80-120	20.98	2.77	30	
1,1-Dichloroethane	21.03	1.0	20	0	105	80-120	21.78	3.5	30	
1,1-Dichloroethene	19.87	1.0	20	0	99.4	80-120	19.39	2.45	30	
1,2-Dichloroethane	20.85	1.0	20	0	104	80-120	21.18	1.57	30	
1,2-Dichloropropane	23.94	2.0	20	0	120	80-120	21.86	9.08	30	
2-Butanone	19.77	5.0	20	0	98.8	80-120	20.13	1.8	30	
2-Hexanone	17.86	5.0	20	0	89.3	80-120	17.85	0.056	30	
4-Methyl-2-pentanone	17.26	5.0	20	0	86.3	80-120	18.68	7.9	30	
Benzene	23.88	1.0	20	0	119	80-120	23.87	0.0419	30	
Bromodichloromethane	19.98	1.0	20	0	99.9	80-120	20.44	2.28	30	
Bromoform	20.11	1.0	20	0	101	80-120	19.06	5.36	30	
Carbon disulfide	17.83	2.5	20	0	89.1	80-120	17.75	0.45	30	
Carbon tetrachloride	20.15	1.0	20	0	101	80-120	20.63	2.35	30	
Chlorobenzene	22.04	1.0	20	0	110	80-120	21.41	2.9	30	
Chloroethane	17.2	1.0	20	0	86	80-120	16.54	3.91	30	
Chloroform	20.51	1.0	20	0	103	80-120	21.14	3.03	30	
cis-1,2-Dichloroethene	22.23	1.0	20	0	111	80-120	22.22	0.045	30	
cis-1,3-Dichloropropene	22.99	1.0	20	0	115	80-120	23.23	1.04	30	
Dibromochloromethane	20.69	1.0	20	0	103	80-120	19.89	3.94	30	
Ethylbenzene	22.39	1.0	20	0	112	80-120	23.41	4.45	30	
m,p-Xylene	41.74	2.0	40	0	104	80-120	44.28	5.91	30	
Methylene chloride	17.46	5.0	20	0	87.3	80-120	18.71	6.91	30	
o-Xylene	21.63	1.0	20	0	108	80-120	20.99	3	30	
Styrene	21.99	1.0	20	0	110	80-120	21.9	0.41	30	
Tetrachloroethene	19.31	2.0	20	0	96.6	80-120	19.33	0.104	30	
Toluene	21.16	1.0	20	0	106	80-120	20.68	2.29	30	
trans-1,2-Dichloroethene	19.45	1.0	20	0	97.2	80-120	20.28	4.18	30	
trans-1,3-Dichloropropene	23.64	1.0	20	0	118	80-120	23.64	0	30	
Trichloroethene	22.83	1.0	20	0	114	80-120	22.66	0.747	30	
Vinyl chloride	22.4	1.0	20	0	112	80-120	23.3	3.94	30	
Surr: 1,2-Dichloroethane-d4	101.1	0	100	0	101	80-120	101.5	0.375	30	
Surr: 4-Bromofluorobenzene	100.2	0	100	0	100	80-120	100.2	0.00998	30	
Surr: Dibromofluoromethane	100.8	0	100	0	101	80-120	101.2	0.376	30	
Surr: Toluene-d8	100.7	0	100	0	101	80-120	98.42	2.26	30	

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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27849** InstrumentID: **VMS2**

MS Sample ID: **0502441-03A MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/10/05 22:22**

Client ID: **MW-7DR-01** Run ID: **VMS2_050310A** SeqNo: **411196** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.75	1.0	20	0	98.8	70-130	0			
Benzene	25	1.0	20	0	125	70-130	0			
Chlorobenzene	21.22	1.0	20	0	106	70-130	0			
Toluene	20.61	1.0	20	0	103	70-130	0			
Trichloroethene	22.01	1.0	20	0	110	70-130	0			
Surr: 1,2-Dichloroethane-d4	95.2	0	100	0	95.2	70-130	0			
Surr: 4-Bromofluorobenzene	95.33	0	100	0	95.3	70-130	0			
Surr: Dibromofluoromethane	97.55	0	100	0	97.6	70-130	0			
Surr: Toluene-d8	98.64	0	100	0	98.6	70-130	0			

MSD Sample ID: **0502441-03A MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **03/10/05 22:50**

Client ID: **MW-7DR-01** Run ID: **VMS2_050310A** SeqNo: **411197** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	23.15	1.0	20	0	116	70-130	19.75	15.9	30	
Benzene	24.61	1.0	20	0	123	70-130	25	1.57	30	
Chlorobenzene	22.03	1.0	20	0	110	70-130	21.22	3.75	30	
Toluene	20.8	1.0	20	0	104	70-130	20.61	0.918	30	
Trichloroethene	22.05	1.0	20	0	110	70-130	22.01	0.182	30	
Surr: 1,2-Dichloroethane-d4	103.4	0	100	0	103	70-130	95.2	8.3	30	
Surr: 4-Bromofluorobenzene	101.2	0	100	0	101	70-130	95.33	5.99	30	
Surr: Dibromofluoromethane	99.89	0	100	0	99.9	70-130	97.55	2.37	30	
Surr: Toluene-d8	100.4	0	100	0	100	70-130	98.64	1.73	30	

The following samples were analyzed in this batch: 0502441-01A 0502441-02A 0502441-03A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27620** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030105** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **03/01/05 0:00**

Client ID: Run ID: **WETCHEM_050301L** SeqNo: **407494** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	U	6.0								

DUP Sample ID: **0502441-01E DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **03/01/05 0:00**

Client ID: **MW-10M-01** Run ID: **WETCHEM_050301L** SeqNo: **407502** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	3	3.0	0	0	0	0-0	5	50	20	R

The following samples were analyzed in this batch:

0502441-01E	0502441-02E	0502441-03E
0502441-04E	0502441-05E	0502441-06E
0502441-07E	0502441-08E	

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27641** InstrumentID: **IC1**

MBLK Sample ID: **WBLKW1-030205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/02/05 17:40**
Client ID: Run ID: **IC1_050302A** SeqNo: **407795** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.5967	1.0								J

LCS Sample ID: **WLCSW1-030205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/02/05 17:11**
Client ID: Run ID: **IC1_050302A** SeqNo: **407793** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.18	1.0	2	0	109	80-120	0			

LCSD Sample ID: **WLCSDW1-030205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/02/05 17:25**
Client ID: Run ID: **IC1_050302A** SeqNo: **407794** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.156	1.0	2	0	108	80-120	2.18	1.12	20	

MS Sample ID: **0502406-01A MS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/02/05 19:22**
Client ID: Run ID: **IC1_050302A** SeqNo: **407802** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	23.54	10	20	5.341	91	75-125	0			

MSD Sample ID: **0502406-01A MSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/02/05 19:36**
Client ID: Run ID: **IC1_050302A** SeqNo: **407803** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	23.79	10	20	5.341	92.2	75-125	23.54	1.03	20	

The following samples were analyzed in this batch:

0502441-01E	0502441-02E	0502441-03E
0502441-04E	0502441-05E	0502441-06E
0502441-07E	0502441-08E	0502441-09E
0502441-10E		

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27652** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030205** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **03/02/05 0:00**

Client ID: Run ID: **WETCHEM_050302H** SeqNo: **408007** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	U	6.0								

DUP Sample ID: **0503053-04A DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **03/02/05 0:00**

Client ID: Run ID: **WETCHEM_050302H** SeqNo: **408022** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	606.7	6.0	0	0	0	0-0	600	1.11	20	H

The following samples were analyzed in this batch: 0502441-09E 0502441-10E 0502441-11E

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27664** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030305** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **03/03/05 0:00**
Client ID: Run ID: **WETCHEM_050303E** SeqNo: **408316** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	U	0.050								

LCS Sample ID: **WLCSW1-030305** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **03/03/05 0:00**
Client ID: Run ID: **WETCHEM_050303E** SeqNo: **408317** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.215	0.050	0.2	0	108	80-120	0			

LCSD Sample ID: **WLCSDW1-030305** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **03/03/05 0:00**
Client ID: Run ID: **WETCHEM_050303E** SeqNo: **408324** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2224	0.050	0.2	0	111	80-120	0.215	3.38	20	

MS Sample ID: **0502412-04A MS** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **03/03/05 0:00**
Client ID: Run ID: **WETCHEM_050303E** SeqNo: **408322** Prep Date: DF: **5000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	633	250	0.5	636.2	-640	75-125	0			SO

MSD Sample ID: **0502412-04A MSD** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **03/03/05 0:00**
Client ID: Run ID: **WETCHEM_050303E** SeqNo: **408323** Prep Date: DF: **5000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	707	250	0.5	636.2	14200	75-125	633	11	20	SO

The following samples were analyzed in this batch:

0502441-01G	0502441-02G	0502441-03G
0502441-04G	0502441-05G	0502441-06G
0502441-07G	0502441-08G	0502441-09G
0502441-10G		

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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
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P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27666** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030205** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/02/05 0:00**
Client ID: Run ID: **WETCHEM_050302I** SeqNo: **408338** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	U	5.0								

LCS Sample ID: **WLCSW1-030205** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/02/05 0:00**
Client ID: Run ID: **WETCHEM_050302I** SeqNo: **408339** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	470	5.0	498	0	94.4	80-120	0			

LCSD Sample ID: **WLCSDW1-030205** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/02/05 0:00**
Client ID: Run ID: **WETCHEM_050302I** SeqNo: **408361** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	481	5.0	498	0	96.6	80-120	470	2.31	20	

DUP Sample ID: **0502441-13E DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/02/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050302I** SeqNo: **408355** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	716	5.0	0	0	0	0-0	722	0.834	20	

DUP Sample ID: **0502441-09E DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/02/05 0:00**
Client ID: **MW-5D-01** Run ID: **WETCHEM_050302I** SeqNo: **408373** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1108	5.0	0	0	0	0-0	0			

DUP Sample ID: **0502412-24B DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/02/05 0:00**
Client ID: Run ID: **WETCHEM_050302I** SeqNo: **408382** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	6641	5.0	0	0	0	0-0	0			

The following samples were analyzed in this batch:

0502441-02E	0502441-03E	0502441-04E
0502441-05E	0502441-06E	0502441-07E
0502441-08E	0502441-09E	0502441-10E
0502441-11E	0502441-12E	0502441-13E
0502441-14E	0502441-15E	

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27669** InstrumentID: **IC1**

MBLK Sample ID: **WBLKW1-030305** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/03/05 11:53**
Client ID: Run ID: **IC1_050303A** SeqNo: **408421** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.565	1.0								J

LCS Sample ID: **WLCSW1-030305** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/03/05 11:24**
Client ID: Run ID: **IC1_050303A** SeqNo: **408419** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.187	1.0	2	0	109	80-120	0			

LCSD Sample ID: **WLCSDW1-030305** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/03/05 11:39**
Client ID: Run ID: **IC1_050303A** SeqNo: **408420** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.156	1.0	2	0	108	80-120	2.187	1.45	20	

MS Sample ID: **0502441-13E MS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/03/05 17:28**
Client ID: **MW-9D-01** Run ID: **IC1_050303A** SeqNo: **408444** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	377.3	50	100	281.6	95.7	75-125	0			

MSD Sample ID: **0502441-13E MSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **03/03/05 17:43**
Client ID: **MW-9D-01** Run ID: **IC1_050303A** SeqNo: **408445** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	376	50	100	281.6	94.3	75-125	377.3	0.359	20	

The following samples were analyzed in this batch:

0502441-04E	0502441-05E	0502441-06E
0502441-08E	0502441-09E	0502441-10E
0502441-11E	0502441-12E	0502441-13E
0502441-14E	0502441-15E	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27676** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030305** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **03/03/05 0:00**

Client ID: Run ID: **WETCHEM_050303G** SeqNo: **408574** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	U	6.0								

DUP Sample ID: **0502441-13E DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **03/03/05 0:00**

Client ID: **MW-9D-01** Run ID: **WETCHEM_050303G** SeqNo: **408575** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	11.2	6.0	0	0	0	0-0		0		

The following samples were analyzed in this batch:

0502441-12E	0502441-13E	0502441-14E
0502441-15E		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27694** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030405** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: Run ID: **WETCHEM_050304K** SeqNo: **408757** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	U	0.0050								

LCS Sample ID: **WLCSW1-030405** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: Run ID: **WETCHEM_050304K** SeqNo: **408758** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3056	0.0050	0.369	0	82.8	80-120		0		

LCSD Sample ID: **WLCSDW1-030405** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: Run ID: **WETCHEM_050304K** SeqNo: **408766** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3372	0.0050	0.369	0	91.4	80-120	0.3056	9.83	20	

MS Sample ID: **0503067-10B MS** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: Run ID: **WETCHEM_050304K** SeqNo: **408780** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3208	0.0050	0.369	0	86.9	75-125		0		

MSD Sample ID: **0503067-10B MSD** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: Run ID: **WETCHEM_050304K** SeqNo: **408781** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.342	0.0050	0.369	0	92.7	75-125		0		

The following samples were analyzed in this batch:

0502441-01D	0502441-02D	0502441-03D
0502441-04D	0502441-05D	0502441-06D
0502441-07D		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27711** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030705** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307C** SeqNo: **408985** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	U	0.050								

LCS Sample ID: **WLCSW1-030705** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307C** SeqNo: **408986** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3264	0.050	0.3	0	109	80-120		0		

LCSD Sample ID: **WLCSDW1-030705** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307C** SeqNo: **409003** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3202	0.050	0.3	0	107	80-120	0.3264	1.92	20	

MS Sample ID: **0503024-08B MS** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307C** SeqNo: **408999** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	11.52	1.2	10	0.1483	114	75-125		0		

MSD Sample ID: **0503024-08B MSD** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307C** SeqNo: **409000** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	11.34	1.2	10	0.1483	112	75-125	11.52	1.57	20	

The following samples were analyzed in this batch:

0502441-01F	0502441-02F	0502441-03F
0502441-04F	0502441-05F	0502441-06F
0502441-07F	0502441-08F	0502441-11F
0502441-15F		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27716** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030705** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307E** SeqNo: **409085** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	U	0.0050								

LCS Sample ID: **WLCSW1-030705** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307E** SeqNo: **409086** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.329	0.0050	0.3728	0	88.3	80-120	0			

LCSD Sample ID: **WLCSDW1-030705** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307E** SeqNo: **409091** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3148	0.0050	0.3728	0	84.4	80-120	0.329	4.41	20	

MS Sample ID: **0503049-01B MS** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307E** SeqNo: **409088** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.1788	0.0050	0.3728	0.00928	45.5	75-125	0			S

MSD Sample ID: **0503049-01B MSD** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **03/07/05 0:00**
Client ID: Run ID: **WETCHEM_050307E** SeqNo: **409089** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3056	0.0050	0.3728	0.00928	79.5	75-125	0.1788	52.4	20	R

The following samples were analyzed in this batch:

0502441-08D	0502441-09D	0502441-10D
0502441-11D	0502441-12D	0502441-13D

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27770** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030805** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **03/08/05 0:00**
Client ID: Run ID: **WETCHEM_050308G** SeqNo: **409440** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	U	0.050								

LCS Sample ID: **WLCSW1-030805** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **03/08/05 0:00**
Client ID: Run ID: **WETCHEM_050308G** SeqNo: **409441** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2076	0.050	0.2	0	104	80-120		0		

LCSD Sample ID: **WLCSDW1-030805** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **03/08/05 0:00**
Client ID: Run ID: **WETCHEM_050308G** SeqNo: **409444** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.215	0.050	0.2	0	108	80-120	0.2076	3.5	20	

MS Sample ID: **0502441-13GMS** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **03/08/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050308G** SeqNo: **409449** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2224	0.010	0.2	0.00944	106	75-125		0		

MSD Sample ID: **0502441-13GMSD** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **03/08/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050308G** SeqNo: **409450** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2297	0.010	0.2	0.00944	110	75-125	0.2224	3.23	20	

The following samples were analyzed in this batch:

0502441-11G	0502441-12G	0502441-13G
0502441-14G	0502441-15G	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27793** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030405** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: Run ID: **WETCHEM_050304T** SeqNo: **409743** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	U	5.0								

LCS Sample ID: **WLCSW1-030405** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: Run ID: **WETCHEM_050304T** SeqNo: **409744** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	481	5.0	498	0	96.6	80-120	0			

LCSD Sample ID: **WLCSDW1-030405** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: Run ID: **WETCHEM_050304T** SeqNo: **409748** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	502	5.0	498	0	101	80-120	481	4.27	20	

DUP Sample ID: **0502441-01E DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **03/04/05 0:00**
Client ID: **MW-10M-01** Run ID: **WETCHEM_050304T** SeqNo: **409746** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	411	5.0	0	0	0	0-0	451	9.28	20	

The following samples were analyzed in this batch: 0502441-01E

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27805** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030905** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309H** SeqNo: **409947** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	U	0.0050								

LCS Sample ID: **WLCSW1-030905** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309H** SeqNo: **409948** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2966	0.0050	0.369	0	80.4	80-120		0		

LCSD Sample ID: **WLCSDW1-030905** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309H** SeqNo: **409953** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.327	0.0050	0.3728	0	87.7	80-120	0.2966	9.75	20	

MS Sample ID: **0502441-13D MS** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050309H** SeqNo: **409949** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.335	0.0050	0.3728	0	89.9	75-125		0		

MSD Sample ID: **0502441-13D MSD** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050309H** SeqNo: **409950** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3564	0.0050	0.3564	0	100	75-125	0.335	6.19	20	

The following samples were analyzed in this batch: 0502441-14D 0502441-15D

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27807** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030905** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309I** SeqNo: **409972** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	U	0.050								

LCS Sample ID: **WLCSW1-030905** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309I** SeqNo: **409973** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3181	0.050	0.3	0	106	80-120	0			

LCSD Sample ID: **WLCSDW1-030905** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309I** SeqNo: **409995** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3212	0.050	0.3	0	107	80-120	0.3181	0.97	20	

MS Sample ID: **0502441-13FMS** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050309I** SeqNo: **409978** Prep Date: DF: **625**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	261.4	31	250	24.1	94.9	75-125	0			

MSD Sample ID: **0502441-13FMSD** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050309I** SeqNo: **409979** Prep Date: DF: **625**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	273.4	31	250	24.1	99.7	75-125	261.4	4.49	20	

The following samples were analyzed in this batch:

0502441-09F	0502441-10F	0502441-12F
0502441-13F	0502441-14F	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27818** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-030905** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309O** SeqNo: **410143** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	U	5.0								

LCS Sample ID: **WLCSW1-030905** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309O** SeqNo: **410144** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	590	5.0	600	0	98.3	75-125		0		

LCSD Sample ID: **WLCSDW1-030905** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: Run ID: **WETCHEM_050309O** SeqNo: **410167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	590	5.0	600	0	98.3	75-125	590	0	20	

MS Sample ID: **0502441-13FMS** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050309O** SeqNo: **410158** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	614	10	600	38.34	95.9	70-130		0		

MSD Sample ID: **0502441-13FMSD** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **03/09/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050309O** SeqNo: **410159** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	624	10	600	38.34	97.6	70-130	614	1.62	20	

The following samples were analyzed in this batch:

0502441-01F	0502441-02F	0502441-03F
0502441-04F	0502441-05F	0502441-06F
0502441-07F	0502441-08F	0502441-09F
0502441-10F	0502441-11F	0502441-12F
0502441-13F	0502441-14F	0502441-15F

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Camp Dresser & McKee, Inc.
Work Order: 0502441
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R27894** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-031105** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date: **03/11/05 0:00**
Client ID: Run ID: **WETCHEM_050311I** SeqNo: **411461** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	U	0.010								

LCS Sample ID: **WLCSW1-031105** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date: **03/11/05 0:00**
Client ID: Run ID: **WETCHEM_050311I** SeqNo: **411462** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	0.1579	0.010	0.152	0	104	80-120		0		

LCSD Sample ID: **WLCSDW1-031105** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date: **03/11/05 0:00**
Client ID: Run ID: **WETCHEM_050311I** SeqNo: **411480** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	0.161	0.010	0.152	0	106	80-120	0.1579	1.94	20	

MS Sample ID: **0502441-13E MS** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date: **03/11/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050311I** SeqNo: **411476** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	0.1702	0.010	0.152	0	112	75-125		0		

MSD Sample ID: **0502441-13E MSD** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date: **03/11/05 0:00**
Client ID: **MW-9D-01** Run ID: **WETCHEM_050311I** SeqNo: **411477** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate-Nitrite	0.1733	0.010	0.152	0	114	75-125	0.1702	1.8	20	

The following samples were analyzed in this batch:

0502441-01E	0502441-02E	0502441-03E
0502441-04E	0502441-05E	0502441-06E
0502441-07E	0502441-08E	0502441-09E
0502441-10E	0502441-11E	0502441-12E
0502441-13E	0502441-14E	0502441-15E

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

e-Lab
QUALITY • INTEGRITY • SERVICE

e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 2

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: HPA
e-Lab Work Order #: 0502441

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	GSD - Ralston St. Lagoon GW	A	VOC 3
Work Order		Project Number		B	SVOC/PCB/PEST. 3
Company Name	CDM	Bill To Company	CDM	C	DISS METALS - PPL - 1
Send Report To	DAN VACARI	Invoice Attn.		D	TOTAL CYANIDE 1
Address	5635, Lake St.	Address		E	Cl, NO3, NO2, TOS, TSS 1
				F	Amm-N, ~~Phos-P~~, COD 1
City/State/Zip	Gary, In 46403	City/State/Zip		G	TOTAL PHENOLICS 1
Phone	219.939.9473	Phone		H	Static Water, Well Depth
Fax		Fax		I	pH, Temp, Conductivity
e-Mail Address	Vacari DFC@cdm.com			J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-10M-01	2/24/05	1306	GW	As Rec'd	11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	MW-7MR-01	2/24/05	1508	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3	MW-7DR-01	2/24/05	1743	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
4	MW-7S-~~01~~	2/25/05	0704	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
5	MW-7S-~~01~~ 02 **	2/25/05	0737	GW		10	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6	MW-2M-01	2/25/05	0850	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
7	MW-5S-01	2/25/05	1035	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
8	MW-6M-01	2/25/05	0933	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
9	MW-5D-01	2/25/05	1108	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
10	MW-3M-01	2/25/05	1303	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Sampler(s): Please Print & Sign
L. ARNOLD / J. RIBAR (e-Lab)

Shipment Method: - HAND -

Required Turnaround Time: ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date: 3/11/2005

Relinquished by:	Date:	Time:	Received by:
[signature]	2/28/05	0800	
Relinquished by:	Date:	Time:	Received by (Laboratory): [signature]
Logged by (Laboratory): [signature]	Date: 2/28/05	Time: 1102	Checked by (Laboratory):

Notes: Preservatives: VOC - 3, HCl; SVOC/PCB/PEST - 3, none
BOTTLES Amm-N, COD - 1, H2SO4 T. Phenolics - 1, H2SO4
DISS METALS - 1, HNO3; T.CN - 1, NaOH; GENCHEM - 1, none

Cooler Temp.

QC Package: (Check Box Below)
Level II: Standard QC ✓
Level III: Standard QC + Raw Data
Level IV: SW846 Methods/CLP
Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

** - 1 Bottle (Extractable broke in transit)

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☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
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Chain of Custody Form

Page 2 of 2

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: LPA | e-Lab Work Order #: 0502441

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	GSD-Ralston St. Lagoon	A	VOCs
Work Order		Project Number		B	SVOC/PCB/PEST
Company Name	CDM	Bill To Company	CDM	C	DISS Metals - PPL
Send Report To	Dan Vacari	Invoice Attn.		D	T. Cyanide
Address	563 S. Lake St.	Address		E	Cl, NO3, NO2, TDS, TSS
				F	Amm-N, COD
City/State/Zip	Gary, In 46403	City/State/Zip		G	Total Phenolics
Phone	219.939-9473	Phone		H	Static Water level, Well Depth
Fax		Fax		I	pH, Temp, Conductivity
e-Mail Address	~~dvacari~~ VacariDF@CDM.com			J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-3S-01	2/25/05	1337	GW	As Req'd	11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	MW-4M-01	2/25/05	1242	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3	MW-9D-01 (USE FOR MS/MSD)	2/25/05	1430	GW		17*	✓	✓	✓	✓	✓	✓	✓	✓	✓	MS/MSD	
4	MW-9D-02	2/25/05	1450	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
5	MW-~~9D-01~~ 9M-01	2/25/05	1500	GW		11	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6	TRIP BLANK	2/25/05	—	Lab Water	HCl	2	✓										
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: L. ARNOLD / J. RIBAR (e-Lab)

Shipment Method: -HAND-

Required Turnaround Time: ☑ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date: 3/11/2005

Relinquished by:	Date:	Time:	Received by:
[signature]	2/28/05	0800	
Relinquished by:	Date:	Time:	Received by (Laboratory): [signature]
Logged by (Laboratory): [signature]	Date: 2/28/05	Time: 1100	Checked by (Laboratory):

Notes: 9D-01 - Bottle Count - 5 Ext. Org; -2 Phenolic -6 VOCs - normal (1) for else.

Cooler Temp.

QC Package: (Check Box Below)
- Level II: Standard QC
- Level III: Standard QC + Raw Data ✓
- Level IV: SW846 Methods/CLP
- Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name: CDM-GARY

Date/Time Received: 2/28/2005 8:00:00 AM

Work Order Number 0502441

Received by: AA

Checklist completed by: [signature] 2-28-05
Signature | Date

Reviewed by: _____
Initials | Date

Matrix:

Carrier name: e-Lab Analytical, Inc.

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☐	☐	☑
Custody seals intact on sample bottles?	☐	☐	☑
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☐	☑	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	
Temperature(s)/Thermometer(s).	4.0 C		
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☑	☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: _____ Date contacted: _____ Person contacted: _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action: _____

May 2005 Groundwater Sampling and Analysis

e-Lab Analytical, Inc

3352 128th Avenue Holland, Michigan 49424-9263 616-399-6070 Fax 616-399-6185

June 24, 2005

Charles Peller
Gary Sanitary District
3600 West 3rd Ave
Gary, IN 46404

Tel: (219) 944-0595
Fax: (219) 944-0250

Re: GSD - RSL GROUNDWATER Work Order : **0506010**

Dear Mr. Peller,

e-Lab Analytical, Inc received 16 samples on 6/1/2005 8:00:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from e-Lab Analytical, Inc. The total number of pages in this report is 136.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Les Arnold

Electronically approved by: Les Arnold

Les Arnold
Laboratory Director

CC: Daniel Vicari, Camp Dresser & McKee

e-Lab Analytical, Inc

Date: *June 24, 2005*

CLIENT: Gary Sanitary District
Project: GSD - RSL GROUNDWATER
Work Order: 0506010

Case Narrative

e-Lab Analytical received 16 samples on June 1, 2005 for analyses identified as Project GSD-Ralston Street Lagoon GW. No anomalies or discrepancies were noted between sample identity and the chain-of-custody.

SAMPLE COLLECTION NARRATIVE
Samples were collected by e-Lab Analytical in accordance with the Camp Dresser & McKee and e-Lab Analytical groundwater sampling Standard Operating Procedures.

Upon arrival at the site on Thursday, February 24, the well caps were opened and field measurements were taken immediately from each well to determine the presence of organic vapors. A summary of the field data as well as the field data sheets is included with this report.

The samples identified as MW-5DR and MW-5DR-02 are field duplicates (e-Lab Analytical samples 0506010-08 and 0506010-09). Matrix spike (MS) and matrix spike duplicate (MSD) samples were collected and associated with MW-5DR.

The samples identified as MW-9D and MW-9D-02 are field duplicates (e-Lab Analytical samples 0506010-14 and 0506010-15).

To ensure the integrity of the field duplicate procedure, the field duplicates were not identified to the laboratory.

ANALYTICAL DATA NARRATIVE
All Quality Assurance/Quality Control criteria were acceptable with the following qualifications noted:

Pesticides – Method 8082
Laboratory Control Sample and Duplicate (LCS/LCSD) exhibited recovery below acceptable criteria for Aldrin and for one surrogate. The Matrix Spike and Spike Duplicate (MS/MSD) recovery was in the acceptable range for both; therefore, the data is considered acceptable without qualification.

Metals – Method 6020B
Exhibited some recoveries outside acceptable criteria for the MS/MSD. In all cases, relative percent differences (RPD) and post digestion spikes (PDS) were acceptable, indicating the analysis was in control. All data is considered acceptable without qualification.

Volatile Organics – Method 8260
LCS and LCSD samples exhibited sporadic elevated recoveries for 2-Hexanone. 2-Hexanone was not present in any of the field samples.

2-Butanone recovery in the LCSD on batch VMS2_050608A exhibited low recovery (74.8% compared to the limit of 80%). The LCS recovery was in acceptable range (115%). Because of the low recovery, the RPD is qualified as outside acceptable range (42.8% compared to the limit of 30%).

In each instance the impact to the data is minimal, therefore the data is considered acceptable without qualification.

Semivolatile Organics – Method 8270
The RPD of the MS/MSD for Phenol, Surrogate 2-Flurophenol and Surrogate Phenol-d6 was outside the acceptable range (30%). In each case, the recoveries were within laboratory specifications. There is no impact to the data and is acceptable without qualification.

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Project: GSD - RSL GROUNDWATER
Work Order: **0506010**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0506010-01	MW-10M	Groundwater		5/31/2005 08:22	6/1/2005 08:00	☐
0506010-02	MW-2M	Groundwater		5/31/2005 10:15	6/1/2005 08:00	☐
0506010-03	MW-7DR	Groundwater		5/31/2005 11:10	6/1/2005 08:00	☐
0506010-04	MW-7MR	Groundwater		5/31/2005 11:35	6/1/2005 08:00	☐
0506010-05	MW-7S	Groundwater		5/31/2005 12:04	6/1/2005 08:00	☐
0506010-06	MW-6MR	Groundwater		5/31/2005 14:25	6/1/2005 08:00	☐
0506010-07	MW-5S	Groundwater		5/31/2005 15:18	6/1/2005 08:00	☐
0506010-08	MW-5DR	Groundwater		5/31/2005 16:27	6/1/2005 08:00	☐
0506010-09	MW-5DR-02	Groundwater		5/31/2005 16:27	6/1/2005 08:00	☐
0506010-10	MW-4MR	Groundwater		5/31/2005 17:05	6/1/2005 08:00	☐
0506010-11	MW-3S	Groundwater		5/31/2005 17:58	6/1/2005 08:00	☐
0506010-12	MW-3MR	Groundwater		5/31/2005 18:35	6/1/2005 08:00	☐
0506010-13	MW-9M	Groundwater		5/31/2005 19:50	6/1/2005 08:00	☐
0506010-14	MW-9D	Groundwater		5/31/2005 19:55	6/1/2005 08:00	☐
0506010-15	MW-9D-02	Groundwater		5/31/2005 19:55	6/1/2005 08:00	☐
0506010-16	Trip Blank	Trip Blank		5/31/2005	6/1/2005 08:00	☐

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-01

Client Sample ID: MW-10M
Collection Date: 5/31/2005 8:22:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.42		µg/L	1	6/10/2005
Aroclor 1221	ND	0.42		µg/L	1	6/10/2005
Aroclor 1232	ND	0.42		µg/L	1	6/10/2005
Aroclor 1242	ND	0.42		µg/L	1	6/10/2005
Aroclor 1248	ND	0.42		µg/L	1	6/10/2005
Aroclor 1254	ND	0.42		µg/L	1	6/10/2005
Aroclor 1260	ND	0.42		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	88.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
4,4´-DDE	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
4,4´-DDT	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
Aldrin	ND	0.011		µg/L	1	6/11/2005 7:03:20 AM
alpha-BHC	ND	0.011		µg/L	1	6/11/2005 7:03:20 AM
beta-BHC	ND	0.011		µg/L	1	6/11/2005 7:03:20 AM
Chlordane, Technical	ND	0.53		µg/L	1	6/11/2005 7:03:20 AM
delta-BHC	ND	0.011		µg/L	1	6/11/2005 7:03:20 AM
Dieldrin	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
Endosulfan I	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
Endosulfan II	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
Endosulfan sulfate	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
Endrin	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
Endrin aldehyde	ND	0.021		µg/L	1	6/11/2005 7:03:20 AM
gamma-BHC (Lindane)	ND	0.011		µg/L	1	6/11/2005 7:03:20 AM
Heptachlor	ND	0.011		µg/L	1	6/11/2005 7:03:20 AM
Heptachlor epoxide	ND	0.011		µg/L	1	6/11/2005 7:03:20 AM
Methoxychlor	ND	0.042		µg/L	1	6/11/2005 7:03:20 AM
Toxaphene	ND	2.1		µg/L	1	6/11/2005 7:03:20 AM
Surr: Decachlorobiphenyl	94.0	40-140		%REC	1	6/11/2005 7:03:20 AM
Surr: Tetrachloro-m-xylene	52.0	40-140		%REC	1	6/11/2005 7:03:20 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/2/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/2/2005 9:48:00 PM
Arsenic	0.015	0.0050		mg/L	1	6/2/2005 9:48:00 PM
Beryllium	ND	0.0020		mg/L	1	6/2/2005 9:48:00 PM
Cadmium	ND	0.0020		mg/L	1	6/2/2005 9:48:00 PM
Chromium	ND	0.0050		mg/L	1	6/2/2005 9:48:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-01

Client Sample ID: MW-10M
Collection Date: 5/31/2005 8:22:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/2/2005 9:48:00 PM
Lead	ND	0.0050		mg/L	1	6/2/2005 9:48:00 PM
Nickel	ND	0.0050		mg/L	1	6/2/2005 9:48:00 PM
Selenium	ND	0.0050		mg/L	1	6/2/2005 9:48:00 PM
Silver	ND	0.0050		mg/L	1	6/2/2005 9:48:00 PM
Thallium	ND	0.0050		mg/L	1	6/2/2005 9:48:00 PM
Zinc	0.035	0.010		mg/L	1	6/2/2005 9:48:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	22.74			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	7.3			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	0.3400			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	6.3700			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	11.9			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/3/2005 1:30:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/3/2005 1:30:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/3/2005 1:30:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/3/2005 1:30:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/3/2005 1:30:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/3/2005 1:30:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-01

Client Sample ID: MW-10M
Collection Date: 5/31/2005 8:22:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/3/2005 1:30:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/3/2005 1:30:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/3/2005 1:30:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Anthracene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/3/2005 1:30:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/3/2005 1:30:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/3/2005 1:30:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Carbazole	ND	10		µg/L	1	6/3/2005 1:30:00 PM
Chrysene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/3/2005 1:30:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/3/2005 1:30:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/3/2005 1:30:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Fluorene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/3/2005 1:30:00 PM
Isophorone	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Naphthalene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/3/2005 1:30:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-01

Client Sample ID: MW-10M
Collection Date: 5/31/2005 8:22:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Phenol	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Pyrene	ND	5.0		µg/L	1	6/3/2005 1:30:00 PM
Surr: 2,4,6-Tribromophenol	80.7	10-123		%REC	1	6/3/2005 1:30:00 PM
Surr: 2-Fluorophenol	35.2	7-75		%REC	1	6/3/2005 1:30:00 PM
Surr: Phenol-d6	20.2	3-67		%REC	1	6/3/2005 1:30:00 PM
Surr: 2-Fluorobiphenyl	55.8	20-122		%REC	1	6/3/2005 1:30:00 PM
Surr: 4-Terphenyl-d14	76.4	22-172		%REC	1	6/3/2005 1:30:00 PM
Surr: Nitrobenzene-d5	51.0	8-115		%REC	1	6/3/2005 1:30:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 3:29:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 3:29:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 3:29:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 3:29:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 3:29:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 3:29:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 3:29:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 3:29:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 3:29:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-01

Client Sample ID: MW-10M
Collection Date: 5/31/2005 8:22:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 3:29:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 3:29:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 3:29:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 3:29:00 PM
Surr: 1,2-Dichloroethane-d4	122	70-130		%REC	1	6/7/2005 3:29:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/7/2005 3:29:00 PM
Surr: Dibromofluoromethane	109	70-130		%REC	1	6/7/2005 3:29:00 PM
Surr: Toluene-d8	89.8	70-130		%REC	1	6/7/2005 3:29:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	6/3/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	50	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	7.9	1.0		mg/L	1	6/1/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	ND	0.050		mg/L	1	6/2/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	320	5.0		mg/L	1	6/2/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	5.2	2.0		mg/L	1	6/1/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-02

Client Sample ID: MW-2M
Collection Date: 5/31/2005 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	75.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
Aldrin	ND	0.010		µg/L	1	6/11/2005 7:39:51 AM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 7:39:51 AM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 7:39:51 AM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 7:39:51 AM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 7:39:51 AM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
Endrin	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 7:39:51 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 7:39:51 AM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 7:39:51 AM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 7:39:51 AM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 7:39:51 AM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 7:39:51 AM
Surr: Decachlorobiphenyl	80.0	40-140		%REC	1	6/11/2005 7:39:51 AM
Surr: Tetrachloro-m-xylene	61.0	40-140		%REC	1	6/11/2005 7:39:51 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/2/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/2/2005 9:53:00 PM
Arsenic	0.017	0.0050		mg/L	1	6/2/2005 9:53:00 PM
Beryllium	ND	0.0020		mg/L	1	6/2/2005 9:53:00 PM
Cadmium	ND	0.0020		mg/L	1	6/2/2005 9:53:00 PM
Chromium	ND	0.0050		mg/L	1	6/2/2005 9:53:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-02

Client Sample ID: MW-2M
Collection Date: 5/31/2005 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/2/2005 9:53:00 PM
Lead	ND	0.0050		mg/L	1	6/2/2005 9:53:00 PM
Nickel	ND	0.0050		mg/L	1	6/2/2005 9:53:00 PM
Selenium	ND	0.0050		mg/L	1	6/2/2005 9:53:00 PM
Silver	ND	0.0050		mg/L	1	6/2/2005 9:53:00 PM
Thallium	ND	0.0050		mg/L	1	6/2/2005 9:53:00 PM
Zinc	ND	0.010		mg/L	1	6/2/2005 9:53:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	19.59			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	8.1			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	2.300			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.6700			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	11.6			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/3/2005 5:35:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/3/2005 5:35:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/3/2005 5:35:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/3/2005 5:35:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/3/2005 5:35:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/3/2005 5:35:00 PM

Qualifiers:
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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-02

Client Sample ID: MW-2M
Collection Date: 5/31/2005 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/3/2005 5:35:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/3/2005 5:35:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/3/2005 5:35:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Anthracene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/3/2005 5:35:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/3/2005 5:35:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/3/2005 5:35:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Carbazole	ND	10		µg/L	1	6/3/2005 5:35:00 PM
Chrysene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/3/2005 5:35:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/3/2005 5:35:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/3/2005 5:35:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Fluorene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/3/2005 5:35:00 PM
Isophorone	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Naphthalene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/3/2005 5:35:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-02

Client Sample ID: MW-2M
Collection Date: 5/31/2005 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Phenol	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Pyrene	ND	5.0		µg/L	1	6/3/2005 5:35:00 PM
Surr: 2,4,6-Tribromophenol	73.6	10-123		%REC	1	6/3/2005 5:35:00 PM
Surr: 2-Fluorophenol	38.3	7-75		%REC	1	6/3/2005 5:35:00 PM
Surr: Phenol-d6	20.9	3-67		%REC	1	6/3/2005 5:35:00 PM
Surr: 2-Fluorobiphenyl	60.0	20-122		%REC	1	6/3/2005 5:35:00 PM
Surr: 4-Terphenyl-d14	80.1	22-172		%REC	1	6/3/2005 5:35:00 PM
Surr: Nitrobenzene-d5	58.3	8-115		%REC	1	6/3/2005 5:35:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 3:59:00 PM
2-Butanone	28,000	5,000		µg/L	1000	6/8/2005 4:36:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 3:59:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 3:59:00 PM
Acetone	37	20		µg/L	1	6/7/2005 3:59:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 3:59:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 3:59:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 3:59:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 3:59:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-02

Client Sample ID: MW-2M
Collection Date: 5/31/2005 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 3:59:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 3:59:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 3:59:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 3:59:00 PM
Surr: 1,2-Dichloroethane-d4	119	70-130		%REC	1000	6/8/2005 4:36:00 PM
Surr: 1,2-Dichloroethane-d4	118	70-130		%REC	1	6/7/2005 3:59:00 PM
Surr: 4-Bromofluorobenzene	95.0	70-130		%REC	1	6/7/2005 3:59:00 PM
Surr: 4-Bromofluorobenzene	97.9	70-130		%REC	1000	6/8/2005 4:36:00 PM
Surr: Dibromofluoromethane	66.4	70-130	S	%REC	1	6/7/2005 3:59:00 PM
Surr: Dibromofluoromethane	107	70-130		%REC	1000	6/8/2005 4:36:00 PM
Surr: Toluene-d8	89.5	70-130		%REC	1	6/7/2005 3:59:00 PM
Surr: Toluene-d8	87.5	70-130		%REC	1000	6/8/2005 4:36:00 PM
CYANIDE, TOTAL		**EPA 9014**				Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	6/3/2005
CHEMICAL OXYGEN DEMAND		**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	11	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY		**EPA 9056**				Analyst: **MB**
Chloride	650	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	0.41	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	0.012	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA		**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	0.092	0.050		mg/L	1	6/2/2005
PHENOLICS, TOTAL		**EPA 9065**				Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS		**EPA 160.1**				Analyst: **CES**
Total Dissolved Solids	1,400	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS		**EPA 160.2**				Analyst: **CES**
Total Suspended Solids	5.2	2.0		mg/L	1	6/1/2005

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-03

Client Sample ID: MW-7DR
Collection Date: 5/31/2005 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	73.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
Aldrin	ND	0.010		µg/L	1	6/11/2005 8:18:20 AM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 8:18:20 AM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 8:18:20 AM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 8:18:20 AM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 8:18:20 AM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
Endrin	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 8:18:20 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 8:18:20 AM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 8:18:20 AM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 8:18:20 AM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 8:18:20 AM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 8:18:20 AM
Surr: Decachlorobiphenyl	78.0	40-140		%REC	1	6/11/2005 8:18:20 AM
Surr: Tetrachloro-m-xylene	66.0	40-140		%REC	1	6/11/2005 8:18:20 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/2/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/2/2005 9:59:00 PM
Arsenic	0.083	0.0050		mg/L	1	6/2/2005 9:59:00 PM
Beryllium	ND	0.0020		mg/L	1	6/2/2005 9:59:00 PM
Cadmium	ND	0.0020		mg/L	1	6/2/2005 9:59:00 PM
Chromium	ND	0.0050		mg/L	1	6/2/2005 9:59:00 PM

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-03

Client Sample ID: MW-7DR
Collection Date: 5/31/2005 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/2/2005 9:59:00 PM
Lead	ND	0.0050		mg/L	1	6/2/2005 9:59:00 PM
Nickel	ND	0.0050		mg/L	1	6/2/2005 9:59:00 PM
Selenium	ND	0.0050		mg/L	1	6/2/2005 9:59:00 PM
Silver	ND	0.0050		mg/L	1	6/2/2005 9:59:00 PM
Thallium	ND	0.0050		mg/L	1	6/2/2005 9:59:00 PM
Zinc	ND	0.010		mg/L	1	6/2/2005 9:59:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	30.41			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	7.7			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	0.5800			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	1.1000			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	12.2			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/3/2005 6:06:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/3/2005 6:06:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/3/2005 6:06:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/3/2005 6:06:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/3/2005 6:06:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/3/2005 6:06:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-03

Client Sample ID: MW-7DR
Collection Date: 5/31/2005 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/3/2005 6:06:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/3/2005 6:06:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/3/2005 6:06:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Anthracene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/3/2005 6:06:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/3/2005 6:06:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/3/2005 6:06:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Carbazole	ND	10		µg/L	1	6/3/2005 6:06:00 PM
Chrysene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/3/2005 6:06:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/3/2005 6:06:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/3/2005 6:06:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Fluorene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/3/2005 6:06:00 PM
Isophorone	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Naphthalene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/3/2005 6:06:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-03

Client Sample ID: MW-7DR
Collection Date: 5/31/2005 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Phenol	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Pyrene	ND	5.0		µg/L	1	6/3/2005 6:06:00 PM
Surr: 2,4,6-Tribromophenol	67.4	10-123		%REC	1	6/3/2005 6:06:00 PM
Surr: 2-Fluorophenol	36.8	7-75		%REC	1	6/3/2005 6:06:00 PM
Surr: Phenol-d6	20.4	3-67		%REC	1	6/3/2005 6:06:00 PM
Surr: 2-Fluorobiphenyl	56.3	20-122		%REC	1	6/3/2005 6:06:00 PM
Surr: 4-Terphenyl-d14	76.1	22-172		%REC	1	6/3/2005 6:06:00 PM
Surr: Nitrobenzene-d5	55.0	8-115		%REC	1	6/3/2005 6:06:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 4:28:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 4:28:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 4:28:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 4:28:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 4:28:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Bromodichloromethane	1.0	1.0		µg/L	1	6/7/2005 4:28:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 4:28:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Chloroform	1.5	1.0		µg/L	1	6/7/2005 4:28:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 4:28:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 4:28:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 4:28:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-03

Client Sample ID: MW-7DR
Collection Date: 5/31/2005 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 4:28:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 4:28:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 4:28:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 4:28:00 PM
Surr: 1,2-Dichloroethane-d4	122	70-130		%REC	1	6/7/2005 4:28:00 PM
Surr: 4-Bromofluorobenzene	98.0	70-130		%REC	1	6/7/2005 4:28:00 PM
Surr: Dibromofluoromethane	106	70-130		%REC	1	6/7/2005 4:28:00 PM
Surr: Toluene-d8	88.2	70-130		%REC	1	6/7/2005 4:28:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	6/3/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	16	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	65	10		mg/L	10	6/1/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	1.1	0.25		mg/L	5	6/2/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	0.013	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	450	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	22	2.0		mg/L	1	6/1/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-04

Client Sample ID: MW-7MR
Collection Date: 5/31/2005 11:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	62.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
Aldrin	ND	0.010		µg/L	1	6/11/2005 8:54:53 AM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 8:54:53 AM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 8:54:53 AM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 8:54:53 AM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 8:54:53 AM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
Endrin	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 8:54:53 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 8:54:53 AM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 8:54:53 AM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 8:54:53 AM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 8:54:53 AM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 8:54:53 AM
Surr: Decachlorobiphenyl	66.0	40-140		%REC	1	6/11/2005 8:54:53 AM
Surr: Tetrachloro-m-xylene	57.0	40-140		%REC	1	6/11/2005 8:54:53 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/2/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/2/2005 10:04:00 PM
Arsenic	0.016	0.0050		mg/L	1	6/2/2005 10:04:00 PM
Beryllium	ND	0.0020		mg/L	1	6/2/2005 10:04:00 PM
Cadmium	ND	0.0020		mg/L	1	6/2/2005 10:04:00 PM
Chromium	ND	0.0050		mg/L	1	6/2/2005 10:04:00 PM

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-04

Client Sample ID: MW-7MR
Collection Date: 5/31/2005 11:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/2/2005 10:04:00 PM
Lead	ND	0.0050		mg/L	1	6/2/2005 10:04:00 PM
Nickel	ND	0.0050		mg/L	1	6/2/2005 10:04:00 PM
Selenium	ND	0.0050		mg/L	1	6/2/2005 10:04:00 PM
Silver	ND	0.0050		mg/L	1	6/2/2005 10:04:00 PM
Thallium	ND	0.0050		mg/L	1	6/2/2005 10:04:00 PM
Zinc	ND	0.010		mg/L	1	6/2/2005 10:04:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	19.40			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	8.2			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	0.5400			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	1.4200			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	11.3			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/3/2005 3:02:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/3/2005 3:02:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/3/2005 3:02:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/3/2005 3:02:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/3/2005 3:02:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/3/2005 3:02:00 PM

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-04

Client Sample ID: MW-7MR
Collection Date: 5/31/2005 11:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/3/2005 3:02:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/3/2005 3:02:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/3/2005 3:02:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Anthracene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/3/2005 3:02:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/3/2005 3:02:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/3/2005 3:02:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Carbazole	ND	10		µg/L	1	6/3/2005 3:02:00 PM
Chrysene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/3/2005 3:02:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/3/2005 3:02:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/3/2005 3:02:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Fluorene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/3/2005 3:02:00 PM
Isophorone	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Naphthalene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/3/2005 3:02:00 PM

Qualifiers:
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-04

Client Sample ID: MW-7MR
Collection Date: 5/31/2005 11:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Phenol	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Pyrene	ND	5.0		µg/L	1	6/3/2005 3:02:00 PM
Surr: 2,4,6-Tribromophenol	68.9	10-123		%REC	1	6/3/2005 3:02:00 PM
Surr: 2-Fluorophenol	40.7	7-75		%REC	1	6/3/2005 3:02:00 PM
Surr: Phenol-d6	35.2	3-67		%REC	1	6/3/2005 3:02:00 PM
Surr: 2-Fluorobiphenyl	57.9	20-122		%REC	1	6/3/2005 3:02:00 PM
Surr: 4-Terphenyl-d14	84.8	22-172		%REC	1	6/3/2005 3:02:00 PM
Surr: Nitrobenzene-d5	57.3	8-115		%REC	1	6/3/2005 3:02:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 5:27:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 5:27:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 5:27:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 5:27:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 5:27:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 5:27:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 5:27:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 5:27:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 5:27:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-04

Client Sample ID: MW-7MR
Collection Date: 5/31/2005 11:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 5:27:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 5:27:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 5:27:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 5:27:00 PM
Surr: 1,2-Dichloroethane-d4	125	70-130		%REC	1	6/7/2005 5:27:00 PM
Surr: 4-Bromofluorobenzene	98.8	70-130		%REC	1	6/7/2005 5:27:00 PM
Surr: Dibromofluoromethane	110	70-130		%REC	1	6/7/2005 5:27:00 PM
Surr: Toluene-d8	87.8	70-130		%REC	1	6/7/2005 5:27:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	6/3/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	11	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	78	10		mg/L	10	6/1/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	0.37	0.25		mg/L	5	6/2/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	380	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	ND	2.0		mg/L	1	6/1/2005

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-05

Client Sample ID: MW-7S
Collection Date: 5/31/2005 12:04:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	70.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
Aldrin	ND	0.010		µg/L	1	6/11/2005 9:33:21 AM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 9:33:21 AM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 9:33:21 AM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 9:33:21 AM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 9:33:21 AM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
Endrin	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 9:33:21 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 9:33:21 AM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 9:33:21 AM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 9:33:21 AM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 9:33:21 AM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 9:33:21 AM
Surr: Decachlorobiphenyl	75.0	40-140		%REC	1	6/11/2005 9:33:21 AM
Surr: Tetrachloro-m-xylene	44.0	40-140		%REC	1	6/11/2005 9:33:21 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/2/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/2/2005 10:09:00 PM
Arsenic	0.013	0.0050		mg/L	1	6/2/2005 10:09:00 PM
Beryllium	ND	0.0020		mg/L	1	6/2/2005 10:09:00 PM
Cadmium	ND	0.0020		mg/L	1	6/2/2005 10:09:00 PM
Chromium	ND	0.0050		mg/L	1	6/2/2005 10:09:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-05

Client Sample ID: MW-7S
Collection Date: 5/31/2005 12:04:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/2/2005 10:09:00 PM
Lead	ND	0.0050		mg/L	1	6/2/2005 10:09:00 PM
Nickel	ND	0.0050		mg/L	1	6/2/2005 10:09:00 PM
Selenium	ND	0.0050		mg/L	1	6/2/2005 10:09:00 PM
Silver	ND	0.0050		mg/L	1	6/2/2005 10:09:00 PM
Thallium	ND	0.0050		mg/L	1	6/2/2005 10:09:00 PM
Zinc	ND	0.010		mg/L	1	6/2/2005 10:09:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	8.100			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	8.2			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	2.100			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	1.7700			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	11.8			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/3/2005 3:33:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/3/2005 3:33:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/3/2005 3:33:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/3/2005 3:33:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/3/2005 3:33:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/3/2005 3:33:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-05

Client Sample ID: MW-7S
Collection Date: 5/31/2005 12:04:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/3/2005 3:33:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/3/2005 3:33:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/3/2005 3:33:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Anthracene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/3/2005 3:33:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/3/2005 3:33:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/3/2005 3:33:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Carbazole	ND	10		µg/L	1	6/3/2005 3:33:00 PM
Chrysene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/3/2005 3:33:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/3/2005 3:33:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/3/2005 3:33:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Fluorene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/3/2005 3:33:00 PM
Isophorone	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Naphthalene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/3/2005 3:33:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-05

Client Sample ID: MW-7S
Collection Date: 5/31/2005 12:04:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Phenol	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Pyrene	ND	5.0		µg/L	1	6/3/2005 3:33:00 PM
Surr: 2,4,6-Tribromophenol	54.8	10-123		%REC	1	6/3/2005 3:33:00 PM
Surr: 2-Fluorophenol	25.3	7-75		%REC	1	6/3/2005 3:33:00 PM
Surr: Phenol-d6	13.6	3-67		%REC	1	6/3/2005 3:33:00 PM
Surr: 2-Fluorobiphenyl	38.9	20-122		%REC	1	6/3/2005 3:33:00 PM
Surr: 4-Terphenyl-d14	77.4	22-172		%REC	1	6/3/2005 3:33:00 PM
Surr: Nitrobenzene-d5	37.1	8-115		%REC	1	6/3/2005 3:33:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 5:57:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 5:57:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 5:57:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 5:57:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 5:57:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 5:57:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 5:57:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 5:57:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 5:57:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-05

Client Sample ID: MW-7S
Collection Date: 5/31/2005 12:04:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 5:57:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 5:57:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 5:57:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 5:57:00 PM
Surr: 1,2-Dichloroethane-d4	121	70-130		%REC	1	6/7/2005 5:57:00 PM
Surr: 4-Bromofluorobenzene	96.9	70-130		%REC	1	6/7/2005 5:57:00 PM
Surr: Dibromofluoromethane	109	70-130		%REC	1	6/7/2005 5:57:00 PM
Surr: Toluene-d8	87.2	70-130		%REC	1	6/7/2005 5:57:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	6/3/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	8.3	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	560	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	0.23	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	0.027	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	ND	0.050		mg/L	1	6/2/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	1,300	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	4.8	2.0		mg/L	1	6/1/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-06

Client Sample ID: MW-6MR
Collection Date: 5/31/2005 2:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	59.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 4:19:09 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 4:19:09 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 4:19:09 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 4:19:09 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 4:19:09 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 4:19:09 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 4:19:09 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 4:19:09 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 4:19:09 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 4:19:09 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 4:19:09 PM
Surr: Decachlorobiphenyl	63.0	40-140		%REC	1	6/11/2005 4:19:09 PM
Surr: Tetrachloro-m-xylene	48.0	40-140		%REC	1	6/11/2005 4:19:09 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/2/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/2/2005 10:14:00 PM
Arsenic	0.038	0.0050		mg/L	1	6/2/2005 10:14:00 PM
Beryllium	ND	0.0020		mg/L	1	6/2/2005 10:14:00 PM
Cadmium	ND	0.0020		mg/L	1	6/2/2005 10:14:00 PM
Chromium	ND	0.0050		mg/L	1	6/2/2005 10:14:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-06

Client Sample ID: MW-6MR
Collection Date: 5/31/2005 2:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/2/2005 10:14:00 PM
Lead	ND	0.0050		mg/L	1	6/2/2005 10:14:00 PM
Nickel	ND	0.0050		mg/L	1	6/2/2005 10:14:00 PM
Selenium	ND	0.0050		mg/L	1	6/2/2005 10:14:00 PM
Silver	ND	0.0050		mg/L	1	6/2/2005 10:14:00 PM
Thallium	ND	0.0050		mg/L	1	6/2/2005 10:14:00 PM
Zinc	ND	0.010		mg/L	1	6/2/2005 10:14:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	20.20			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	8.8			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.760			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	2.8800			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	10.7			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/3/2005 4:03:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/3/2005 4:03:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/3/2005 4:03:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/3/2005 4:03:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/3/2005 4:03:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/3/2005 4:03:00 PM

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-06

Client Sample ID: MW-6MR
Collection Date: 5/31/2005 2:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/3/2005 4:03:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/3/2005 4:03:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/3/2005 4:03:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Anthracene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/3/2005 4:03:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/3/2005 4:03:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/3/2005 4:03:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Carbazole	ND	10		µg/L	1	6/3/2005 4:03:00 PM
Chrysene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/3/2005 4:03:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/3/2005 4:03:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/3/2005 4:03:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Fluorene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/3/2005 4:03:00 PM
Isophorone	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Naphthalene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/3/2005 4:03:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-06

Client Sample ID: MW-6MR
Collection Date: 5/31/2005 2:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Phenol	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Pyrene	ND	5.0		µg/L	1	6/3/2005 4:03:00 PM
Surr: 2,4,6-Tribromophenol	77.6	10-123		%REC	1	6/3/2005 4:03:00 PM
Surr: 2-Fluorophenol	31.5	7-75		%REC	1	6/3/2005 4:03:00 PM
Surr: Phenol-d6	17.4	3-67		%REC	1	6/3/2005 4:03:00 PM
Surr: 2-Fluorobiphenyl	47.1	20-122		%REC	1	6/3/2005 4:03:00 PM
Surr: 4-Terphenyl-d14	82.0	22-172		%REC	1	6/3/2005 4:03:00 PM
Surr: Nitrobenzene-d5	45.9	8-115		%REC	1	6/3/2005 4:03:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 6:26:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 6:26:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 6:26:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 6:26:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 6:26:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 6:26:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 6:26:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 6:26:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 6:26:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-06

Client Sample ID: MW-6MR
Collection Date: 5/31/2005 2:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 6:26:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 6:26:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 6:26:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 6:26:00 PM
Surr: 1,2-Dichloroethane-d4	120	70-130		%REC	1	6/7/2005 6:26:00 PM
Surr: 4-Bromofluorobenzene	99.8	70-130		%REC	1	6/7/2005 6:26:00 PM
Surr: Dibromofluoromethane	110	70-130		%REC	1	6/7/2005 6:26:00 PM
Surr: Toluene-d8	90.8	70-130		%REC	1	6/7/2005 6:26:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	6/3/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	22	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	430	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	7.8	2.5		mg/L	50	6/3/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **KAE**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	1,100	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	ND	2.0		mg/L	1	6/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
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E - Value above quantitation range
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-07

Client Sample ID: MW-5S
Collection Date: 5/31/2005 3:18:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	64.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 4:55:50 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 4:55:50 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 4:55:50 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 4:55:50 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 4:55:50 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 4:55:50 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 4:55:50 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 4:55:50 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 4:55:50 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 4:55:50 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 4:55:50 PM
Surr: Decachlorobiphenyl	68.0	40-140		%REC	1	6/11/2005 4:55:50 PM
Surr: Tetrachloro-m-xylene	47.0	40-140		%REC	1	6/11/2005 4:55:50 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/2/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/2/2005 10:19:00 PM
Arsenic	0.016	0.0050		mg/L	1	6/2/2005 10:19:00 PM
Beryllium	ND	0.0020		mg/L	1	6/2/2005 10:19:00 PM
Cadmium	ND	0.0020		mg/L	1	6/2/2005 10:19:00 PM
Chromium	ND	0.0050		mg/L	1	6/2/2005 10:19:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-07

Client Sample ID: MW-5S
Collection Date: 5/31/2005 3:18:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/2/2005 10:19:00 PM
Lead	ND	0.0050		mg/L	1	6/2/2005 10:19:00 PM
Nickel	ND	0.0050		mg/L	1	6/2/2005 10:19:00 PM
Selenium	ND	0.0050		mg/L	1	6/2/2005 10:19:00 PM
Silver	ND	0.0050		mg/L	1	6/2/2005 10:19:00 PM
Thallium	ND	0.0050		mg/L	1	6/2/2005 10:19:00 PM
Zinc	ND	0.010		mg/L	1	6/2/2005 10:19:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	8.200			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	7.6			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.100			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.4300			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	14.0			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/3/2005 4:34:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/3/2005 4:34:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/3/2005 4:34:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/3/2005 4:34:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/3/2005 4:34:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/3/2005 4:34:00 PM

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-07

Client Sample ID: MW-5S
Collection Date: 5/31/2005 3:18:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/3/2005 4:34:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/3/2005 4:34:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/3/2005 4:34:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Anthracene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/3/2005 4:34:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/3/2005 4:34:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/3/2005 4:34:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Carbazole	ND	10		µg/L	1	6/3/2005 4:34:00 PM
Chrysene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/3/2005 4:34:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/3/2005 4:34:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/3/2005 4:34:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Fluorene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/3/2005 4:34:00 PM
Isophorone	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Naphthalene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/3/2005 4:34:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-07

Client Sample ID: MW-5S
Collection Date: 5/31/2005 3:18:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Phenol	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Pyrene	ND	5.0		µg/L	1	6/3/2005 4:34:00 PM
Surr: 2,4,6-Tribromophenol	81.8	10-123		%REC	1	6/3/2005 4:34:00 PM
Surr: 2-Fluorophenol	44.5	7-75		%REC	1	6/3/2005 4:34:00 PM
Surr: Phenol-d6	25.2	3-67		%REC	1	6/3/2005 4:34:00 PM
Surr: 2-Fluorobiphenyl	62.1	20-122		%REC	1	6/3/2005 4:34:00 PM
Surr: 4-Terphenyl-d14	80.4	22-172		%REC	1	6/3/2005 4:34:00 PM
Surr: Nitrobenzene-d5	62.2	8-115		%REC	1	6/3/2005 4:34:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 6:56:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 6:56:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 6:56:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 6:56:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 6:56:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 6:56:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 6:56:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 6:56:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 6:56:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-07

Client Sample ID: MW-5S
Collection Date: 5/31/2005 3:18:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 6:56:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 6:56:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 6:56:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 6:56:00 PM
Surr: 1,2-Dichloroethane-d4	122	70-130		%REC	1	6/7/2005 6:56:00 PM
Surr: 4-Bromofluorobenzene	94.7	70-130		%REC	1	6/7/2005 6:56:00 PM
Surr: Dibromofluoromethane	108	70-130		%REC	1	6/7/2005 6:56:00 PM
Surr: Toluene-d8	84.6	70-130		%REC	1	6/7/2005 6:56:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	6/3/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	35	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	250	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	4.2	0.62		mg/L	12.5	6/3/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **KAE**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	640	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	23	2.0		mg/L	1	6/2/2005

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-08

Client Sample ID: MW-5DR
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	84.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 5:32:22 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 5:32:22 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 5:32:22 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 5:32:22 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 5:32:22 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 5:32:22 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 5:32:22 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 5:32:22 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 5:32:22 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 5:32:22 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 5:32:22 PM
Surr: Decachlorobiphenyl	87.0	40-140		%REC	1	6/11/2005 5:32:22 PM
Surr: Tetrachloro-m-xylene	52.0	40-140		%REC	1	6/11/2005 5:32:22 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/3/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/6/2005 8:38:00 PM
Arsenic	0.029	0.0050		mg/L	1	6/6/2005 8:38:00 PM
Beryllium	ND	0.0020		mg/L	1	6/6/2005 8:38:00 PM
Cadmium	ND	0.0020		mg/L	1	6/6/2005 8:38:00 PM
Chromium	ND	0.0050		mg/L	1	6/6/2005 8:38:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-08

Client Sample ID: MW-5DR
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/6/2005 8:38:00 PM
Lead	ND	0.0050		mg/L	1	6/6/2005 8:38:00 PM
Nickel	ND	0.0050		mg/L	1	6/6/2005 8:38:00 PM
Selenium	ND	0.0050		mg/L	1	6/6/2005 8:38:00 PM
Silver	ND	0.0050		mg/L	1	6/6/2005 8:38:00 PM
Thallium	ND	0.0050		mg/L	1	6/6/2005 8:38:00 PM
Zinc	ND	0.010		mg/L	1	6/6/2005 8:38:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	31.68			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	7.6			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.720			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.1400			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	12.3			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/2/2005 5:05:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/2/2005 5:05:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/2/2005 5:05:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/2/2005 5:05:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/2/2005 5:05:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/2/2005 5:05:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-08

Client Sample ID: MW-5DR
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/2/2005 5:05:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/2/2005 5:05:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/2/2005 5:05:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Anthracene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/2/2005 5:05:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/2/2005 5:05:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/2/2005 5:05:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Carbazole	ND	10		µg/L	1	6/2/2005 5:05:00 PM
Chrysene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/2/2005 5:05:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/2/2005 5:05:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/2/2005 5:05:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Fluorene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/2/2005 5:05:00 PM
Isophorone	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Naphthalene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/2/2005 5:05:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-08

Client Sample ID: MW-5DR
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Phenol	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Pyrene	ND	5.0		µg/L	1	6/2/2005 5:05:00 PM
Surr: 2,4,6-Tribromophenol	77.7	10-123		%REC	1	6/2/2005 5:05:00 PM
Surr: 2-Fluorophenol	31.4	7-75		%REC	1	6/2/2005 5:05:00 PM
Surr: Phenol-d6	17.2	3-67		%REC	1	6/2/2005 5:05:00 PM
Surr: 2-Fluorobiphenyl	52.6	20-122		%REC	1	6/2/2005 5:05:00 PM
Surr: 4-Terphenyl-d14	84.0	22-172		%REC	1	6/2/2005 5:05:00 PM
Surr: Nitrobenzene-d5	49.7	8-115		%REC	1	6/2/2005 5:05:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 9:23:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 9:23:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 9:23:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 9:23:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 9:23:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 9:23:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 9:23:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 9:23:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Tetrachloroethene	14	2.0		µg/L	1	6/7/2005 9:23:00 PM

Qualifiers:
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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-08

Client Sample ID: MW-5DR
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 9:23:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 9:23:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 9:23:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 9:23:00 PM
Surr: 1,2-Dichloroethane-d4	124	70-130		%REC	1	6/7/2005 9:23:00 PM
Surr: 4-Bromofluorobenzene	96.5	70-130		%REC	1	6/7/2005 9:23:00 PM
Surr: Dibromofluoromethane	108	70-130		%REC	1	6/7/2005 9:23:00 PM
Surr: Toluene-d8	88.0	70-130		%REC	1	6/7/2005 9:23:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **BAT**
Cyanide, Total	ND	0.0050		mg/L	2	6/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	23	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	350	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.10		mg/L	10	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	45	12		mg/L	250	6/3/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **KAE**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	950	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	29	2.0		mg/L	1	6/2/2005

Qualifiers:

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-09

Client Sample ID: MW-5DR-02
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	84.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 6:09:00 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 6:09:00 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 6:09:00 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 6:09:00 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 6:09:00 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 6:09:00 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 6:09:00 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 6:09:00 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 6:09:00 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 6:09:00 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 6:09:00 PM
Surr: Decachlorobiphenyl	89.0	40-140		%REC	1	6/11/2005 6:09:00 PM
Surr: Tetrachloro-m-xylene	57.0	40-140		%REC	1	6/11/2005 6:09:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/2/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/2/2005 10:24:00 PM
Arsenic	0.050	0.0050		mg/L	1	6/2/2005 10:24:00 PM
Beryllium	ND	0.0020		mg/L	1	6/2/2005 10:24:00 PM
Cadmium	ND	0.0020		mg/L	1	6/2/2005 10:24:00 PM
Chromium	ND	0.0050		mg/L	1	6/2/2005 10:24:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-09

Client Sample ID: MW-5DR-02
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/2/2005 10:24:00 PM
Lead	ND	0.0050		mg/L	1	6/2/2005 10:24:00 PM
Nickel	ND	0.0050		mg/L	1	6/2/2005 10:24:00 PM
Selenium	ND	0.0050		mg/L	1	6/2/2005 10:24:00 PM
Silver	ND	0.0050		mg/L	1	6/2/2005 10:24:00 PM
Thallium	ND	0.0050		mg/L	1	6/2/2005 10:24:00 PM
Zinc	ND	0.010		mg/L	1	6/2/2005 10:24:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	31.68			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	7.6			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.720			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.1400			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	12.3			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/3/2005 5:05:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/3/2005 5:05:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/3/2005 5:05:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/3/2005 5:05:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/3/2005 5:05:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/3/2005 5:05:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-09

Client Sample ID: MW-5DR-02
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/3/2005 5:05:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/3/2005 5:05:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/3/2005 5:05:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Anthracene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/3/2005 5:05:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/3/2005 5:05:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/3/2005 5:05:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Carbazole	ND	10		µg/L	1	6/3/2005 5:05:00 PM
Chrysene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/3/2005 5:05:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/3/2005 5:05:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/3/2005 5:05:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Fluorene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/3/2005 5:05:00 PM
Isophorone	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Naphthalene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/3/2005 5:05:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-09

Client Sample ID: MW-5DR-02
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Phenol	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Pyrene	ND	5.0		µg/L	1	6/3/2005 5:05:00 PM
Surr: 2,4,6-Tribromophenol	87.6	10-123		%REC	1	6/3/2005 5:05:00 PM
Surr: 2-Fluorophenol	41.5	7-75		%REC	1	6/3/2005 5:05:00 PM
Surr: Phenol-d6	23.8	3-67		%REC	1	6/3/2005 5:05:00 PM
Surr: 2-Fluorobiphenyl	62.8	20-122		%REC	1	6/3/2005 5:05:00 PM
Surr: 4-Terphenyl-d14	83.9	22-172		%REC	1	6/3/2005 5:05:00 PM
Surr: Nitrobenzene-d5	60.3	8-115		%REC	1	6/3/2005 5:05:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 7:55:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 7:55:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 7:55:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 7:55:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 7:55:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 7:55:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 7:55:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 7:55:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Tetrachloroethene	57	2.0		µg/L	1	6/7/2005 7:55:00 PM

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-09

Client Sample ID: MW-5DR-02
Collection Date: 5/31/2005 4:27:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	2.7	1.0		µg/L	1	6/7/2005 7:55:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 7:55:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 7:55:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 7:55:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 7:55:00 PM
Surr: 1,2-Dichloroethane-d4	122	70-130		%REC	1	6/7/2005 7:55:00 PM
Surr: 4-Bromofluorobenzene	94.4	70-130		%REC	1	6/7/2005 7:55:00 PM
Surr: Dibromofluoromethane	110	70-130		%REC	1	6/7/2005 7:55:00 PM
Surr: Toluene-d8	87.6	70-130		%REC	1	6/7/2005 7:55:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	6/3/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	27	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	350	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.10		mg/L	10	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	53	12		mg/L	250	6/7/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **KAE**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	990	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	28	2.0		mg/L	1	6/2/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-10

Client Sample ID: MW-4MR
Collection Date: 5/31/2005 5:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	63.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 6:45:31 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 6:45:31 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 6:45:31 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 6:45:31 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 6:45:31 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 6:45:31 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 6:45:31 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 6:45:31 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 6:45:31 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 6:45:31 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 6:45:31 PM
Surr: Decachlorobiphenyl	68.0	40-140		%REC	1	6/11/2005 6:45:31 PM
Surr: Tetrachloro-m-xylene	54.0	40-140		%REC	1	6/11/2005 6:45:31 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/3/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/6/2005 9:09:00 PM
Arsenic	0.027	0.0050		mg/L	1	6/6/2005 9:09:00 PM
Beryllium	ND	0.0020		mg/L	1	6/6/2005 9:09:00 PM
Cadmium	ND	0.0020		mg/L	1	6/6/2005 9:09:00 PM
Chromium	ND	0.0050		mg/L	1	6/6/2005 9:09:00 PM

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-10

Client Sample ID: MW-4MR
Collection Date: 5/31/2005 5:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/6/2005 9:09:00 PM
Lead	ND	0.0050		mg/L	1	6/6/2005 9:09:00 PM
Nickel	ND	0.0050		mg/L	1	6/6/2005 9:09:00 PM
Selenium	ND	0.0050		mg/L	1	6/6/2005 9:09:00 PM
Silver	ND	0.0050		mg/L	1	6/6/2005 9:09:00 PM
Thallium	ND	0.0050		mg/L	1	6/6/2005 9:09:00 PM
Zinc	ND	0.010		mg/L	1	6/6/2005 9:09:00 PM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	25.28			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	7.4			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.810			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.3000			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	11.2			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/7/2005 2:39:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/7/2005 2:39:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/7/2005 2:39:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/7/2005 2:39:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/7/2005 2:39:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/7/2005 2:39:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-10

Client Sample ID: MW-4MR
Collection Date: 5/31/2005 5:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/7/2005 2:39:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/7/2005 2:39:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/7/2005 2:39:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Anthracene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/7/2005 2:39:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/7/2005 2:39:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/7/2005 2:39:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Carbazole	ND	10		µg/L	1	6/7/2005 2:39:00 PM
Chrysene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/7/2005 2:39:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/7/2005 2:39:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/7/2005 2:39:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Fluorene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/7/2005 2:39:00 PM
Isophorone	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Naphthalene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/7/2005 2:39:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-10

Client Sample ID: MW-4MR
Collection Date: 5/31/2005 5:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Phenol	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Pyrene	ND	5.0		µg/L	1	6/7/2005 2:39:00 PM
Surr: 2,4,6-Tribromophenol	96.9	10-123		%REC	1	6/7/2005 2:39:00 PM
Surr: 2-Fluorophenol	42.4	7-75		%REC	1	6/7/2005 2:39:00 PM
Surr: Phenol-d6	24.1	3-67		%REC	1	6/7/2005 2:39:00 PM
Surr: 2-Fluorobiphenyl	63.0	20-122		%REC	1	6/7/2005 2:39:00 PM
Surr: 4-Terphenyl-d14	79.9	22-172		%REC	1	6/7/2005 2:39:00 PM
Surr: Nitrobenzene-d5	65.3	8-115		%REC	1	6/7/2005 2:39:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 8:24:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 8:24:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 8:24:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 8:24:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 8:24:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 8:24:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 8:24:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 8:24:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 8:24:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-10

Client Sample ID: MW-4MR
Collection Date: 5/31/2005 5:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 8:24:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 8:24:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 8:24:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 8:24:00 PM
Surr: 1,2-Dichloroethane-d4	126	70-130		%REC	1	6/7/2005 8:24:00 PM
Surr: 4-Bromofluorobenzene	98.5	70-130		%REC	1	6/7/2005 8:24:00 PM
Surr: Dibromofluoromethane	109	70-130		%REC	1	6/7/2005 8:24:00 PM
Surr: Toluene-d8	87.0	70-130		%REC	1	6/7/2005 8:24:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **BAT**
Cyanide, Total	ND	0.0050		mg/L	2	6/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	66	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	210	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.10		mg/L	10	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	150	25		mg/L	500	6/3/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **KAE**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	730	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	50	2.0		mg/L	1	6/2/2005

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-11

Client Sample ID: MW-3S
Collection Date: 5/31/2005 5:58:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	68.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 7:22:11 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 7:22:11 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 7:22:11 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 7:22:11 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 7:22:11 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 7:22:11 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 7:22:11 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 7:22:11 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 7:22:11 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 7:22:11 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 7:22:11 PM
Surr: Decachlorobiphenyl	70.0	40-140		%REC	1	6/11/2005 7:22:11 PM
Surr: Tetrachloro-m-xylene	46.0	40-140		%REC	1	6/11/2005 7:22:11 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/3/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/7/2005 12:49:00 AM
Arsenic	0.016	0.0050		mg/L	1	6/7/2005 12:49:00 AM
Beryllium	ND	0.0020		mg/L	1	6/7/2005 12:49:00 AM
Cadmium	ND	0.0020		mg/L	1	6/7/2005 12:49:00 AM
Chromium	ND	0.0050		mg/L	1	6/7/2005 12:49:00 AM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-11

Client Sample ID: MW-3S
Collection Date: 5/31/2005 5:58:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/7/2005 12:49:00 AM
Lead	ND	0.0050		mg/L	1	6/7/2005 12:49:00 AM
Nickel	ND	0.0050		mg/L	1	6/7/2005 12:49:00 AM
Selenium	ND	0.0050		mg/L	1	6/7/2005 12:49:00 AM
Silver	ND	0.0050		mg/L	1	6/7/2005 12:49:00 AM
Thallium	ND	0.0050		mg/L	1	6/7/2005 12:49:00 AM
Zinc	ND	0.010		mg/L	1	6/7/2005 12:49:00 AM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	7.770			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	7.6			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.210			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	4.0500			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	11.7			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/7/2005 3:10:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/7/2005 3:10:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/7/2005 3:10:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/7/2005 3:10:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/7/2005 3:10:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/7/2005 3:10:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-11

Client Sample ID: MW-3S
Collection Date: 5/31/2005 5:58:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/7/2005 3:10:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/7/2005 3:10:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/7/2005 3:10:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Anthracene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/7/2005 3:10:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/7/2005 3:10:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/7/2005 3:10:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Carbazole	ND	10		µg/L	1	6/7/2005 3:10:00 PM
Chrysene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/7/2005 3:10:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/7/2005 3:10:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/7/2005 3:10:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Fluorene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/7/2005 3:10:00 PM
Isophorone	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Naphthalene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/7/2005 3:10:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-11

Client Sample ID: MW-3S
Collection Date: 5/31/2005 5:58:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Phenol	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Pyrene	ND	5.0		µg/L	1	6/7/2005 3:10:00 PM
Surr: 2,4,6-Tribromophenol	87.0	10-123		%REC	1	6/7/2005 3:10:00 PM
Surr: 2-Fluorophenol	42.3	7-75		%REC	1	6/7/2005 3:10:00 PM
Surr: Phenol-d6	22.9	3-67		%REC	1	6/7/2005 3:10:00 PM
Surr: 2-Fluorobiphenyl	63.9	20-122		%REC	1	6/7/2005 3:10:00 PM
Surr: 4-Terphenyl-d14	80.1	22-172		%REC	1	6/7/2005 3:10:00 PM
Surr: Nitrobenzene-d5	64.1	8-115		%REC	1	6/7/2005 3:10:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 8:54:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 8:54:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 8:54:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 8:54:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 8:54:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 8:54:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 8:54:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 8:54:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 8:54:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-11

Client Sample ID: MW-3S
Collection Date: 5/31/2005 5:58:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 8:54:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 8:54:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 8:54:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 8:54:00 PM
Surr: 1,2-Dichloroethane-d4	120	70-130		%REC	1	6/7/2005 8:54:00 PM
Surr: 4-Bromofluorobenzene	98.7	70-130		%REC	1	6/7/2005 8:54:00 PM
Surr: Dibromofluoromethane	111	70-130		%REC	1	6/7/2005 8:54:00 PM
Surr: Toluene-d8	87.2	70-130		%REC	1	6/7/2005 8:54:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **BAT**
Cyanide, Total	ND	0.0050		mg/L	2	6/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	35	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	270	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	26	5.0		mg/L	100	6/3/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **KAE**
Phenolics, Total	0.029	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	720	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	16	2.0		mg/L	1	6/2/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-12

Client Sample ID: MW-3MR
Collection Date: 5/31/2005 6:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	57.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 7:58:44 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 7:58:44 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 7:58:44 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 7:58:44 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 7:58:44 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 7:58:44 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 7:58:44 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 7:58:44 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 7:58:44 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 7:58:44 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 7:58:44 PM
Surr: Decachlorobiphenyl	60.0	40-140		%REC	1	6/11/2005 7:58:44 PM
Surr: Tetrachloro-m-xylene	41.0	40-140		%REC	1	6/11/2005 7:58:44 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/3/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/7/2005 1:20:00 AM
Arsenic	0.0070	0.0050		mg/L	1	6/7/2005 1:20:00 AM
Beryllium	ND	0.0020		mg/L	1	6/7/2005 1:20:00 AM
Cadmium	ND	0.0020		mg/L	1	6/7/2005 1:20:00 AM
Chromium	ND	0.0050		mg/L	1	6/7/2005 1:20:00 AM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-12

Client Sample ID: MW-3MR
Collection Date: 5/31/2005 6:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/7/2005 1:20:00 AM
Lead	ND	0.0050		mg/L	1	6/7/2005 1:20:00 AM
Nickel	ND	0.0050		mg/L	1	6/7/2005 1:20:00 AM
Selenium	ND	0.0050		mg/L	1	6/7/2005 1:20:00 AM
Silver	ND	0.0050		mg/L	1	6/7/2005 1:20:00 AM
Thallium	ND	0.0050		mg/L	1	6/7/2005 1:20:00 AM
Zinc	ND	0.010		mg/L	1	6/7/2005 1:20:00 AM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	20.58			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	7.6			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.700			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.3500			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	12.2			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/7/2005 3:41:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/7/2005 3:41:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/7/2005 3:41:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/7/2005 3:41:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/7/2005 3:41:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/7/2005 3:41:00 PM

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-12

Client Sample ID: MW-3MR
Collection Date: 5/31/2005 6:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/7/2005 3:41:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/7/2005 3:41:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/7/2005 3:41:00 PM
Acenaphthene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Anthracene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/7/2005 3:41:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/7/2005 3:41:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/7/2005 3:41:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Carbazole	ND	10		µg/L	1	6/7/2005 3:41:00 PM
Chrysene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/7/2005 3:41:00 PM
Dibenzofuran	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/7/2005 3:41:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/7/2005 3:41:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Fluorene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/7/2005 3:41:00 PM
Isophorone	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Naphthalene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/7/2005 3:41:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-12

Client Sample ID: MW-3MR
Collection Date: 5/31/2005 6:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Phenol	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Pyrene	ND	5.0		µg/L	1	6/7/2005 3:41:00 PM
Surr: 2,4,6-Tribromophenol	90.7	10-123		%REC	1	6/7/2005 3:41:00 PM
Surr: 2-Fluorophenol	34.4	7-75		%REC	1	6/7/2005 3:41:00 PM
Surr: Phenol-d6	19.6	3-67		%REC	1	6/7/2005 3:41:00 PM
Surr: 2-Fluorobiphenyl	55.9	20-122		%REC	1	6/7/2005 3:41:00 PM
Surr: 4-Terphenyl-d14	79.8	22-172		%REC	1	6/7/2005 3:41:00 PM
Surr: Nitrobenzene-d5	53.0	8-115		%REC	1	6/7/2005 3:41:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **RM**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/8/2005 2:22:00 PM
2-Butanone	ND	5.0		µg/L	1	6/8/2005 2:22:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/8/2005 2:22:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/8/2005 2:22:00 PM
Acetone	ND	20		µg/L	1	6/8/2005 2:22:00 PM
Benzene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Bromoform	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Bromomethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/8/2005 2:22:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Chloroethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Chloroform	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Chloromethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/8/2005 2:22:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/8/2005 2:22:00 PM
o-Xylene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Styrene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/8/2005 2:22:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-12

Client Sample ID: MW-3MR
Collection Date: 5/31/2005 6:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/8/2005 2:22:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/8/2005 2:22:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/8/2005 2:22:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/8/2005 2:22:00 PM
Surr: 1,2-Dichloroethane-d4	116	70-130		%REC	1	6/8/2005 2:22:00 PM
Surr: 4-Bromofluorobenzene	97.9	70-130		%REC	1	6/8/2005 2:22:00 PM
Surr: Dibromofluoromethane	109	70-130		%REC	1	6/8/2005 2:22:00 PM
Surr: Toluene-d8	86.9	70-130		%REC	1	6/8/2005 2:22:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **BAT**
Cyanide, Total	ND	0.0050		mg/L	2	6/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	46	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	260	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.10		mg/L	10	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	120	25		mg/L	500	6/3/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **KAE**
Phenolics, Total	ND	0.012		mg/L	1.25	6/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	660	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	36	2.0		mg/L	1	6/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-13

Client Sample ID: MW-9M
Collection Date: 5/31/2005 7:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	63.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 8:35:24 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 8:35:24 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 8:35:24 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 8:35:24 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 8:35:24 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 8:35:24 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 8:35:24 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 8:35:24 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 8:35:24 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 8:35:24 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 8:35:24 PM
Surr: Decachlorobiphenyl	66.0	40-140		%REC	1	6/11/2005 8:35:24 PM
Surr: Tetrachloro-m-xylene	52.0	40-140		%REC	1	6/11/2005 8:35:24 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/3/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM
Arsenic	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM
Beryllium	ND	0.0020		mg/L	1	6/7/2005 1:30:00 AM
Cadmium	ND	0.0020		mg/L	1	6/7/2005 1:30:00 AM
Chromium	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM

Qualifiers:
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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-13

Client Sample ID: MW-9M
Collection Date: 5/31/2005 7:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM
Lead	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM
Nickel	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM
Selenium	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM
Silver	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM
Thallium	ND	0.0050		mg/L	1	6/7/2005 1:30:00 AM
Zinc	ND	0.010		mg/L	1	6/7/2005 1:30:00 AM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	19.29			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	9.4			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.020			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.5100			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	10.1			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/7/2005 4:12:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/7/2005 4:12:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2-Methylnaphthalene	5.8	5.0		µg/L	1	6/7/2005 4:12:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/7/2005 4:12:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/7/2005 4:12:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/7/2005 4:12:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/7/2005 4:12:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-13

Client Sample ID: MW-9M
Collection Date: 5/31/2005 7:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/7/2005 4:12:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/7/2005 4:12:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/7/2005 4:12:00 PM
Acenaphthene	29	5.0		µg/L	1	6/7/2005 4:12:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Anthracene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/7/2005 4:12:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/7/2005 4:12:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/7/2005 4:12:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Carbazole	ND	10		µg/L	1	6/7/2005 4:12:00 PM
Chrysene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/7/2005 4:12:00 PM
Dibenzofuran	18	5.0		µg/L	1	6/7/2005 4:12:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/7/2005 4:12:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/7/2005 4:12:00 PM
Fluoranthene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Fluorene	22	5.0		µg/L	1	6/7/2005 4:12:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/7/2005 4:12:00 PM
Isophorone	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Naphthalene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/7/2005 4:12:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-13

Client Sample ID: MW-9M
Collection Date: 5/31/2005 7:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	25	5.0		µg/L	1	6/7/2005 4:12:00 PM
Phenol	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Pyrene	ND	5.0		µg/L	1	6/7/2005 4:12:00 PM
Surr: 2,4,6-Tribromophenol	88.6	10-123		%REC	1	6/7/2005 4:12:00 PM
Surr: 2-Fluorophenol	46.6	7-75		%REC	1	6/7/2005 4:12:00 PM
Surr: Phenol-d6	25.9	3-67		%REC	1	6/7/2005 4:12:00 PM
Surr: 2-Fluorobiphenyl	67.9	20-122		%REC	1	6/7/2005 4:12:00 PM
Surr: 4-Terphenyl-d14	88.8	22-172		%REC	1	6/7/2005 4:12:00 PM
Surr: Nitrobenzene-d5	68.7	8-115		%REC	1	6/7/2005 4:12:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **RM**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/8/2005 2:59:00 PM
2-Butanone	ND	5.0		µg/L	1	6/8/2005 2:59:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/8/2005 2:59:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/8/2005 2:59:00 PM
Acetone	ND	20		µg/L	1	6/8/2005 2:59:00 PM
Benzene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Bromodichloromethane	1.2	1.0		µg/L	1	6/8/2005 2:59:00 PM
Bromoform	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Bromomethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/8/2005 2:59:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Chloroethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Chloroform	1.9	1.0		µg/L	1	6/8/2005 2:59:00 PM
Chloromethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/8/2005 2:59:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/8/2005 2:59:00 PM
o-Xylene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Styrene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/8/2005 2:59:00 PM

Qualifiers:
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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-13

Client Sample ID: MW-9M
Collection Date: 5/31/2005 7:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/8/2005 2:59:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/8/2005 2:59:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/8/2005 2:59:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/8/2005 2:59:00 PM
Surr: 1,2-Dichloroethane-d4	123	70-130		%REC	1	6/8/2005 2:59:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/8/2005 2:59:00 PM
Surr: Dibromofluoromethane	110	70-130		%REC	1	6/8/2005 2:59:00 PM
Surr: Toluene-d8	88.5	70-130		%REC	1	6/8/2005 2:59:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **BAT**
Cyanide, Total	ND	0.0050		mg/L	2	6/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	36	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	260	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	11	2.5		mg/L	50	6/3/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	6/13/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	660	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	ND	2.0		mg/L	1	6/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-14

Client Sample ID: MW-9D
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	71.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 9:11:56 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 9:11:56 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 9:11:56 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 9:11:56 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 9:11:56 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 9:11:56 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 9:11:56 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 9:11:56 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 9:11:56 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 9:11:56 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 9:11:56 PM
Surr: Decachlorobiphenyl	75.0	40-140		%REC	1	6/11/2005 9:11:56 PM
Surr: Tetrachloro-m-xylene	64.0	40-140		%REC	1	6/11/2005 9:11:56 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/3/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM
Arsenic	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM
Beryllium	ND	0.0020		mg/L	1	6/7/2005 1:41:00 AM
Cadmium	ND	0.0020		mg/L	1	6/7/2005 1:41:00 AM
Chromium	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-14

Client Sample ID: MW-9D
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM
Lead	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM
Nickel	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM
Selenium	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM
Silver	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM
Thallium	ND	0.0050		mg/L	1	6/7/2005 1:41:00 AM
Zinc	ND	0.010		mg/L	1	6/7/2005 1:41:00 AM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	30.41			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	8.5			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.220			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.6100			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	11.7			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/7/2005 4:43:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/7/2005 4:43:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2-Methylnaphthalene	120	50		µg/L	10	6/13/2005 12:32:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/7/2005 4:43:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/7/2005 4:43:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/7/2005 4:43:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/7/2005 4:43:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-14

Client Sample ID: MW-9D
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/7/2005 4:43:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/7/2005 4:43:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/7/2005 4:43:00 PM
Acenaphthene	180	50		µg/L	10	6/13/2005 12:32:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Anthracene	8.8	5.0		µg/L	1	6/7/2005 4:43:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/7/2005 4:43:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/7/2005 4:43:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/7/2005 4:43:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Bis(2-ethylhexyl)phthalate	5.5	5.0		µg/L	1	6/7/2005 4:43:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Carbazole	100	100		µg/L	10	6/13/2005 12:32:00 PM
Chrysene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/7/2005 4:43:00 PM
Dibenzofuran	110	50		µg/L	10	6/13/2005 12:32:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/7/2005 4:43:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/7/2005 4:43:00 PM
Fluoranthene	7.0	5.0		µg/L	1	6/7/2005 4:43:00 PM
Fluorene	96	50		µg/L	10	6/13/2005 12:32:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/7/2005 4:43:00 PM
Isophorone	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Naphthalene	500	50		µg/L	10	6/13/2005 12:32:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/7/2005 4:43:00 PM

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e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-14

Client Sample ID: MW-9D
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	49	5.0		µg/L	1	6/7/2005 4:43:00 PM
Phenol	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Pyrene	ND	5.0		µg/L	1	6/7/2005 4:43:00 PM
Surr: 2,4,6-Tribromophenol	90.2	10-123		%REC	1	6/7/2005 4:43:00 PM
Surr: 2-Fluorophenol	37.4	7-75		%REC	1	6/7/2005 4:43:00 PM
Surr: Phenol-d6	22.5	3-67		%REC	1	6/7/2005 4:43:00 PM
Surr: 2-Fluorobiphenyl	58.0	20-122		%REC	1	6/7/2005 4:43:00 PM
Surr: 4-Terphenyl-d14	80.8	22-172		%REC	1	6/7/2005 4:43:00 PM
Surr: Nitrobenzene-d5	55.2	8-115		%REC	1	6/7/2005 4:43:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **RM**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
1,2-Dichloroethane	1.6	1.0		µg/L	1	6/8/2005 3:27:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/8/2005 3:27:00 PM
2-Butanone	ND	5.0		µg/L	1	6/8/2005 3:27:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/8/2005 3:27:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/8/2005 3:27:00 PM
Acetone	ND	20		µg/L	1	6/8/2005 3:27:00 PM
Benzene	93	10		µg/L	10	6/9/2005 4:26:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Bromoform	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Bromomethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/8/2005 3:27:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Chloroethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Chloroform	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Chloromethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Ethylbenzene	17	1.0		µg/L	1	6/8/2005 3:27:00 PM
m,p-Xylene	6.6	2.0		µg/L	1	6/8/2005 3:27:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/8/2005 3:27:00 PM
o-Xylene	7.8	1.0		µg/L	1	6/8/2005 3:27:00 PM
Styrene	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/8/2005 3:27:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-14

Client Sample ID: MW-9D
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	1.8	1.0		µg/L	1	6/8/2005 3:27:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/8/2005 3:27:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/8/2005 3:27:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/8/2005 3:27:00 PM
Xylenes, Total	14	3.0		µg/L	1	6/8/2005 3:27:00 PM
Surr: 1,2-Dichloroethane-d4	128	70-130		%REC	1	6/8/2005 3:27:00 PM
Surr: 1,2-Dichloroethane-d4	118	70-130		%REC	10	6/9/2005 4:26:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	10	6/9/2005 4:26:00 PM
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	6/8/2005 3:27:00 PM
Surr: Dibromofluoromethane	112	70-130		%REC	10	6/9/2005 4:26:00 PM
Surr: Dibromofluoromethane	113	70-130		%REC	1	6/8/2005 3:27:00 PM
Surr: Toluene-d8	91.1	70-130		%REC	10	6/9/2005 4:26:00 PM
Surr: Toluene-d8	87.6	70-130		%REC	1	6/8/2005 3:27:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **BAT**
Cyanide, Total	0.0092	0.0050		mg/L	2	6/7/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	30	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	290	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	28	5.0		mg/L	100	6/3/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	6/13/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CES**
Total Dissolved Solids	670	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **CES**
Total Suspended Solids	12	2.0		mg/L	1	6/2/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-15

Client Sample ID: MW-9D-02
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **6/1/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	6/10/2005
Aroclor 1221	ND	0.40		µg/L	1	6/10/2005
Aroclor 1232	ND	0.40		µg/L	1	6/10/2005
Aroclor 1242	ND	0.40		µg/L	1	6/10/2005
Aroclor 1248	ND	0.40		µg/L	1	6/10/2005
Aroclor 1254	ND	0.40		µg/L	1	6/10/2005
Aroclor 1260	ND	0.40		µg/L	1	6/10/2005
Surr: Decachlorobiphenyl	64.0	40-140		%REC	1	6/10/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **6/1/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
4,4´-DDE	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
4,4´-DDT	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
Aldrin	ND	0.010		µg/L	1	6/11/2005 9:48:36 PM
alpha-BHC	ND	0.010		µg/L	1	6/11/2005 9:48:36 PM
beta-BHC	ND	0.010		µg/L	1	6/11/2005 9:48:36 PM
Chlordane, Technical	ND	0.50		µg/L	1	6/11/2005 9:48:36 PM
delta-BHC	ND	0.010		µg/L	1	6/11/2005 9:48:36 PM
Dieldrin	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
Endosulfan I	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
Endosulfan II	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
Endosulfan sulfate	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
Endrin	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
Endrin aldehyde	ND	0.020		µg/L	1	6/11/2005 9:48:36 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	6/11/2005 9:48:36 PM
Heptachlor	ND	0.010		µg/L	1	6/11/2005 9:48:36 PM
Heptachlor epoxide	ND	0.010		µg/L	1	6/11/2005 9:48:36 PM
Methoxychlor	ND	0.040		µg/L	1	6/11/2005 9:48:36 PM
Toxaphene	ND	2.0		µg/L	1	6/11/2005 9:48:36 PM
Surr: Decachlorobiphenyl	68.0	40-140		%REC	1	6/11/2005 9:48:36 PM
Surr: Tetrachloro-m-xylene	61.0	40-140		%REC	1	6/11/2005 9:48:36 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **6/2/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	6/3/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **6/3/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	6/7/2005 1:51:00 AM
Arsenic	0.017	0.0050		mg/L	1	6/7/2005 1:51:00 AM
Beryllium	ND	0.0020		mg/L	1	6/7/2005 1:51:00 AM
Cadmium	ND	0.0020		mg/L	1	6/7/2005 1:51:00 AM
Chromium	ND	0.0050		mg/L	1	6/7/2005 1:51:00 AM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-15

Client Sample ID: MW-9D-02
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	6/7/2005 1:51:00 AM
Lead	ND	0.0050		mg/L	1	6/7/2005 1:51:00 AM
Nickel	ND	0.0050		mg/L	1	6/7/2005 1:51:00 AM
Selenium	ND	0.0050		mg/L	1	6/7/2005 1:51:00 AM
Silver	ND	0.0050		mg/L	1	6/7/2005 1:51:00 AM
Thallium	ND	0.0050		mg/L	1	6/7/2005 1:51:00 AM
Zinc	ND	0.010		mg/L	1	6/7/2005 1:51:00 AM
DEPTH TO WATER (FIELD)			**TAPE**			Analyst: **ELAB**
Well Depth (field)	30.41			ft.	1	5/31/2005
PH (FIELD)			**EPA 150.1**			Analyst: **ELAB**
pH (field)	8.5			s.u.	1	5/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **ELAB**
Specific Conductance (field)	1.220			µmhos/cm	1	5/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **ELAB**
Static Water Level (field)	3.6100			ft.	1	5/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **ELAB**
Temperature	11.7			°C	1	5/31/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **6/2/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	6/7/2005 5:13:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	6/7/2005 5:13:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2-Methylnaphthalene	120	50		µg/L	10	6/13/2005 1:03:00 PM
2-Methylphenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
2-Nitroaniline	ND	20		µg/L	1	6/7/2005 5:13:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	6/7/2005 5:13:00 PM
3-Nitroaniline	ND	20		µg/L	1	6/7/2005 5:13:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	6/7/2005 5:13:00 PM

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-15

Client Sample ID: MW-9D-02
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
4-Chloroaniline	ND	20		µg/L	1	6/7/2005 5:13:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
4-Methylphenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
4-Nitroaniline	ND	20		µg/L	1	6/7/2005 5:13:00 PM
4-Nitrophenol	ND	20		µg/L	1	6/7/2005 5:13:00 PM
Acenaphthene	190	50		µg/L	10	6/13/2005 1:03:00 PM
Acenaphthylene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Anthracene	9.0	5.0		µg/L	1	6/7/2005 5:13:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	6/7/2005 5:13:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	6/7/2005 5:13:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	6/7/2005 5:13:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Carbazole	ND	100		µg/L	10	6/13/2005 1:03:00 PM
Chrysene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	6/7/2005 5:13:00 PM
Dibenzofuran	110	50		µg/L	10	6/13/2005 1:03:00 PM
Diethyl phthalate	ND	20		µg/L	1	6/7/2005 5:13:00 PM
Dimethyl phthalate	ND	20		µg/L	1	6/7/2005 5:13:00 PM
Fluoranthene	7.2	5.0		µg/L	1	6/7/2005 5:13:00 PM
Fluorene	98	50		µg/L	10	6/13/2005 1:03:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Hexachloroethane	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	6/7/2005 5:13:00 PM
Isophorone	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Naphthalene	490	50		µg/L	10	6/13/2005 1:03:00 PM
Nitrobenzene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Pentachlorophenol	ND	20		µg/L	1	6/7/2005 5:13:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-15

Client Sample ID: MW-9D-02
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	49	5.0		µg/L	1	6/7/2005 5:13:00 PM
Phenol	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Pyrene	ND	5.0		µg/L	1	6/7/2005 5:13:00 PM
Surr: 2,4,6-Tribromophenol	91.2	10-123		%REC	1	6/7/2005 5:13:00 PM
Surr: 2-Fluorophenol	37.4	7-75		%REC	1	6/7/2005 5:13:00 PM
Surr: Phenol-d6	23.0	3-67		%REC	1	6/7/2005 5:13:00 PM
Surr: 2-Fluorobiphenyl	60.5	20-122		%REC	1	6/7/2005 5:13:00 PM
Surr: 4-Terphenyl-d14	80.9	22-172		%REC	1	6/7/2005 5:13:00 PM
Surr: Nitrobenzene-d5	57.2	8-115		%REC	1	6/7/2005 5:13:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **RM**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
1,2-Dichloroethane	1.7	1.0		µg/L	1	6/8/2005 3:59:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/8/2005 3:59:00 PM
2-Butanone	ND	5.0		µg/L	1	6/8/2005 3:59:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/8/2005 3:59:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/8/2005 3:59:00 PM
Acetone	ND	20		µg/L	1	6/8/2005 3:59:00 PM
Benzene	100	10		µg/L	10	6/9/2005 4:56:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Bromoform	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Bromomethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/8/2005 3:59:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Chloroethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Chloroform	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Chloromethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Ethylbenzene	17	1.0		µg/L	1	6/8/2005 3:59:00 PM
m,p-Xylene	5.7	2.0		µg/L	1	6/8/2005 3:59:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/8/2005 3:59:00 PM
o-Xylene	7.8	1.0		µg/L	1	6/8/2005 3:59:00 PM
Styrene	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/8/2005 3:59:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-15

Client Sample ID: MW-9D-02
Collection Date: 5/31/2005 7:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	1.8	1.0		µg/L	1	6/8/2005 3:59:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/8/2005 3:59:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/8/2005 3:59:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/8/2005 3:59:00 PM
Xylenes, Total	13	3.0		µg/L	1	6/8/2005 3:59:00 PM
Surr: 1,2-Dichloroethane-d4	128	70-130		%REC	1	6/8/2005 3:59:00 PM
Surr: 1,2-Dichloroethane-d4	116	70-130		%REC	10	6/9/2005 4:56:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	10	6/9/2005 4:56:00 PM
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	6/8/2005 3:59:00 PM
Surr: Dibromofluoromethane	107	70-130		%REC	10	6/9/2005 4:56:00 PM
Surr: Dibromofluoromethane	110	70-130		%REC	1	6/8/2005 3:59:00 PM
Surr: Toluene-d8	85.8	70-130		%REC	10	6/9/2005 4:56:00 PM
Surr: Toluene-d8	87.6	70-130		%REC	1	6/8/2005 3:59:00 PM
CYANIDE, TOTAL		**EPA 9014**				Analyst: **BAT**
Cyanide, Total	ND	0.0050		mg/L	2	6/7/2005
CHEMICAL OXYGEN DEMAND		**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	33	5.0		mg/L	1	6/2/2005
ANIONS BY ION CHROMATOGRAPHY		**EPA 9056**				Analyst: **MB**
Chloride	290	100		mg/L	100	6/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	6/1/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	6/1/2005
NITROGEN, AMMONIA		**EPA 350.1**				Analyst: **JJG**
Nitrogen, Ammonia	29	5.0		mg/L	100	6/3/2005
PHENOLICS, TOTAL		**EPA 9065**				Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	6/13/2005
TOTAL DISSOLVED SOLIDS		**EPA 160.1**				Analyst: **CES**
Total Dissolved Solids	690	5.0		mg/L	1	6/6/2005
TOTAL SUSPENDED SOLIDS		**EPA 160.2**				Analyst: **CES**
Total Suspended Solids	12	2.0		mg/L	1	6/2/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER
Lab ID: 0506010-16

Client Sample ID: Trip Blank
Collection Date: 5/31/2005
Matrix: TRIP BLANK

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	6/7/2005 3:00:00 PM
2-Butanone	ND	5.0		µg/L	1	6/7/2005 3:00:00 PM
2-Hexanone	ND	5.0		µg/L	1	6/7/2005 3:00:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	6/7/2005 3:00:00 PM
Acetone	ND	20		µg/L	1	6/7/2005 3:00:00 PM
Benzene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Bromoform	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Bromomethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Carbon disulfide	ND	2.5		µg/L	1	6/7/2005 3:00:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Chlorobenzene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Chloroethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Chloroform	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Chloromethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Ethylbenzene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
m,p-Xylene	ND	2.0		µg/L	1	6/7/2005 3:00:00 PM
Methylene chloride	ND	5.0		µg/L	1	6/7/2005 3:00:00 PM
o-Xylene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Styrene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	6/7/2005 3:00:00 PM
Toluene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Trichloroethene	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
Vinyl chloride	ND	1.0		µg/L	1	6/7/2005 3:00:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	6/7/2005 3:00:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	6/7/2005 3:00:00 PM
Xylenes, Total	ND	3.0		µg/L	1	6/7/2005 3:00:00 PM
Surr: 1,2-Dichloroethane-d4	117	70-130		%REC	1	6/7/2005 3:00:00 PM

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *June 20, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	Trip Blank
Work Order:	0506010	**Collection Date:**	5/31/2005
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0506010-16	**Matrix:**	TRIP BLANK

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Surr: 4-Bromofluorobenzene	96.5	70-130		%REC	1	6/7/2005 3:00:00 PM
Surr: Dibromofluoromethane	108	70-130		%REC	1	6/7/2005 3:00:00 PM
Surr: Toluene-d8	88.0	70-130		%REC	1	6/7/2005 3:00:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

Date: *Jul 08 2005*

QC BATCH REPORT

Batch ID: **6704** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-6704** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **06/11/05 6:24**

Client ID: Run ID: **GC4_050610A** SeqNo: **442035** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	ND	0.020								
4,4´-DDE	ND	0.020								
4,4´-DDT	ND	0.020								
Aldrin	ND	0.010								
alpha-BHC	ND	0.010								
beta-BHC	ND	0.010								
Chlordane, Technical	ND	0.50								
delta-BHC	ND	0.010								
Dieldrin	ND	0.020								
Endosulfan I	ND	0.020								
Endosulfan II	ND	0.020								
Endosulfan sulfate	ND	0.020								
Endrin	ND	0.020								
Endrin aldehyde	ND	0.020								
gamma-BHC (Lindane)	ND	0.010								
Heptachlor	ND	0.010								
Heptachlor epoxide	ND	0.010								
Methoxychlor	ND	0.040								
Toxaphene	ND	2.0								
Surr: Decachlorobiphenyl	0.073	0	0.1	0	73	50-130	0			
Surr: Tetrachloro-m-xylene	0.049	0	0.1	0	49	50-130	0			S

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6704** InstrumentID: **GC4**

LCS Sample ID: **PLCSW1-6704** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **06/11/05 22:25**

Client ID: Run ID: **GC4_050610A** SeqNo: **442024** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.067	0.020	0.1	0	67	50-130	0			
4,4´-DDE	0.058	0.020	0.1	0	58	50-130	0			
4,4´-DDT	0.07	0.020	0.1	0	70	50-130	0			
Aldrin	0.042	0.010	0.1	0	42	50-130	0			S
alpha-BHC	0.059	0.010	0.1	0	59	50-130	0			
beta-BHC	0.062	0.010	0.1	0	62	50-130	0			
delta-BHC	0.067	0.010	0.1	0	67	50-130	0			
Dieldrin	0.065	0.020	0.1	0	65	50-130	0			
Endosulfan I	0.063	0.020	0.1	0	63	50-130	0			
Endosulfan II	0.066	0.020	0.1	0	66	50-130	0			
Endosulfan sulfate	0.055	0.020	0.1	0	55	50-130	0			
Endrin	0.078	0.020	0.1	0	78	50-130	0			
Endrin aldehyde	0.055	0.020	0.1	0	55	50-130	0			
gamma-BHC (Lindane)	0.061	0.010	0.1	0	61	50-130	0			
Heptachlor	0.062	0.010	0.1	0	62	50-130	0			
Heptachlor epoxide	0.064	0.010	0.1	0	64	50-130	0			
Methoxychlor	0.075	0.040	0.1	0	75	50-130	0			
Surr: Decachlorobiphenyl	0.066	0	0.1	0	66	50-130	0			
Surr: Tetrachloro-m-xylene	0.041	0	0.1	0	41	50-130	0			S

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O - Referenced analyte value is > 4 times amount spiked
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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6704** InstrumentID: **GC4**

LCSD Sample ID: **PLCSDW1-6704** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **06/11/05 23:01**

Client ID: Run ID: **GC4_050610A** SeqNo: **442025** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.077	0.020	0.1	0	77	50-130	0.067	13.9	50	
4,4´-DDE	0.069	0.020	0.1	0	69	50-130	0.058	17.3	50	
4,4´-DDT	0.077	0.020	0.1	0	77	50-130	0.07	9.52	50	
Aldrin	0.048	0.010	0.1	0	48	50-130	0.042	13.3	50	S
alpha-BHC	0.069	0.010	0.1	0	69	50-130	0.059	15.6	50	
beta-BHC	0.073	0.010	0.1	0	73	50-130	0.062	16.3	50	
delta-BHC	0.076	0.010	0.1	0	76	50-130	0.067	12.6	50	
Dieldrin	0.073	0.020	0.1	0	73	50-130	0.065	11.6	50	
Endosulfan I	0.062	0.020	0.1	0	62	50-130	0.063	1.6	50	
Endosulfan II	0.073	0.020	0.1	0	73	50-130	0.066	10.1	50	
Endosulfan sulfate	0.061	0.020	0.1	0	61	50-130	0.055	10.3	50	
Endrin	0.087	0.020	0.1	0	87	50-130	0.078	10.9	50	
Endrin aldehyde	0.061	0.020	0.1	0	61	50-130	0.055	10.3	50	
gamma-BHC (Lindane)	0.072	0.010	0.1	0	72	50-130	0.061	16.5	50	
Heptachlor	0.074	0.010	0.1	0	74	50-130	0.062	17.6	50	
Heptachlor epoxide	0.072	0.010	0.1	0	72	50-130	0.064	11.8	50	
Methoxychlor	0.079	0.040	0.1	0	79	50-130	0.075	5.19	50	
Surr: Decachlorobiphenyl	0.071	0	0.1	0	71	50-130	0.066	7.3	50	
Surr: Tetrachloro-m-xylene	0.046	0	0.1	0	46	50-130	0.041	11.5	50	S

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6704** InstrumentID: **GC4**

MS Sample ID: **0506010-08H MS** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **06/11/05 23:39**

Client ID: **MW-5DR** Run ID: **GC4_050610A** SeqNo: **442026** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.072	0.020	0.1	0	72	40-140	0			
4,4´-DDE	0.068	0.020	0.1	0	68	40-140	0			
4,4´-DDT	0.08	0.020	0.1	0	80	40-140	0			
Aldrin	0.052	0.010	0.1	0	52	40-140	0			
alpha-BHC	0.058	0.010	0.1	0	58	40-140	0			
beta-BHC	0.066	0.010	0.1	0	66	40-140	0			
delta-BHC	0.067	0.010	0.1	0	67	40-140	0			
Dieldrin	0.07	0.020	0.1	0	70	40-140	0			
Endosulfan I	0.066	0.020	0.1	0	66	40-140	0			
Endosulfan II	0.069	0.020	0.1	0	69	40-140	0			
Endosulfan sulfate	0.056	0.020	0.1	0	56	40-140	0			
Endrin	0.082	0.020	0.1	0	82	40-140	0			
Endrin aldehyde	0.055	0.020	0.1	0	55	40-140	0			
gamma-BHC (Lindane)	0.062	0.010	0.1	0	62	40-140	0			
Heptachlor	0.068	0.010	0.1	0	68	40-140	0			
Heptachlor epoxide	0.066	0.010	0.1	0	66	40-140	0			
Methoxychlor	0.079	0.040	0.1	0	79	40-140	0			
Surr: Decachlorobiphenyl	0.068	0	0.1	0	68	40-140	0			
Surr: Tetrachloro-m-xylene	0.041	0	0.1	0	41	40-140	0			

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S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
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R - RPD outside accepted recovery limits
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6704** InstrumentID: **GC4**

MSD Sample ID: **0506010-08H MSD** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **06/12/05 0:16**

Client ID: **MW-5DR** Run ID: **GC4_050610A** SeqNo: **442027** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.07	0.020	0.1	0	70	40-140	0.072	2.82	50	
4,4´-DDE	0.066	0.020	0.1	0	66	40-140	0.068	2.99	50	
4,4´-DDT	0.078	0.020	0.1	0	78	40-140	0.08	2.53	50	
Aldrin	0.054	0.010	0.1	0	54	40-140	0.052	3.77	50	
alpha-BHC	0.059	0.010	0.1	0	59	40-140	0.058	1.71	50	
beta-BHC	0.064	0.010	0.1	0	64	40-140	0.066	3.08	50	
delta-BHC	0.065	0.010	0.1	0	65	40-140	0.067	3.03	50	
Dieldrin	0.069	0.020	0.1	0	69	40-140	0.07	1.44	50	
Endosulfan I	0.066	0.020	0.1	0	66	40-140	0.066	0	50	
Endosulfan II	0.068	0.020	0.1	0	68	40-140	0.069	1.46	50	
Endosulfan sulfate	0.054	0.020	0.1	0	54	40-140	0.056	3.64	50	
Endrin	0.082	0.020	0.1	0	82	40-140	0.082	0	50	
Endrin aldehyde	0.054	0.020	0.1	0	54	40-140	0.055	1.83	50	
gamma-BHC (Lindane)	0.062	0.010	0.1	0	62	40-140	0.062	0	50	
Heptachlor	0.067	0.010	0.1	0	67	40-140	0.068	1.48	50	
Heptachlor epoxide	0.065	0.010	0.1	0	65	40-140	0.066	1.53	50	
Methoxychlor	0.076	0.040	0.1	0	76	40-140	0.079	3.87	50	
Surr: Decachlorobiphenyl	0.065	0	0.1	0	65	40-140	0.068	4.51	50	
Surr: Tetrachloro-m-xylene	0.04	0	0.1	0	40	40-140	0.041	2.47	50	

The following samples were analyzed in this batch:

0506010-01H	0506010-02H	0506010-03H
0506010-04H	0506010-05H	0506010-06H
0506010-07H	0506010-08H	0506010-09H
0506010-10H	0506010-11H	0506010-12H
0506010-13H	0506010-14H	0506010-15H

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6705** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW2-6705** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **06/10/05 0:00**

Client ID: Run ID: **GC4_050610B** SeqNo: **442393** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.40								
Aroclor 1221	ND	0.40								
Aroclor 1232	ND	0.40								
Aroclor 1242	ND	0.40								
Aroclor 1248	ND	0.40								
Aroclor 1254	ND	0.40								
Aroclor 1260	ND	0.40								
Surr: Decachlorobiphenyl	0.069	0	0.1	0	69	50-130	0			

LCS Sample ID: **PLCSW2-6705** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **06/10/05 0:00**

Client ID: Run ID: **GC4_050610B** SeqNo: **442395** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	0.274	0.40	0.5	0	54.8	50-130	0			J
Aroclor 1260	0.317	0.40	0.5	0	63.4	50-130	0			J
Surr: Decachlorobiphenyl	0.069	0	0.1	0	69	50-130	0			

LCSD Sample ID: **PLCSDW2-6705** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **06/10/05 0:00**

Client ID: Run ID: **GC4_050610B** SeqNo: **442394** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	0.315	0.40	0.5	0	63	50-130	0.274	0	25	J
Aroclor 1260	0.384	0.40	0.5	0	76.8	50-130	0.317	0	25	J
Surr: Decachlorobiphenyl	0.071	0	0.1	0	71	50-130	0.069	2.86	25	

MS Sample ID: **0506010-08H MS** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **06/10/05 0:00**

Client ID: **MW-5DR** Run ID: **GC4_050610B** SeqNo: **442384** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	0.411	0.40	0.5	0	82.2	40-140	0			
Aroclor 1260	0.556	0.40	0.5	0	111	40-140	0			
Surr: Decachlorobiphenyl	0.1	0	0.1	0	100	40-140	0			

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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6705** InstrumentID: **GC4**

MSD Sample ID: **0506010-08H MSD** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **06/10/05 0:00**

Client ID: **MW-5DR** Run ID: **GC4_050610B** SeqNo: **442385** Prep Date: **6/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	0.345	0.40	0.5	0	69	40-140	0.411	0	50	J
Aroclor 1260	0.414	0.40	0.5	0	82.8	40-140	0.556	29.3	50	
Surr: Decachlorobiphenyl	0.072	0	0.1	0	72	40-140	0.1	32.6	50	

The following samples were analyzed in this batch:

0506010-01H	0506010-02H	0506010-03H
0506010-04H	0506010-05H	0506010-06H
0506010-07H	0506010-08H	0506010-09H
0506010-10H	0506010-11H	0506010-12H
0506010-13H	0506010-14H	0506010-15H

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6715** InstrumentID: **HG1**

MBLK Sample ID: **MB-6715** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **HG1_050603A** SeqNo: **438619** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-6715** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **HG1_050603A** SeqNo: **438620** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00206	0.00020	0.002	0	103	80-120		0		

LCSD Sample ID: **LCSD-6715** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **HG1_050603A** SeqNo: **438643** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00205	0.00020	0.002	0	102	80-120	0.00206	0.487	20	

MS Sample ID: **0505516-01A MS** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **HG1_050603A** SeqNo: **438622** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00211	0.00020	0.002	0.000063	102	75-125		0		

MS Sample ID: **0506010-08CMS** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: **MW-5DR** Run ID: **HG1_050603A** SeqNo: **438632** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00207	0.00020	0.002	-0.000008	104	75-125		0		

MSD Sample ID: **0505516-01A MSD** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **HG1_050603A** SeqNo: **438623** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00219	0.00020	0.002	0.000063	106	75-125	0.00211	3.72	20	

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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6715** InstrumentID: **HG1**

MSD Sample ID: **0506010-08CMSD** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **06/03/05 0:00**

Client ID: **MW-5DR** Run ID: **HG1_050603A** SeqNo: **438633** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00207	0.00020	0.002	-0.000008	104	75-125	0.00207	0	20	

The following samples were analyzed in this batch:

0506010-01C	0506010-02C	0506010-03C
0506010-04C	0506010-05C	0506010-06C
0506010-07C	0506010-08C	0506010-09C
0506010-10C	0506010-11C	0506010-12C
0506010-13C	0506010-14C	0506010-15C

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6718** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW1-060205** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/02/05 20:15**

Client ID: Run ID: **ICPMS1_050602B** SeqNo: **438506** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0005421	0.0050								J
Arsenic	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

LCS Sample ID: **MLCSW1-060205** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/02/05 20:21**

Client ID: Run ID: **ICPMS1_050602B** SeqNo: **438507** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.08585	0.0050	0.1	0	85.8	80-120	0			
Arsenic	0.09624	0.0050	0.1	0	96.2	80-120	0			
Beryllium	0.09604	0.0020	0.1	0	96	80-120	0			
Cadmium	0.09623	0.0020	0.1	0	96.2	80-120	0			
Chromium	0.09541	0.0050	0.1	0	95.4	80-120	0			
Copper	0.09629	0.0050	0.1	0	96.3	80-120	0			
Lead	0.09914	0.0050	0.1	0	99.1	80-120	0			
Nickel	0.09838	0.0050	0.1	0	98.4	80-120	0			
Selenium	0.09399	0.0050	0.1	0	94	80-120	0			
Silver	0.09135	0.0050	0.1	0	91.4	80-120	0			
Thallium	0.0938	0.0050	0.1	0	93.8	80-120	0			
Zinc	0.09552	0.010	0.1	0	95.5	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6718** InstrumentID: **ICPMS1**

LCSD Sample ID: **MLCSDW1-060205** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/02/05 20:26**

Client ID: Run ID: **ICPMS1_050602B** SeqNo: **438508** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09652	0.0050	0.1	0	96.5	80-120	0.08585	11.7	20	
Arsenic	0.09725	0.0050	0.1	0	97.2	80-120	0.09624	1.04	20	
Beryllium	0.09641	0.0020	0.1	0	96.4	80-120	0.09604	0.385	20	
Cadmium	0.09542	0.0020	0.1	0	95.4	80-120	0.09623	0.845	20	
Chromium	0.09637	0.0050	0.1	0	96.4	80-120	0.09541	1	20	
Copper	0.09734	0.0050	0.1	0	97.3	80-120	0.09629	1.08	20	
Lead	0.1002	0.0050	0.1	0	100	80-120	0.09914	1.06	20	
Nickel	0.09807	0.0050	0.1	0	98.1	80-120	0.09838	0.316	20	
Selenium	0.09502	0.0050	0.1	0	95	80-120	0.09399	1.09	20	
Silver	0.09199	0.0050	0.1	0	92	80-120	0.09135	0.698	20	
Thallium	0.09597	0.0050	0.1	0	96	80-120	0.0938	2.29	20	
Zinc	0.0961	0.010	0.1	0	96.1	80-120	0.09552	0.605	20	

MS Sample ID: **0506002-07B MS** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/02/05 20:31**

Client ID: Run ID: **ICPMS1_050602B** SeqNo: **438509** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1328	0.0050	0.1	0	133	80-120	0			S
Arsenic	0.1338	0.0050	0.1	0.0261	108	80-120	0			
Beryllium	0.1211	0.0020	0.1	0	121	80-120	0			S
Cadmium	0.1054	0.0020	0.1	0.0007385	105	80-120	0			
Chromium	0.09856	0.0050	0.1	0.0006586	97.9	80-120	0			
Copper	0.1017	0.0050	0.1	0.002298	99.4	80-120	0			
Lead	0.1084	0.0050	0.1	0.001953	106	80-120	0			
Nickel	0.09532	0.0050	0.1	0.001455	93.9	80-120	0			
Selenium	0.1147	0.0050	0.1	0	115	80-120	0			
Silver	0.09992	0.0050	0.1	0	99.9	80-120	0			
Thallium	0.09899	0.0050	0.1	0	99	80-120	0			
Zinc	0.8249	0.010	0.1	0.6973	128	80-120	0			SO

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6718** InstrumentID: **ICPMS1**

MSD Sample ID: **0506002-07B MSD** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/02/05 20:36**

Client ID: Run ID: **ICPMS1_050602B** SeqNo: **438510** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1238	0.0050	0.1	0	124	80-120	0.1328	7.01	20	S
Arsenic	0.1357	0.0050	0.1	0.0261	110	80-120	0.1338	1.41	20	
Beryllium	0.1205	0.0020	0.1	0	120	80-120	0.1211	0.497	20	S
Cadmium	0.1044	0.0020	0.1	0.0007385	104	80-120	0.1054	0.953	20	
Chromium	0.09539	0.0050	0.1	0.0006586	94.7	80-120	0.09856	3.27	20	
Copper	0.1008	0.0050	0.1	0.002298	98.5	80-120	0.1017	0.889	20	
Lead	0.1056	0.0050	0.1	0.001953	104	80-120	0.1084	2.62	20	
Nickel	0.09179	0.0050	0.1	0.001455	90.3	80-120	0.09532	3.77	20	
Selenium	0.1118	0.0050	0.1	0	112	80-120	0.1147	2.56	20	
Silver	0.101	0.0050	0.1	0	101	80-120	0.09992	1.08	20	
Thallium	0.09784	0.0050	0.1	0	97.8	80-120	0.09899	1.17	20	
Zinc	0.8105	0.010	0.1	0.6973	113	80-120	0.8249	1.76	20	O

The following samples were analyzed in this batch:

0506010-01C	0506010-02C	0506010-03C
0506010-04C	0506010-05C	0506010-06C
0506010-07C	0506010-09C	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6731** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW1-060305** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 17:48**

Client ID: Run ID: **ICPMS1_050606A** SeqNo: **439692** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0009134	0.0050								J
Arsenic	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	0.0003938	0.0050								J
Lead	ND	0.0050								
Nickel	0.002669	0.0050								J
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

LCS Sample ID: **MLCSW1-060305** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 17:53**

Client ID: Run ID: **ICPMS1_050606A** SeqNo: **439693** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.08878	0.0050	0.1	0	88.8	80-120	0			
Arsenic	0.09294	0.0050	0.1	0	92.9	80-120	0			
Beryllium	0.09909	0.0020	0.1	0	99.1	80-120	0			
Cadmium	0.09537	0.0020	0.1	0	95.4	80-120	0			
Chromium	0.09312	0.0050	0.1	0	93.1	80-120	0			
Copper	0.09421	0.0050	0.1	0	94.2	80-120	0			
Lead	0.09947	0.0050	0.1	0	99.5	80-120	0			
Nickel	0.09746	0.0050	0.1	0	97.5	80-120	0			
Selenium	0.09066	0.0050	0.1	0	90.7	80-120	0			
Silver	0.09777	0.0050	0.1	0	97.8	80-120	0			
Thallium	0.09068	0.0050	0.1	0	90.7	80-120	0			
Zinc	0.09129	0.010	0.1	0	91.3	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6731** InstrumentID: **ICPMS1**

LCSD Sample ID: **MLCSDW1-060305** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 17:59**

Client ID: Run ID: **ICPMS1_050606A** SeqNo: **439694** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09771	0.0050	0.1	0	97.7	80-120	0.08878	9.58	20	
Arsenic	0.09317	0.0050	0.1	0	93.2	80-120	0.09294	0.247	20	
Beryllium	0.1006	0.0020	0.1	0	101	80-120	0.09909	1.51	20	
Cadmium	0.09586	0.0020	0.1	0	95.9	80-120	0.09537	0.512	20	
Chromium	0.09367	0.0050	0.1	0	93.7	80-120	0.09312	0.589	20	
Copper	0.09397	0.0050	0.1	0	94	80-120	0.09421	0.255	20	
Lead	0.09979	0.0050	0.1	0	99.8	80-120	0.09947	0.321	20	
Nickel	0.09788	0.0050	0.1	0	97.9	80-120	0.09746	0.43	20	
Selenium	0.0921	0.0050	0.1	0	92.1	80-120	0.09066	1.58	20	
Silver	0.0971	0.0050	0.1	0	97.1	80-120	0.09777	0.688	20	
Thallium	0.09017	0.0050	0.1	0	90.2	80-120	0.09068	0.564	20	
Zinc	0.09147	0.010	0.1	0	91.5	80-120	0.09129	0.197	20	

MS Sample ID: **0506010-08C MS** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 20:43**

Client ID: **MW-5DR** Run ID: **ICPMS1_050606A** SeqNo: **439695** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1264	0.0050	0.1	0.005608	121	80-120	0			S
Arsenic	0.1555	0.0050	0.1	0.02698	129	80-120	0			S
Beryllium	0.1081	0.0020	0.1	-0.0002051	108	80-120	0			
Cadmium	0.09725	0.0020	0.1	-0.0001646	97.4	80-120	0			
Chromium	0.09067	0.0050	0.1	-0.0001329	90.8	80-120	0			
Copper	0.09341	0.0050	0.1	-0.0001664	93.6	80-120	0			
Lead	0.1065	0.0050	0.1	-0.002381	109	80-120	0			
Nickel	0.08469	0.0050	0.1	-0.06542	150	80-120	0			S
Selenium	0.1153	0.0050	0.1	0.005465	110	80-120	0			
Silver	0.09168	0.0050	0.1	0.0003065	91.4	80-120	0			
Thallium	0.094	0.0050	0.1	0.000221	93.8	80-120	0			
Zinc	0.1009	0.010	0.1	-0.05272	154	80-120	0			S

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6731** InstrumentID: **ICPMS1**

MSD Sample ID: **0506010-08C MSD** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 20:48**

Client ID: **MW-5DR** Run ID: **ICPMS1_050606A** SeqNo: **439696** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1251	0.0050	0.1	0.005608	119	80-120	0.1264	1.03	20	
Arsenic	0.1568	0.0050	0.1	0.02698	130	80-120	0.1555	0.833	20	S
Beryllium	0.1078	0.0020	0.1	-0.0002051	108	80-120	0.1081	0.278	20	
Cadmium	0.09664	0.0020	0.1	-0.0001646	96.8	80-120	0.09725	0.629	20	
Chromium	0.09047	0.0050	0.1	-0.0001329	90.6	80-120	0.09067	0.221	20	
Copper	0.09395	0.0050	0.1	-0.0001664	94.1	80-120	0.09341	0.576	20	
Lead	0.108	0.0050	0.1	-0.002381	110	80-120	0.1065	1.4	20	
Nickel	0.08477	0.0050	0.1	-0.06542	150	80-120	0.08469	0.0944	20	S
Selenium	0.1135	0.0050	0.1	0.005465	108	80-120	0.1153	1.57	20	
Silver	0.09148	0.0050	0.1	0.0003065	91.2	80-120	0.09168	0.218	20	
Thallium	0.09532	0.0050	0.1	0.000221	95.1	80-120	0.094	1.39	20	
Zinc	0.1014	0.010	0.1	-0.05272	154	80-120	0.1009	0.494	20	S

The following samples were analyzed in this batch:

0506010-10C	0506010-11C	0506010-12C
0506010-13C	0506010-14C	0506010-15C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6732** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW1-060305** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 17:48**

Client ID: Run ID: **ICPMS1_050606A** SeqNo: **439631** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0009134	0.0050	0	0	0	0-0	0			J
Arsenic	ND	0.0050	0	0	0	0-0	0			
Beryllium	ND	0.0020	0	0	0	0-0	0			
Cadmium	ND	0.0020	0	0	0	0-0	0			
Chromium	ND	0.0050	0	0	0	0-0	0			
Copper	0.0003938	0.0050	0	0	0	0-0	0			J
Lead	ND	0.0050	0	0	0	0-0	0			
Nickel	0.002669	0.0050	0	0	0	0-0	0			J
Selenium	ND	0.0050	0	0	0	0-0	0			
Silver	ND	0.0050	0	0	0	0-0	0			
Thallium	ND	0.0050	0	0	0	0-0	0			
Zinc	ND	0.010	0	0	0	0-0	0			

LCS Sample ID: **MLCSW1-060305** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 17:53**

Client ID: Run ID: **ICPMS1_050606A** SeqNo: **439632** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.08878	0.0050	0.1	0	88.8	80-120	0			
Arsenic	0.09294	0.0050	0.1	0	92.9	80-120	0			
Beryllium	0.09909	0.0020	0.1	0	99.1	80-120	0			
Cadmium	0.09537	0.0020	0.1	0	95.4	80-120	0			
Chromium	0.09312	0.0050	0.1	0	93.1	80-120	0			
Copper	0.09421	0.0050	0.1	0	94.2	80-120	0			
Lead	0.09947	0.0050	0.1	0	99.5	80-120	0			
Nickel	0.09746	0.0050	0.1	0	97.5	80-120	0			
Selenium	0.09066	0.0050	0.1	0	90.7	80-120	0			
Silver	0.09777	0.0050	0.1	0	97.8	80-120	0			
Thallium	0.09068	0.0050	0.1	0	90.7	80-120	0			
Zinc	0.09129	0.010	0.1	0	91.3	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6732** InstrumentID: **ICPMS1**

LCSD Sample ID: **MLCSDW1-060305** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 17:59**

Client ID: Run ID: **ICPMS1_050606A** SeqNo: **439633** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09771	0.0050	0.1	0	97.7	80-120	0.08878	9.58	20	
Arsenic	0.09317	0.0050	0.1	0	93.2	80-120	0.09294	0.247	20	
Beryllium	0.1006	0.0020	0.1	0	101	80-120	0.09909	1.51	20	
Cadmium	0.09586	0.0020	0.1	0	95.9	80-120	0.09537	0.512	20	
Chromium	0.09367	0.0050	0.1	0	93.7	80-120	0.09312	0.589	20	
Copper	0.09397	0.0050	0.1	0	94	80-120	0.09421	0.255	20	
Lead	0.09979	0.0050	0.1	0	99.8	80-120	0.09947	0.321	20	
Nickel	0.09788	0.0050	0.1	0	97.9	80-120	0.09746	0.43	20	
Selenium	0.0921	0.0050	0.1	0	92.1	80-120	0.09066	1.58	20	
Silver	0.0971	0.0050	0.1	0	97.1	80-120	0.09777	0.688	20	
Thallium	0.09017	0.0050	0.1	0	90.2	80-120	0.09068	0.564	20	
Zinc	0.09147	0.010	0.1	0	91.5	80-120	0.09129	0.197	20	

MS Sample ID: **0506010-08C MS** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 20:43**

Client ID: **MW-5DR** Run ID: **ICPMS1_050606A** SeqNo: **439663** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1264	0.0050	0.1	0.0003321	126	80-120	0			S
Arsenic	0.1555	0.0050	0.1	0.02877	127	80-120	0			S
Beryllium	0.1081	0.0020	0.1	0.00001365	108	80-120	0			
Cadmium	0.09725	0.0020	0.1	0.00001403	97.2	80-120	0			
Chromium	0.09067	0.0050	0.1	0.0006473	90	80-120	0			
Copper	0.09341	0.0050	0.1	0.001492	91.9	80-120	0			
Lead	0.1065	0.0050	0.1	0.00002097	106	80-120	0			
Nickel	0.08469	0.0050	0.1	0.0004345	84.3	80-120	0			
Selenium	0.1153	0.0050	0.1	0.0004417	115	80-120	0			
Silver	0.09168	0.0050	0.1	0.0000286	91.7	80-120	0			
Thallium	0.094	0.0050	0.1	0.00002376	94	80-120	0			
Zinc	0.1009	0.010	0.1	0.001967	98.9	80-120	0			

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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6732** InstrumentID: **ICPMS1**

MSD Sample ID: **0506010-08C MSD** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **06/06/05 20:48**

Client ID: **MW-5DR** Run ID: **ICPMS1_050606A** SeqNo: **439664** Prep Date: **6/3/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1251	0.0050	0.1	0.005608	119	80-120	0.1264	1.03	20	
Arsenic	0.1568	0.0050	0.1	0.02698	130	80-120	0.1555	0.833	20	S
Beryllium	0.1078	0.0020	0.1	-0.0002051	108	80-120	0.1081	0.278	20	
Cadmium	0.09664	0.0020	0.1	-0.0001646	96.8	80-120	0.09725	0.629	20	
Chromium	0.09047	0.0050	0.1	-0.0001329	90.6	80-120	0.09067	0.221	20	
Copper	0.09395	0.0050	0.1	-0.0001664	94.1	80-120	0.09341	0.576	20	
Lead	0.108	0.0050	0.1	-0.002381	110	80-120	0.1065	1.4	20	
Nickel	0.08477	0.0050	0.1	-0.06542	150	80-120	0.08469	0.0944	20	S
Selenium	0.1135	0.0050	0.1	0.005465	108	80-120	0.1153	1.57	20	
Silver	0.09148	0.0050	0.1	0.0003065	91.2	80-120	0.09168	0.218	20	
Thallium	0.09532	0.0050	0.1	0.000221	95.1	80-120	0.094	1.39	20	
Zinc	0.1014	0.010	0.1	-0.05272	154	80-120	0.1009	0.494	20	S

The following samples were analyzed in this batch: 0506010-08C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6710** InstrumentID: **SVMS4**

MBLK Sample ID: **SBLKW1-6710** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **06/02/05 16:34**

Client ID: Run ID: **SVMS4_050602A** SeqNo: **438297** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
1,2-Dichlorobenzene	ND	5.0								
1,3-Dichlorobenzene	ND	5.0								
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	20								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	20								
3-Nitroaniline	ND	20								
4,6-Dinitro-2-methylphenol	ND	20								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	20								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Methylphenol	ND	5.0								
4-Nitroaniline	ND	20								
4-Nitrophenol	ND	20								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	1.0								
Benzo(a)pyrene	ND	2.0								
Benzo(b)fluoranthene	ND	2.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	10								
Chrysene	ND	5.0								

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P - Dual Column results percent difference > 40%
E - Value above quantitation range

QC BATCH REPORT

Batch ID: **6710** InstrumentID: **SVMS4**

Di-n-butyl phthalate	ND	5.0					
Di-n-octyl phthalate	ND	5.0					
Dibenzo(a,h)anthracene	ND	2.0					
Dibenzofuran	ND	5.0					
Diethyl phthalate	ND	20					
Dimethyl phthalate	ND	20					
Fluoranthene	ND	5.0					
Fluorene	ND	5.0					
Hexachlorobenzene	ND	5.0					
Hexachlorobutadiene	ND	5.0					
Hexachlorocyclopentadiene	ND	5.0					
Hexachloroethane	ND	5.0					
Indeno(1,2,3-cd)pyrene	ND	2.0					
Isophorone	ND	5.0					
N-Nitrosodi-n-propylamine	ND	5.0					
N-Nitrosodiphenylamine	ND	5.0					
Naphthalene	ND	5.0					
Nitrobenzene	ND	5.0					
Pentachlorophenol	ND	20					
Phenanthrene	ND	5.0					
Phenol	ND	5.0					
Pyrene	ND	5.0					
Surr: 2,4,6-Tribromophenol	32.97	0	50	0	65.9	10-123	0
Surr: 2-Fluorophenol	20.32	0	50	0	40.6	7-75	0
Surr: Phenol-d6	12.03	0	50	0	24.1	3-67	0
Surr: 2-Fluorobiphenyl	30.78	0	50	0	61.6	20-122	0
Surr: 4-Terphenyl-d14	40.46	0	50	0	80.9	22-172	0
Surr: Nitrobenzene-d5	30.3	0	50	0	60.6	8-115	0

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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6710** InstrumentID: **SVMS4**

LCS Sample ID: **SLCSW1-6710** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **06/02/05 14:31**

Client ID: Run ID: **SVMS4_050602A** SeqNo: **438293** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	21.27	5.0	40	0	53.2	33-78	0			
1,4-Dichlorobenzene	21.49	5.0	40	0	53.7	29-74	0			
2,4-Dinitrotoluene	32.09	5.0	40	0	80.2	24-96	0			
2-Chlorophenol	22.76	5.0	40	0	56.9	25-85	0			
4-Chloro-3-methylphenol	27.2	5.0	40	0	68	19-103	0			
4-Nitrophenol	15.11	20	40	0	37.8	1-58	0			J
Acenaphthene	26.54	5.0	40	0	66.4	30-108	0			
N-Nitrosodi-n-propylamine	27.11	5.0	40	0	67.8	24-82	0			
Pentachlorophenol	22.36	20	40	0	55.9	9-103	0			
Phenol	11.82	5.0	40	0	29.6	12-43	0			
Pyrene	29.99	5.0	40	0	75	35-135	0			
Surr: 2,4,6-Tribromophenol	34.23	0	50	0	68.5	10-123	0			
Surr: 2-Fluorophenol	18.47	0	50	0	36.9	7-75	0			
Surr: Phenol-d6	13.67	0	50	0	27.3	3-67	0			
Surr: 2-Fluorobiphenyl	30.28	0	50	0	60.6	20-122	0			
Surr: 4-Terphenyl-d14	40	0	50	0	80	22-172	0			
Surr: Nitrobenzene-d5	29.68	0	50	0	59.4	8-115	0			

LCSD Sample ID: **SLCSDW1-6710** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **06/02/05 15:01**

Client ID: Run ID: **SVMS4_050602A** SeqNo: **438294** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	24.52	5.0	40	0	61.3	33-78	21.27	14.2	30	
1,4-Dichlorobenzene	25.08	5.0	40	0	62.7	29-74	21.49	15.4	27	
2,4-Dinitrotoluene	32.02	5.0	40	0	80	24-96	32.09	0.218	35	
2-Chlorophenol	26.51	5.0	40	0	66.3	25-85	22.76	15.2	32	
4-Chloro-3-methylphenol	30.09	5.0	40	0	75.2	19-103	27.2	10.1	31	
4-Nitrophenol	14.85	20	40	0	37.1	1-58	15.11	0	43	J
Acenaphthene	29.75	5.0	40	0	74.4	30-108	26.54	11.4	44	
N-Nitrosodi-n-propylamine	30.75	5.0	40	0	76.9	24-82	27.11	12.6	36	
Pentachlorophenol	18.95	20	40	0	47.4	9-103	22.36	0	34	J
Phenol	13.15	5.0	40	0	32.9	12-43	11.82	10.7	34	
Pyrene	28.71	5.0	40	0	71.8	35-135	29.99	4.36	22	
Surr: 2,4,6-Tribromophenol	33.75	0	50	0	67.5	10-123	34.23	1.41	40	
Surr: 2-Fluorophenol	21.5	0	50	0	43	7-75	18.47	15.2	40	
Surr: Phenol-d6	15.44	0	50	0	30.9	3-67	13.67	12.2	40	
Surr: 2-Fluorobiphenyl	34.16	0	50	0	68.3	20-122	30.28	12	40	
Surr: 4-Terphenyl-d14	38.67	0	50	0	77.3	22-172	40	3.38	40	
Surr: Nitrobenzene-d5	34.35	0	50	0	68.7	8-115	29.68	14.6	40	

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6710** InstrumentID: **SVMS4**

MS Sample ID: **0506010-08G MS** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **06/02/05 15:32**

Client ID: **MW-5DR** Run ID: **SVMS4_050602A** SeqNo: **438295** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	21.55	5.0	40	0	53.9	33-78	0			
1,4-Dichlorobenzene	21.76	5.0	40	0	54.4	29-74	0			
2,4-Dinitrotoluene	31.1	5.0	40	0	77.8	24-96	0			
2-Chlorophenol	23.74	5.0	40	0	59.4	25-85	0			
4-Chloro-3-methylphenol	29.38	5.0	40	0	73.4	19-103	0			
4-Nitrophenol	14.3	20	40	0	35.8	1-58	0			J
Acenaphthene	26.2	5.0	40	0	65.5	30-108	0			
N-Nitrosodi-n-propylamine	26.59	5.0	40	0	66.5	24-82	0			
Pentachlorophenol	36.01	20	40	0	90	9-103	0			
Phenol	17.91	5.0	40	0	44.8	12-110	0			
Pyrene	28.29	5.0	40	0	70.7	35-135	0			
Surr: 2,4,6-Tribromophenol	36.75	0	50	0	73.5	10-123	0			
Surr: 2-Fluorophenol	24.36	0	50	0	48.7	7-75	0			
Surr: Phenol-d6	21.04	0	50	0	42.1	3-67	0			
Surr: 2-Fluorobiphenyl	29.21	0	50	0	58.4	20-122	0			
Surr: 4-Terphenyl-d14	37.53	0	50	0	75.1	22-172	0			
Surr: Nitrobenzene-d5	28.7	0	50	0	57.4	8-115	0			

MSD Sample ID: **0506010-08G MSD** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **06/02/05 16:03**

Client ID: **MW-5DR** Run ID: **SVMS4_050602A** SeqNo: **438296** Prep Date: **6/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	20.07	5.0	40	0	50.2	33-78	21.55	7.11	30	
1,4-Dichlorobenzene	21.04	5.0	40	0	52.6	29-74	21.76	3.36	27	
2,4-Dinitrotoluene	32.02	5.0	40	0	80	24-96	31.1	2.92	38	
2-Chlorophenol	20.94	5.0	40	0	52.4	25-85	23.74	12.5	40	
4-Chloro-3-methylphenol	28.79	5.0	40	0	72	19-103	29.38	2.03	42	
4-Nitrophenol	17.55	20	40	0	43.9	1-58	14.3	0	50	J
Acenaphthene	25.8	5.0	40	0	64.5	30-108	26.2	1.54	31	
N-Nitrosodi-n-propylamine	24.63	5.0	40	0	61.6	24-82	26.59	7.65	38	
Pentachlorophenol	38.68	20	40	0	96.7	9-103	36.01	7.15	50	
Phenol	9.57	5.0	40	0	23.9	12-110	17.91	60.7	42	R
Pyrene	29.13	5.0	40	0	72.8	35-135	28.29	2.93	31	
Surr: 2,4,6-Tribromophenol	37.23	0	50	0	74.5	10-123	36.75	1.3	40	
Surr: 2-Fluorophenol	15.35	0	50	0	30.7	7-75	24.36	45.4	40	R
Surr: Phenol-d6	10.99	0	50	0	22	3-67	21.04	62.8	40	R
Surr: 2-Fluorobiphenyl	26.91	0	50	0	53.8	20-122	29.21	8.2	40	
Surr: 4-Terphenyl-d14	38.12	0	50	0	76.2	22-172	37.53	1.56	40	
Surr: Nitrobenzene-d5	26.29	0	50	0	52.6	8-115	28.7	8.77	40	

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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **6710** InstrumentID: **SVMS4**

The following samples were analyzed in this batch:

0506010-01G	0506010-02G	0506010-03G
0506010-04G	0506010-05G	0506010-06G
0506010-07G	0506010-08G	0506010-09G
0506010-10G	0506010-11G	0506010-12G
0506010-13G	0506010-14G	0506010-15G

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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30063** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW1-050607** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/07/05 10:20**

Client ID: Run ID: **VMS2_050607A** SeqNo: **440516** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methylene chloride	1.23	5.0								J
o-Xylene	ND	1.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
1,2-Dichloroethene, Total	ND	2.0								
1,3-Dichloropropene, Total	ND	2.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	107.7	0	100	0	108	80-120		0		
Surr: 4-Bromofluorobenzene	93.22	0	100	0	93.2	80-120		0		
Surr: Dibromofluoromethane	106.9	0	100	0	107	80-120		0		
Surr: Toluene-d8	93.3	0	100	0	93.3	80-120		0		

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E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30063** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050607** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/07/05 11:29**

Client ID: Run ID: **VMS2_050607A** SeqNo: **440517** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	22.14	1.0	20	0	111	80-120	0			
1,1,2,2-Tetrachloroethane	18	1.0	20	0	90	80-120	0			
1,1,2-Trichloroethane	20.1	1.0	20	0	100	80-120	0			
1,1-Dichloroethane	20.06	1.0	20	0	100	80-120	0			
1,1-Dichloroethene	20.52	1.0	20	0	103	80-120	0			
1,2-Dichloroethane	21.81	1.0	20	0	109	80-120	0			
1,2-Dichloropropane	22.07	2.0	20	0	110	80-120	0			
2-Butanone	16.21	5.0	20	0	81	80-120	0			
2-Hexanone	24.56	5.0	20	0	123	80-120	0			S
4-Methyl-2-pentanone	19.91	5.0	20	0	99.6	80-120	0			
Benzene	21.57	1.0	20	0	108	80-120	0			
Bromodichloromethane	22.23	1.0	20	0	111	80-120	0			
Bromoform	19.48	1.0	20	0	97.4	80-120	0			
Carbon disulfide	18.42	2.5	20	0	92.1	80-120	0			
Carbon tetrachloride	23.62	1.0	20	0	118	80-120	0			
Chlorobenzene	19.64	1.0	20	0	98.2	80-120	0			
Chloroethane	19.88	1.0	20	0	99.4	80-120	0			
Chloroform	21.36	1.0	20	0	107	80-120	0			
cis-1,2-Dichloroethene	17.06	1.0	20	0	85.3	80-120	0			
cis-1,3-Dichloropropene	21.1	1.0	20	0	106	80-120	0			
Dibromochloromethane	19.45	1.0	20	0	97.2	80-120	0			
Ethylbenzene	21.01	1.0	20	0	105	80-120	0			
m,p-Xylene	41.99	2.0	40	0	105	80-120	0			
Methylene chloride	23.17	5.0	20	0	116	80-120	0			
o-Xylene	20.72	1.0	20	0	104	80-120	0			
Styrene	20	1.0	20	0	100	80-120	0			
Tetrachloroethene	23.09	2.0	20	0	115	80-120	0			
Toluene	17.33	1.0	20	0	86.6	80-120	0			
trans-1,2-Dichloroethene	21.05	1.0	20	0	105	80-120	0			
trans-1,3-Dichloropropene	19.06	1.0	20	0	95.3	80-120	0			
Trichloroethene	22.17	1.0	20	0	111	80-120	0			
Vinyl chloride	17.49	1.0	20	0	87.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	106.5	0	100	0	106	80-120	0			
Surr: 4-Bromofluorobenzene	93.54	0	100	0	93.5	80-120	0			
Surr: Dibromofluoromethane	103.4	0	100	0	103	80-120	0			
Surr: Toluene-d8	88.9	0	100	0	88.9	80-120	0			

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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30063** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW1-050607** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/07/05 12:01**

Client ID: Run ID: **VMS2_050607A** SeqNo: **440518** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.76	1.0	20	0	109	80-120	22.14	1.73	30	
1,1,2,2-Tetrachloroethane	18.06	1.0	20	0	90.3	80-120	18	0.333	30	
1,1,2-Trichloroethane	18.74	1.0	20	0	93.7	80-120	20.1	7	30	
1,1-Dichloroethane	19.79	1.0	20	0	98.9	80-120	20.06	1.36	30	
1,1-Dichloroethene	19.53	1.0	20	0	97.6	80-120	20.52	4.94	30	
1,2-Dichloroethane	22.56	1.0	20	0	113	80-120	21.81	3.38	30	
1,2-Dichloropropane	22.29	2.0	20	0	111	80-120	22.07	0.992	30	
2-Butanone	22.05	5.0	20	0	110	80-120	16.21	30.5	30	R
2-Hexanone	23.27	5.0	20	0	116	80-120	24.56	5.39	30	
4-Methyl-2-pentanone	22.63	5.0	20	0	113	80-120	19.91	12.8	30	
Benzene	20.9	1.0	20	0	104	80-120	21.57	3.16	30	
Bromodichloromethane	21.78	1.0	20	0	109	80-120	22.23	2.04	30	
Bromoform	18.19	1.0	20	0	91	80-120	19.48	6.85	30	
Carbon disulfide	17.27	2.5	20	0	86.4	80-120	18.42	6.44	30	
Carbon tetrachloride	23.99	1.0	20	0	120	80-120	23.62	1.55	30	
Chlorobenzene	18.37	1.0	20	0	91.8	80-120	19.64	6.68	30	
Chloroethane	19.54	1.0	20	0	97.7	80-120	19.88	1.73	30	
Chloroform	20.57	1.0	20	0	103	80-120	21.36	3.77	30	
cis-1,2-Dichloroethene	17.07	1.0	20	0	85.4	80-120	17.06	0.0586	30	
cis-1,3-Dichloropropene	21.59	1.0	20	0	108	80-120	21.1	2.3	30	
Dibromochloromethane	18.41	1.0	20	0	92	80-120	19.45	5.49	30	
Ethylbenzene	21.98	1.0	20	0	110	80-120	21.01	4.51	30	
m,p-Xylene	40.12	2.0	40	0	100	80-120	41.99	4.55	30	
Methylene chloride	21.93	5.0	20	0	110	80-120	23.17	5.5	30	
o-Xylene	20.83	1.0	20	0	104	80-120	20.72	0.529	30	
Styrene	19.29	1.0	20	0	96.4	80-120	20	3.61	30	
Tetrachloroethene	21.08	2.0	20	0	105	80-120	23.09	9.1	30	
Toluene	16.31	1.0	20	0	81.5	80-120	17.33	6.06	30	
trans-1,2-Dichloroethene	20	1.0	20	0	100	80-120	21.05	5.12	30	
trans-1,3-Dichloropropene	18.17	1.0	20	0	90.8	80-120	19.06	4.78	30	
Trichloroethene	21.15	1.0	20	0	106	80-120	22.17	4.71	30	
Vinyl chloride	17.35	1.0	20	0	86.8	80-120	17.49	0.804	30	
Surr: 1,2-Dichloroethane-d4	114.1	0	100	0	114	80-120	106.5	6.94	30	
Surr: 4-Bromofluorobenzene	95.21	0	100	0	95.2	80-120	93.54	1.77	30	
Surr: Dibromofluoromethane	106.6	0	100	0	107	80-120	103.4	3.07	30	
Surr: Toluene-d8	89.67	0	100	0	89.7	80-120	88.9	0.862	30	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30063** InstrumentID: **VMS2**

MS Sample ID: **0506010-08F MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/07/05 21:52**

Client ID: **MW-5DR** Run ID: **VMS2_050607A** SeqNo: **440537** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.64	1.0	20	0	108	70-130	0			
Benzene	22.34	1.0	20	0	112	70-130	0			
Chlorobenzene	19.03	1.0	20	0	95.2	70-130	0			
Toluene	18.64	1.0	20	0.73	89.6	70-130	0			
Trichloroethene	21.62	1.0	20	0	108	70-130	0			
Surr: 1,2-Dichloroethane-d4	110.2	0	100	0	110	70-130	0			
Surr: 4-Bromofluorobenzene	99.12	0	100	0	99.1	70-130	0			
Surr: Dibromofluoromethane	105.4	0	100	0	105	70-130	0			
Surr: Toluene-d8	90.64	0	100	0	90.6	70-130	0			

MSD Sample ID: **0506010-08F MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/07/05 22:22**

Client ID: **MW-5DR** Run ID: **VMS2_050607A** SeqNo: **440538** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.75	1.0	20	0	109	70-130	21.64	0.507	30	
Benzene	23.01	1.0	20	0	115	70-130	22.34	2.95	30	
Chlorobenzene	19.08	1.0	20	0	95.4	70-130	19.03	0.262	30	
Toluene	18.42	1.0	20	0.73	88.4	70-130	18.64	1.19	30	
Trichloroethene	21.44	1.0	20	0	107	70-130	21.62	0.836	30	
Surr: 1,2-Dichloroethane-d4	103.6	0	100	0	104	70-130	110.2	6.19	30	
Surr: 4-Bromofluorobenzene	96.39	0	100	0	96.4	70-130	99.12	2.79	30	
Surr: Dibromofluoromethane	106.2	0	100	0	106	70-130	105.4	0.718	30	
Surr: Toluene-d8	90.07	0	100	0	90.1	70-130	90.64	0.631	30	

The following samples were analyzed in this batch:

0506010-01F	0506010-02F	0506010-03F
0506010-04F	0506010-05F	0506010-06F
0506010-07F	0506010-08F	0506010-09F
0506010-10F	0506010-11F	0506010-16A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30108** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW1-050608** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/08/05 10:51**

Client ID: Run ID: **VMS2_050608A** SeqNo: **441117** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	0.5	1.0								J
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methylene chloride	ND	5.0								
o-Xylene	ND	1.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
1,2-Dichloroethene, Total	ND	2.0								
1,3-Dichloropropene, Total	ND	2.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	113.2	0	100	0	113	80-120		0		
Surr: 4-Bromofluorobenzene	95.59	0	100	0	95.6	80-120		0		
Surr: Dibromofluoromethane	107.2	0	100	0	107	80-120		0		
Surr: Toluene-d8	90.01	0	100	0	90	80-120		0		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30108** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050608** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/08/05 11:56**

Client ID: Run ID: **VMS2_050608A** SeqNo: **441118** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.51	1.0	20	0	108	80-120	0			
1,1,2,2-Tetrachloroethane	19.27	1.0	20	0	96.4	80-120	0			
1,1,2-Trichloroethane	19.12	1.0	20	0	95.6	80-120	0			
1,1-Dichloroethane	20.7	1.0	20	0	103	80-120	0			
1,1-Dichloroethene	20.84	1.0	20	0	104	80-120	0			
1,2-Dichloroethane	23.42	1.0	20	0	117	80-120	0			
1,2-Dichloropropane	23.24	2.0	20	0	116	80-120	0			
2-Butanone	23.07	5.0	20	0	115	80-120	0			
2-Hexanone	25.56	5.0	20	0	128	80-120	0			S
4-Methyl-2-pentanone	21.65	5.0	20	0	108	80-120	0			
Benzene	21.16	1.0	20	0	106	80-120	0			
Bromodichloromethane	22.41	1.0	20	0	112	80-120	0			
Bromoform	18.87	1.0	20	0	94.4	80-120	0			
Carbon disulfide	17.89	2.5	20	0	89.4	80-120	0			
Carbon tetrachloride	23.35	1.0	20	0	117	80-120	0			
Chlorobenzene	18.7	1.0	20	0	93.5	80-120	0			
Chloroethane	20.66	1.0	20	0	103	80-120	0			
Chloroform	22.02	1.0	20	0	110	80-120	0			
cis-1,2-Dichloroethene	18.16	1.0	20	0	90.8	80-120	0			
cis-1,3-Dichloropropene	21.64	1.0	20	0	108	80-120	0			
Dibromochloromethane	18.3	1.0	20	0	91.5	80-120	0			
Ethylbenzene	23.02	1.0	20	0	115	80-120	0			
m,p-Xylene	41.76	2.0	40	0	104	80-120	0			
Methylene chloride	23.36	5.0	20	0	117	80-120	0			
o-Xylene	20.96	1.0	20	0	105	80-120	0			
Styrene	20	1.0	20	0	100	80-120	0			
Tetrachloroethene	20.81	2.0	20	0	104	80-120	0			
Toluene	16.56	1.0	20	0	82.8	80-120	0			
trans-1,2-Dichloroethene	20.98	1.0	20	0	105	80-120	0			
trans-1,3-Dichloropropene	18.38	1.0	20	0	91.9	80-120	0			
Trichloroethene	21.2	1.0	20	0	106	80-120	0			
Vinyl chloride	18.96	1.0	20	0	94.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	114.9	0	100	0	115	80-120	0			
Surr: 4-Bromofluorobenzene	101	0	100	0	101	80-120	0			
Surr: Dibromofluoromethane	107.4	0	100	0	107	80-120	0			
Surr: Toluene-d8	88.91	0	100	0	88.9	80-120	0			

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30108** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW1-050608** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/08/05 13:12**

Client ID: Run ID: **VMS2_050608A** SeqNo: **441119** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.1	1.0	20	0	95.5	80-120	21.51	11.9	30	
1,1,2,2-Tetrachloroethane	19.56	1.0	20	0	97.8	80-120	19.27	1.49	30	
1,1,2-Trichloroethane	20.44	1.0	20	0	102	80-120	19.12	6.67	30	
1,1-Dichloroethane	19.09	1.0	20	0	95.4	80-120	20.7	8.09	30	
1,1-Dichloroethene	18.82	1.0	20	0	94.1	80-120	20.84	10.2	30	
1,2-Dichloroethane	23.01	1.0	20	0	115	80-120	23.42	1.77	30	
1,2-Dichloropropane	21.67	2.0	20	0	108	80-120	23.24	6.99	30	
2-Butanone	14.94	5.0	20	0	74.7	80-120	23.07	42.8	30	SR
2-Hexanone	22.91	5.0	20	0	115	80-120	25.56	10.9	30	
4-Methyl-2-pentanone	20.88	5.0	20	0	104	80-120	21.65	3.62	30	
Benzene	20.27	1.0	20	0	101	80-120	21.16	4.3	30	
Bromodichloromethane	23.06	1.0	20	0	115	80-120	22.41	2.86	30	
Bromoform	20.06	1.0	20	0	100	80-120	18.87	6.11	30	
Carbon disulfide	17.23	2.5	20	0	86.2	80-120	17.89	3.76	30	
Carbon tetrachloride	21.23	1.0	20	0	106	80-120	23.35	9.51	30	
Chlorobenzene	18.4	1.0	20	0	92	80-120	18.7	1.62	30	
Chloroethane	21.02	1.0	20	0	105	80-120	20.66	1.73	30	
Chloroform	21.64	1.0	20	0	108	80-120	22.02	1.74	30	
cis-1,2-Dichloroethene	17.52	1.0	20	0	87.6	80-120	18.16	3.59	30	
cis-1,3-Dichloropropene	21.69	1.0	20	0	108	80-120	21.64	0.231	30	
Dibromochloromethane	19.78	1.0	20	0	98.9	80-120	18.3	7.77	30	
Ethylbenzene	20.68	1.0	20	0	103	80-120	23.02	10.7	30	
m,p-Xylene	41.46	2.0	40	0	104	80-120	41.76	0.721	30	
Methylene chloride	21.67	5.0	20	0	108	80-120	23.36	7.51	30	
o-Xylene	21.35	1.0	20	0	107	80-120	20.96	1.84	30	
Styrene	20.27	1.0	20	0	101	80-120	20	1.34	30	
Tetrachloroethene	21.47	2.0	20	0	107	80-120	20.81	3.12	30	
Toluene	17	1.0	20	0	85	80-120	16.56	2.62	30	
trans-1,2-Dichloroethene	19.59	1.0	20	0	98	80-120	20.98	6.85	30	
trans-1,3-Dichloropropene	19.97	1.0	20	0	99.8	80-120	18.38	8.29	30	
Trichloroethene	21.26	1.0	20	0	106	80-120	21.2	0.283	30	
Vinyl chloride	16.25	1.0	20	0	81.2	80-120	18.96	15.4	30	
Surr: 1,2-Dichloroethane-d4	113.6	0	100	0	114	80-120	114.9	1.18	30	
Surr: 4-Bromofluorobenzene	102.9	0	100	0	103	80-120	101	1.84	30	
Surr: Dibromofluoromethane	106.8	0	100	0	107	80-120	107.4	0.541	30	
Surr: Toluene-d8	89.57	0	100	0	89.6	80-120	88.91	0.74	30	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30108** InstrumentID: **VMS2**

MS Sample ID: **0506096-07G MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/08/05 21:47**

Client ID: Run ID: **VMS2_050608A** SeqNo: **441135** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.73	1.0	20	0	114	70-130	0			
Benzene	22.42	1.0	20	0	112	70-130	0			
Chlorobenzene	19.45	1.0	20	0	97.2	70-130	0			
Toluene	17.65	1.0	20	0	88.2	70-130	0			
Trichloroethene	21.83	1.0	20	0	109	70-130	0			
Surr: 1,2-Dichloroethane-d4	115.2	0	100	0	115	70-130	0			
Surr: 4-Bromofluorobenzene	95.67	0	100	0	95.7	70-130	0			
Surr: Dibromofluoromethane	102.2	0	100	0	102	70-130	0			
Surr: Toluene-d8	88.25	0	100	0	88.2	70-130	0			

MSD Sample ID: **0506096-07G MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/08/05 22:16**

Client ID: Run ID: **VMS2_050608A** SeqNo: **441136** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.6	1.0	20	0	113	70-130	22.73	0.574	30	
Benzene	22.55	1.0	20	0	113	70-130	22.42	0.578	30	
Chlorobenzene	19.23	1.0	20	0	96.2	70-130	19.45	1.14	30	
Toluene	17.17	1.0	20	0	85.8	70-130	17.65	2.76	30	
Trichloroethene	21.41	1.0	20	0	107	70-130	21.83	1.94	30	
Surr: 1,2-Dichloroethane-d4	107.3	0	100	0	107	70-130	115.2	7.08	30	
Surr: 4-Bromofluorobenzene	100.7	0	100	0	101	70-130	95.67	5.11	30	
Surr: Dibromofluoromethane	102.9	0	100	0	103	70-130	102.2	0.702	30	
Surr: Toluene-d8	89.67	0	100	0	89.7	70-130	88.25	1.6	30	

The following samples were analyzed in this batch:

0506010-02F	0506010-12F	0506010-13F
0506010-14F	0506010-15F	

ND - Not Detected at the Reporting Limit
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J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30128** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW1-050609** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/09/05 10:47**

Client ID: Run ID: **VMS2_050609A** SeqNo: **441473** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	0.42	1.0								J
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methylene chloride	ND	5.0								
o-Xylene	ND	1.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
1,2-Dichloroethene, Total	ND	2.0								
1,3-Dichloropropene, Total	ND	2.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	114.9	0	100	0	115	80-120		0		
Surr: 4-Bromofluorobenzene	95.8	0	100	0	95.8	80-120		0		
Surr: Dibromofluoromethane	109.2	0	100	0	109	80-120		0		
Surr: Toluene-d8	90.48	0	100	0	90.5	80-120		0		

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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30128** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050609** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/09/05 11:57**

Client ID: Run ID: **VMS2_050609A** SeqNo: **441474** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.16	1.0	20	0	106	80-120	0			
1,1,2,2-Tetrachloroethane	19.1	1.0	20	0	95.5	80-120	0			
1,1,2-Trichloroethane	20.14	1.0	20	0	101	80-120	0			
1,1-Dichloroethane	20.45	1.0	20	0	102	80-120	0			
1,1-Dichloroethene	19.65	1.0	20	0	98.2	80-120	0			
1,2-Dichloroethane	23.76	1.0	20	0	119	80-120	0			
1,2-Dichloropropane	21.96	2.0	20	0	110	80-120	0			
2-Butanone	21.98	5.0	20	0	110	80-120	0			
2-Hexanone	23.71	5.0	20	0	119	80-120	0			
4-Methyl-2-pentanone	20.6	5.0	20	0	103	80-120	0			
Benzene	20.68	1.0	20	0	103	80-120	0			
Bromodichloromethane	22.5	1.0	20	0	112	80-120	0			
Bromoform	19.12	1.0	20	0	95.6	80-120	0			
Carbon disulfide	17.34	2.5	20	0	86.7	80-120	0			
Carbon tetrachloride	23.14	1.0	20	0	116	80-120	0			
Chlorobenzene	18.59	1.0	20	0	93	80-120	0			
Chloroethane	16.74	1.0	20	0	83.7	80-120	0			
Chloroform	21.84	1.0	20	0	109	80-120	0			
cis-1,2-Dichloroethene	18.2	1.0	20	0	91	80-120	0			
cis-1,3-Dichloropropene	21.5	1.0	20	0	108	80-120	0			
Dibromochloromethane	18.75	1.0	20	0	93.8	80-120	0			
Ethylbenzene	21.96	1.0	20	0	110	80-120	0			
m,p-Xylene	39.8	2.0	40	0	99.5	80-120	0			
Methylene chloride	22.34	5.0	20	0	112	80-120	0			
o-Xylene	19.72	1.0	20	0	98.6	80-120	0			
Styrene	19.13	1.0	20	0	95.6	80-120	0			
Tetrachloroethene	20.47	2.0	20	0	102	80-120	0			
Toluene	16.11	1.0	20	0	80.6	80-120	0			
trans-1,2-Dichloroethene	19.79	1.0	20	0	98.9	80-120	0			
trans-1,3-Dichloropropene	18.83	1.0	20	0	94.1	80-120	0			
Trichloroethene	21.13	1.0	20	0	106	80-120	0			
Vinyl chloride	17.78	1.0	20	0	88.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	117.7	0	100	0	118	80-120	0			
Surr: 4-Bromofluorobenzene	98.9	0	100	0	98.9	80-120	0			
Surr: Dibromofluoromethane	106.4	0	100	0	106	80-120	0			
Surr: Toluene-d8	87.6	0	100	0	87.6	80-120	0			

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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30128** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW1-050609** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/09/05 12:26**

Client ID: Run ID: **VMS2_050609A** SeqNo: **441475** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.43	1.0	20	0	97.2	80-120	21.16	8.52	30	
1,1,2,2-Tetrachloroethane	17.28	1.0	20	0	86.4	80-120	19.1	10	30	
1,1,2-Trichloroethane	18.59	1.0	20	0	93	80-120	20.14	8	30	
1,1-Dichloroethane	19.53	1.0	20	0	97.6	80-120	20.45	4.6	30	
1,1-Dichloroethene	19.09	1.0	20	0	95.4	80-120	19.65	2.89	30	
1,2-Dichloroethane	22.46	1.0	20	0	112	80-120	23.76	5.63	30	
1,2-Dichloropropane	21.94	2.0	20	0	110	80-120	21.96	0.0911	30	
2-Butanone	18.29	5.0	20	0	91.4	80-120	21.98	18.3	30	
2-Hexanone	25.54	5.0	20	0	128	80-120	23.71	7.43	30	S
4-Methyl-2-pentanone	17.8	5.0	20	0	89	80-120	20.6	14.6	30	
Benzene	20.52	1.0	20	0	103	80-120	20.68	0.777	30	
Bromodichloromethane	20.72	1.0	20	0	104	80-120	22.5	8.24	30	
Bromoform	17.1	1.0	20	0	85.5	80-120	19.12	11.2	30	
Carbon disulfide	16.56	2.5	20	0	82.8	80-120	17.34	4.6	30	
Carbon tetrachloride	21.8	1.0	20	0	109	80-120	23.14	5.96	30	
Chlorobenzene	17.37	1.0	20	0	86.8	80-120	18.59	6.79	30	
Chloroethane	20.11	1.0	20	0	101	80-120	16.74	18.3	30	
Chloroform	21.33	1.0	20	0	107	80-120	21.84	2.36	30	
cis-1,2-Dichloroethene	17.38	1.0	20	0	86.9	80-120	18.2	4.61	30	
cis-1,3-Dichloropropene	20.68	1.0	20	0	103	80-120	21.5	3.89	30	
Dibromochloromethane	16.98	1.0	20	0	84.9	80-120	18.75	9.91	30	
Ethylbenzene	21.24	1.0	20	0	106	80-120	21.96	3.33	30	
m,p-Xylene	39.02	2.0	40	0	97.6	80-120	39.8	1.98	30	
Methylene chloride	20.64	5.0	20	0	103	80-120	22.34	7.91	30	
o-Xylene	19.84	1.0	20	0	99.2	80-120	19.72	0.607	30	
Styrene	18.82	1.0	20	0	94.1	80-120	19.13	1.63	30	
Tetrachloroethene	19.53	2.0	20	0	97.6	80-120	20.47	4.7	30	
Toluene	15.92	1.0	20	0	79.6	80-120	16.11	1.19	30	S
trans-1,2-Dichloroethene	19.85	1.0	20	0	99.2	80-120	19.79	0.303	30	
trans-1,3-Dichloropropene	17.48	1.0	20	0	87.4	80-120	18.83	7.44	30	
Trichloroethene	19.84	1.0	20	0	99.2	80-120	21.13	6.3	30	
Vinyl chloride	18.91	1.0	20	0	94.6	80-120	17.78	6.16	30	
Surr: 1,2-Dichloroethane-d4	116.6	0	100	0	117	80-120	117.7	0.956	30	
Surr: 4-Bromofluorobenzene	100.5	0	100	0	101	80-120	98.9	1.64	30	
Surr: Dibromofluoromethane	107	0	100	0	107	80-120	106.4	0.525	30	
Surr: Toluene-d8	87.96	0	100	0	88	80-120	87.6	0.41	30	

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O - Referenced analyte value is > 4 times amount spiked
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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30128** InstrumentID: **VMS2**

MS Sample ID: **0506186-02A MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/09/05 21:50**

Client ID: Run ID: **VMS2_050609A** SeqNo: **441525** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.21	1.0	20	0	111	70-130	0			
Benzene	22.56	1.0	20	0	113	70-130	0			
Chlorobenzene	18.98	1.0	20	0	94.9	70-130	0			
Toluene	17.83	1.0	20	0	89.1	70-130	0			
Trichloroethene	21.97	1.0	20	0	110	70-130	0			
Surr: 1,2-Dichloroethane-d4	117.5	0	100	0	117	70-130	0			
Surr: 4-Bromofluorobenzene	102.5	0	100	0	102	70-130	0			
Surr: Dibromofluoromethane	108.2	0	100	0	108	70-130	0			
Surr: Toluene-d8	89.64	0	100	0	89.6	70-130	0			

MSD Sample ID: **0506186-02A MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **06/09/05 22:19**

Client ID: Run ID: **VMS2_050609A** SeqNo: **441526** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.45	1.0	20	0	112	70-130	22.21	1.07	30	
Benzene	23.34	1.0	20	0	117	70-130	22.56	3.4	30	
Chlorobenzene	18.62	1.0	20	0	93.1	70-130	18.98	1.91	30	
Toluene	17.04	1.0	20	0	85.2	70-130	17.83	4.53	30	
Trichloroethene	21.36	1.0	20	0	107	70-130	21.97	2.82	30	
Surr: 1,2-Dichloroethane-d4	110.8	0	100	0	111	70-130	117.5	5.82	30	
Surr: 4-Bromofluorobenzene	96.15	0	100	0	96.2	70-130	102.5	6.38	30	
Surr: Dibromofluoromethane	107.4	0	100	0	107	70-130	108.2	0.724	30	
Surr: Toluene-d8	87.08	0	100	0	87.1	70-130	89.64	2.9	30	

The following samples were analyzed in this batch: 0506010-14F 0506010-15F

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S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
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O - Referenced analyte value is > 4 times amount spiked
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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29912** InstrumentID: **IC2**

MBLK Sample ID: **WBLKW1-060105** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**

Client ID: Run ID: **IC2_050601A** SeqNo: **437736** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								
Nitrogen, Nitrate	ND	0.030								
Nitrogen, Nitrite	ND	0.010								

LCS Sample ID: **WLCSW1-060105** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**

Client ID: Run ID: **IC2_050601A** SeqNo: **437737** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1.934	1.0	2	0	96.7	80-120	0			
Nitrogen, Nitrate	0.441	0.030	0.452	0	97.6	80-120	0			
Nitrogen, Nitrite	0.6118	0.010	0.609	0	100	80-120	0			

LCSD Sample ID: **WLCSDW1-060105** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**

Client ID: Run ID: **IC2_050601A** SeqNo: **437761** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1.97	1.0	2	0	98.5	80-120	1.934	1.84	20	
Nitrogen, Nitrate	0.4242	0.030	0.452	0	93.8	80-120	0.441	3.88	20	
Nitrogen, Nitrite	0.5917	0.010	0.609	0	97.2	80-120	0.6118	3.34	20	

MS Sample ID: **0506001-01A MS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**

Client ID: Run ID: **IC2_050601A** SeqNo: **437739** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	42.52	10	20	23.04	97.4	75-125	0			
Nitrogen, Nitrate	5.087	0.30	5	0	102	75-125	0			
Nitrogen, Nitrite	5.414	0.10	5	0	108	75-125	0			

MSD Sample ID: **0506001-01A MSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**

Client ID: Run ID: **IC2_050601A** SeqNo: **437740** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	41.91	10	20	23.04	94.4	75-125	42.52	1.43	20	
Nitrogen, Nitrate	4.833	0.30	5	0	96.7	75-125	5.087	5.12	20	
Nitrogen, Nitrite	5.182	0.10	5	0	104	75-125	5.414	4.38	20	

The following samples were analyzed in this batch:

0506010-01D	0506010-02D	0506010-03D
0506010-04D	0506010-05D	0506010-06D
0506010-07D		

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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29917** InstrumentID: **IC2**

MBLK Sample ID: **WBLKW2-060105** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**
Client ID: Run ID: **IC2_050601B** SeqNo: **437840** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								
Nitrogen, Nitrate	ND	0.030								
Nitrogen, Nitrite	ND	0.010								

LCS Sample ID: **WLCSW2-060105** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**
Client ID: Run ID: **IC2_050601B** SeqNo: **437841** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.026	1.0	2	0	101	80-120	0			
Nitrogen, Nitrate	0.4627	0.030	0.452	0	102	80-120	0			
Nitrogen, Nitrite	0.6518	0.010	0.609	0	107	80-120	0			

LCSD Sample ID: **WLCSDW2-060105** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**
Client ID: Run ID: **IC2_050601B** SeqNo: **437852** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.079	1.0	2	0	104	80-120	2.026	2.59	20	
Nitrogen, Nitrate	0.4654	0.030	0.452	0	103	80-120	0.4627	0.582	20	
Nitrogen, Nitrite	0.6585	0.010	0.609	0	108	80-120	0.6518	1.02	20	

MS Sample ID: **0506010-08DMS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**
Client ID: **MW-5DR** Run ID: **IC2_050601B** SeqNo: **437843** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate	0.473	0.30	0.5	0	94.6	75-125	0			
Nitrogen, Nitrite	0.468	0.10	0.5	0	93.6	75-125	0			

MSD Sample ID: **0506010-08DMSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/01/05 0:00**
Client ID: **MW-5DR** Run ID: **IC2_050601B** SeqNo: **437844** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate	0.439	0.30	0.5	0	87.8	75-125	0.473	7.46	20	
Nitrogen, Nitrite	0.464	0.10	0.5	0	92.8	75-125	0.468	0.858	20	

The following samples were analyzed in this batch:

0506010-08D	0506010-09D	0506010-10D
0506010-11D	0506010-12D	0506010-13D
0506010-14D	0506010-15D	

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CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29920** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060205** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **WETCHEM_050602A** SeqNo: **437906** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	ND	0.050								

LCS Sample ID: **WLCSW1-060205** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **WETCHEM_050602A** SeqNo: **437907** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3262	0.050	0.3	0	109	80-120		0		

LCSD Sample ID: **WLCSDW1-060205** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **WETCHEM_050602A** SeqNo: **437930** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3109	0.050	0.3	0	104	80-120	0.3262	4.8	20	

MS Sample ID: **0505473-07A MS** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **WETCHEM_050602A** SeqNo: **437909** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	10.15	1.2	10	0.0799	101	75-125		0		

MSD Sample ID: **0505473-07A MSD** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **WETCHEM_050602A** SeqNo: **437910** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	9.985	1.2	10	0.0799	99.1	75-125	10.15	1.66	20	

The following samples were analyzed in this batch:

0506010-01E	0506010-02E	0506010-03E
0506010-04E	0506010-05E	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29921** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060105** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **06/01/05 0:00**

Client ID: Run ID: **WETCHEM_050601Q** SeqNo: **437931** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	ND	2.0								

DUP Sample ID: **0506018-01A DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **06/01/05 0:00**

Client ID: Run ID: **WETCHEM_050601Q** SeqNo: **437947** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	118	2.0	0	0	0	0-0	82	36	20	R

The following samples were analyzed in this batch:

0506010-01D	0506010-02D	0506010-03D
0506010-04D	0506010-05D	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29944** InstrumentID: **IC2**

MBLK Sample ID: **WBLKW1-060205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **IC2_050602A** SeqNo: **438177** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								

LCS Sample ID: **WLCSW1-060205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **IC2_050602A** SeqNo: **438178** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.029	1.0	2	0	101	80-120		0		

LCSD Sample ID: **WLCSDW1-060205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **IC2_050602A** SeqNo: **438193** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	2.086	1.0	2	0	104	80-120	2.029	2.75	20	

MS Sample ID: **0506010-08DMS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: **MW-5DR** Run ID: **IC2_050602A** SeqNo: **438184** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	563.7	100	200	354.1	105	75-125		0		

MSD Sample ID: **0506010-08DMSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: **MW-5DR** Run ID: **IC2_050602A** SeqNo: **438185** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	550.8	100	200	354.1	98.3	75-125	563.7	2.33	20	

The following samples were analyzed in this batch:

0506010-02D	0506010-05D	0506010-06D
0506010-07D	0506010-08D	0506010-09D
0506010-10D	0506010-11D	0506010-12D
0506010-13D	0506010-14D	0506010-15D

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29945** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060205** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **WETCHEM_050602K** SeqNo: **438197** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	5.0								

LCS Sample ID: **WLCSW1-060205** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **WETCHEM_050602K** SeqNo: **438198** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	58.59	5.0	60	0	97.6	75-125	0			

LCSD Sample ID: **WLCSDW1-060205** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: Run ID: **WETCHEM_050602K** SeqNo: **438216** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	57.33	5.0	60	0	95.6	75-125	58.59	2.17	20	

MS Sample ID: **0506010-08EMS** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050602K** SeqNo: **438207** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	84.9	10	60	22.51	104	70-130	0			

MSD Sample ID: **0506010-08EMSD** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **06/02/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050602K** SeqNo: **438208** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	84.9	10	60	22.51	104	70-130	84.9	0	20	

The following samples were analyzed in this batch:

0506010-01E	0506010-02E	0506010-03E
0506010-04E	0506010-05E	0506010-06E
0506010-07E	0506010-08E	0506010-09E
0506010-10E	0506010-11E	0506010-12E
0506010-13E	0506010-14E	0506010-15E

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29948** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060205** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **06/02/05 0:00**

Client ID: Run ID: **WETCHEM_050602L** SeqNo: **438262** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	ND	2.0								

DUP Sample ID: **0506010-08D DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **06/02/05 0:00**

Client ID: **MW-5DR** Run ID: **WETCHEM_050602L** SeqNo: **438266** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	28.4	2.0	0	0	0	0-0	28.8	1.4	20	

The following samples were analyzed in this batch:

0506010-06D	0506010-07D	0506010-08D
0506010-09D	0506010-10D	0506010-11D
0506010-12D	0506010-13D	0506010-14D
0506010-15D		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29951** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060305** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603B** SeqNo: **438318** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.0050								

LCS Sample ID: **WLCSW1-060305** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603B** SeqNo: **438319** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3858	0.0050	0.396	0	97.4	80-120	0			

LCSD Sample ID: **WLCSDW1-060205** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603B** SeqNo: **438326** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.4061	0.0050	0.396	0	103	80-120	0.3858	5.14	20	

MS Sample ID: **0506007-02B MS** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603B** SeqNo: **438321** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.5614	0.0050	0.396	0.2732	72.8	75-125	0			S

MSD Sample ID: **0506007-02B MSD** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603B** SeqNo: **438322** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.602	0.0050	0.396	0.2732	83	75-125	0.5614	6.98	20	

The following samples were analyzed in this batch:

0506010-01A	0506010-02A	0506010-03A
0506010-04A	0506010-05A	0506010-06A
0506010-07A	0506010-09A	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29963** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060305** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603F** SeqNo: **438655** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	ND	0.050								

LCS Sample ID: **WLCSW1-060305** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603F** SeqNo: **438656** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3089	0.050	0.3	0	103	80-120	0			

LCSD Sample ID: **WLCSDW1-060305** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603F** SeqNo: **438676** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3151	0.050	0.3	0	105	80-120	0.3089	1.99	20	

MS Sample ID: **0506010-08EMS** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050603F** SeqNo: **438660** Prep Date: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	454	50	400	44.52	102	75-125	0			

MS Sample ID: **0506055-01A MS** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603F** SeqNo: **438670** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	9.93	1.2	10	0.227	97	75-125	0			

MSD Sample ID: **0506010-08EMSD** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050603F** SeqNo: **438661** Prep Date: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	455.1	50	400	44.52	103	75-125	454	0.242	20	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29963** InstrumentID: **WETCHEM**

MSD Sample ID: **0506055-01A MSD** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**

Client ID: Run ID: **WETCHEM_050603F** SeqNo: **438671** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	10.03	1.2	10	0.227	98.1	75-125	9.93	1.03	20	

The following samples were analyzed in this batch:

0506010-06E	0506010-07E	0506010-08E
0506010-10E	0506010-11E	0506010-12E
0506010-13E	0506010-14E	0506010-15E

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29964** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060205** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**

Client ID: Run ID: **WETCHEM_050602N** SeqNo: **438678** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	ND	5.0								

LCS Sample ID: **WLCSW1-060205** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**

Client ID: Run ID: **WETCHEM_050602N** SeqNo: **438679** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	465	5.0	496	0	93.8	80-120	0			

LCSD Sample ID: **WLCSDW1-060205** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**

Client ID: Run ID: **WETCHEM_050602N** SeqNo: **438697** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	475	5.0	496	0	95.8	80-120	465	2.13	20	

DUP Sample ID: **0506003-01A DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **06/02/05 0:00**

Client ID: Run ID: **WETCHEM_050602N** SeqNo: **438682** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	410	5.0	0	0	0	0-0	411	0.244	20	

The following samples were analyzed in this batch: 0506010-01D

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R29976** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060105** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603J** SeqNo: **438869** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	ND	0.050								

LCS Sample ID: **WLCSW1-060105** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603J** SeqNo: **438870** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1856	0.050	0.2	0	92.8	80-120		0		

LCSD Sample ID: **WLCSDW1-060105** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603J** SeqNo: **438874** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1856	0.050	0.2	0	92.8	80-120	0.1856	0	20	

MS Sample ID: **0505465-18E MS** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603J** SeqNo: **438879** Prep Date: DF: **2.5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.4822	0.12	0.5	0	96.4	75-125		0		

MSD Sample ID: **0505465-18E MSD** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **06/03/05 0:00**
Client ID: Run ID: **WETCHEM_050603J** SeqNo: **438880** Prep Date: DF: **2.5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.5008	0.12	0.5	0	100	75-125	0.4822	3.76	20	

The following samples were analyzed in this batch:

0506010-01B	0506010-02B	0506010-03B
0506010-04B	0506010-05B	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30026** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060605** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **06/06/05 0:00**
Client ID: Run ID: **WETCHEM_050606O** SeqNo: **439913** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	ND	5.0								

LCS Sample ID: **WLCSW1-060605** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **06/06/05 0:00**
Client ID: Run ID: **WETCHEM_050606O** SeqNo: **439914** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	469	5.0	495	0	94.7	80-120	0			

LCSD Sample ID: **WLCSDW1-060605** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **06/06/05 0:00**
Client ID: Run ID: **WETCHEM_050606O** SeqNo: **439932** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	488	5.0	495	0	98.6	80-120	469	3.97	20	

DUP Sample ID: **0506010-08D DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **06/06/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050606O** SeqNo: **439922** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1000	5.0	0	0	0	0-0	952	4.92	20	

The following samples were analyzed in this batch:

0506010-02D	0506010-03D	0506010-04D
0506010-05D	0506010-06D	0506010-07D
0506010-08D	0506010-09D	0506010-10D
0506010-11D	0506010-12D	0506010-13D
0506010-14D	0506010-15D	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30031** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060305** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: Run ID: **WETCHEM_050607D** SeqNo: **440005** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.0050								

LCS Sample ID: **WLCSW1-060305** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: Run ID: **WETCHEM_050607D** SeqNo: **440006** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3838	0.0050	0.396	0	96.9	80-120		0		

LCSD Sample ID: **LCSDW1-060305** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: Run ID: **WETCHEM_050607D** SeqNo: **440029** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.397	0.0050	0.396	0	100	80-120	0.3838	3.38	20	

MS Sample ID: **0506010-08AMS** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050607D** SeqNo: **439995** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3362	0.0050	0.396	0.00318	84.1	75-125		0		

MSD Sample ID: **0506010-08AMSD** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050607D** SeqNo: **439996** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.399	0.0050	0.396	0.00318	100	75-125	0.3362	17.1	20	

The following samples were analyzed in this batch:

0506010-08A	0506010-10A	0506010-11A
0506010-12A	0506010-13A	0506010-14A
0506010-15A		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30032** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060705** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: Run ID: **WETCHEM_050607E** SeqNo: **440013** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	ND	0.050								

LCS Sample ID: **WLCSW1-060705** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: Run ID: **WETCHEM_050607E** SeqNo: **440014** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3207	0.050	0.3	0	107	80-120		0		

LCSD Sample ID: **WLCSDW1-060705** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: Run ID: **WETCHEM_050607E** SeqNo: **440028** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3033	0.050	0.3	0	101	80-120	0.3207	5.58	20	

MS Sample ID: **0506084-09B MS** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: Run ID: **WETCHEM_050607E** SeqNo: **440017** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	11.4	1.2	10	0.1388	113	75-125		0		

MSD Sample ID: **0506084-09B MSD** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **06/07/05 0:00**
Client ID: Run ID: **WETCHEM_050607E** SeqNo: **440018** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	11.25	1.2	10	0.1388	111	75-125	11.4	1.35	20	

The following samples were analyzed in this batch: 0506010-09E

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30070** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-060605** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/08/05 0:00**
Client ID: Run ID: **WETCHEM_050608J** SeqNo: **440617** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	ND	0.050								

LCS Sample ID: **WLCSW1-060805** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/08/05 0:00**
Client ID: Run ID: **WETCHEM_050608J** SeqNo: **440618** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1709	0.050	0.2	0	85.4	80-120		0		

LCSD Sample ID: **WLCSDW1-060605** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/08/05 0:00**
Client ID: Run ID: **WETCHEM_050608J** SeqNo: **440626** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1782	0.050	0.2	0	89.1	80-120	0.1709	4.18	20	

MS Sample ID: **0506097-03D MS** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **06/08/05 0:00**
Client ID: Run ID: **WETCHEM_050608J** SeqNo: **440691** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.4286	0.050	0.2	0.2372	95.7	75-125		0		

MSD Sample ID: **0506097-03D MSD** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **06/08/05 0:00**
Client ID: Run ID: **WETCHEM_050608J** SeqNo: **440692** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.4507	0.050	0.2	0.2372	107	75-125	0.4286	5.03	20	

The following samples were analyzed in this batch:

0506010-06B	0506010-07B	0506010-08B
0506010-09B	0506010-10B	0506010-11B
0506010-12B		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0506010
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R30153** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-061305** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/13/05 0:00**
Client ID: Run ID: **WETCHEM_050613A** SeqNo: **441880** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	ND	0.050								

LCS Sample ID: **WLCSW1-061305** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/13/05 0:00**
Client ID: Run ID: **WETCHEM_050613A** SeqNo: **441881** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1929	0.050	0.2	0	96.4	80-120		0		

LCSD Sample ID: **WLCSDW1-061305** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **06/13/05 0:00**
Client ID: Run ID: **WETCHEM_050613A** SeqNo: **441886** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2003	0.050	0.2	0	100	80-120	0.1929	3.76	20	

MS Sample ID: **0506010-08B MS** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **06/13/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050613A** SeqNo: **441897** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2003	0.050	0.2	0	100	75-125		0		

MSD Sample ID: **0506010-08B MSD** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **06/13/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050613A** SeqNo: **441899** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.215	0.050	0.2	0	108	75-125	0.2003	7.08	20	

The following samples were analyzed in this batch: 0506010-13B 0506010-14B 0506010-15B

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

e-Lab ANALYTICAL
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☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 2 of 2

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: LPA | e-Lab Work Order #: 0506010

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	RSL Groundwater	A	T. Cyanide (9014)
Work Order		Project Number		B	T. Phenolics (9065)
Company Name	Gary Sanitary District	Bill To Company		C	Dissolved Metals (6020B & 7470) -Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn - Hg
Send Report To	Spike Peller	Invoice Attn.		D	TSS,TDS,IC (Cl,NO3,NO2)
Address	3600 West 3rd Avenue	Address		E	COD, Ammonia-N
				F	VOCs 8260
City/State/Zip	Gary, IN 46404	City/State/Zip		G	SVOCs 8270
Phone		Phone		H	Herbicides (8141)
Fax		Fax		I	PCB/Pesticides(8081/8082)
e-Mail Address				J	Field Parameters (pH, Spec. Cond, SWL, Well Depth, Temp)

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-3S	05/31/05	1758	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
2	MW-3MR	05/31/05	1835	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
3	MW-9M	05/31/05	1950	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
4	MW-9D	05/31/05	1955	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
5	MW-9D-02	05/31/05	1955	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
6	Trip Blank	5-31										X					
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
J. Ribar, L. Arnold

Shipment Method:

Required Turnaround Time: (Check Box) ☑ 10 Wk Days ☐ 5 Wk Days ☐ 3 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other

Results Due Date: 6/14/2005

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
	6/1/05	0800				

Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:
				6-1-05	0800

Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):
	6-1-05	1005	

e-Lab Cooler ID	Cooler Temp	QC Package: (Check Box Below)	
		☐ Level II: Standard QC	☐ Level III: Raw Data
		☐ TRRP LRC	☐ TRRP Level IV
		☐ Level IV: SW846 Methods/CLP like	
		☐ Other:	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab ANALYTICAL
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☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
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Chain of Custody Form

Page 1 of 2

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: LPA | e-Lab Work Order #: 0506010

Customer Information		Project Information	
Purchase Order		Project Name	RSL Groundwater
Work Order		Project Number	
Company Name	Gary Sanitary District	Bill To Company	
Send Report To	Spike Peller	Invoice Attn.	
Address	3600 West 3rd Avenue	Address	
City/State/Zip	Gary, IN 46404	City/State/Zip	
Phone	219-944-1211	Phone	
Fax		Fax	
e-Mail Address	spike@garysan.com		

Parameter/Method Request for Analysis	
A	T. Cyanide (9014)
B	T. Phenolics (9065)
C	Dissolved Metals (6020B & 7470) -Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn - Hg
D	TSS,TDS,IC (Cl,NO3,NO2)
E	COD, Ammonia-N
F	VOCs 8260
G	SVOCs 8270
~~H~~	~~Herbicides (8141)~~
I	PCB/Pesticides(8081/8082)
J	Field Parameters (pH, Spec. Cond, SWL, Well Depth, Temp)

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-10M	05/31/05	0822	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
2	MW-2M	05/31/05	1015	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
3	MW-7DR	05/31/05	1110	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
4	MW-7MR	05/31/05	1135	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
5	MW-7S	05/31/05	1204	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
6	MW-6MR	05/31/05	1425	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
7	MW-5S	05/31/05	1518	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
8	MW-5DR (MS/MSD)	05/31/05	1627	GW	1,2,3,4,8	28	x	x	x	x	x	x	x	x	x	x	
9	MW-5DR-02	05/31/05	1627	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	
10	MW-4MR	05/31/05	1705	GW	1,2,3,4,8	14	x	x	x	x	x	x	x	x	x	x	

Sampler(s): Please Print & Sign
J. Ribar, L. Arnold — Les Arnold

Required Turnaround Time: (Check Box)
☑ 10 Wk Days ☐ 5 Wk Days ☐ 3 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date: 6/14/2005

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
Les Arnold	6/1/05	0800				
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	
			A Anda	6-1-05	0800	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
A Anda	6-1-05	1005				

e-Lab Cooler ID	Cooler Temp

QC Package: (Check Box Below)
☐ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other: _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name: GARYSD

Date/Time Received: 6/1/2005 8:00:00 AM

Work Order Number 0506010

Received by: AA

Checklist completed by: [signature] 6-1-05
Signature | Date

Reviewed by: _____
Initials | Date

Matrix:

Carrier name: e-Lab Analytical, Inc.

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.4 c		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked by _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: _____ Date contacted: _____ Person contacted: _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action: _____

August 2005 Groundwater Sampling and Analysis

e-Lab Analytical, Inc

3352 128th Avenue Holland, Michigan 49424-9263 616-399-6070 Fax 616-399-6185

September 23, 2005

Charles Peller
Gary Sanitary District
3600 West 3rd Ave
Gary, IN 46404

Tel: (219) 944-0595
Fax: (219) 944-0250

Re: GSD - RSL GROUNDWATER Work Order : **0508612**

Dear Mr. Peller,

e-Lab Analytical, Inc received 16 samples on 8/31/2005 1:50:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from e-Lab Analytical, Inc. The total number of pages in this report is 172.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Les Arnold

Electronically approved by: Les Arnold

Les Arnold
Laboratory Director

CLIENT: Gary Sanitary District
Project: GSD - RSL GROUNDWATER
Work Order: 0508612

Case Narrative

e-Lab Analytical received 15 samples on August 31, 2005 and one sample on September 6, 2005 for analyses identified as Project GSD-Ralston Street Lagoon GW. No anomalies or discrepancies were noted between sample identity and the chain-of-custody.

SAMPLE COLLECTION NARRATIVE
Samples were collected by e-Lab Analytical in accordance with the Camp Dresser & McKee and e-Lab Analytical groundwater sampling Standard Operating Procedures on August 30, 31, and September 6, 2005.

Upon arrival at the site on Tuesday, August 30, the well caps were opened and field measurements were taken immediately from each well to determine the presence of organic vapors and Static Water Levels (SWL). A summary of the field data as well as the field data sheets is included with this report.

The samples identified as MW-6MR and MW-6MR-01 are field duplicates (e-Lab Analytical samples 0508612-06 and 0508612-07).

The samples identified as MW-5S and MW-5S-01 are field duplicates (e-Lab Analytical samples 0508612-08 and 0508612-09). Matrix spike (MS) and matrix spike duplicate (MSD) samples were collected and associated with MW-5S.

To ensure the integrity of the field duplicate procedure, the field duplicates were not identified to the laboratory.

ANALYTICAL DATA NARRATIVE
All Quality Assurance/Quality Control criteria were acceptable with the following qualifications noted:

Pesticides – Method 8082
Laboratory Control Sample Duplicate (LCSD) exhibited recovery below acceptable criteria for alpha-BHC, beta-BHC and Heptachlor epoxide in batch GC4_050909A. The Matrix Spike and Spike Duplicate (MS/MSD) recovery was in the acceptable range for both; therefore, the data is considered acceptable without qualification.

Metals – Method 6020B
Exhibited some recoveries outside acceptable criteria for the MS/MSD. In all cases, relative percent differences (RPD) and post digestion spikes (PDS) were acceptable, indicating the analysis was in control. All data is considered acceptable without qualification.
Volatile Organics – Method 8260
The LCS recovery for vinyl chloride in batch VMS2_050908A was below acceptance criteria (79.4%

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Project: GSD - RSL GROUNDWATER
Work Order: **0508612**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0508612-01	MW-10M	Groundwater		8/30/2005 08:50	8/31/2005 13:50	☐
0508612-02	MW-2M	Groundwater		8/30/2005 11:00	8/31/2005 13:50	☐
0508612-03	MW-7DR	Groundwater		8/30/2005 15:11	8/31/2005 13:50	☐
0508612-04	MW-7MR	Groundwater		8/30/2005 12:55	8/31/2005 13:50	☐
0508612-05	MW-7S	Groundwater		8/30/2005 12:34	8/31/2005 13:50	☐
0508612-06	MW-6MR	Groundwater		8/30/2005 14:36	8/31/2005 13:50	☐
0508612-07	MW-6MR-01	Groundwater		8/30/2005 14:36	8/31/2005 13:50	☐
0508612-08	MW-5S (MS/MSD)	Groundwater		8/30/2005 16:31	8/31/2005 13:50	☐
0508612-09	MW-5S-01	Groundwater		8/30/2005 16:31	8/31/2005 13:50	☐
0508612-10	MW-4MR	Groundwater		8/30/2005 19:37	8/31/2005 13:50	☐
0508612-11	MW-3S	Groundwater		8/30/2005 19:08	8/31/2005 13:50	☐
0508612-12	MW-3MR	Groundwater		8/30/2005 18:17	8/31/2005 13:50	☐
0508612-13	MW-9M	Groundwater		8/30/2005 08:30	8/31/2005 13:50	☐
0508612-14	MW-9D	Groundwater		8/31/2005 09:03	8/31/2005 13:50	☐
0508612-15	Trip Blank	Trip Blank		9/6/2005	9/6/2005	☐
0508612-16	MW-5DR	Groundwater		9/6/2005 10:20	9/6/2005 14:00	☐

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-01

Client Sample ID: MW-10M
Collection Date: 8/30/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.41		µg/L	1	9/9/2005
Aroclor 1221	ND	0.41		µg/L	1	9/9/2005
Aroclor 1232	ND	0.41		µg/L	1	9/9/2005
Aroclor 1242	ND	0.41		µg/L	1	9/9/2005
Aroclor 1248	ND	0.41		µg/L	1	9/9/2005
Aroclor 1254	ND	0.41		µg/L	1	9/9/2005
Aroclor 1260	ND	0.41		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	91.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
4,4´-DDE	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
4,4´-DDT	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
Aldrin	ND	0.010		µg/L	1	9/9/2005 7:41:23 PM
alpha-BHC	ND	0.010		µg/L	1	9/9/2005 7:41:23 PM
beta-BHC	ND	0.010		µg/L	1	9/9/2005 7:41:23 PM
Chlordane, Technical	ND	0.51		µg/L	1	9/9/2005 7:41:23 PM
delta-BHC	ND	0.010		µg/L	1	9/9/2005 7:41:23 PM
Dieldrin	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
Endosulfan I	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
Endosulfan II	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
Endosulfan sulfate	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
Endrin	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
Endrin aldehyde	ND	0.020		µg/L	1	9/9/2005 7:41:23 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/9/2005 7:41:23 PM
Heptachlor	ND	0.010		µg/L	1	9/9/2005 7:41:23 PM
Heptachlor epoxide	ND	0.010		µg/L	1	9/9/2005 7:41:23 PM
Methoxychlor	ND	0.041		µg/L	1	9/9/2005 7:41:23 PM
Toxaphene	ND	2.0		µg/L	1	9/9/2005 7:41:23 PM
Surr: Decachlorobiphenyl	96.0	30-145		%REC	1	9/9/2005 7:41:23 PM
Surr: Tetrachloro-m-xylene	55.0	25-140		%REC	1	9/9/2005 7:41:23 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	0.0062	0.0050		mg/L	1	9/2/2005 3:09:00 PM
Arsenic	0.0073	0.0050		mg/L	1	9/2/2005 3:09:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 3:09:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 3:09:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 3:09:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

recovery compared to lower limit of 80%). The LCSD was and %RPD were within criteria.
The LCSD recovery for 2-Hexanone was above acceptance criteria (129% recovery compared to the upper limit of 120%). The LCS recovery and %RPD were within acceptance criteria.
The LCS recovery for vinyl chloride in batch VMS1_050909A was below acceptance criteria (76.2% recovery compared to the lower limit of 80%). The LCSD recovery and %RPD were within acceptance criteria.
The LCS recovery for 1,1-Dichloroethene was above acceptance criteria (125% recovery compared to the upper limit of 120%). The LCSD recovery and %RPD were within acceptance.
The LCS recovery for vinyl chloride in batch VMS2_050909A was below acceptance criteria (79.1% recovery compared to lower limit of 80%). The LCSD was and %RPD were within criteria.
All data qualifiers discussed are marginal failures and have no impact on the data quality.

General Chemistry – Method 9056
All qualifiers in the analytical batches for Method 9056 are the result of the target analyte being present in the sample at greater than four times the spike levels.

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-01

Client Sample ID: MW-10M
Collection Date: 8/30/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 3:09:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 3:09:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 3:09:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 3:09:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 3:09:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 3:09:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 3:09:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.7			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	0.3580			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	7.8000			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	14.7			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	23			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 1:09:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 1:09:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 1:09:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 1:09:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 1:09:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 1:09:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-01

Client Sample ID: MW-10M
Collection Date: 8/30/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 1:09:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 1:09:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 1:09:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 1:09:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 1:09:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 1:09:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 1:09:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 1:09:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 1:09:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 1:09:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 1:09:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 1:09:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-01

Client Sample ID: MW-10M
Collection Date: 8/30/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 1:09:00 PM
Surr: 2,4,6-Tribromophenol	81.6	10-123		%REC	1	9/7/2005 1:09:00 PM
Surr: 2-Fluorophenol	43.0	7-75		%REC	1	9/7/2005 1:09:00 PM
Surr: Phenol-d6	30.7	3-67		%REC	1	9/7/2005 1:09:00 PM
Surr: 2-Fluorobiphenyl	67.0	20-122		%REC	1	9/7/2005 1:09:00 PM
Surr: 4-Terphenyl-d14	66.3	22-172		%REC	1	9/7/2005 1:09:00 PM
Surr: Nitrobenzene-d5	63.4	8-115		%REC	1	9/7/2005 1:09:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 3:09:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 3:09:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 3:09:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 3:09:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 3:09:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 3:09:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 3:09:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 3:09:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 3:09:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-01

Client Sample ID: MW-10M
Collection Date: 8/30/2005 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 3:09:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 3:09:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 3:09:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 3:09:00 PM
Surr: 1,2-Dichloroethane-d4	89.5	70-130		%REC	1	9/8/2005 3:09:00 PM
Surr: 4-Bromofluorobenzene	98.8	70-130		%REC	1	9/8/2005 3:09:00 PM
Surr: Dibromofluoromethane	98.4	70-130		%REC	1	9/8/2005 3:09:00 PM
Surr: Toluene-d8	105	70-130		%REC	1	9/8/2005 3:09:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	79	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	12	1.0		mg/L	1	8/31/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	0.057	0.020		mg/L	1	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	0.011	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	9/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	300	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	6.0	2.0		mg/L	1	9/2/2005

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-02

Client Sample ID: MW-2M
Collection Date: 8/30/2005 11:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	79.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
4,4´-DDE	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
4,4´-DDT	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
Aldrin	ND	0.010		µg/L	1	9/9/2005 8:15:46 PM
alpha-BHC	ND	0.010		µg/L	1	9/9/2005 8:15:46 PM
beta-BHC	ND	0.010		µg/L	1	9/9/2005 8:15:46 PM
Chlordane, Technical	ND	0.50		µg/L	1	9/9/2005 8:15:46 PM
delta-BHC	ND	0.010		µg/L	1	9/9/2005 8:15:46 PM
Dieldrin	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
Endosulfan I	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
Endosulfan II	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
Endosulfan sulfate	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
Endrin	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
Endrin aldehyde	ND	0.020		µg/L	1	9/9/2005 8:15:46 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/9/2005 8:15:46 PM
Heptachlor	ND	0.010		µg/L	1	9/9/2005 8:15:46 PM
Heptachlor epoxide	ND	0.010		µg/L	1	9/9/2005 8:15:46 PM
Methoxychlor	ND	0.040		µg/L	1	9/9/2005 8:15:46 PM
Toxaphene	ND	2.0		µg/L	1	9/9/2005 8:15:46 PM
Surr: Decachlorobiphenyl	84.0	30-145		%REC	1	9/9/2005 8:15:46 PM
Surr: Tetrachloro-m-xylene	40.0	25-140		%REC	1	9/9/2005 8:15:46 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM
Arsenic	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 3:14:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 3:14:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-02

Client Sample ID: MW-2M
Collection Date: 8/30/2005 11:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 3:14:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 3:14:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.5			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.660			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	4.5800			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	14.8			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	20			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 1:40:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 1:40:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 1:40:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 1:40:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 1:40:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 1:40:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-02

Client Sample ID: MW-2M
Collection Date: 8/30/2005 11:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 1:40:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 1:40:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 1:40:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 1:40:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 1:40:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 1:40:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 1:40:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 1:40:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 1:40:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 1:40:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 1:40:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 1:40:00 PM

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-02

Client Sample ID: MW-2M
Collection Date: 8/30/2005 11:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 1:40:00 PM
Surr: 2,4,6-Tribromophenol	59.5	10-123		%REC	1	9/7/2005 1:40:00 PM
Surr: 2-Fluorophenol	29.1	7-75		%REC	1	9/7/2005 1:40:00 PM
Surr: Phenol-d6	20.1	3-67		%REC	1	9/7/2005 1:40:00 PM
Surr: 2-Fluorobiphenyl	45.5	20-122		%REC	1	9/7/2005 1:40:00 PM
Surr: 4-Terphenyl-d14	68.6	22-172		%REC	1	9/7/2005 1:40:00 PM
Surr: Nitrobenzene-d5	45.2	8-115		%REC	1	9/7/2005 1:40:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 3:49:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 3:49:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 3:49:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 3:49:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 3:49:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 3:49:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Chloroform	3.1	1.0		µg/L	1	9/8/2005 3:49:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 3:49:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 3:49:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 3:49:00 PM

Qualifiers:
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E - Value above quantitation range
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-02

Client Sample ID: MW-2M
Collection Date: 8/30/2005 11:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 3:49:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 3:49:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 3:49:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 3:49:00 PM
Surr: 1,2-Dichloroethane-d4	97.4	70-130		%REC	1	9/8/2005 3:49:00 PM
Surr: 4-Bromofluorobenzene	95.9	70-130		%REC	1	9/8/2005 3:49:00 PM
Surr: Dibromofluoromethane	101	70-130		%REC	1	9/8/2005 3:49:00 PM
Surr: Toluene-d8	106	70-130		%REC	1	9/8/2005 3:49:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	19	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	350	25		mg/L	25	9/8/2005
Nitrogen, Nitrate	0.29	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	0.034	0.020		mg/L	1	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	9/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	910	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	ND	2.0		mg/L	1	9/2/2005

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-03

Client Sample ID: MW-7DR
Collection Date: 8/30/2005 3:11:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	83.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
4,4´-DDE	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
4,4´-DDT	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
Aldrin	ND	0.010		µg/L	1	9/9/2005 8:52:00 PM
alpha-BHC	ND	0.010		µg/L	1	9/9/2005 8:52:00 PM
beta-BHC	ND	0.010		µg/L	1	9/9/2005 8:52:00 PM
Chlordane, Technical	ND	0.50		µg/L	1	9/9/2005 8:52:00 PM
delta-BHC	ND	0.010		µg/L	1	9/9/2005 8:52:00 PM
Dieldrin	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
Endosulfan I	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
Endosulfan II	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
Endosulfan sulfate	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
Endrin	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
Endrin aldehyde	ND	0.020		µg/L	1	9/9/2005 8:52:00 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/9/2005 8:52:00 PM
Heptachlor	ND	0.010		µg/L	1	9/9/2005 8:52:00 PM
Heptachlor epoxide	ND	0.010		µg/L	1	9/9/2005 8:52:00 PM
Methoxychlor	ND	0.040		µg/L	1	9/9/2005 8:52:00 PM
Toxaphene	ND	2.0		µg/L	1	9/9/2005 8:52:00 PM
Surr: Decachlorobiphenyl	87.0	30-145		%REC	1	9/9/2005 8:52:00 PM
Surr: Tetrachloro-m-xylene	56.0	25-140		%REC	1	9/9/2005 8:52:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 3:20:00 PM
Arsenic	0.062	0.0050		mg/L	1	9/2/2005 3:20:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 3:20:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 3:20:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 3:20:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-03

Client Sample ID: MW-7DR
Collection Date: 8/30/2005 3:11:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 3:20:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 3:20:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 3:20:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 3:20:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 3:20:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 3:20:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 3:20:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.3			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	0.5930			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	2.0000			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	14.2			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	30			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 2:41:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 2:41:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 2:41:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 2:41:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 2:41:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 2:41:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-03

Client Sample ID: MW-7DR
Collection Date: 8/30/2005 3:11:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 2:41:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 2:41:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 2:41:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 2:41:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 2:41:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 2:41:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 2:41:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 2:41:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 2:41:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 2:41:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 2:41:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 2:41:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-03

Client Sample ID: MW-7DR
Collection Date: 8/30/2005 3:11:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 2:41:00 PM
Surr: 2,4,6-Tribromophenol	69.9	10-123		%REC	1	9/7/2005 2:41:00 PM
Surr: 2-Fluorophenol	38.9	7-75		%REC	1	9/7/2005 2:41:00 PM
Surr: Phenol-d6	26.8	3-67		%REC	1	9/7/2005 2:41:00 PM
Surr: 2-Fluorobiphenyl	60.8	20-122		%REC	1	9/7/2005 2:41:00 PM
Surr: 4-Terphenyl-d14	64.1	22-172		%REC	1	9/7/2005 2:41:00 PM
Surr: Nitrobenzene-d5	57.9	8-115		%REC	1	9/7/2005 2:41:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 4:39:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 4:39:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 4:39:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 4:39:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 4:39:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 4:39:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 4:39:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 4:39:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 4:39:00 PM

Qualifiers:
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-7DR
Work Order:	0508612	**Collection Date:**	8/30/2005 3:11:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-03	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 4:39:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 4:39:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 4:39:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 4:39:00 PM
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%REC	1	9/8/2005 4:39:00 PM
Surr: 4-Bromofluorobenzene	96.0	70-130		%REC	1	9/8/2005 4:39:00 PM
Surr: Dibromofluoromethane	103	70-130		%REC	1	9/8/2005 4:39:00 PM
Surr: Toluene-d8	102	70-130		%REC	1	9/8/2005 4:39:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	19	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	58	5.0		mg/L	5	9/8/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	1.0	0.10		mg/L	5	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	9/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	440	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	19	2.0		mg/L	1	9/2/2005

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-04

Client Sample ID: MW-7MR
Collection Date: 8/30/2005 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	74.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
4,4´-DDE	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
4,4´-DDT	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
Aldrin	ND	0.010		µg/L	1	9/9/2005 9:27:07 PM
alpha-BHC	ND	0.010		µg/L	1	9/9/2005 9:27:07 PM
beta-BHC	ND	0.010		µg/L	1	9/9/2005 9:27:07 PM
Chlordane, Technical	ND	0.50		µg/L	1	9/9/2005 9:27:07 PM
delta-BHC	ND	0.010		µg/L	1	9/9/2005 9:27:07 PM
Dieldrin	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
Endosulfan I	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
Endosulfan II	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
Endosulfan sulfate	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
Endrin	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
Endrin aldehyde	ND	0.020		µg/L	1	9/9/2005 9:27:07 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/9/2005 9:27:07 PM
Heptachlor	ND	0.010		µg/L	1	9/9/2005 9:27:07 PM
Heptachlor epoxide	ND	0.010		µg/L	1	9/9/2005 9:27:07 PM
Methoxychlor	ND	0.040		µg/L	1	9/9/2005 9:27:07 PM
Toxaphene	ND	2.0		µg/L	1	9/9/2005 9:27:07 PM
Surr: Decachlorobiphenyl	78.0	30-145		%REC	1	9/9/2005 9:27:07 PM
Surr: Tetrachloro-m-xylene	56.0	25-140		%REC	1	9/9/2005 9:27:07 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **9/1/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 3:25:00 PM
Arsenic	0.0050	0.0050		mg/L	1	9/2/2005 3:25:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 3:25:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 3:25:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 3:25:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-04

Client Sample ID: MW-7MR
Collection Date: 8/30/2005 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 3:25:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 3:25:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 3:25:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 3:25:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 3:25:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 3:25:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 3:25:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.7			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	0.5580			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	2.6000			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	14.6			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	19			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 3:12:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 3:12:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 3:12:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 3:12:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 3:12:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 3:12:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-04

Client Sample ID: MW-7MR
Collection Date: 8/30/2005 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 3:12:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 3:12:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 3:12:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 3:12:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 3:12:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 3:12:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 3:12:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 3:12:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 3:12:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 3:12:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 3:12:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 3:12:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-04

Client Sample ID: MW-7MR
Collection Date: 8/30/2005 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 3:12:00 PM
Surr: 2,4,6-Tribromophenol	58.3	10-123		%REC	1	9/7/2005 3:12:00 PM
Surr: 2-Fluorophenol	31.6	7-75		%REC	1	9/7/2005 3:12:00 PM
Surr: Phenol-d6	22.2	3-67		%REC	1	9/7/2005 3:12:00 PM
Surr: 2-Fluorobiphenyl	48.2	20-122		%REC	1	9/7/2005 3:12:00 PM
Surr: 4-Terphenyl-d14	65.7	22-172		%REC	1	9/7/2005 3:12:00 PM
Surr: Nitrobenzene-d5	47.0	8-115		%REC	1	9/7/2005 3:12:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 5:07:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 5:07:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 5:07:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 5:07:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 5:07:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 5:07:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 5:07:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 5:07:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 5:07:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-04

Client Sample ID: MW-7MR
Collection Date: 8/30/2005 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 5:07:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 5:07:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 5:07:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 5:07:00 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	9/8/2005 5:07:00 PM
Surr: 4-Bromofluorobenzene	92.7	70-130		%REC	1	9/8/2005 5:07:00 PM
Surr: Dibromofluoromethane	99.8	70-130		%REC	1	9/8/2005 5:07:00 PM
Surr: Toluene-d8	102	70-130		%REC	1	9/8/2005 5:07:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	23	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	87	10		mg/L	10	9/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	0.38	0.10		mg/L	5	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.012		mg/L	1.25	9/8/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	400	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	ND	2.0		mg/L	1	9/2/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-05

Client Sample ID: MW-7S
Collection Date: 8/30/2005 12:34:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	85.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
4,4´-DDE	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
4,4´-DDT	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
Aldrin	ND	0.010		µg/L	1	9/9/2005 10:02:00 PM
alpha-BHC	ND	0.010		µg/L	1	9/9/2005 10:02:00 PM
beta-BHC	ND	0.010		µg/L	1	9/9/2005 10:02:00 PM
Chlordane, Technical	ND	0.50		µg/L	1	9/9/2005 10:02:00 PM
delta-BHC	ND	0.010		µg/L	1	9/9/2005 10:02:00 PM
Dieldrin	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
Endosulfan I	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
Endosulfan II	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
Endosulfan sulfate	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
Endrin	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
Endrin aldehyde	ND	0.020		µg/L	1	9/9/2005 10:02:00 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/9/2005 10:02:00 PM
Heptachlor	ND	0.010		µg/L	1	9/9/2005 10:02:00 PM
Heptachlor epoxide	ND	0.010		µg/L	1	9/9/2005 10:02:00 PM
Methoxychlor	ND	0.040		µg/L	1	9/9/2005 10:02:00 PM
Toxaphene	ND	2.0		µg/L	1	9/9/2005 10:02:00 PM
Surr: Decachlorobiphenyl	90.0	30-145		%REC	1	9/9/2005 10:02:00 PM
Surr: Tetrachloro-m-xylene	49.0	25-140		%REC	1	9/9/2005 10:02:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM
Arsenic	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 3:30:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 3:30:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-05

Client Sample ID: MW-7S
Collection Date: 8/30/2005 12:34:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 3:30:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 3:30:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.6			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.450			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	2.6000			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	19.0			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	8.2			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 4:14:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 4:14:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 4:14:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 4:14:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 4:14:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 4:14:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-05

Client Sample ID: MW-7S
Collection Date: 8/30/2005 12:34:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 4:14:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 4:14:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 4:14:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 4:14:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 4:14:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 4:14:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 4:14:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 4:14:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 4:14:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 4:14:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 4:14:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 4:14:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-05

Client Sample ID: MW-7S
Collection Date: 8/30/2005 12:34:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 4:14:00 PM
Surr: 2,4,6-Tribromophenol	66.3	10-123		%REC	1	9/7/2005 4:14:00 PM
Surr: 2-Fluorophenol	30.6	7-75		%REC	1	9/7/2005 4:14:00 PM
Surr: Phenol-d6	21.7	3-67		%REC	1	9/7/2005 4:14:00 PM
Surr: 2-Fluorobiphenyl	48.6	20-122		%REC	1	9/7/2005 4:14:00 PM
Surr: 4-Terphenyl-d14	68.9	22-172		%REC	1	9/7/2005 4:14:00 PM
Surr: Nitrobenzene-d5	46.8	8-115		%REC	1	9/7/2005 4:14:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 5:37:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 5:37:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 5:37:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 5:37:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 5:37:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 5:37:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 5:37:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 5:37:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 5:37:00 PM

Qualifiers:
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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-7S
Work Order:	0508612	**Collection Date:**	8/30/2005 12:34:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-05	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 5:37:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 5:37:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 5:37:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 5:37:00 PM
Surr: 1,2-Dichloroethane-d4	99.3	70-130		%REC	1	9/8/2005 5:37:00 PM
Surr: 4-Bromofluorobenzene	92.2	70-130		%REC	1	9/8/2005 5:37:00 PM
Surr: Dibromofluoromethane	97.9	70-130		%REC	1	9/8/2005 5:37:00 PM
Surr: Toluene-d8	101	70-130		%REC	1	9/8/2005 5:37:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	21	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	280	25		mg/L	25	9/8/2005
Nitrogen, Nitrate	0.41	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	0.035	0.020		mg/L	1	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	0.048	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	840	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	ND	2.0		mg/L	1	9/2/2005

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-6MR
Work Order:	0508612	**Collection Date:**	8/30/2005 2:36:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-06	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	78.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
4,4´-DDE	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
4,4´-DDT	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
Aldrin	ND	0.010		µg/L	1	9/9/2005 10:37:00 PM
alpha-BHC	ND	0.010		µg/L	1	9/9/2005 10:37:00 PM
beta-BHC	ND	0.010		µg/L	1	9/9/2005 10:37:00 PM
Chlordane, Technical	ND	0.50		µg/L	1	9/9/2005 10:37:00 PM
delta-BHC	ND	0.010		µg/L	1	9/9/2005 10:37:00 PM
Dieldrin	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
Endosulfan I	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
Endosulfan II	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
Endosulfan sulfate	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
Endrin	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
Endrin aldehyde	ND	0.020		µg/L	1	9/9/2005 10:37:00 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/9/2005 10:37:00 PM
Heptachlor	ND	0.010		µg/L	1	9/9/2005 10:37:00 PM
Heptachlor epoxide	ND	0.010		µg/L	1	9/9/2005 10:37:00 PM
Methoxychlor	ND	0.040		µg/L	1	9/9/2005 10:37:00 PM
Toxaphene	ND	2.0		µg/L	1	9/9/2005 10:37:00 PM
Surr: Decachlorobiphenyl	84.0	30-145		%REC	1	9/9/2005 10:37:00 PM
Surr: Tetrachloro-m-xylene	58.0	25-140		%REC	1	9/9/2005 10:37:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **9/1/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 3:36:00 PM
Arsenic	0.015	0.0050		mg/L	1	9/2/2005 3:36:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 3:36:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 3:36:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 3:36:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-06

Client Sample ID: MW-6MR
Collection Date: 8/30/2005 2:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 3:36:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 3:36:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 3:36:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 3:36:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 3:36:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 3:36:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 3:36:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	8.0			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.980			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	3.0500			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	13.1			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	21			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 4:44:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 4:44:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 4:44:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 4:44:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 4:44:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 4:44:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-06

Client Sample ID: MW-6MR
Collection Date: 8/30/2005 2:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 4:44:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 4:44:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 4:44:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 4:44:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 4:44:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 4:44:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 4:44:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 4:44:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 4:44:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 4:44:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 4:44:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 4:44:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-06

Client Sample ID: MW-6MR
Collection Date: 8/30/2005 2:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 4:44:00 PM
Surr: 2,4,6-Tribromophenol	75.2	10-123		%REC	1	9/7/2005 4:44:00 PM
Surr: 2-Fluorophenol	31.5	7-75		%REC	1	9/7/2005 4:44:00 PM
Surr: Phenol-d6	22.2	3-67		%REC	1	9/7/2005 4:44:00 PM
Surr: 2-Fluorobiphenyl	51.0	20-122		%REC	1	9/7/2005 4:44:00 PM
Surr: 4-Terphenyl-d14	63.6	22-172		%REC	1	9/7/2005 4:44:00 PM
Surr: Nitrobenzene-d5	49.0	8-115		%REC	1	9/7/2005 4:44:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 6:07:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 6:07:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 6:07:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 6:07:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 6:07:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 6:07:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 6:07:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 6:07:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 6:07:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-6MR
Work Order:	0508612	**Collection Date:**	8/30/2005 2:36:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-06	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 6:07:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 6:07:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 6:07:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 6:07:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	9/8/2005 6:07:00 PM
Surr: 4-Bromofluorobenzene	93.8	70-130		%REC	1	9/8/2005 6:07:00 PM
Surr: Dibromofluoromethane	99.3	70-130		%REC	1	9/8/2005 6:07:00 PM
Surr: Toluene-d8	100	70-130		%REC	1	9/8/2005 6:07:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	49	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	410	100		mg/L	100	9/8/2005
Nitrogen, Nitrate	0.36	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	8.0	1.0		mg/L	50	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	1,100	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	ND	2.0		mg/L	1	9/2/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-07

Client Sample ID: MW-6MR-01
Collection Date: 8/30/2005 2:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	81.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
4,4´-DDE	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
4,4´-DDT	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
Aldrin	ND	0.010		µg/L	1	9/9/2005 11:12:00 PM
alpha-BHC	ND	0.010		µg/L	1	9/9/2005 11:12:00 PM
beta-BHC	ND	0.010		µg/L	1	9/9/2005 11:12:00 PM
Chlordane, Technical	ND	0.50		µg/L	1	9/9/2005 11:12:00 PM
delta-BHC	ND	0.010		µg/L	1	9/9/2005 11:12:00 PM
Dieldrin	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
Endosulfan I	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
Endosulfan II	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
Endosulfan sulfate	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
Endrin	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
Endrin aldehyde	ND	0.020		µg/L	1	9/9/2005 11:12:00 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/9/2005 11:12:00 PM
Heptachlor	ND	0.010		µg/L	1	9/9/2005 11:12:00 PM
Heptachlor epoxide	ND	0.010		µg/L	1	9/9/2005 11:12:00 PM
Methoxychlor	ND	0.040		µg/L	1	9/9/2005 11:12:00 PM
Toxaphene	ND	2.0		µg/L	1	9/9/2005 11:12:00 PM
Surr: Decachlorobiphenyl	87.0	30-145		%REC	1	9/9/2005 11:12:00 PM
Surr: Tetrachloro-m-xylene	48.0	25-140		%REC	1	9/9/2005 11:12:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 3:41:00 PM
Arsenic	0.016	0.0050		mg/L	1	9/2/2005 3:41:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 3:41:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 3:41:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 3:41:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-07

Client Sample ID: MW-6MR-01
Collection Date: 8/30/2005 2:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 3:41:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 3:41:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 3:41:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 3:41:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 3:41:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 3:41:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 3:41:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	8.0			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.980			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	3.0500			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	13.1			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	21			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 5:15:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 5:15:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 5:15:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 5:15:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 5:15:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 5:15:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-07

Client Sample ID: MW-6MR-01
Collection Date: 8/30/2005 2:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 5:15:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 5:15:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 5:15:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 5:15:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 5:15:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 5:15:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 5:15:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 5:15:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 5:15:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 5:15:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 5:15:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 5:15:00 PM

Qualifiers:
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-07

Client Sample ID: MW-6MR-01
Collection Date: 8/30/2005 2:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 5:15:00 PM
Surr: 2,4,6-Tribromophenol	75.0	10-123		%REC	1	9/7/2005 5:15:00 PM
Surr: 2-Fluorophenol	27.0	7-75		%REC	1	9/7/2005 5:15:00 PM
Surr: Phenol-d6	19.3	3-67		%REC	1	9/7/2005 5:15:00 PM
Surr: 2-Fluorobiphenyl	42.4	20-122		%REC	1	9/7/2005 5:15:00 PM
Surr: 4-Terphenyl-d14	67.1	22-172		%REC	1	9/7/2005 5:15:00 PM
Surr: Nitrobenzene-d5	42.2	8-115		%REC	1	9/7/2005 5:15:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 6:36:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 6:36:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 6:36:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 6:36:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 6:36:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 6:36:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 6:36:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 6:36:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 6:36:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-6MR-01
Work Order:	0508612	**Collection Date:**	8/30/2005 2:36:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-07	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 6:36:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 6:36:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 6:36:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 6:36:00 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	9/8/2005 6:36:00 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	1	9/8/2005 6:36:00 PM
Surr: Dibromofluoromethane	99.3	70-130		%REC	1	9/8/2005 6:36:00 PM
Surr: Toluene-d8	99.8	70-130		%REC	1	9/8/2005 6:36:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	33	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	420	50		mg/L	50	9/8/2005
Nitrogen, Nitrate	0.34	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	11	1.0		mg/L	50	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	1,100	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	ND	2.0		mg/L	1	9/2/2005

Qualifiers:

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P - Dual Column results percent difference > 40%
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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-08

Client Sample ID: MW-5S (MS/MSD)
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	80.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
4,4´-DDE	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
4,4´-DDT	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
Aldrin	ND	0.010		µg/L	1	9/9/2005 11:47:00 PM
alpha-BHC	ND	0.010		µg/L	1	9/9/2005 11:47:00 PM
beta-BHC	ND	0.010		µg/L	1	9/9/2005 11:47:00 PM
Chlordane, Technical	ND	0.50		µg/L	1	9/9/2005 11:47:00 PM
delta-BHC	ND	0.010		µg/L	1	9/9/2005 11:47:00 PM
Dieldrin	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
Endosulfan I	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
Endosulfan II	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
Endosulfan sulfate	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
Endrin	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
Endrin aldehyde	ND	0.020		µg/L	1	9/9/2005 11:47:00 PM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/9/2005 11:47:00 PM
Heptachlor	ND	0.010		µg/L	1	9/9/2005 11:47:00 PM
Heptachlor epoxide	ND	0.010		µg/L	1	9/9/2005 11:47:00 PM
Methoxychlor	ND	0.040		µg/L	1	9/9/2005 11:47:00 PM
Toxaphene	ND	2.0		µg/L	1	9/9/2005 11:47:00 PM
Surr: Decachlorobiphenyl	86.0	30-145		%REC	1	9/9/2005 11:47:00 PM
Surr: Tetrachloro-m-xylene	70.0	25-140		%REC	1	9/9/2005 11:47:00 PM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 4:19:00 PM
Arsenic	0.0059	0.0050		mg/L	1	9/2/2005 4:19:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 4:19:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 4:19:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 4:19:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-08

Client Sample ID: MW-5S (MS/MSD)
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 4:19:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 4:19:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 4:19:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 4:19:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 4:19:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 4:19:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 4:19:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	6.8			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.330			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	4.1300			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	20.8			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	8.9			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 2:10:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 2:10:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 2:10:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 2:10:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 2:10:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 2:10:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-08

Client Sample ID: MW-5S (MS/MSD)
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 2:10:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 2:10:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 2:10:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 2:10:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 2:10:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 2:10:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 2:10:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 2:10:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 2:10:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 2:10:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 2:10:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 2:10:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-08

Client Sample ID: MW-5S (MS/MSD)
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 2:10:00 PM
Surr: 2,4,6-Tribromophenol	79.8	10-123		%REC	1	9/7/2005 2:10:00 PM
Surr: 2-Fluorophenol	32.0	7-75		%REC	1	9/7/2005 2:10:00 PM
Surr: Phenol-d6	22.5	3-67		%REC	1	9/7/2005 2:10:00 PM
Surr: 2-Fluorobiphenyl	55.0	20-122		%REC	1	9/7/2005 2:10:00 PM
Surr: 4-Terphenyl-d14	61.8	22-172		%REC	1	9/7/2005 2:10:00 PM
Surr: Nitrobenzene-d5	53.9	8-115		%REC	1	9/7/2005 2:10:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 9:32:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 9:32:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 9:32:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 9:32:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 9:32:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 9:32:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 9:32:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 9:32:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 9:32:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-5S (MS/MSD)
Work Order:	0508612	**Collection Date:**	8/30/2005 4:31:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-08	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 9:32:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 9:32:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 9:32:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 9:32:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	9/8/2005 9:32:00 PM
Surr: 4-Bromofluorobenzene	95.8	70-130		%REC	1	9/8/2005 9:32:00 PM
Surr: Dibromofluoromethane	99.1	70-130		%REC	1	9/8/2005 9:32:00 PM
Surr: Toluene-d8	101	70-130		%REC	1	9/8/2005 9:32:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	60	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	270	25		mg/L	25	9/8/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	17	1.0		mg/L	50	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	740	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	20	2.0		mg/L	1	9/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-09

Client Sample ID: MW-5S-01
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	90.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
4,4´-DDE	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
4,4´-DDT	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
Aldrin	ND	0.010		µg/L	1	9/10/2005 12:22:00 AM
alpha-BHC	ND	0.010		µg/L	1	9/10/2005 12:22:00 AM
beta-BHC	ND	0.010		µg/L	1	9/10/2005 12:22:00 AM
Chlordane, Technical	ND	0.50		µg/L	1	9/10/2005 12:22:00 AM
delta-BHC	ND	0.010		µg/L	1	9/10/2005 12:22:00 AM
Dieldrin	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
Endosulfan I	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
Endosulfan II	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
Endosulfan sulfate	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
Endrin	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
Endrin aldehyde	ND	0.020		µg/L	1	9/10/2005 12:22:00 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/10/2005 12:22:00 AM
Heptachlor	ND	0.010		µg/L	1	9/10/2005 12:22:00 AM
Heptachlor epoxide	ND	0.010		µg/L	1	9/10/2005 12:22:00 AM
Methoxychlor	ND	0.040		µg/L	1	9/10/2005 12:22:00 AM
Toxaphene	ND	2.0		µg/L	1	9/10/2005 12:22:00 AM
Surr: Decachlorobiphenyl	92.0	30-145		%REC	1	9/10/2005 12:22:00 AM
Surr: Tetrachloro-m-xylene	45.0	25-140		%REC	1	9/10/2005 12:22:00 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM
Arsenic	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 4:24:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 4:24:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM

Qualifiers:
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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-09

Client Sample ID: MW-5S-01
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 4:24:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 4:24:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	6.8			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.330			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	4.1300			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	20.8			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	8.9			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 7:18:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 7:18:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 7:18:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 7:18:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 7:18:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 7:18:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-09

Client Sample ID: MW-5S-01
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 7:18:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 7:18:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 7:18:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 7:18:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 7:18:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 7:18:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 7:18:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 7:18:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 7:18:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 7:18:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 7:18:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 7:18:00 PM

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-09

Client Sample ID: MW-5S-01
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 7:18:00 PM
Surr: 2,4,6-Tribromophenol	78.9	10-123		%REC	1	9/7/2005 7:18:00 PM
Surr: 2-Fluorophenol	29.4	7-75		%REC	1	9/7/2005 7:18:00 PM
Surr: Phenol-d6	20.5	3-67		%REC	1	9/7/2005 7:18:00 PM
Surr: 2-Fluorobiphenyl	45.5	20-122		%REC	1	9/7/2005 7:18:00 PM
Surr: 4-Terphenyl-d14	64.2	22-172		%REC	1	9/7/2005 7:18:00 PM
Surr: Nitrobenzene-d5	44.9	8-115		%REC	1	9/7/2005 7:18:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 7:06:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 7:06:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 7:06:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 7:06:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 7:06:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 7:06:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 7:06:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 7:06:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 7:06:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-09

Client Sample ID: MW-5S-01
Collection Date: 8/30/2005 4:31:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 7:06:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 7:06:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 7:06:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 7:06:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	9/8/2005 7:06:00 PM
Surr: 4-Bromofluorobenzene	95.6	70-130		%REC	1	9/8/2005 7:06:00 PM
Surr: Dibromofluoromethane	99.5	70-130		%REC	1	9/8/2005 7:06:00 PM
Surr: Toluene-d8	98.9	70-130		%REC	1	9/8/2005 7:06:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	46	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	260	20		mg/L	20	9/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **RH**
Nitrogen, Ammonia	16	1.0		mg/L	50	9/8/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	710	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	20	2.0		mg/L	1	9/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-10

Client Sample ID: MW-4MR
Collection Date: 8/30/2005 7:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	80.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
4,4´-DDE	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
4,4´-DDT	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
Aldrin	ND	0.010		µg/L	1	9/10/2005 12:57:00 AM
alpha-BHC	ND	0.010		µg/L	1	9/10/2005 12:57:00 AM
beta-BHC	ND	0.010		µg/L	1	9/10/2005 12:57:00 AM
Chlordane, Technical	ND	0.50		µg/L	1	9/10/2005 12:57:00 AM
delta-BHC	ND	0.010		µg/L	1	9/10/2005 12:57:00 AM
Dieldrin	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
Endosulfan I	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
Endosulfan II	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
Endosulfan sulfate	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
Endrin	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
Endrin aldehyde	ND	0.020		µg/L	1	9/10/2005 12:57:00 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/10/2005 12:57:00 AM
Heptachlor	ND	0.010		µg/L	1	9/10/2005 12:57:00 AM
Heptachlor epoxide	ND	0.010		µg/L	1	9/10/2005 12:57:00 AM
Methoxychlor	ND	0.040		µg/L	1	9/10/2005 12:57:00 AM
Toxaphene	ND	2.0		µg/L	1	9/10/2005 12:57:00 AM
Surr: Decachlorobiphenyl	83.0	30-145		%REC	1	9/10/2005 12:57:00 AM
Surr: Tetrachloro-m-xylene	40.0	25-140		%REC	1	9/10/2005 12:57:00 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 4:30:00 PM
Arsenic	0.012	0.0050		mg/L	1	9/2/2005 4:30:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 4:30:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 4:30:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 4:30:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-10

Client Sample ID: MW-4MR
Collection Date: 8/30/2005 7:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 4:30:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 4:30:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 4:30:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 4:30:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 4:30:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 4:30:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 4:30:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	6.9			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	2.200			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	5.3500			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	14.5			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	26			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 7:49:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 7:49:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 7:49:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 7:49:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 7:49:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 7:49:00 PM

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-10

Client Sample ID: MW-4MR
Collection Date: 8/30/2005 7:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 7:49:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 7:49:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 7:49:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 7:49:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 7:49:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 7:49:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 7:49:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 7:49:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 7:49:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 7:49:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 7:49:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 7:49:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-10

Client Sample ID: MW-4MR
Collection Date: 8/30/2005 7:37:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 7:49:00 PM
Surr: 2,4,6-Tribromophenol	88.9	10-123		%REC	1	9/7/2005 7:49:00 PM
Surr: 2-Fluorophenol	32.5	7-75		%REC	1	9/7/2005 7:49:00 PM
Surr: Phenol-d6	23.7	3-67		%REC	1	9/7/2005 7:49:00 PM
Surr: 2-Fluorobiphenyl	55.0	20-122		%REC	1	9/7/2005 7:49:00 PM
Surr: 4-Terphenyl-d14	66.8	22-172		%REC	1	9/7/2005 7:49:00 PM
Surr: Nitrobenzene-d5	51.6	8-115		%REC	1	9/7/2005 7:49:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 8:04:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 8:04:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 8:04:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 8:04:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 8:04:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 8:04:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 8:04:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 8:04:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 8:04:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-4MR
Work Order:	0508612	**Collection Date:**	8/30/2005 7:37:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-10	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 8:04:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 8:04:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 8:04:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 8:04:00 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	9/8/2005 8:04:00 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	1	9/8/2005 8:04:00 PM
Surr: Dibromofluoromethane	100	70-130		%REC	1	9/8/2005 8:04:00 PM
Surr: Toluene-d8	99.6	70-130		%REC	1	9/8/2005 8:04:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	0.0084	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	93	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	190	10		mg/L	10	9/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.2**			Analyst: **RH**
Nitrogen, Ammonia	140	0.50		mg/L	1	9/9/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	690	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	48	2.0		mg/L	1	9/2/2005

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-3S
Work Order:	0508612	**Collection Date:**	8/30/2005 7:08:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-11	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	87.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
4,4´-DDE	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
4,4´-DDT	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
Aldrin	ND	0.010		µg/L	1	9/10/2005 1:32:10 AM
alpha-BHC	ND	0.010		µg/L	1	9/10/2005 1:32:10 AM
beta-BHC	ND	0.010		µg/L	1	9/10/2005 1:32:10 AM
Chlordane, Technical	ND	0.50		µg/L	1	9/10/2005 1:32:10 AM
delta-BHC	ND	0.010		µg/L	1	9/10/2005 1:32:10 AM
Dieldrin	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
Endosulfan I	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
Endosulfan II	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
Endosulfan sulfate	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
Endrin	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
Endrin aldehyde	ND	0.020		µg/L	1	9/10/2005 1:32:10 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/10/2005 1:32:10 AM
Heptachlor	ND	0.010		µg/L	1	9/10/2005 1:32:10 AM
Heptachlor epoxide	ND	0.010		µg/L	1	9/10/2005 1:32:10 AM
Methoxychlor	ND	0.040		µg/L	1	9/10/2005 1:32:10 AM
Toxaphene	ND	2.0		µg/L	1	9/10/2005 1:32:10 AM
Surr: Decachlorobiphenyl	92.0	30-145		%REC	1	9/10/2005 1:32:10 AM
Surr: Tetrachloro-m-xylene	42.0	25-140		%REC	1	9/10/2005 1:32:10 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM
Arsenic	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 4:35:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 4:35:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-11

Client Sample ID: MW-3S
Collection Date: 8/30/2005 7:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 4:35:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 4:35:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.0			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.340			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	4.3500			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	18.3			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	7.7			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 8:20:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 8:20:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 8:20:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 8:20:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 8:20:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 8:20:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-11

Client Sample ID: MW-3S
Collection Date: 8/30/2005 7:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 8:20:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 8:20:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 8:20:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 8:20:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 8:20:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 8:20:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 8:20:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 8:20:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 8:20:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 8:20:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 8:20:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 8:20:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-11

Client Sample ID: MW-3S
Collection Date: 8/30/2005 7:08:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 8:20:00 PM
Surr: 2,4,6-Tribromophenol	80.9	10-123		%REC	1	9/7/2005 8:20:00 PM
Surr: 2-Fluorophenol	33.1	7-75		%REC	1	9/7/2005 8:20:00 PM
Surr: Phenol-d6	23.7	3-67		%REC	1	9/7/2005 8:20:00 PM
Surr: 2-Fluorobiphenyl	53.4	20-122		%REC	1	9/7/2005 8:20:00 PM
Surr: 4-Terphenyl-d14	65.7	22-172		%REC	1	9/7/2005 8:20:00 PM
Surr: Nitrobenzene-d5	52.4	8-115		%REC	1	9/7/2005 8:20:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 8:33:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 8:33:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 8:33:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 8:33:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 8:33:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 8:33:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 8:33:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 8:33:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 8:33:00 PM

Qualifiers:
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-3S
Work Order:	0508612	**Collection Date:**	8/30/2005 7:08:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-11	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 8:33:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 8:33:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 8:33:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 8:33:00 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	9/8/2005 8:33:00 PM
Surr: 4-Bromofluorobenzene	93.5	70-130		%REC	1	9/8/2005 8:33:00 PM
Surr: Dibromofluoromethane	104	70-130		%REC	1	9/8/2005 8:33:00 PM
Surr: Toluene-d8	105	70-130		%REC	1	9/8/2005 8:33:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	0.0084	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	46	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	270	20		mg/L	20	9/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.2**			Analyst: **RH**
Nitrogen, Ammonia	34	0.50		mg/L	1	9/9/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	700	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	14	2.0		mg/L	1	9/2/2005

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	MW-3MR
Work Order:	0508612	**Collection Date:**	8/30/2005 6:17:00 PM
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-12	**Matrix:**	GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	81.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
4,4´-DDE	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
4,4´-DDT	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
Aldrin	ND	0.010		µg/L	1	9/10/2005 2:07:08 AM
alpha-BHC	ND	0.010		µg/L	1	9/10/2005 2:07:08 AM
beta-BHC	ND	0.010		µg/L	1	9/10/2005 2:07:08 AM
Chlordane, Technical	ND	0.50		µg/L	1	9/10/2005 2:07:08 AM
delta-BHC	ND	0.010		µg/L	1	9/10/2005 2:07:08 AM
Dieldrin	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
Endosulfan I	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
Endosulfan II	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
Endosulfan sulfate	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
Endrin	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
Endrin aldehyde	ND	0.020		µg/L	1	9/10/2005 2:07:08 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/10/2005 2:07:08 AM
Heptachlor	ND	0.010		µg/L	1	9/10/2005 2:07:08 AM
Heptachlor epoxide	ND	0.010		µg/L	1	9/10/2005 2:07:08 AM
Methoxychlor	ND	0.040		µg/L	1	9/10/2005 2:07:08 AM
Toxaphene	ND	2.0		µg/L	1	9/10/2005 2:07:08 AM
Surr: Decachlorobiphenyl	85.0	30-145		%REC	1	9/10/2005 2:07:08 AM
Surr: Tetrachloro-m-xylene	43.0	25-140		%REC	1	9/10/2005 2:07:08 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM
Arsenic	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 4:40:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 4:40:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM

Qualifiers:

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-12

Client Sample ID: MW-3MR
Collection Date: 8/30/2005 6:17:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 4:40:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 4:40:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.1			s.u.	1	8/30/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.520			µmhos/cm	1	8/30/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	3.7500			ft.	1	8/30/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	13.9			°C	1	8/30/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	21			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	9/7/2005 8:51:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	9/7/2005 8:51:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
2-Nitroaniline	ND	20		µg/L	1	9/7/2005 8:51:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/7/2005 8:51:00 PM
3-Nitroaniline	ND	20		µg/L	1	9/7/2005 8:51:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/7/2005 8:51:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-12

Client Sample ID: MW-3MR
Collection Date: 8/30/2005 6:17:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
4-Chloroaniline	ND	20		µg/L	1	9/7/2005 8:51:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
4-Methylphenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
4-Nitroaniline	ND	20		µg/L	1	9/7/2005 8:51:00 PM
4-Nitrophenol	ND	20		µg/L	1	9/7/2005 8:51:00 PM
Acenaphthene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Anthracene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/7/2005 8:51:00 PM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/7/2005 8:51:00 PM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/7/2005 8:51:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Carbazole	ND	10		µg/L	1	9/7/2005 8:51:00 PM
Chrysene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/7/2005 8:51:00 PM
Dibenzofuran	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/7/2005 8:51:00 PM
Dimethyl phthalate	ND	20		µg/L	1	9/7/2005 8:51:00 PM
Fluoranthene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Fluorene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Hexachloroethane	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/7/2005 8:51:00 PM
Isophorone	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Naphthalene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Pentachlorophenol	ND	20		µg/L	1	9/7/2005 8:51:00 PM

Qualifiers:
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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-12

Client Sample ID: MW-3MR
Collection Date: 8/30/2005 6:17:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Phenol	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Pyrene	ND	5.0		µg/L	1	9/7/2005 8:51:00 PM
Surr: 2,4,6-Tribromophenol	92.8	10-123		%REC	1	9/7/2005 8:51:00 PM
Surr: 2-Fluorophenol	31.8	7-75		%REC	1	9/7/2005 8:51:00 PM
Surr: Phenol-d6	22.6	3-67		%REC	1	9/7/2005 8:51:00 PM
Surr: 2-Fluorobiphenyl	51.3	20-122		%REC	1	9/7/2005 8:51:00 PM
Surr: 4-Terphenyl-d14	68.0	22-172		%REC	1	9/7/2005 8:51:00 PM
Surr: Nitrobenzene-d5	50.6	8-115		%REC	1	9/7/2005 8:51:00 PM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 9:03:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 9:03:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 9:03:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 9:03:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 9:03:00 PM
Benzene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 9:03:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 9:03:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 9:03:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 9:03:00 PM

Qualifiers:
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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-12

Client Sample ID: MW-3MR
Collection Date: 8/30/2005 6:17:00 PM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 9:03:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 9:03:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 9:03:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 9:03:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	9/8/2005 9:03:00 PM
Surr: 4-Bromofluorobenzene	93.9	70-130		%REC	1	9/8/2005 9:03:00 PM
Surr: Dibromofluoromethane	98.9	70-130		%REC	1	9/8/2005 9:03:00 PM
Surr: Toluene-d8	100	70-130		%REC	1	9/8/2005 9:03:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	53	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	270	20		mg/L	20	9/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.2**			Analyst: **RH**
Nitrogen, Ammonia	85	0.50		mg/L	1	9/9/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	570	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	19	2.0		mg/L	1	9/2/2005

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H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-13

Client Sample ID: MW-9M
Collection Date: 8/30/2005 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	85.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
4,4´-DDE	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
4,4´-DDT	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
Aldrin	ND	0.010		µg/L	1	9/10/2005 2:42:02 AM
alpha-BHC	ND	0.010		µg/L	1	9/10/2005 2:42:02 AM
beta-BHC	ND	0.010		µg/L	1	9/10/2005 2:42:02 AM
Chlordane, Technical	ND	0.50		µg/L	1	9/10/2005 2:42:02 AM
delta-BHC	ND	0.010		µg/L	1	9/10/2005 2:42:02 AM
Dieldrin	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
Endosulfan I	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
Endosulfan II	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
Endosulfan sulfate	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
Endrin	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
Endrin aldehyde	ND	0.020		µg/L	1	9/10/2005 2:42:02 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/10/2005 2:42:02 AM
Heptachlor	ND	0.010		µg/L	1	9/10/2005 2:42:02 AM
Heptachlor epoxide	ND	0.010		µg/L	1	9/10/2005 2:42:02 AM
Methoxychlor	ND	0.040		µg/L	1	9/10/2005 2:42:02 AM
Toxaphene	ND	2.0		µg/L	1	9/10/2005 2:42:02 AM
Surr: Decachlorobiphenyl	89.0	30-145		%REC	1	9/10/2005 2:42:02 AM
Surr: Tetrachloro-m-xylene	78.0	25-140		%REC	1	9/10/2005 2:42:02 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM
Arsenic	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 4:46:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 4:46:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM

Qualifiers:
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-13

Client Sample ID: MW-9M
Collection Date: 8/30/2005 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 4:46:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 4:46:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	8.8			s.u.	1	8/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.160			µmhos/cm	1	8/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	3.8000			ft.	1	8/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	13.4			°C	1	8/31/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	19			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2,4-Dichlorophenol	ND	10		µg/L	1	9/8/2005 9:47:00 AM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2,4-Dinitrophenol	ND	20		µg/L	1	9/8/2005 9:47:00 AM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2-Chlorophenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2-Methylphenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
2-Nitroaniline	ND	20		µg/L	1	9/8/2005 9:47:00 AM
2-Nitrophenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/8/2005 9:47:00 AM
3-Nitroaniline	ND	20		µg/L	1	9/8/2005 9:47:00 AM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/8/2005 9:47:00 AM

Qualifiers:
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P - Dual Column results percent difference > 40%
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-13

Client Sample ID: MW-9M
Collection Date: 8/30/2005 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
4-Chloroaniline	ND	20		µg/L	1	9/8/2005 9:47:00 AM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
4-Methylphenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
4-Nitroaniline	ND	20		µg/L	1	9/8/2005 9:47:00 AM
4-Nitrophenol	ND	20		µg/L	1	9/8/2005 9:47:00 AM
Acenaphthene	19	5.0		µg/L	1	9/8/2005 9:47:00 AM
Acenaphthylene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Anthracene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/8/2005 9:47:00 AM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/8/2005 9:47:00 AM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/8/2005 9:47:00 AM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Carbazole	ND	10		µg/L	1	9/8/2005 9:47:00 AM
Chrysene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/8/2005 9:47:00 AM
Dibenzofuran	13	5.0		µg/L	1	9/8/2005 9:47:00 AM
Diethyl phthalate	ND	20		µg/L	1	9/8/2005 9:47:00 AM
Dimethyl phthalate	ND	20		µg/L	1	9/8/2005 9:47:00 AM
Fluoranthene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Fluorene	18	5.0		µg/L	1	9/8/2005 9:47:00 AM
Hexachlorobenzene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Hexachloroethane	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/8/2005 9:47:00 AM
Isophorone	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Naphthalene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Nitrobenzene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Pentachlorophenol	ND	20		µg/L	1	9/8/2005 9:47:00 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-13

Client Sample ID: MW-9M
Collection Date: 8/30/2005 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	22	5.0		µg/L	1	9/8/2005 9:47:00 AM
Phenol	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Pyrene	ND	5.0		µg/L	1	9/8/2005 9:47:00 AM
Surr: 2,4,6-Tribromophenol	85.0	10-123		%REC	1	9/8/2005 9:47:00 AM
Surr: 2-Fluorophenol	29.4	7-75		%REC	1	9/8/2005 9:47:00 AM
Surr: Phenol-d6	21.5	3-67		%REC	1	9/8/2005 9:47:00 AM
Surr: 2-Fluorobiphenyl	48.1	20-122		%REC	1	9/8/2005 9:47:00 AM
Surr: 4-Terphenyl-d14	71.1	22-172		%REC	1	9/8/2005 9:47:00 AM
Surr: Nitrobenzene-d5	46.6	8-115		%REC	1	9/8/2005 9:47:00 AM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2005 7:26:00 PM
2-Butanone	ND	5.0		µg/L	1	9/8/2005 7:26:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/8/2005 7:26:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/8/2005 7:26:00 PM
Acetone	ND	20		µg/L	1	9/8/2005 7:26:00 PM
Benzene	17	1.0		µg/L	1	9/9/2005 9:23:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Bromoform	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Bromomethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/8/2005 7:26:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Chloroethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Chloroform	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Chloromethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/8/2005 7:26:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/8/2005 7:26:00 PM
o-Xylene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Styrene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/8/2005 7:26:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-13

Client Sample ID: MW-9M
Collection Date: 8/30/2005 8:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	1.3	1.0		µg/L	1	9/9/2005 9:23:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/8/2005 7:26:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/8/2005 7:26:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/8/2005 7:26:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/8/2005 7:26:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	9/8/2005 7:26:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	9/9/2005 9:23:00 PM
Surr: 4-Bromofluorobenzene	91.0	70-130		%REC	1	9/8/2005 7:26:00 PM
Surr: 4-Bromofluorobenzene	93.8	70-130		%REC	1	9/9/2005 9:23:00 PM
Surr: Dibromofluoromethane	101	70-130		%REC	1	9/9/2005 9:23:00 PM
Surr: Dibromofluoromethane	104	70-130		%REC	1	9/8/2005 7:26:00 PM
Surr: Toluene-d8	95.1	70-130		%REC	1	9/8/2005 7:26:00 PM
Surr: Toluene-d8	99.0	70-130		%REC	1	9/9/2005 9:23:00 PM
CYANIDE, TOTAL		**EPA 9014**				Analyst: **CES**
Cyanide, Total	ND	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND		**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	56	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY		**EPA 9056**				Analyst: **MB**
Chloride	270	20		mg/L	20	9/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA		**EPA 350.1**				Analyst: **RH**
Nitrogen, Ammonia	16	1.0		mg/L	50	9/8/2005
NITROGEN, NITRITE		**EPA 354.1**				Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL		**EPA 9065**				Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS		**EPA 160.1**				Analyst: **CS**
Total Dissolved Solids	650	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS		**EPA 160.2**				Analyst: **KV**
Total Suspended Solids	ND	2.0		mg/L	1	9/2/2005

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-14

Client Sample ID: MW-9D
Collection Date: 8/31/2005 9:03:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/2/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	89.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/2/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
4,4´-DDE	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
4,4´-DDT	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
Aldrin	ND	0.010		µg/L	1	9/10/2005 3:17:07 AM
alpha-BHC	ND	0.010		µg/L	1	9/10/2005 3:17:07 AM
beta-BHC	ND	0.010		µg/L	1	9/10/2005 3:17:07 AM
Chlordane, Technical	ND	0.50		µg/L	1	9/10/2005 3:17:07 AM
delta-BHC	ND	0.010		µg/L	1	9/10/2005 3:17:07 AM
Dieldrin	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
Endosulfan I	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
Endosulfan II	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
Endosulfan sulfate	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
Endrin	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
Endrin aldehyde	ND	0.020		µg/L	1	9/10/2005 3:17:07 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/10/2005 3:17:07 AM
Heptachlor	ND	0.010		µg/L	1	9/10/2005 3:17:07 AM
Heptachlor epoxide	ND	0.010		µg/L	1	9/10/2005 3:17:07 AM
Methoxychlor	ND	0.040		µg/L	1	9/10/2005 3:17:07 AM
Toxaphene	ND	2.0		µg/L	1	9/10/2005 3:17:07 AM
Surr: Decachlorobiphenyl	95.0	30-145		%REC	1	9/10/2005 3:17:07 AM
Surr: Tetrachloro-m-xylene	135	25-140		%REC	1	9/10/2005 3:17:07 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/2/2005**	Analyst: **JJ**
Mercury	ND	0.00020		mg/L	1	9/2/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **8/31/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM
Arsenic	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM
Beryllium	ND	0.0020		mg/L	1	9/2/2005 4:51:00 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2005 4:51:00 PM
Chromium	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-14

Client Sample ID: MW-9D
Collection Date: 8/31/2005 9:03:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM
Lead	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM
Nickel	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM
Selenium	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM
Silver	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM
Thallium	ND	0.0050		mg/L	1	9/2/2005 4:51:00 PM
Zinc	ND	0.010		mg/L	1	9/2/2005 4:51:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	8.0			s.u.	1	8/31/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	1.360			µmhos/cm	1	8/31/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	3.8500			ft.	1	8/31/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	13.4			°C	1	8/31/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	30			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2,4-Dichlorophenol	ND	10		µg/L	1	9/8/2005 10:18:00 AM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2,4-Dinitrophenol	ND	20		µg/L	1	9/8/2005 10:18:00 AM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2-Chlorophenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2-Methylnaphthalene	99	50		µg/L	10	9/12/2005 2:58:00 PM
2-Methylphenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
2-Nitroaniline	ND	20		µg/L	1	9/8/2005 10:18:00 AM
2-Nitrophenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/8/2005 10:18:00 AM
3-Nitroaniline	ND	20		µg/L	1	9/8/2005 10:18:00 AM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/8/2005 10:18:00 AM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-14

Client Sample ID: MW-9D
Collection Date: 8/31/2005 9:03:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
4-Chloroaniline	ND	20		µg/L	1	9/8/2005 10:18:00 AM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
4-Methylphenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
4-Nitroaniline	ND	20		µg/L	1	9/8/2005 10:18:00 AM
4-Nitrophenol	ND	20		µg/L	1	9/8/2005 10:18:00 AM
Acenaphthene	130	50		µg/L	10	9/12/2005 2:58:00 PM
Acenaphthylene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Anthracene	7.5	5.0		µg/L	1	9/8/2005 10:18:00 AM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/8/2005 10:18:00 AM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/8/2005 10:18:00 AM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/8/2005 10:18:00 AM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Carbazole	ND	100		µg/L	10	9/12/2005 2:58:00 PM
Chrysene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/8/2005 10:18:00 AM
Dibenzofuran	89	50		µg/L	10	9/12/2005 2:58:00 PM
Diethyl phthalate	ND	20		µg/L	1	9/8/2005 10:18:00 AM
Dimethyl phthalate	ND	20		µg/L	1	9/8/2005 10:18:00 AM
Fluoranthene	7.0	5.0		µg/L	1	9/8/2005 10:18:00 AM
Fluorene	75	50		µg/L	10	9/12/2005 2:58:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Hexachloroethane	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/8/2005 10:18:00 AM
Isophorone	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Naphthalene	320	50		µg/L	10	9/12/2005 2:58:00 PM
Nitrobenzene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Pentachlorophenol	ND	20		µg/L	1	9/8/2005 10:18:00 AM

Qualifiers:
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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-14

Client Sample ID: MW-9D
Collection Date: 8/31/2005 9:03:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	48	5.0		µg/L	1	9/8/2005 10:18:00 AM
Phenol	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Pyrene	ND	5.0		µg/L	1	9/8/2005 10:18:00 AM
Surr: 2,4,6-Tribromophenol	88.9	10-123		%REC	1	9/8/2005 10:18:00 AM
Surr: 2-Fluorophenol	35.3	7-75		%REC	1	9/8/2005 10:18:00 AM
Surr: Phenol-d6	26.4	3-67		%REC	1	9/8/2005 10:18:00 AM
Surr: 2-Fluorobiphenyl	55.0	20-122		%REC	1	9/8/2005 10:18:00 AM
Surr: 4-Terphenyl-d14	73.7	22-172		%REC	1	9/8/2005 10:18:00 AM
Surr: Nitrobenzene-d5	59.7	8-115		%REC	1	9/8/2005 10:18:00 AM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/9/2005 3:45:00 PM
2-Butanone	ND	5.0		µg/L	1	9/9/2005 3:45:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/9/2005 3:45:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/9/2005 3:45:00 PM
Acetone	ND	20		µg/L	1	9/9/2005 3:45:00 PM
Benzene	16	1.0		µg/L	1	9/9/2005 3:45:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Bromoform	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Bromomethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/9/2005 3:45:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Chloroethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Chloroform	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Chloromethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/9/2005 3:45:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/9/2005 3:45:00 PM
o-Xylene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Styrene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/9/2005 3:45:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-14

Client Sample ID: MW-9D
Collection Date: 8/31/2005 9:03:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	1.2	1.0		µg/L	1	9/9/2005 3:45:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/9/2005 3:45:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/9/2005 3:45:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/9/2005 3:45:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/9/2005 3:45:00 PM
Surr: 1,2-Dichloroethane-d4	95.0	70-130		%REC	1	9/9/2005 3:45:00 PM
Surr: 4-Bromofluorobenzene	96.8	70-130		%REC	1	9/9/2005 3:45:00 PM
Surr: Dibromofluoromethane	100	70-130		%REC	1	9/9/2005 3:45:00 PM
Surr: Toluene-d8	97.6	70-130		%REC	1	9/9/2005 3:45:00 PM
CYANIDE, TOTAL			**EPA 9014**			Analyst: **CES**
Cyanide, Total	0.0084	0.0050		mg/L	2	9/6/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	39	5.0		mg/L	1	9/6/2005
ANIONS BY ION CHROMATOGRAPHY			**EPA 9056**			Analyst: **MB**
Chloride	300	20		mg/L	20	9/2/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	8/31/2005
NITROGEN, AMMONIA			**EPA 350.2**			Analyst: **RH**
Nitrogen, Ammonia	24	0.50		mg/L	1	9/9/2005
NITROGEN, NITRITE			**EPA 354.1**			Analyst: **MB**
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/1/2005
PHENOLICS, TOTAL			**EPA 9065**			Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **CS**
Total Dissolved Solids	700	5.0		mg/L	1	9/1/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **KV**
Total Suspended Solids	11	2.0		mg/L	1	9/2/2005

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-15

Client Sample ID: Trip Blank
Collection Date: 9/6/2005
Matrix: TRIP BLANK

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/16/2005 2:57:00 PM
2-Butanone	ND	5.0		µg/L	1	9/16/2005 2:57:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/16/2005 2:57:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/16/2005 2:57:00 PM
Acetone	ND	20		µg/L	1	9/16/2005 2:57:00 PM
Benzene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Bromoform	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Bromomethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/16/2005 2:57:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Chloroethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Chloroform	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Chloromethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/16/2005 2:57:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/16/2005 2:57:00 PM
o-Xylene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Styrene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/16/2005 2:57:00 PM
Toluene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/16/2005 2:57:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/16/2005 2:57:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/16/2005 2:57:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/16/2005 2:57:00 PM
Surr: 1,2-Dichloroethane-d4	85.1	70-130		%REC	1	9/16/2005 2:57:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	Trip Blank
Work Order:	0508612	**Collection Date:**	9/6/2005
Project:	GSD - RSL GROUNDWATER		
Lab ID:	0508612-15	**Matrix:**	TRIP BLANK

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Surr: 4-Bromofluorobenzene	95.9	70-130		%REC	1	9/16/2005 2:57:00 PM
Surr: Dibromofluoromethane	95.8	70-130		%REC	1	9/16/2005 2:57:00 PM
Surr: Toluene-d8	99.1	70-130		%REC	1	9/16/2005 2:57:00 PM

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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-16

Client Sample ID: MW-5DR
Collection Date: 9/6/2005 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **9/8/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	9/9/2005
Aroclor 1221	ND	0.40		µg/L	1	9/9/2005
Aroclor 1232	ND	0.40		µg/L	1	9/9/2005
Aroclor 1242	ND	0.40		µg/L	1	9/9/2005
Aroclor 1248	ND	0.40		µg/L	1	9/9/2005
Aroclor 1254	ND	0.40		µg/L	1	9/9/2005
Aroclor 1260	ND	0.40		µg/L	1	9/9/2005
Surr: Decachlorobiphenyl	73.0	40-140		%REC	1	9/9/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 8081**		Prep Date: **9/8/2005**	Analyst: **RM**
4,4´-DDD	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
4,4´-DDE	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
4,4´-DDT	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
Aldrin	ND	0.010		µg/L	1	9/10/2005 4:27:08 AM
alpha-BHC	ND	0.010		µg/L	1	9/10/2005 4:27:08 AM
beta-BHC	ND	0.010		µg/L	1	9/10/2005 4:27:08 AM
Chlordane, Technical	ND	0.50		µg/L	1	9/10/2005 4:27:08 AM
delta-BHC	ND	0.010		µg/L	1	9/10/2005 4:27:08 AM
Dieldrin	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
Endosulfan I	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
Endosulfan II	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
Endosulfan sulfate	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
Endrin	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
Endrin aldehyde	ND	0.020		µg/L	1	9/10/2005 4:27:08 AM
gamma-BHC (Lindane)	ND	0.010		µg/L	1	9/10/2005 4:27:08 AM
Heptachlor	ND	0.010		µg/L	1	9/10/2005 4:27:08 AM
Heptachlor epoxide	ND	0.010		µg/L	1	9/10/2005 4:27:08 AM
Methoxychlor	ND	0.040		µg/L	1	9/10/2005 4:27:08 AM
Toxaphene	ND	2.0		µg/L	1	9/10/2005 4:27:08 AM
Surr: Decachlorobiphenyl	76.0	30-145		%REC	1	9/10/2005 4:27:08 AM
Surr: Tetrachloro-m-xylene	51.0	25-140		%REC	1	9/10/2005 4:27:08 AM
MERCURY BY CVAA (DISSOLVED)			**EPA 7470**		Prep Date: **9/8/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	9/8/2005
METALS ANALYSIS BY ICP-MS (DISSOLVED)			**EPA 6020A**		Prep Date: **9/6/2005**	Analyst: **JDA**
Antimony	ND	0.0050		mg/L	1	9/8/2005 11:04:00 PM
Arsenic	0.024	0.0050		mg/L	1	9/8/2005 11:04:00 PM
Beryllium	ND	0.0020		mg/L	1	9/8/2005 11:04:00 PM
Cadmium	ND	0.0020		mg/L	1	9/8/2005 11:04:00 PM
Chromium	ND	0.0050		mg/L	1	9/8/2005 11:04:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-16

Client Sample ID: MW-5DR
Collection Date: 9/6/2005 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Copper	ND	0.0050		mg/L	1	9/8/2005 11:04:00 PM
Lead	ND	0.0050		mg/L	1	9/8/2005 11:04:00 PM
Nickel	0.042	0.0050		mg/L	1	9/8/2005 11:04:00 PM
Selenium	ND	0.0050		mg/L	1	9/8/2005 11:04:00 PM
Silver	ND	0.0050		mg/L	1	9/8/2005 11:04:00 PM
Thallium	ND	0.0050		mg/L	1	9/8/2005 11:04:00 PM
Zinc	ND	0.010		mg/L	1	9/8/2005 11:04:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.0			s.u.	1	9/6/2005
SPECIFIC CONDUCTANCE (FIELD)			**ELECTRODE**			Analyst: **LA**
Specific Conductance (field)	2.010			µmhos/cm	1	9/6/2005
GROUNDWATER LEVELS (FIELD)			**TAPE**			Analyst: **LA**
Static Water Level (field)	3.6500			ft.	1	9/6/2005
TEMPERATURE (FIELD)			**THERMOMETER**			Analyst: **LA**
Temperature	13.8			°C	1	9/6/2005
WELL DEPTH			**FIELD**			Analyst: **LA**
Well Depth	28			ft.	1	8/30/2005
TARGET COMPOUND LIST (TCL) - SVOC			**EPA 8270**		Prep Date: **9/6/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2,4-Dichlorophenol	ND	10		µg/L	1	9/8/2005 10:49:00 AM
2,4-Dimethylphenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2,4-Dinitrophenol	ND	20		µg/L	1	9/8/2005 10:49:00 AM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2-Chloronaphthalene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2-Chlorophenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2-Methylnaphthalene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2-Methylphenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
2-Nitroaniline	ND	20		µg/L	1	9/8/2005 10:49:00 AM
2-Nitrophenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	9/8/2005 10:49:00 AM
3-Nitroaniline	ND	20		µg/L	1	9/8/2005 10:49:00 AM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/8/2005 10:49:00 AM

Qualifiers:
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-16

Client Sample ID: MW-5DR
Collection Date: 9/6/2005 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
4-Chloroaniline	ND	20		µg/L	1	9/8/2005 10:49:00 AM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
4-Methylphenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
4-Nitroaniline	ND	20		µg/L	1	9/8/2005 10:49:00 AM
4-Nitrophenol	ND	20		µg/L	1	9/8/2005 10:49:00 AM
Acenaphthene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Acenaphthylene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Anthracene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Benzo(a)anthracene	ND	1.0		µg/L	1	9/8/2005 10:49:00 AM
Benzo(a)pyrene	ND	2.0		µg/L	1	9/8/2005 10:49:00 AM
Benzo(b)fluoranthene	ND	2.0		µg/L	1	9/8/2005 10:49:00 AM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Butyl benzyl phthalate	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Carbazole	ND	10		µg/L	1	9/8/2005 10:49:00 AM
Chrysene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Di-n-butyl phthalate	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Di-n-octyl phthalate	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Dibenzo(a,h)anthracene	ND	2.0		µg/L	1	9/8/2005 10:49:00 AM
Dibenzofuran	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Diethyl phthalate	ND	20		µg/L	1	9/8/2005 10:49:00 AM
Dimethyl phthalate	ND	20		µg/L	1	9/8/2005 10:49:00 AM
Fluoranthene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Fluorene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Hexachlorobenzene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Hexachlorobutadiene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Hexachloroethane	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Indeno(1,2,3-cd)pyrene	ND	2.0		µg/L	1	9/8/2005 10:49:00 AM
Isophorone	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Naphthalene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Nitrobenzene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Pentachlorophenol	ND	20		µg/L	1	9/8/2005 10:49:00 AM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-16

Client Sample ID: MW-5DR
Collection Date: 9/6/2005 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Phenanthrene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Phenol	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Pyrene	ND	5.0		µg/L	1	9/8/2005 10:49:00 AM
Surr: 2,4,6-Tribromophenol	77.8	10-123		%REC	1	9/8/2005 10:49:00 AM
Surr: 2-Fluorophenol	31.2	7-75		%REC	1	9/8/2005 10:49:00 AM
Surr: Phenol-d6	22.4	3-67		%REC	1	9/8/2005 10:49:00 AM
Surr: 2-Fluorobiphenyl	47.1	20-122		%REC	1	9/8/2005 10:49:00 AM
Surr: 4-Terphenyl-d14	71.1	22-172		%REC	1	9/8/2005 10:49:00 AM
Surr: Nitrobenzene-d5	45.9	8-115		%REC	1	9/8/2005 10:49:00 AM
TARGET COMPOUND LIST (TCL) - VOC		**EPA 8260**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
1,2-Dichloropropane	ND	2.0		µg/L	1	9/9/2005 4:52:00 PM
2-Butanone	ND	5.0		µg/L	1	9/9/2005 4:52:00 PM
2-Hexanone	ND	5.0		µg/L	1	9/9/2005 4:52:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	1	9/9/2005 4:52:00 PM
Acetone	ND	20		µg/L	1	9/9/2005 4:52:00 PM
Benzene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Bromoform	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Bromomethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Carbon disulfide	ND	2.5		µg/L	1	9/9/2005 4:52:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Chlorobenzene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Chloroethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Chloroform	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Chloromethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Ethylbenzene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
m,p-Xylene	ND	2.0		µg/L	1	9/9/2005 4:52:00 PM
Methylene chloride	ND	5.0		µg/L	1	9/9/2005 4:52:00 PM
o-Xylene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Styrene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Tetrachloroethene	ND	2.0		µg/L	1	9/9/2005 4:52:00 PM

Qualifiers:
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e-Lab Analytical, Inc

Date: *September 23, 2005*

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER
Lab ID: 0508612-16

Client Sample ID: MW-5DR
Collection Date: 9/6/2005 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Toluene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Trichloroethene	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
Vinyl chloride	ND	1.0		µg/L	1	9/9/2005 4:52:00 PM
1,2-Dichloroethene, Total	ND	2.0		µg/L	1	9/9/2005 4:52:00 PM
1,3-Dichloropropene, Total	ND	2.0		µg/L	1	9/9/2005 4:52:00 PM
Xylenes, Total	ND	3.0		µg/L	1	9/9/2005 4:52:00 PM
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%REC	1	9/9/2005 4:52:00 PM
Surr: 4-Bromofluorobenzene	93.2	70-130		%REC	1	9/9/2005 4:52:00 PM
Surr: Dibromofluoromethane	103	70-130		%REC	1	9/9/2005 4:52:00 PM
Surr: Toluene-d8	94.6	70-130		%REC	1	9/9/2005 4:52:00 PM
CYANIDE, TOTAL		**EPA 9014**				Analyst: **CES**
Cyanide, Total	0.053	0.0050		mg/L	2	9/7/2005
CHEMICAL OXYGEN DEMAND		**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	42	5.0		mg/L	1	9/7/2005
ANIONS BY ION CHROMATOGRAPHY		**EPA 9056**				Analyst: **MB**
Chloride	390	100		mg/L	100	9/20/2005
Nitrogen, Nitrate	ND	0.030		mg/L	1	9/6/2005
Nitrogen, Nitrite	ND	0.010		mg/L	1	9/6/2005
NITROGEN, AMMONIA		**EPA 350.2**				Analyst: **RH**
Nitrogen, Ammonia	49	0.50		mg/L	1	9/9/2005
PHENOLICS, TOTAL		**EPA 9065**				Analyst: **MB**
Phenolics, Total	ND	0.010		mg/L	1	9/12/2005
TOTAL DISSOLVED SOLIDS		**EPA 160.1**				Analyst: **CS**
Total Dissolved Solids	1,100	5.0		mg/L	1	9/8/2005
TOTAL SUSPENDED SOLIDS		**EPA 160.2**				Analyst: **JJG**
Total Suspended Solids	27	2.0		mg/L	1	9/7/2005

Qualifiers:

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e-Lab Analytical, Inc

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

Date: *Sep 23 2005*

QC BATCH REPORT

Batch ID: **7697** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-7697** Test Code: **EPA 608** Units: **µg/L** Analysis Date: **09/05/05 0:00**

Client ID: Run ID: **GC4_050905A** SeqNo: **474758** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.40								
Aroclor 1221	ND	0.40								
Aroclor 1232	ND	0.40								
Aroclor 1242	ND	0.40								
Aroclor 1248	ND	0.40								
Aroclor 1254	ND	0.40								
Aroclor 1260	ND	0.40								
Surr: Decachlorobiphenyl	0.072	0	0.1	0	72	50-130	0			

LCS Sample ID: **PLCSW1-7697** Test Code: **EPA 608** Units: **µg/L** Analysis Date: **09/05/05 0:00**

Client ID: Run ID: **GC4_050905A** SeqNo: **474760** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1.817	0.40	2.5	0	72.7	50-130	0			
Aroclor 1260	1.971	0.40	2.5	0	78.8	50-130	0			
Surr: Decachlorobiphenyl	0.073	0	0.1	0	73	50-130	0			

LCSD Sample ID: **PLCSDW1-7697** Test Code: **EPA 608** Units: **µg/L** Analysis Date: **09/05/05 0:00**

Client ID: Run ID: **GC4_050905A** SeqNo: **474759** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1.771	0.40	2.5	0	70.8	50-130	1.817	2.56	25	
Aroclor 1260	1.838	0.40	2.5	0	73.5	50-130	1.971	6.98	25	
Surr: Decachlorobiphenyl	0.07	0	0.1	0	70	50-130	0.073	4.2	25	

MS Sample ID: **0508612-08H MS** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **09/09/05 0:00**

Client ID: **MW-5S (MS/MSD)** Run ID: **GC4_050909B** SeqNo: **477381** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	4.366	0.80	5	0	87.3	40-140	0			
Aroclor 1260	4.008	0.80	5	0	80.2	40-140	0			
Surr: Decachlorobiphenyl	0.146	0	0.2	0	73	40-140	0			

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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7697** InstrumentID: **GC4**

MSD Sample ID: **0508612-08H MSD** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **09/09/05 0:00**

Client ID: **MW-5S (MS/MSD)** Run ID: **GC4_050909B** SeqNo: **477382** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	4.098	0.80	5	0	82	40-140	4.366	6.33	50	
Aroclor 1260	4.058	0.80	5	0	81.2	40-140	4.008	1.24	50	
Surr: Decachlorobiphenyl	0.148	0	0.2	0	74	40-140	0.146	1.36	50	

The following samples were analyzed in this batch:

0508612-01H	0508612-02H	0508612-03H
0508612-04H	0508612-05H	0508612-06H
0508612-07H	0508612-08H	0508612-09H
0508612-10H	0508612-11H	0508612-12H
0508612-13H	0508612-14H	

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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7698** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-7698** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/09/05 19:07**

Client ID: Run ID: **GC4_050909A** SeqNo: **477339** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	ND	0.020								
4,4´-DDE	ND	0.020								
4,4´-DDT	ND	0.020								
Aldrin	ND	0.010								
alpha-BHC	ND	0.010								
beta-BHC	ND	0.010								
Chlordane, Technical	ND	0.50								
delta-BHC	ND	0.010								
Dieldrin	ND	0.020								
Endosulfan I	ND	0.020								
Endosulfan II	ND	0.020								
Endosulfan sulfate	ND	0.020								
Endrin	ND	0.020								
Endrin aldehyde	ND	0.020								
gamma-BHC (Lindane)	ND	0.010								
Heptachlor	ND	0.010								
Heptachlor epoxide	ND	0.010								
Methoxychlor	ND	0.040								
Toxaphene	ND	2.0								
Surr: Decachlorobiphenyl	0.085	0	0.1	0	85	30-135		0		
Surr: Tetrachloro-m-xylene	0.049	0	0.1	0	49	25-140		0		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7698** InstrumentID: **GC4**

LCS Sample ID: **PLCSW1-7698** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 6:47**

Client ID: Run ID: **GC4_050909A** SeqNo: **477333** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.09	0.020	0.1	0	90	25-150	0			
4,4´-DDE	0.079	0.020	0.1	0	79	35-140	0			
4,4´-DDT	0.091	0.020	0.1	0	91	45-140	0			
Aldrin	0.05	0.010	0.1	0	50	25-140	0			
alpha-BHC	0.064	0.010	0.1	0	64	60-130	0			
beta-BHC	0.078	0.010	0.1	0	78	65-125	0			
delta-BHC	0.08	0.010	0.1	0	80	45-135	0			
Dieldrin	0.081	0.020	0.1	0	81	60-130	0			
Endosulfan I	0.076	0.020	0.1	0	76	50-110	0			
Endosulfan II	0.084	0.020	0.1	0	84	30-130	0			
Endosulfan sulfate	0.086	0.020	0.1	0	86	55-135	0			
Endrin	0.083	0.020	0.1	0	83	55-135	0			
Endrin aldehyde	0.07	0.020	0.1	0	70	55-135	0			
gamma-BHC (Lindane)	0.069	0.010	0.1	0	69	25-135	0			
Heptachlor	0.06	0.010	0.1	0	60	40-130	0			
Heptachlor epoxide	0.073	0.010	0.1	0	73	60-130	0			
Methoxychlor	0.093	0.040	0.1	0	93	55-150	0			
Surr: Decachlorobiphenyl	0.086	0	0.1	0	86	30-135	0			
Surr: Tetrachloro-m-xylene	0.039	0	0.1	0	39	25-140	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7698** InstrumentID: **GC4**

LCSD Sample ID: **PLCSDW1-7698** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 7:22**

Client ID: Run ID: **GC4_050909A** SeqNo: **477334** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.089	0.020	0.1	0	89	25-150	0.09	1.12	50	
4,4´-DDE	0.078	0.020	0.1	0	78	35-140	0.079	1.27	50	
4,4´-DDT	0.089	0.020	0.1	0	89	45-140	0.091	2.22	50	
Aldrin	0.05	0.010	0.1	0	50	25-140	0.05	0	50	
alpha-BHC	0.068	0.010	0.1	0	68	60-130	0.064	6.06	50	
beta-BHC	0.077	0.010	0.1	0	77	65-125	0.078	1.29	50	
delta-BHC	0.081	0.010	0.1	0	81	45-135	0.08	1.24	50	
Dieldrin	0.081	0.020	0.1	0	81	60-130	0.081	0	50	
Endosulfan I	0.075	0.020	0.1	0	75	50-110	0.076	1.32	50	
Endosulfan II	0.084	0.020	0.1	0	84	30-130	0.084	0	50	
Endosulfan sulfate	0.086	0.020	0.1	0	86	55-135	0.086	0	50	
Endrin	0.082	0.020	0.1	0	82	55-135	0.083	1.21	50	
Endrin aldehyde	0.069	0.020	0.1	0	69	55-135	0.07	1.44	50	
gamma-BHC (Lindane)	0.072	0.010	0.1	0	72	25-135	0.069	4.26	50	
Heptachlor	0.06	0.010	0.1	0	60	40-130	0.06	0	50	
Heptachlor epoxide	0.073	0.010	0.1	0	73	60-130	0.073	0	50	
Methoxychlor	0.094	0.040	0.1	0	94	55-150	0.093	1.07	50	
Surr: Decachlorobiphenyl	0.087	0	0.1	0	87	30-135	0.086	1.16	50	
Surr: Tetrachloro-m-xylene	0.04	0	0.1	0	40	25-140	0.039	2.53	50	

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P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7698** InstrumentID: **GC4**

MS Sample ID: **0508612-08H MS** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 7:57**

Client ID: **MW-5S (MS/MSD)** Run ID: **GC4_050909A** SeqNo: **477335** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.188	0.040	0.2	0	94	25-150	0			
4,4´-DDE	0.178	0.040	0.2	0	89	35-140	0			
4,4´-DDT	0.192	0.040	0.2	0	96	45-140	0			
Aldrin	0.136	0.020	0.2	0	68	25-140	0			
alpha-BHC	0.154	0.020	0.2	0	77	60-130	0			
beta-BHC	0.172	0.020	0.2	0	86	65-125	0			
delta-BHC	0.19	0.020	0.2	0	95	45-135	0			
Dieldrin	0.184	0.040	0.2	0	92	60-130	0			
Endosulfan I	0.174	0.040	0.2	0	87	50-110	0			
Endosulfan II	0.184	0.040	0.2	0	92	30-130	0			
Endosulfan sulfate	0.188	0.040	0.2	0	94	55-135	0			
Endrin	0.188	0.040	0.2	0	94	55-135	0			
Endrin aldehyde	0.142	0.040	0.2	0	71	55-135	0			
gamma-BHC (Lindane)	0.166	0.020	0.2	0	83	25-135	0			
Heptachlor	0.136	0.020	0.2	0	68	40-130	0			
Heptachlor epoxide	0.17	0.020	0.2	0	85	60-130	0			
Methoxychlor	0.206	0.080	0.2	0	103	55-150	0			
Surr: Decachlorobiphenyl	0.166	0	0.2	0	83	30-135	0			
Surr: Tetrachloro-m-xylene	0.11	0	0.2	0	55	25-140	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7698** InstrumentID: **GC4**

MSD Sample ID: **0508612-08H MSD** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 8:32**

Client ID: **MW-5S (MS/MSD)** Run ID: **GC4_050909A** SeqNo: **477336** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.184	0.040	0.2	0	92	25-150	0.188	2.15	50	
4,4´-DDE	0.18	0.040	0.2	0	90	35-140	0.178	1.12	50	
4,4´-DDT	0.196	0.040	0.2	0	98	45-140	0.192	2.06	50	
Aldrin	0.122	0.020	0.2	0	61	25-140	0.136	10.9	50	
alpha-BHC	0.152	0.020	0.2	0	76	60-130	0.154	1.31	50	
beta-BHC	0.172	0.020	0.2	0	86	65-125	0.172	0	50	
delta-BHC	0.186	0.020	0.2	0	93	45-135	0.19	2.13	50	
Dieldrin	0.182	0.040	0.2	0	91	60-130	0.184	1.09	50	
Endosulfan I	0.172	0.040	0.2	0	86	50-110	0.174	1.16	50	
Endosulfan II	0.18	0.040	0.2	0	90	30-130	0.184	2.2	50	
Endosulfan sulfate	0.182	0.040	0.2	0	91	55-135	0.188	3.24	50	
Endrin	0.18	0.040	0.2	0	90	55-135	0.188	4.35	50	
Endrin aldehyde	0.14	0.040	0.2	0	70	55-135	0.142	1.42	50	
gamma-BHC (Lindane)	0.162	0.020	0.2	0	81	25-135	0.166	2.44	50	
Heptachlor	0.128	0.020	0.2	0	64	40-130	0.136	6.06	50	
Heptachlor epoxide	0.172	0.020	0.2	0	86	60-130	0.17	1.17	50	
Methoxychlor	0.198	0.080	0.2	0	99	55-150	0.206	3.96	50	
Surr: Decachlorobiphenyl	0.176	0	0.2	0	88	30-135	0.166	5.85	50	
Surr: Tetrachloro-m-xylene	0.074	0	0.2	0	37	25-140	0.11	39.1	50	

The following samples were analyzed in this batch:

0508612-01H	0508612-02H	0508612-03H
0508612-04H	0508612-05H	0508612-06H
0508612-07H	0508612-08H	0508612-09H
0508612-10H	0508612-11H	0508612-12H
0508612-13H	0508612-14H	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7742** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-7742** Test Code: **EPA 608** Units: **µg/L** Analysis Date: **09/09/05 0:00**

Client ID: Run ID: **GC4_050909B** SeqNo: **477431** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.40								
Aroclor 1221	ND	0.40								
Aroclor 1232	ND	0.40								
Aroclor 1242	ND	0.40								
Aroclor 1248	ND	0.40								
Aroclor 1254	ND	0.40								
Aroclor 1260	ND	0.40								
Surr: Decachlorobiphenyl	0.072	0	0.1	0	72	50-130	0			

LCS Sample ID: **PLCSW1-7742** Test Code: **EPA 608** Units: **µg/L** Analysis Date: **09/09/05 0:00**

Client ID: Run ID: **GC4_050909B** SeqNo: **477433** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1.785	0.40	2.5	0	71.4	50-130	0			
Aroclor 1260	2.046	0.40	2.5	0	81.8	50-130	0			
Surr: Decachlorobiphenyl	0.076	0	0.1	0	76	50-130	0			

LCSD Sample ID: **PLCSDW1-7742** Test Code: **EPA 608** Units: **µg/L** Analysis Date: **09/09/05 0:00**

Client ID: Run ID: **GC4_050909B** SeqNo: **477432** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1.795	0.40	2.5	0	71.8	50-130	1.785	0.559	25	
Aroclor 1260	2.04	0.40	2.5	0	81.6	50-130	2.046	0.294	25	
Surr: Decachlorobiphenyl	0.073	0	0.1	0	73	50-130	0.076	4.03	25	

MS Sample ID: **0508612-16H MS** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **09/09/05 0:00**

Client ID: **MW-5DR** Run ID: **GC4_050909B** SeqNo: **477426** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	6.168	1.6	10	0	61.7	40-140	0			
Aroclor 1260	7.448	1.6	10	0	74.5	40-140	0			
Surr: Decachlorobiphenyl	0.272	0	0.4	0	68	40-140	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7742** InstrumentID: **GC4**

MSD Sample ID: **0508612-16H MSD** Test Code: **EPA 8082** Units: **µg/L** Analysis Date: **09/09/05 0:00**

Client ID: **MW-5DR** Run ID: **GC4_050909B** SeqNo: **477427** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	6.832	1.6	10	0	68.3	40-140	6.168	10.2	50	
Aroclor 1260	7.984	1.6	10	0	79.8	40-140	7.448	6.95	50	
Surr: Decachlorobiphenyl	0.3	0	0.4	0	75	40-140	0.272	9.79	50	

The following samples were analyzed in this batch: 0508612-16H

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7747** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-7747** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 3:52**

Client ID: Run ID: **GC4_050909A** SeqNo: **477331** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	ND	0.020								
4,4´-DDE	ND	0.020								
4,4´-DDT	ND	0.020								
Aldrin	ND	0.010								
alpha-BHC	ND	0.010								
beta-BHC	ND	0.010								
Chlordane, Technical	ND	0.50								
delta-BHC	ND	0.010								
Dieldrin	ND	0.020								
Endosulfan I	ND	0.020								
Endosulfan II	ND	0.020								
Endosulfan sulfate	ND	0.020								
Endrin	ND	0.020								
Endrin aldehyde	ND	0.020								
gamma-BHC (Lindane)	ND	0.010								
Heptachlor	ND	0.010								
Heptachlor epoxide	ND	0.010								
Methoxychlor	ND	0.040								
Toxaphene	ND	2.0								
Surr: Decachlorobiphenyl	0.075	0	0.1	0	75	30-135		0		
Surr: Tetrachloro-m-xylene	0.05	0	0.1	0	50	25-140		0		

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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7747** InstrumentID: **GC4**

LCS Sample ID: **PLCSW1-7747** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 9:07**

Client ID: Run ID: **GC4_050909A** SeqNo: **477337** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.083	0.020	0.1	0	83	25-150	0			
4,4´-DDE	0.073	0.020	0.1	0	73	35-140	0			
4,4´-DDT	0.085	0.020	0.1	0	85	45-140	0			
Aldrin	0.059	0.010	0.1	0	59	25-140	0			
alpha-BHC	0.063	0.010	0.1	0	63	60-130	0			
beta-BHC	0.073	0.010	0.1	0	73	65-125	0			
delta-BHC	0.077	0.010	0.1	0	77	45-135	0			
Dieldrin	0.075	0.020	0.1	0	75	60-130	0			
Endosulfan I	0.07	0.020	0.1	0	70	50-110	0			
Endosulfan II	0.079	0.020	0.1	0	79	30-130	0			
Endosulfan sulfate	0.082	0.020	0.1	0	82	55-135	0			
Endrin	0.078	0.020	0.1	0	78	55-135	0			
Endrin aldehyde	0.068	0.020	0.1	0	68	55-135	0			
gamma-BHC (Lindane)	0.068	0.010	0.1	0	68	25-135	0			
Heptachlor	0.059	0.010	0.1	0	59	40-130	0			
Heptachlor epoxide	0.069	0.010	0.1	0	69	60-130	0			
Methoxychlor	0.089	0.040	0.1	0	89	55-150	0			
Surr: Decachlorobiphenyl	0.074	0	0.1	0	74	30-135	0			
Surr: Tetrachloro-m-xylene	0.045	0	0.1	0	45	25-140	0			

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7747** InstrumentID: **GC4**

LCSD Sample ID: **PLCSDW1-7747** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 9:42**

Client ID: Run ID: **GC4_050909A** SeqNo: **477338** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.075	0.020	0.1	0	75	25-150	0.083	10.1	50	
4,4´-DDE	0.061	0.020	0.1	0	61	35-140	0.073	17.9	50	
4,4´-DDT	0.075	0.020	0.1	0	75	45-140	0.085	12.5	50	
Aldrin	0.049	0.010	0.1	0	49	25-140	0.059	18.5	50	
alpha-BHC	0.049	0.010	0.1	0	49	60-130	0.063	25	50	S
beta-BHC	0.059	0.010	0.1	0	59	65-125	0.073	21.2	50	S
delta-BHC	0.061	0.010	0.1	0	61	45-135	0.077	23.2	50	
Dieldrin	0.062	0.020	0.1	0	62	60-130	0.075	19	50	
Endosulfan I	0.058	0.020	0.1	0	58	50-110	0.07	18.7	50	
Endosulfan II	0.07	0.020	0.1	0	70	30-130	0.079	12.1	50	
Endosulfan sulfate	0.074	0.020	0.1	0	74	55-135	0.082	10.3	50	
Endrin	0.065	0.020	0.1	0	65	55-135	0.078	18.2	50	
Endrin aldehyde	0.06	0.020	0.1	0	60	55-135	0.068	12.5	50	
gamma-BHC (Lindane)	0.054	0.010	0.1	0	54	25-135	0.068	23	50	
Heptachlor	0.049	0.010	0.1	0	49	40-130	0.059	18.5	50	
Heptachlor epoxide	0.057	0.010	0.1	0	57	60-130	0.069	19	50	S
Methoxychlor	0.083	0.040	0.1	0	83	55-150	0.089	6.98	50	
Surr: Decachlorobiphenyl	0.071	0	0.1	0	71	30-135	0.074	4.14	50	
Surr: Tetrachloro-m-xylene	0.035	0	0.1	0	35	25-140	0.045	25	50	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7747** InstrumentID: **GC4**

MS Sample ID: **0508612-16H MS** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 10:17**

Client ID: **MW-5DR** Run ID: **GC4_050909A** SeqNo: **477323** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.348	0.080	0.4	0	87	25-150	0			
4,4´-DDE	0.324	0.080	0.4	0	81	35-140	0			
4,4´-DDT	0.36	0.080	0.4	0	90	45-140	0			
Aldrin	0.248	0.040	0.4	0	62	25-140	0			
alpha-BHC	0.264	0.040	0.4	0	66	60-130	0			
beta-BHC	0.312	0.040	0.4	0	78	65-125	0			
delta-BHC	0.332	0.040	0.4	0	83	45-135	0			
Dieldrin	0.328	0.080	0.4	0	82	60-130	0			
Endosulfan I	0.308	0.080	0.4	0	77	50-110	0			
Endosulfan II	0.332	0.080	0.4	0	83	30-130	0			
Endosulfan sulfate	0.344	0.080	0.4	0	86	55-135	0			
Endrin	0.34	0.080	0.4	0	85	55-135	0			
Endrin aldehyde	0.284	0.080	0.4	0	71	55-135	0			
gamma-BHC (Lindane)	0.292	0.040	0.4	0	73	25-135	0			
Heptachlor	0.24	0.040	0.4	0	60	40-130	0			
Heptachlor epoxide	0.296	0.040	0.4	0	74	60-130	0			
Methoxychlor	0.38	0.16	0.4	0	95	55-150	0			
Surr: Decachlorobiphenyl	0.324	0	0.4	0	81	30-135	0			
Surr: Tetrachloro-m-xylene	0.196	0	0.4	0	49	25-140	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7747** InstrumentID: **GC4**

MSD Sample ID: **0508612-16H MSD** Test Code: **EPA 8081** Units: **µg/L** Analysis Date: **09/10/05 10:52**

Client ID: **MW-5DR** Run ID: **GC4_050909A** SeqNo: **477324** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.368	0.080	0.4	0	92	25-150	0.348	5.59	50	
4,4´-DDE	0.328	0.080	0.4	0	82	35-140	0.324	1.23	50	
4,4´-DDT	0.372	0.080	0.4	0	93	45-140	0.36	3.28	50	
Aldrin	0.264	0.040	0.4	0	66	25-140	0.248	6.25	50	
alpha-BHC	0.292	0.040	0.4	0	73	60-130	0.264	10.1	50	
beta-BHC	0.324	0.040	0.4	0	81	65-125	0.312	3.77	50	
delta-BHC	0.348	0.040	0.4	0	87	45-135	0.332	4.71	50	
Dieldrin	0.336	0.080	0.4	0	84	60-130	0.328	2.41	50	
Endosulfan I	0.32	0.080	0.4	0	80	50-110	0.308	3.82	50	
Endosulfan II	0.344	0.080	0.4	0	86	30-130	0.332	3.55	50	
Endosulfan sulfate	0.352	0.080	0.4	0	88	55-135	0.344	2.3	50	
Endrin	0.348	0.080	0.4	0	87	55-135	0.34	2.33	50	
Endrin aldehyde	0.288	0.080	0.4	0	72	55-135	0.284	1.4	50	
gamma-BHC (Lindane)	0.312	0.040	0.4	0	78	25-135	0.292	6.62	50	
Heptachlor	0.26	0.040	0.4	0	65	40-130	0.24	8	50	
Heptachlor epoxide	0.308	0.040	0.4	0	77	60-130	0.296	3.97	50	
Methoxychlor	0.392	0.16	0.4	0	98	55-150	0.38	3.11	50	
Surr: Decachlorobiphenyl	0.34	0	0.4	0	85	30-135	0.324	4.82	50	
Surr: Tetrachloro-m-xylene	0.212	0	0.4	0	53	25-140	0.196	7.84	50	

The following samples were analyzed in this batch: 0508612-16H

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7695** InstrumentID: **HG1**

MBLK Sample ID: **MB-7695** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: Run ID: **HG1_050902A** SeqNo: **474427** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-7695** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: Run ID: **HG1_050902A** SeqNo: **474428** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00199	0.00020	0.002	0	99.5	80-120		0		

LCSD Sample ID: **LCSD-7695** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: Run ID: **HG1_050902A** SeqNo: **474447** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00202	0.00020	0.002	0	101	80-120	0.00199	1.5	20	

MS Sample ID: **0508612-08CMS** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **HG1_050902A** SeqNo: **474437** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00195	0.00020	0.002	-0.000004	97.7	75-125		0		

MSD Sample ID: **0508612-08CMSD** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **HG1_050902A** SeqNo: **474438** Prep Date: **9/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00194	0.00020	0.002	-0.000004	97.2	75-125	0.00195	0.514	20	

The following samples were analyzed in this batch:

0508612-01C	0508612-02C	0508612-03C
0508612-04C	0508612-05C	0508612-06C
0508612-07C	0508612-08C	0508612-09C
0508612-10C	0508612-11C	0508612-12C
0508612-13C	0508612-14C	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7754** InstrumentID: **HG1**

MBLK Sample ID: **MB-7754** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **HG1_050908A** SeqNo: **476488** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-7754** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **HG1_050908A** SeqNo: **476489** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00193	0.00020	0.002	0	96.5	80-120		0		

LCSD Sample ID: **LCSD-7754** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **HG1_050908A** SeqNo: **476500** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00195	0.00020	0.002	0	97.5	80-120	0.00193	1.03	20	

MS Sample ID: **0508612-16C MS** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: **MW-5DR** Run ID: **HG1_050908A** SeqNo: **476491** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00188	0.00020	0.002	-0.000058	96.9	75-125		0		

MSD Sample ID: **0508612-16C MSD** Test Code: **EPA 7470** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: **MW-5DR** Run ID: **HG1_050908A** SeqNo: **476492** Prep Date: **9/8/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0019	0.00020	0.002	-0.000058	97.9	75-125	0.00188	1.06	20	

The following samples were analyzed in this batch: 0508612-16C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7681** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW1-083105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 18:55**

Client ID: Run ID: **ICPMS1_050902B** SeqNo: **474863** Prep Date: **8/31/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.000483	0.0050								J
Arsenic	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	0.000313	0.0050								J
Thallium	ND	0.0050								
Zinc	ND	0.010								

MBLK Sample ID: **MBLKW1-083105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 18:55**

Client ID: Run ID: **ICPMS1_050902B** SeqNo: **475039** Prep Date: **8/31/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.000483	0.0050								J
Arsenic	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	0.000313	0.0050								J
Thallium	ND	0.0050								
Zinc	ND	0.010								

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7681** InstrumentID: **ICPMS1**

LCS Sample ID: **MLCSW1-083105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 19:01**

Client ID: Run ID: **ICPMS1_050902B** SeqNo: **474864** Prep Date: **8/31/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.08938	0.0050	0.1	0	89.4	80-120	0			
Arsenic	0.09983	0.0050	0.1	0	99.8	80-120	0			
Beryllium	0.1061	0.0020	0.1	0	106	80-120	0			
Cadmium	0.09713	0.0020	0.1	0	97.1	80-120	0			
Chromium	0.09842	0.0050	0.1	0	98.4	80-120	0			
Copper	0.1008	0.0050	0.1	0	101	80-120	0			
Lead	0.1015	0.0050	0.1	0	101	80-120	0			
Nickel	0.1014	0.0050	0.1	0	101	80-120	0			
Selenium	0.09962	0.0050	0.1	0	99.6	80-120	0			
Silver	0.09775	0.0050	0.1	0	97.8	80-120	0			
Thallium	0.1016	0.0050	0.1	0	102	80-120	0			
Zinc	0.09868	0.010	0.1	0	98.7	80-120	0			

LCS Sample ID: **MLCSW1-083105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 19:01**

Client ID: Run ID: **ICPMS1_050902B** SeqNo: **475040** Prep Date: **8/31/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.08938	0.0050	0.1	0	89.4	80-120	0			
Arsenic	0.09983	0.0050	0.1	0	99.8	80-120	0			
Beryllium	0.1061	0.0020	0.1	0	106	80-120	0			
Cadmium	0.09713	0.0020	0.1	0	97.1	80-120	0			
Chromium	0.09842	0.0050	0.1	0	98.4	80-120	0			
Copper	0.1008	0.0050	0.1	0	101	80-120	0			
Lead	0.1015	0.0050	0.1	0	101	80-120	0			
Nickel	0.1014	0.0050	0.1	0	101	80-120	0			
Selenium	0.09962	0.0050	0.1	0	99.6	80-120	0			
Silver	0.09775	0.0050	0.1	0	97.8	80-120	0			
Thallium	0.1016	0.0050	0.1	0	102	80-120	0			
Zinc	0.09868	0.010	0.1	0	98.7	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7681** InstrumentID: **ICPMS1**

LCSD Sample ID: **MLCSDW1-083105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 19:06**

Client ID: Run ID: **ICPMS1_050902B** SeqNo: **474865** Prep Date: **8/31/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1009	0.0050	0.1	0	101	80-120	0.08938	12.1	20	
Arsenic	0.09938	0.0050	0.1	0	99.4	80-120	0.09983	0.452	20	
Beryllium	0.1087	0.0020	0.1	0	109	80-120	0.1061	2.42	20	
Cadmium	0.09791	0.0020	0.1	0	97.9	80-120	0.09713	0.8	20	
Chromium	0.09863	0.0050	0.1	0	98.6	80-120	0.09842	0.213	20	
Copper	0.09872	0.0050	0.1	0	98.7	80-120	0.1008	2.09	20	
Lead	0.1044	0.0050	0.1	0	104	80-120	0.1015	2.82	20	
Nickel	0.09754	0.0050	0.1	0	97.5	80-120	0.1014	3.88	20	
Selenium	0.0982	0.0050	0.1	0	98.2	80-120	0.09962	1.44	20	
Silver	0.0998	0.0050	0.1	0	99.8	80-120	0.09775	2.08	20	
Thallium	0.1007	0.0050	0.1	0	101	80-120	0.1016	0.89	20	
Zinc	0.09775	0.010	0.1	0	97.8	80-120	0.09868	0.947	20	

LCSD Sample ID: **MLCSDW1-083105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 19:06**

Client ID: Run ID: **ICPMS1_050902B** SeqNo: **475041** Prep Date: **8/31/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1009	0.0050	0.1	0	101	80-120	0.08938	12.1	20	
Arsenic	0.09938	0.0050	0.1	0	99.4	80-120	0.09983	0.452	20	
Beryllium	0.1087	0.0020	0.1	0	109	80-120	0.1061	2.42	20	
Cadmium	0.09791	0.0020	0.1	0	97.9	80-120	0.09713	0.8	20	
Chromium	0.09863	0.0050	0.1	0	98.6	80-120	0.09842	0.213	20	
Copper	0.09872	0.0050	0.1	0	98.7	80-120	0.1008	2.09	20	
Lead	0.1044	0.0050	0.1	0	104	80-120	0.1015	2.82	20	
Nickel	0.09754	0.0050	0.1	0	97.5	80-120	0.1014	3.88	20	
Selenium	0.0982	0.0050	0.1	0	98.2	80-120	0.09962	1.44	20	
Silver	0.0998	0.0050	0.1	0	99.8	80-120	0.09775	2.08	20	
Thallium	0.1007	0.0050	0.1	0	101	80-120	0.1016	0.89	20	
Zinc	0.09775	0.010	0.1	0	97.8	80-120	0.09868	0.947	20	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7681** InstrumentID: **ICPMS1**

MS Sample ID: **0508612-08C MS** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/15/05 23:31**

Client ID: **MW-5S (MS/MSD)** Run ID: **ICPMS1_050915B** SeqNo: **479447** Prep Date: **8/31/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1236	0.0050	0.1	0.001309	122	80-120	0			S
Arsenic	0.1171	0.0050	0.1	0.005889	111	80-120	0			
Beryllium	0.09423	0.0020	0.1	0	94.2	80-120	0			
Cadmium	0.09435	0.0020	0.1	0	94.4	80-120	0			
Chromium	0.101	0.0050	0.1	0	101	80-120	0			
Copper	0.08977	0.0050	0.1	0	89.8	80-120	0			
Lead	0.09634	0.0050	0.1	0	96.3	80-120	0			
Nickel	0.08769	0.0050	0.1	0	87.7	80-120	0			
Selenium	0.1218	0.0050	0.1	0	122	80-120	0			S
Silver	0.08894	0.0050	0.1	0	88.9	80-120	0			
Zinc	0.1029	0.010	0.1	0	103	80-120	0			

MSD Sample ID: **0508612-08C MSD** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/15/05 23:36**

Client ID: **MW-5S (MS/MSD)** Run ID: **ICPMS1_050915B** SeqNo: **479469** Prep Date: **8/31/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1234	0.0050	0.1	0.001309	122	80-120	0.1236	0.162	20	S
Arsenic	0.1201	0.0050	0.1	0.005889	114	80-120	0.1171	2.53	20	
Beryllium	0.0987	0.0020	0.1	0	98.7	80-120	0.09423	4.63	20	
Cadmium	0.09379	0.0020	0.1	0	93.8	80-120	0.09435	0.595	20	
Chromium	0.09889	0.0050	0.1	0	98.9	80-120	0.101	2.11	20	
Copper	0.09317	0.0050	0.1	0	93.2	80-120	0.08977	3.72	20	
Lead	0.1107	0.0050	0.1	0	111	80-120	0.09634	13.9	20	
Nickel	0.09356	0.0050	0.1	0	93.6	80-120	0.08769	6.48	20	
Selenium	0.124	0.0050	0.1	0	124	80-120	0.1218	1.79	20	S
Silver	0.04823	0.0050	0.1	0	48.2	80-120	0.08894	59.4	20	SR
Zinc	0.1098	0.010	0.1	0	110	80-120	0.1029	6.49	20	

The following samples were analyzed in this batch:

0508612-01C	0508612-02C	0508612-03C
0508612-05C	0508612-07C	0508612-08C
0508612-09C	0508612-10C	0508612-11C
0508612-12C	0508612-13C	0508612-14C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7682** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW1-090105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 14:53**

Client ID: Run ID: **ICPMS1_050902A** SeqNo: **474784** Prep Date: **9/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

LCS Sample ID: **MLCSW1-090105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 14:58**

Client ID: Run ID: **ICPMS1_050902A** SeqNo: **474785** Prep Date: **9/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09004	0.0050	0.1	0	90	80-120	0			
Arsenic	0.09937	0.0050	0.1	0	99.4	80-120	0			
Beryllium	0.1023	0.0020	0.1	0	102	80-120	0			
Cadmium	0.09628	0.0020	0.1	0	96.3	80-120	0			
Chromium	0.09999	0.0050	0.1	0	100	80-120	0			
Copper	0.1043	0.0050	0.1	0	104	80-120	0			
Lead	0.1105	0.0050	0.1	0	110	80-120	0			
Nickel	0.1015	0.0050	0.1	0	101	80-120	0			
Selenium	0.09747	0.0050	0.1	0	97.5	80-120	0			
Silver	0.1011	0.0050	0.1	0	101	80-120	0			
Thallium	0.1142	0.0050	0.1	0	114	80-120	0			
Zinc	0.09846	0.010	0.1	0	98.5	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7682** InstrumentID: **ICPMS1**

LCSD Sample ID: **MLCSDW1-090105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 15:03**

Client ID: Run ID: **ICPMS1_050902A** SeqNo: **474786** Prep Date: **9/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09812	0.0050	0.1	0	98.1	80-120	0.09004	8.59	20	
Arsenic	0.09826	0.0050	0.1	0	98.3	80-120	0.09937	1.12	20	
Beryllium	0.1051	0.0020	0.1	0	105	80-120	0.1023	2.7	20	
Cadmium	0.09707	0.0020	0.1	0	97.1	80-120	0.09628	0.817	20	
Chromium	0.09857	0.0050	0.1	0	98.6	80-120	0.09999	1.43	20	
Copper	0.1013	0.0050	0.1	0	101	80-120	0.1043	2.92	20	
Lead	0.1097	0.0050	0.1	0	110	80-120	0.1105	0.727	20	
Nickel	0.1006	0.0050	0.1	0	101	80-120	0.1015	0.891	20	
Selenium	0.09603	0.0050	0.1	0	96	80-120	0.09747	1.49	20	
Silver	0.1011	0.0050	0.1	0	101	80-120	0.1011	0	20	
Thallium	0.109	0.0050	0.1	0	109	80-120	0.1142	4.66	20	
Zinc	0.09655	0.010	0.1	0	96.6	80-120	0.09846	1.96	20	

MS Sample ID: **0509002-02B MS** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 17:02**

Client ID: Run ID: **ICPMS1_050902A** SeqNo: **474807** Prep Date: **9/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.113	0.0050	0.1	0.00009951	113	80-120	0			
Arsenic	0.09301	0.0050	0.1	0.00007011	92.9	80-120	0			
Beryllium	0.08964	0.0020	0.1	-0.0002109	89.9	80-120	0			
Cadmium	0.09227	0.0020	0.1	0.0001166	92.2	80-120	0			
Chromium	0.0796	0.0050	0.1	-0.002314	81.9	80-120	0			
Copper	0.09254	0.0050	0.1	0.0005769	92	80-120	0			
Lead	0.09736	0.0050	0.1	0.0006502	96.7	80-120	0			
Nickel	0.09474	0.0050	0.1	0.002104	92.6	80-120	0			
Selenium	0.0979	0.0050	0.1	0.00000164	97.9	80-120	0			
Silver	0.09691	0.0050	0.1	-0.0002904	97.2	80-120	0			
Thallium	0.09488	0.0050	0.1	-5.308E-06	94.9	80-120	0			
Zinc	0.4192	0.010	0.1	0.3361	83.1	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7682** InstrumentID: **ICPMS1**

MSD Sample ID: **0509002-02B MSD** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/02/05 17:07**

Client ID: Run ID: **ICPMS1_050902A** SeqNo: **474808** Prep Date: **9/1/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1151	0.0050	0.1	0.00009951	115	80-120	0.113	1.84	20	
Arsenic	0.09533	0.0050	0.1	0.00007011	95.3	80-120	0.09301	2.46	20	
Beryllium	0.09701	0.0020	0.1	-0.0002109	97.2	80-120	0.08964	7.9	20	
Cadmium	0.09461	0.0020	0.1	0.0001166	94.5	80-120	0.09227	2.5	20	
Chromium	0.08376	0.0050	0.1	-0.002314	86.1	80-120	0.0796	5.09	20	
Copper	0.09569	0.0050	0.1	0.0005769	95.1	80-120	0.09254	3.35	20	
Lead	0.1006	0.0050	0.1	0.0006502	99.9	80-120	0.09736	3.27	20	
Nickel	0.09607	0.0050	0.1	0.002104	94	80-120	0.09474	1.39	20	
Selenium	0.09888	0.0050	0.1	0.00000164	98.9	80-120	0.0979	0.996	20	
Silver	0.09754	0.0050	0.1	-0.0002904	97.8	80-120	0.09691	0.648	20	
Thallium	0.09717	0.0050	0.1	-5.308E-06	97.2	80-120	0.09488	2.38	20	
Zinc	0.4273	0.010	0.1	0.3361	91.2	80-120	0.4192	1.91	20	

The following samples were analyzed in this batch: 0508612-04C 0508612-06C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7707** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:34**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475972** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.000551	0.0020								J
Arsenic	ND	0.0050								
Beryllium	ND	0.0010								
Cadmium	ND	0.0010								
Chromium	ND	0.010								
Copper	ND	0.0040								
Lead	ND	0.0030								
Nickel	ND	0.020								
Selenium	ND	0.0050								
Silver	ND	0.00020								
Thallium	ND	0.0020								
Zinc	ND	0.050								

MBLK Sample ID: **MBLKW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:34**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475986** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.000551	0.0050								J
Arsenic	0.0002063	0.0050								J
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7707** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:34**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475993** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.000551	0.0050								J
Arsenic	0.0002063	0.0050								J
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

LCS Sample ID: **MLCSW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:39**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475973** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09616	0.0020	0.1	0	96.2	80-120	0			
Arsenic	0.09322	0.0050	0.1	0	93.2	80-120	0			
Beryllium	0.09162	0.0010	0.1	0	91.6	80-120	0			
Cadmium	0.09084	0.0010	0.1	0	90.8	80-120	0			
Chromium	0.09272	0.010	0.1	0	92.7	80-120	0			
Copper	0.09414	0.0040	0.1	0	94.1	80-120	0			
Lead	0.09376	0.0030	0.1	0	93.8	80-120	0			
Nickel	0.08869	0.020	0.1	0	88.7	80-120	0			
Selenium	0.09493	0.0050	0.1	0	94.9	80-120	0			
Silver	0.09538	0.00020	0.1	0	95.4	80-120	0			
Thallium	0.08761	0.0020	0.1	0	87.6	80-120	0			
Zinc	0.09266	0.050	0.1	0	92.7	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7707** InstrumentID: **ICPMS1**

LCS Sample ID: **MLCSW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:39**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475987** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09616	0.0050	0.1	0	96.2	80-120	0			
Arsenic	0.09322	0.0050	0.1	0	93.2	80-120	0			
Beryllium	0.09162	0.0020	0.1	0	91.6	80-120	0			
Cadmium	0.09084	0.0020	0.1	0	90.8	80-120	0			
Chromium	0.09272	0.0050	0.1	0	92.7	80-120	0			
Copper	0.09414	0.0050	0.1	0	94.1	80-120	0			
Lead	0.09376	0.0050	0.1	0	93.8	80-120	0			
Nickel	0.08869	0.0050	0.1	0	88.7	80-120	0			
Selenium	0.09493	0.0050	0.1	0	94.9	80-120	0			
Silver	0.09538	0.0050	0.1	0	95.4	80-120	0			
Thallium	0.08761	0.0050	0.1	0	87.6	80-120	0			
Zinc	0.09266	0.010	0.1	0	92.7	80-120	0			

LCS Sample ID: **MLCSW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:39**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475994** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09616	0.0050	0.1	0	96.2	80-120	0			
Arsenic	0.09322	0.0050	0.1	0	93.2	80-120	0			
Beryllium	0.09162	0.0020	0.1	0	91.6	80-120	0			
Cadmium	0.09084	0.0020	0.1	0	90.8	80-120	0			
Chromium	0.09272	0.0050	0.1	0	92.7	80-120	0			
Copper	0.09414	0.0050	0.1	0	94.1	80-120	0			
Lead	0.09376	0.0050	0.1	0	93.8	80-120	0			
Nickel	0.08869	0.0050	0.1	0	88.7	80-120	0			
Selenium	0.09493	0.0050	0.1	0	94.9	80-120	0			
Silver	0.09538	0.0050	0.1	0	95.4	80-120	0			
Thallium	0.08761	0.0050	0.1	0	87.6	80-120	0			
Zinc	0.09266	0.010	0.1	0	92.7	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7707** InstrumentID: **ICPMS1**

LCSD Sample ID: **MLCSDW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:45**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475974** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1086	0.0020	0.1	0	109	80-120	0.09616	12.2	20	
Arsenic	0.0936	0.0050	0.1	0	93.6	80-120	0.09322	0.407	20	
Beryllium	0.09452	0.0010	0.1	0	94.5	80-120	0.09162	3.12	20	
Cadmium	0.09168	0.0010	0.1	0	91.7	80-120	0.09084	0.92	20	
Chromium	0.09282	0.010	0.1	0	92.8	80-120	0.09272	0.108	20	
Copper	0.09389	0.0040	0.1	0	93.9	80-120	0.09414	0.266	20	
Lead	0.09458	0.0030	0.1	0	94.6	80-120	0.09376	0.871	20	
Nickel	0.08944	0.020	0.1	0	89.4	80-120	0.08869	0.842	20	
Selenium	0.0944	0.0050	0.1	0	94.4	80-120	0.09493	0.56	20	
Silver	0.09582	0.00020	0.1	0	95.8	80-120	0.09538	0.46	20	
Thallium	0.08853	0.0020	0.1	0	88.5	80-120	0.08761	1.04	20	
Zinc	0.09287	0.050	0.1	0	92.9	80-120	0.09266	0.226	20	

LCSD Sample ID: **MLCSDW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:45**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475988** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1086	0.0050	0.1	0	109	80-120	0.09616	12.2	20	
Arsenic	0.0936	0.0050	0.1	0	93.6	80-120	0.09322	0.407	20	
Beryllium	0.09452	0.0020	0.1	0	94.5	80-120	0.09162	3.12	20	
Cadmium	0.09168	0.0020	0.1	0	91.7	80-120	0.09084	0.92	20	
Chromium	0.09282	0.0050	0.1	0	92.8	80-120	0.09272	0.108	20	
Copper	0.09389	0.0050	0.1	0	93.9	80-120	0.09414	0.266	20	
Lead	0.09458	0.0050	0.1	0	94.6	80-120	0.09376	0.871	20	
Nickel	0.08944	0.0050	0.1	0	89.4	80-120	0.08869	0.842	20	
Selenium	0.0944	0.0050	0.1	0	94.4	80-120	0.09493	0.56	20	
Silver	0.09582	0.0050	0.1	0	95.8	80-120	0.09538	0.46	20	
Thallium	0.08853	0.0050	0.1	0	88.5	80-120	0.08761	1.04	20	
Zinc	0.09287	0.010	0.1	0	92.9	80-120	0.09266	0.226	20	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7707** InstrumentID: **ICPMS1**

LCSD Sample ID: **MLCSDW1-090605** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/07/05 17:45**

Client ID: Run ID: **ICPMS1_050907C** SeqNo: **475995** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1086	0.0050	0.1	0	109	80-120	0.09616	12.2	20	
Arsenic	0.0936	0.0050	0.1	0	93.6	80-120	0.09322	0.407	20	
Beryllium	0.09452	0.0020	0.1	0	94.5	80-120	0.09162	3.12	20	
Cadmium	0.09168	0.0020	0.1	0	91.7	80-120	0.09084	0.92	20	
Chromium	0.09282	0.0050	0.1	0	92.8	80-120	0.09272	0.108	20	
Copper	0.09389	0.0050	0.1	0	93.9	80-120	0.09414	0.266	20	
Lead	0.09458	0.0050	0.1	0	94.6	80-120	0.09376	0.871	20	
Nickel	0.08944	0.0050	0.1	0	89.4	80-120	0.08869	0.842	20	
Selenium	0.0944	0.0050	0.1	0	94.4	80-120	0.09493	0.56	20	
Silver	0.09582	0.0050	0.1	0	95.8	80-120	0.09538	0.46	20	
Thallium	0.08853	0.0050	0.1	0	88.5	80-120	0.08761	1.04	20	
Zinc	0.09287	0.010	0.1	0	92.9	80-120	0.09266	0.226	20	

MS Sample ID: **0509035-01B MS** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/09/05 2:24**

Client ID: Run ID: **ICPMS1_050908B** SeqNo: **477232** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1335	0.0050	0.1	-0.01105	145	80-120	0			S
Arsenic	0.09473	0.0050	0.1	-0.0004992	95.2	80-120	0			
Beryllium	0.08684	0.0020	0.1	0.0001616	86.7	80-120	0			
Cadmium	0.09595	0.0020	0.1	0.00009372	95.9	80-120	0			
Chromium	0.09644	0.0050	0.1	0.006418	90	80-120	0			
Copper	0.1026	0.0050	0.1	0.0513	51.3	80-120	0			S
Lead	0.09392	0.0050	0.1	0.001381	92.5	80-120	0			
Nickel	0.1031	0.0050	0.1	-0.04578	149	80-120	0			S
Selenium	0.08669	0.0050	0.1	0.02099	65.7	80-120	0			S
Silver	0.1069	0.0050	0.1	-0.0006035	108	80-120	0			
Thallium	0.09294	0.0050	0.1	0.00006452	92.9	80-120	0			
Zinc	0.1197	0.010	0.1	0.07092	48.8	80-120	0			S

ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7707** InstrumentID: **ICPMS1**

MSD Sample ID: **0509035-01B MSD** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date: **09/09/05 2:29**

Client ID: Run ID: **ICPMS1_050908B** SeqNo: **477233** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1292	0.0050	0.1	-0.01105	140	80-120	0.1335	3.27	20	S
Arsenic	0.09487	0.0050	0.1	-0.0004992	95.4	80-120	0.09473	0.148	20	
Beryllium	0.07431	0.0020	0.1	0.0001616	74.1	80-120	0.08684	15.6	20	S
Cadmium	0.0943	0.0020	0.1	0.00009372	94.2	80-120	0.09595	1.73	20	
Chromium	0.09541	0.0050	0.1	0.006418	89	80-120	0.09644	1.07	20	
Copper	0.1024	0.0050	0.1	0.0513	51.1	80-120	0.1026	0.195	20	S
Lead	0.09024	0.0050	0.1	0.001381	88.9	80-120	0.09392	4	20	
Nickel	0.1059	0.0050	0.1	-0.04578	152	80-120	0.1031	2.68	20	S
Selenium	0.08945	0.0050	0.1	0.02099	68.5	80-120	0.08669	3.13	20	S
Silver	0.1	0.0050	0.1	-0.0006035	101	80-120	0.1069	6.67	20	
Thallium	0.08998	0.0050	0.1	0.00006452	89.9	80-120	0.09294	3.24	20	
Zinc	0.1193	0.010	0.1	0.07092	48.4	80-120	0.1197	0.335	20	S

The following samples were analyzed in this batch: 0508612-16C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7712** InstrumentID: **SVMS4**

MBLK Sample ID: **SBLKW1-7712** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **09/07/05 12:38**

Client ID: Run ID: **SVMS4_050907A** SeqNo: **476986** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
1,2-Dichlorobenzene	ND	5.0								
1,3-Dichlorobenzene	ND	5.0								
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	20								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	20								
3-Nitroaniline	ND	20								
4,6-Dinitro-2-methylphenol	ND	20								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	20								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Methylphenol	ND	5.0								
4-Nitroaniline	ND	20								
4-Nitrophenol	ND	20								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(a)anthracene	ND	1.0								
Benzo(a)pyrene	ND	2.0								
Benzo(b)fluoranthene	ND	2.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	10								
Chrysene	ND	5.0								

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QC BATCH REPORT

Batch ID: **7712** InstrumentID: **SVMS4**

Di-n-butyl phthalate	ND	5.0					
Di-n-octyl phthalate	ND	5.0					
Dibenzo(a,h)anthracene	ND	2.0					
Dibenzofuran	ND	5.0					
Diethyl phthalate	ND	20					
Dimethyl phthalate	ND	20					
Fluoranthene	ND	5.0					
Fluorene	ND	5.0					
Hexachlorobenzene	ND	5.0					
Hexachlorobutadiene	ND	5.0					
Hexachlorocyclopentadiene	ND	5.0					
Hexachloroethane	ND	5.0					
Indeno(1,2,3-cd)pyrene	ND	2.0					
Isophorone	ND	5.0					
N-Nitrosodi-n-propylamine	ND	5.0					
N-Nitrosodiphenylamine	ND	5.0					
Naphthalene	ND	5.0					
Nitrobenzene	ND	5.0					
Pentachlorophenol	ND	20					
Phenanthrene	ND	5.0					
Phenol	ND	5.0					
Pyrene	ND	5.0					
Surr: 2,4,6-Tribromophenol	32.85	0	50	0	65.7	10-123	0
Surr: 2-Fluorophenol	21.36	0	50	0	42.7	7-75	0
Surr: Phenol-d6	14.93	0	50	0	29.9	3-67	0
Surr: 2-Fluorobiphenyl	31.37	0	50	0	62.7	20-122	0
Surr: 4-Terphenyl-d14	35.41	0	50	0	70.8	22-172	0
Surr: Nitrobenzene-d5	30.14	0	50	0	60.3	8-115	0

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7712** InstrumentID: **SVMS4**

LCS Sample ID: **SLCSW1-7712** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **09/07/05 10:35**

Client ID: Run ID: **SVMS4_050907A** SeqNo: **476982** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	22.03	5.0	40	0	55.1	33-78	0			
1,4-Dichlorobenzene	21.74	5.0	40	0	54.4	29-74	0			
2,4-Dinitrotoluene	33.06	5.0	40	0	82.6	24-96	0			
2-Chlorophenol	25.1	5.0	40	0	62.8	25-85	0			
4-Chloro-3-methylphenol	28.72	5.0	40	0	71.8	19-103	0			
4-Nitrophenol	12.02	20	40	0	30	1-58	0			J
Acenaphthene	26.5	5.0	40	0	66.2	30-108	0			
N-Nitrosodi-n-propylamine	30.94	5.0	40	0	77.4	24-82	0			
Pentachlorophenol	18.99	20	40	0	47.5	9-103	0			J
Phenol	12.45	5.0	40	0	31.1	12-43	0			
Pyrene	29.23	5.0	40	0	73.1	35-135	0			
Surr: 2,4,6-Tribromophenol	38.49	0	50	0	77	10-123	0			
Surr: 2-Fluorophenol	22.1	0	50	0	44.2	7-75	0			
Surr: Phenol-d6	16.53	0	50	0	33.1	3-67	0			
Surr: 2-Fluorobiphenyl	35.26	0	50	0	70.5	20-122	0			
Surr: 4-Terphenyl-d14	39.07	0	50	0	78.1	22-172	0			
Surr: Nitrobenzene-d5	33.27	0	50	0	66.5	8-115	0			

LCSD Sample ID: **SLCSDW1-7712** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **09/07/05 11:06**

Client ID: Run ID: **SVMS4_050907A** SeqNo: **476983** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	23.73	5.0	40	0	59.3	33-78	22.03	7.43	30	
1,4-Dichlorobenzene	22.88	5.0	40	0	57.2	29-74	21.74	5.11	27	
2,4-Dinitrotoluene	33.67	5.0	40	0	84.2	24-96	33.06	1.83	35	
2-Chlorophenol	25.78	5.0	40	0	64.4	25-85	25.1	2.67	32	
4-Chloro-3-methylphenol	30.65	5.0	40	0	76.6	19-103	28.72	6.5	31	
4-Nitrophenol	3.92	20	40	0	9.8	1-58	12.02	0	43	J
Acenaphthene	28.04	5.0	40	0	70.1	30-108	26.5	5.65	44	
N-Nitrosodi-n-propylamine	31.97	5.0	40	0	79.9	24-82	30.94	3.27	36	
Pentachlorophenol	18.27	20	40	0	45.7	9-103	18.99	0	34	J
Phenol	13.97	5.0	40	0	34.9	12-43	12.45	11.5	34	
Pyrene	28.97	5.0	40	0	72.4	35-135	29.23	0.893	22	
Surr: 2,4,6-Tribromophenol	38.22	0	50	0	76.4	10-123	38.49	0.704	40	
Surr: 2-Fluorophenol	22.41	0	50	0	44.8	7-75	22.1	1.39	40	
Surr: Phenol-d6	17.18	0	50	0	34.4	3-67	16.53	3.86	40	
Surr: 2-Fluorobiphenyl	35.98	0	50	0	72	20-122	35.26	2.02	40	
Surr: 4-Terphenyl-d14	39.3	0	50	0	78.6	22-172	39.07	0.587	40	
Surr: Nitrobenzene-d5	34.14	0	50	0	68.3	8-115	33.27	2.58	40	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7712** InstrumentID: **SVMS4**

MS Sample ID: **0508612-08G MS** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **09/07/05 11:36**

Client ID: **MW-5S (MS/MSD)** Run ID: **SVMS4_050907A** SeqNo: **476984** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	17.34	5.0	40	0	43.4	33-78	0			
1,4-Dichlorobenzene	17.03	5.0	40	0	42.6	29-74	0			
2,4-Dinitrotoluene	34.68	5.0	40	0	86.7	24-96	0			
2-Chlorophenol	17.69	5.0	40	0	44.2	25-85	0			
4-Chloro-3-methylphenol	25.63	5.0	40	0	64.1	19-103	0			
4-Nitrophenol	11.37	20	40	0	28.4	1-58	0			J
Acenaphthene	23.51	5.0	40	0	58.8	30-108	0			
N-Nitrosodi-n-propylamine	22.77	5.0	40	0	56.9	24-82	0			
Pentachlorophenol	28.83	20	40	0	72.1	9-103	0			
Phenol	8.4	5.0	40	0	21	12-110	0			
Pyrene	29.99	5.0	40	0	75	35-135	0			
Surr: 2,4,6-Tribromophenol	40.25	0	50	0	80.5	10-123	0			
Surr: 2-Fluorophenol	14.18	0	50	0	28.4	7-75	0			
Surr: Phenol-d6	11.29	0	50	0	22.6	3-67	0			
Surr: 2-Fluorobiphenyl	27.35	0	50	0	54.7	20-122	0			
Surr: 4-Terphenyl-d14	31.16	0	50	0	62.3	22-172	0			
Surr: Nitrobenzene-d5	25.61	0	50	0	51.2	8-115	0			

MSD Sample ID: **0508612-08G MSD** Test Code: **EPA 8270** Units: **µg/L** Analysis Date: **09/07/05 12:07**

Client ID: **MW-5S (MS/MSD)** Run ID: **SVMS4_050907A** SeqNo: **476985** Prep Date: **9/6/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	16.79	5.0	40	0	42	33-78	17.34	3.22	30	
1,4-Dichlorobenzene	16.31	5.0	40	0	40.8	29-74	17.03	4.32	27	
2,4-Dinitrotoluene	33.77	5.0	40	0	84.4	24-96	34.68	2.66	38	
2-Chlorophenol	18.15	5.0	40	0	45.4	25-85	17.69	2.57	40	
4-Chloro-3-methylphenol	26.22	5.0	40	0	65.6	19-103	25.63	2.28	42	
4-Nitrophenol	3.74	20	40	0	9.35	1-58	11.37	0	50	J
Acenaphthene	22.55	5.0	40	0	56.4	30-108	23.51	4.17	31	
N-Nitrosodi-n-propylamine	21.51	5.0	40	0	53.8	24-82	22.77	5.69	38	
Pentachlorophenol	27.56	20	40	0	68.9	9-103	28.83	4.5	50	
Phenol	8.61	5.0	40	0	21.5	12-110	8.4	2.47	42	
Pyrene	29.94	5.0	40	0	74.8	35-135	29.99	0.167	31	
Surr: 2,4,6-Tribromophenol	39.05	0	50	0	78.1	10-123	40.25	3.03	40	
Surr: 2-Fluorophenol	14.8	0	50	0	29.6	7-75	14.18	4.28	40	
Surr: Phenol-d6	11.71	0	50	0	23.4	3-67	11.29	3.65	40	
Surr: 2-Fluorobiphenyl	25.64	0	50	0	51.3	20-122	27.35	6.45	40	
Surr: 4-Terphenyl-d14	33.69	0	50	0	67.4	22-172	31.16	7.8	40	
Surr: Nitrobenzene-d5	24.43	0	50	0	48.9	8-115	25.61	4.72	40	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **7712** InstrumentID: **SVMS4**

The following samples were analyzed in this batch:

0508612-01G	0508612-02G	0508612-03G
0508612-04G	0508612-05G	0508612-06G
0508612-07G	0508612-08G	0508612-09G
0508612-10G	0508612-11G	0508612-12G
0508612-13G	0508612-14G	0508612-16G

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32297** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW1-050908** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 10:59**

Client ID: Run ID: **VMS2_050908A** SeqNo: **476166** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methylene chloride	ND	5.0								
o-Xylene	ND	1.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
1,2-Dichloroethene, Total	ND	2.0								
1,3-Dichloropropene, Total	ND	2.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	95.35	0	100	0	95.4	80-120		0		
Surr: 4-Bromofluorobenzene	94.09	0	100	0	94.1	80-120		0		
Surr: Dibromofluoromethane	100.3	0	100	0	100	80-120		0		
Surr: Toluene-d8	106	0	100	0	106	80-120		0		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32297** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050908** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 13:00**

Client ID: Run ID: **VMS2_050908A** SeqNo: **476167** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.27	1.0	20	0	106	80-120	0			
1,1,2,2-Tetrachloroethane	19.16	1.0	20	0	95.8	80-120	0			
1,1,2-Trichloroethane	22.84	1.0	20	0	114	80-120	0			
1,1-Dichloroethane	21.99	1.0	20	0	110	80-120	0			
1,1-Dichloroethene	22	1.0	20	0	110	80-120	0			
1,2-Dichloroethane	23.04	1.0	20	0	115	80-120	0			
1,2-Dichloropropane	20.76	2.0	20	0	104	80-120	0			
2-Butanone	19.44	5.0	20	0	97.2	80-120	0			
2-Hexanone	22.03	5.0	20	0	110	80-120	0			
4-Methyl-2-pentanone	22.55	5.0	20	0	113	80-120	0			
Benzene	21.73	1.0	20	0	109	80-120	0			
Bromodichloromethane	21.2	1.0	20	0	106	80-120	0			
Bromoform	23.65	1.0	20	0	118	80-120	0			
Carbon disulfide	20.2	2.5	20	0	101	80-120	0			
Carbon tetrachloride	23.41	1.0	20	0	117	80-120	0			
Chlorobenzene	21.16	1.0	20	0	106	80-120	0			
Chloroethane	16.76	1.0	20	0	83.8	80-120	0			
Chloroform	20.97	1.0	20	0	105	80-120	0			
cis-1,2-Dichloroethene	20.08	1.0	20	0	100	80-120	0			
cis-1,3-Dichloropropene	21.46	1.0	20	0	107	80-120	0			
Dibromochloromethane	22.49	1.0	20	0	112	80-120	0			
Ethylbenzene	20.51	1.0	20	0	103	80-120	0			
m,p-Xylene	41.85	2.0	40	0	105	80-120	0			
Methylene chloride	19.15	5.0	20	0	95.7	80-120	0			
o-Xylene	20.86	1.0	20	0	104	80-120	0			
Styrene	21.61	1.0	20	0	108	80-120	0			
Tetrachloroethene	20.93	2.0	20	0	105	80-120	0			
Toluene	20.82	1.0	20	0	104	80-120	0			
trans-1,2-Dichloroethene	20.42	1.0	20	0	102	80-120	0			
trans-1,3-Dichloropropene	23.95	1.0	20	0	120	80-120	0			
Trichloroethene	22.2	1.0	20	0	111	80-120	0			
Vinyl chloride	15.89	1.0	20	0	79.4	80-120	0			S
Surr: 1,2-Dichloroethane-d4	103.6	0	100	0	104	80-120	0			
Surr: 4-Bromofluorobenzene	90.55	0	100	0	90.6	80-120	0			
Surr: Dibromofluoromethane	100.6	0	100	0	101	80-120	0			
Surr: Toluene-d8	101.1	0	100	0	101	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32297** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW1-050908** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 13:29**

Client ID: Run ID: **VMS2_050908A** SeqNo: **476168** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.47	1.0	20	0	107	80-120	21.27	0.936	30	
1,1,2,2-Tetrachloroethane	19.1	1.0	20	0	95.5	80-120	19.16	0.314	30	
1,1,2-Trichloroethane	20.69	1.0	20	0	103	80-120	22.84	9.88	30	
1,1-Dichloroethane	22.05	1.0	20	0	110	80-120	21.99	0.272	30	
1,1-Dichloroethene	23.27	1.0	20	0	116	80-120	22	5.61	30	
1,2-Dichloroethane	21.85	1.0	20	0	109	80-120	23.04	5.3	30	
1,2-Dichloropropane	20.92	2.0	20	0	105	80-120	20.76	0.768	30	
2-Butanone	18.03	5.0	20	0	90.2	80-120	19.44	7.53	30	
2-Hexanone	25.75	5.0	20	0	129	80-120	22.03	15.6	30	S
4-Methyl-2-pentanone	23.72	5.0	20	0	119	80-120	22.55	5.06	30	
Benzene	21.65	1.0	20	0	108	80-120	21.73	0.369	30	
Bromodichloromethane	20.58	1.0	20	0	103	80-120	21.2	2.97	30	
Bromoform	22.46	1.0	20	0	112	80-120	23.65	5.16	30	
Carbon disulfide	19.4	2.5	20	0	97	80-120	20.2	4.04	30	
Carbon tetrachloride	22.5	1.0	20	0	112	80-120	23.41	3.96	30	
Chlorobenzene	20.36	1.0	20	0	102	80-120	21.16	3.85	30	
Chloroethane	20.53	1.0	20	0	103	80-120	16.76	20.2	30	
Chloroform	21.37	1.0	20	0	107	80-120	20.97	1.89	30	
cis-1,2-Dichloroethene	19	1.0	20	0	95	80-120	20.08	5.53	30	
cis-1,3-Dichloropropene	21.01	1.0	20	0	105	80-120	21.46	2.12	30	
Dibromochloromethane	20.86	1.0	20	0	104	80-120	22.49	7.52	30	
Ethylbenzene	19.71	1.0	20	0	98.6	80-120	20.51	3.98	30	
m,p-Xylene	43.67	2.0	40	0	109	80-120	41.85	4.26	30	
Methylene chloride	17.63	5.0	20	0	88.1	80-120	19.15	8.27	30	
o-Xylene	20.61	1.0	20	0	103	80-120	20.86	1.21	30	
Styrene	21.99	1.0	20	0	110	80-120	21.61	1.74	30	
Tetrachloroethene	20.98	2.0	20	0	105	80-120	20.93	0.239	30	
Toluene	21.27	1.0	20	0	106	80-120	20.82	2.14	30	
trans-1,2-Dichloroethene	20.92	1.0	20	0	105	80-120	20.42	2.42	30	
trans-1,3-Dichloropropene	23.06	1.0	20	0	115	80-120	23.95	3.79	30	
Trichloroethene	21.49	1.0	20	0	107	80-120	22.2	3.25	30	
Vinyl chloride	16.76	1.0	20	0	83.8	80-120	15.89	5.33	30	
Surr: 1,2-Dichloroethane-d4	96.33	0	100	0	96.3	80-120	103.6	7.28	30	
Surr: 4-Bromofluorobenzene	98.31	0	100	0	98.3	80-120	90.55	8.22	30	
Surr: Dibromofluoromethane	98.06	0	100	0	98.1	80-120	100.6	2.61	30	
Surr: Toluene-d8	102	0	100	0	102	80-120	101.1	0.877	30	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32297** InstrumentID: **VMS2**

MS Sample ID: **0508612-08F MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 22:01**

Client ID: **MW-5S (MS/MSD)** Run ID: **VMS2_050908A** SeqNo: **476647** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	23.4	1.0	20	0	117	70-130	0			
Benzene	20.39	1.0	20	0	102	70-130	0			
Chlorobenzene	19.49	1.0	20	0	97.4	70-130	0			
Toluene	19.99	1.0	20	0	99.9	70-130	0			
Trichloroethene	19.43	1.0	20	0	97.2	70-130	0			
Surr: 1,2-Dichloroethane-d4	94.93	0	100	0	94.9	70-130	0			
Surr: 4-Bromofluorobenzene	96.5	0	100	0	96.5	70-130	0			
Surr: Dibromofluoromethane	99.32	0	100	0	99.3	70-130	0			
Surr: Toluene-d8	105.1	0	100	0	105	70-130	0			

MSD Sample ID: **0508612-08F MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 22:31**

Client ID: **MW-5S (MS/MSD)** Run ID: **VMS2_050908A** SeqNo: **476648** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	25.37	1.0	20	0	127	70-130	23.4	8.08	30	
Benzene	21.03	1.0	20	0	105	70-130	20.39	3.09	30	
Chlorobenzene	19.96	1.0	20	0	99.8	70-130	19.49	2.38	30	
Toluene	21.02	1.0	20	0	105	70-130	19.99	5.02	30	
Trichloroethene	20.07	1.0	20	0	100	70-130	19.43	3.24	30	
Surr: 1,2-Dichloroethane-d4	84.27	0	100	0	84.3	70-130	94.93	11.9	30	
Surr: 4-Bromofluorobenzene	95.44	0	100	0	95.4	70-130	96.5	1.1	30	
Surr: Dibromofluoromethane	99.07	0	100	0	99.1	70-130	99.32	0.252	30	
Surr: Toluene-d8	104.4	0	100	0	104	70-130	105.1	0.697	30	

The following samples were analyzed in this batch:

0508612-01F	0508612-02F	0508612-03F
0508612-04F	0508612-05F	0508612-06F
0508612-07F	0508612-08F	0508612-09F
0508612-10F	0508612-11F	0508612-12F

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32298** InstrumentID: **VMS1**

MBLK Sample ID: **VBLKW1-050908** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 10:28**

Client ID: Run ID: **VMS1_050908A** SeqNo: **476180** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methylene chloride	ND	5.0								
o-Xylene	ND	1.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
1,2-Dichloroethene, Total	ND	2.0								
1,3-Dichloropropene, Total	ND	2.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	95.13	0	100	0	95.1	80-120		0		
Surr: 4-Bromofluorobenzene	96.64	0	100	0	96.6	80-120		0		
Surr: Dibromofluoromethane	99.89	0	100	0	99.9	80-120		0		
Surr: Toluene-d8	96.11	0	100	0	96.1	80-120		0		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32298** InstrumentID: **VMS1**

LCS Sample ID: **VLCSW1-050908** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 11:36**

Client ID: Run ID: **VMS1_050908A** SeqNo: **476181** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.79	1.0	20	0	104	80-120	0			
1,1,2,2-Tetrachloroethane	21.18	1.0	20	0	106	80-120	0			
1,1,2-Trichloroethane	20.42	1.0	20	0	102	80-120	0			
1,1-Dichloroethane	20.61	1.0	20	0	103	80-120	0			
1,1-Dichloroethene	20.09	1.0	20	0	100	80-120	0			
1,2-Dichloroethane	20.45	1.0	20	0	102	80-120	0			
1,2-Dichloropropane	20.89	2.0	20	0	104	80-120	0			
2-Butanone	22.38	5.0	20	0	112	80-120	0			
2-Hexanone	22.33	5.0	20	0	112	80-120	0			
4-Methyl-2-pentanone	23.99	5.0	20	0	120	80-120	0			
Benzene	21.08	1.0	20	0	105	80-120	0			
Bromodichloromethane	19.22	1.0	20	0	96.1	80-120	0			
Bromoform	21.16	1.0	20	0	106	80-120	0			
Carbon disulfide	20.73	2.5	20	0	104	80-120	0			
Carbon tetrachloride	20.77	1.0	20	0	104	80-120	0			
Chlorobenzene	20.55	1.0	20	0	103	80-120	0			
Chloroethane	19.71	1.0	20	0	98.6	80-120	0			
Chloroform	20.06	1.0	20	0	100	80-120	0			
cis-1,2-Dichloroethene	20.97	1.0	20	0	105	80-120	0			
cis-1,3-Dichloropropene	20.27	1.0	20	0	101	80-120	0			
Dibromochloromethane	21.54	1.0	20	0	108	80-120	0			
Ethylbenzene	18.36	1.0	20	0	91.8	80-120	0			
m,p-Xylene	39.84	2.0	40	0	99.6	80-120	0			
Methylene chloride	22.13	5.0	20	0	111	80-120	0			
o-Xylene	20.35	1.0	20	0	102	80-120	0			
Styrene	20.26	1.0	20	0	101	80-120	0			
Tetrachloroethene	19.14	2.0	20	0	95.7	80-120	0			
Toluene	20.31	1.0	20	0	102	80-120	0			
trans-1,2-Dichloroethene	21	1.0	20	0	105	80-120	0			
trans-1,3-Dichloropropene	20.7	1.0	20	0	103	80-120	0			
Trichloroethene	20.16	1.0	20	0	101	80-120	0			
Vinyl chloride	17.53	1.0	20	0	87.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	99.64	0	100	0	99.6	80-120	0			
Surr: 4-Bromofluorobenzene	94.54	0	100	0	94.5	80-120	0			
Surr: Dibromofluoromethane	105.3	0	100	0	105	80-120	0			
Surr: Toluene-d8	96.75	0	100	0	96.8	80-120	0			

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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32298** InstrumentID: **VMS1**

LCSD Sample ID: **VLCSDW1-050908** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 12:36**

Client ID: Run ID: **VMS1_050908A** SeqNo: **476182** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.14	1.0	20	0	101	80-120	20.79	3.18	30	
1,1,2,2-Tetrachloroethane	18.15	1.0	20	0	90.8	80-120	21.18	15.4	30	
1,1,2-Trichloroethane	17.72	1.0	20	0	88.6	80-120	20.42	14.2	30	
1,1-Dichloroethane	19.57	1.0	20	0	97.8	80-120	20.61	5.18	30	
1,1-Dichloroethene	19.73	1.0	20	0	98.6	80-120	20.09	1.81	30	
1,2-Dichloroethane	18.65	1.0	20	0	93.2	80-120	20.45	9.21	30	
1,2-Dichloropropane	19.55	2.0	20	0	97.8	80-120	20.89	6.63	30	
2-Butanone	21.79	5.0	20	0	109	80-120	22.38	2.67	30	
2-Hexanone	22.72	5.0	20	0	114	80-120	22.33	1.73	30	
4-Methyl-2-pentanone	20.41	5.0	20	0	102	80-120	23.99	16.1	30	
Benzene	20.26	1.0	20	0	101	80-120	21.08	3.97	30	
Bromodichloromethane	17.9	1.0	20	0	89.5	80-120	19.22	7.11	30	
Bromoform	18.95	1.0	20	0	94.8	80-120	21.16	11	30	
Carbon disulfide	19.51	2.5	20	0	97.6	80-120	20.73	6.06	30	
Carbon tetrachloride	20.16	1.0	20	0	101	80-120	20.77	2.98	30	
Chlorobenzene	19.81	1.0	20	0	99	80-120	20.55	3.67	30	
Chloroethane	20.05	1.0	20	0	100	80-120	19.71	1.71	30	
Chloroform	18.55	1.0	20	0	92.8	80-120	20.06	7.82	30	
cis-1,2-Dichloroethene	19.7	1.0	20	0	98.5	80-120	20.97	6.25	30	
cis-1,3-Dichloropropene	18.29	1.0	20	0	91.4	80-120	20.27	10.3	30	
Dibromochloromethane	20.08	1.0	20	0	100	80-120	21.54	7.02	30	
Ethylbenzene	20.38	1.0	20	0	102	80-120	18.36	10.4	30	
m,p-Xylene	37.68	2.0	40	0	94.2	80-120	39.84	5.57	30	
Methylene chloride	20.45	5.0	20	0	102	80-120	22.13	7.89	30	
o-Xylene	19.59	1.0	20	0	98	80-120	20.35	3.81	30	
Styrene	20.11	1.0	20	0	101	80-120	20.26	0.743	30	
Tetrachloroethene	19.03	2.0	20	0	95.2	80-120	19.14	0.576	30	
Toluene	20	1.0	20	0	100	80-120	20.31	1.54	30	
trans-1,2-Dichloroethene	20.18	1.0	20	0	101	80-120	21	3.98	30	
trans-1,3-Dichloropropene	19.59	1.0	20	0	98	80-120	20.7	5.51	30	
Trichloroethene	19.97	1.0	20	0	99.8	80-120	20.16	0.947	30	
Vinyl chloride	17.27	1.0	20	0	86.4	80-120	17.53	1.49	30	
Surr: 1,2-Dichloroethane-d4	90.24	0	100	0	90.2	80-120	99.64	9.9	30	
Surr: 4-Bromofluorobenzene	95.73	0	100	0	95.7	80-120	94.54	1.25	30	
Surr: Dibromofluoromethane	101.9	0	100	0	102	80-120	105.3	3.23	30	
Surr: Toluene-d8	96.96	0	100	0	97	80-120	96.75	0.217	30	

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32298** InstrumentID: **VMS1**

MS Sample ID: **0508612-13F MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 21:39**

Client ID: **MW-9M** Run ID: **VMS1_050908A** SeqNo: **476551** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	18.79	1.0	20	0	94	70-130	0			
Benzene	36.22	1.0	20	15.31	105	70-130	0			
Chlorobenzene	19.31	1.0	20	0	96.6	70-130	0			
Toluene	19.98	1.0	20	1.43	92.8	70-130	0			
Trichloroethene	19.18	1.0	20	0	95.9	70-130	0			
Surr: 1,2-Dichloroethane-d4	101.2	0	100	0	101	70-130	0			
Surr: 4-Bromofluorobenzene	95.4	0	100	0	95.4	70-130	0			
Surr: Dibromofluoromethane	100.9	0	100	0	101	70-130	0			
Surr: Toluene-d8	96.03	0	100	0	96	70-130	0			

MSD Sample ID: **0508612-13F MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/08/05 22:12**

Client ID: **MW-9M** Run ID: **VMS1_050908A** SeqNo: **476552** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.38	1.0	20	0	96.9	70-130	18.79	3.09	30	
Benzene	36.17	1.0	20	15.31	104	70-130	36.22	0.138	30	
Chlorobenzene	19.52	1.0	20	0	97.6	70-130	19.31	1.08	30	
Toluene	20.45	1.0	20	1.43	95.1	70-130	19.98	2.33	30	
Trichloroethene	19.65	1.0	20	0	98.2	70-130	19.18	2.42	30	
Surr: 1,2-Dichloroethane-d4	98.26	0	100	0	98.3	70-130	101.2	2.97	30	
Surr: 4-Bromofluorobenzene	94.33	0	100	0	94.3	70-130	95.4	1.13	30	
Surr: Dibromofluoromethane	104.2	0	100	0	104	70-130	100.9	3.2	30	
Surr: Toluene-d8	96.84	0	100	0	96.8	70-130	96.03	0.84	30	

The following samples were analyzed in this batch: 0508612-13F

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32348** InstrumentID: **VMS1**

MBLK Sample ID: **VBLKW1-050909** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 10:15**

Client ID: Run ID: **VMS1_050909A** SeqNo: **476686** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methylene chloride	ND	5.0								
o-Xylene	ND	1.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
1,2-Dichloroethene, Total	ND	2.0								
1,3-Dichloropropene, Total	ND	2.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	94.19	0	100	0	94.2	80-120		0		
Surr: 4-Bromofluorobenzene	97.11	0	100	0	97.1	80-120		0		
Surr: Dibromofluoromethane	99.2	0	100	0	99.2	80-120		0		
Surr: Toluene-d8	95.72	0	100	0	95.7	80-120		0		

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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
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P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32348** InstrumentID: **VMS1**

LCS Sample ID: **VLCSW1-050909** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 12:06**

Client ID: Run ID: **VMS1_050909A** SeqNo: **476687** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.02	1.0	20	0	90.1	80-120	0			
1,1,2,2-Tetrachloroethane	17.51	1.0	20	0	87.6	80-120	0			
1,1,2-Trichloroethane	16.98	1.0	20	0	84.9	80-120	0			
1,1-Dichloroethane	17.82	1.0	20	0	89.1	80-120	0			
1,1-Dichloroethene	17.3	1.0	20	0	86.5	80-120	0			
1,2-Dichloroethane	17.09	1.0	20	0	85.4	80-120	0			
1,2-Dichloropropane	17.78	2.0	20	0	88.9	80-120	0			
2-Butanone	23.86	5.0	20	0	119	80-120	0			
2-Hexanone	22.93	5.0	20	0	115	80-120	0			
4-Methyl-2-pentanone	22.31	5.0	20	0	112	80-120	0			
Benzene	18.07	1.0	20	0	90.4	80-120	0			
Bromodichloromethane	16.25	1.0	20	0	81.2	80-120	0			
Bromoform	17.61	1.0	20	0	88	80-120	0			
Carbon disulfide	19.91	2.5	20	0	99.6	80-120	0			
Carbon tetrachloride	17.83	1.0	20	0	89.1	80-120	0			
Chlorobenzene	17.69	1.0	20	0	88.4	80-120	0			
Chloroethane	16.56	1.0	20	0	82.8	80-120	0			
Chloroform	16.97	1.0	20	0	84.8	80-120	0			
cis-1,2-Dichloroethene	18.27	1.0	20	0	91.4	80-120	0			
cis-1,3-Dichloropropene	16.94	1.0	20	0	84.7	80-120	0			
Dibromochloromethane	18.72	1.0	20	0	93.6	80-120	0			
Ethylbenzene	19.02	1.0	20	0	95.1	80-120	0			
m,p-Xylene	33.85	2.0	40	0	84.6	80-120	0			
Methylene chloride	18.3	5.0	20	0	91.5	80-120	0			
o-Xylene	17.69	1.0	20	0	88.4	80-120	0			
Styrene	17.96	1.0	20	0	89.8	80-120	0			
Tetrachloroethene	16.69	2.0	20	0	83.4	80-120	0			
Toluene	17.66	1.0	20	0	88.3	80-120	0			
trans-1,2-Dichloroethene	17.99	1.0	20	0	90	80-120	0			
trans-1,3-Dichloropropene	18.19	1.0	20	0	91	80-120	0			
Trichloroethene	17.7	1.0	20	0	88.5	80-120	0			
Vinyl chloride	15.25	1.0	20	0	76.2	80-120	0			S
Surr: 1,2-Dichloroethane-d4	94.22	0	100	0	94.2	80-120	0			
Surr: 4-Bromofluorobenzene	94.71	0	100	0	94.7	80-120	0			
Surr: Dibromofluoromethane	101.9	0	100	0	102	80-120	0			
Surr: Toluene-d8	97.16	0	100	0	97.2	80-120	0			

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P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32348** InstrumentID: **VMS1**

LCSD Sample ID: **VLCSDW1-050909** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 13:42**

Client ID: Run ID: **VMS1_050909A** SeqNo: **476688** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.09	1.0	20	0	95.4	80-120	18.02	5.77	30	
1,1,2,2-Tetrachloroethane	17.1	1.0	20	0	85.5	80-120	17.51	2.37	30	
1,1,2-Trichloroethane	17.53	1.0	20	0	87.6	80-120	16.98	3.19	30	
1,1-Dichloroethane	18.95	1.0	20	0	94.8	80-120	17.82	6.15	30	
1,1-Dichloroethene	18.48	1.0	20	0	92.4	80-120	17.3	6.6	30	
1,2-Dichloroethane	17.91	1.0	20	0	89.6	80-120	17.09	4.69	30	
1,2-Dichloropropane	18.12	2.0	20	0	90.6	80-120	17.78	1.89	30	
2-Butanone	21.02	5.0	20	0	105	80-120	23.86	12.7	30	
2-Hexanone	21.88	5.0	20	0	109	80-120	22.93	4.69	30	
4-Methyl-2-pentanone	20.25	5.0	20	0	101	80-120	22.31	9.68	30	
Benzene	18.97	1.0	20	0	94.8	80-120	18.07	4.86	30	
Bromodichloromethane	17.12	1.0	20	0	85.6	80-120	16.25	5.21	30	
Bromoform	17.5	1.0	20	0	87.5	80-120	17.61	0.627	30	
Carbon disulfide	19.03	2.5	20	0	95.2	80-120	19.91	4.52	30	
Carbon tetrachloride	18.8	1.0	20	0	94	80-120	17.83	5.3	30	
Chlorobenzene	18.2	1.0	20	0	91	80-120	17.69	2.84	30	
Chloroethane	19.78	1.0	20	0	98.9	80-120	16.56	17.7	30	
Chloroform	17.91	1.0	20	0	89.6	80-120	16.97	5.39	30	
cis-1,2-Dichloroethene	19.3	1.0	20	0	96.5	80-120	18.27	5.48	30	
cis-1,3-Dichloropropene	17.87	1.0	20	0	89.4	80-120	16.94	5.34	30	
Dibromochloromethane	18.94	1.0	20	0	94.7	80-120	18.72	1.17	30	
Ethylbenzene	17.23	1.0	20	0	86.2	80-120	19.02	9.88	30	
m,p-Xylene	36.9	2.0	40	0	92.2	80-120	33.85	8.62	30	
Methylene chloride	19.45	5.0	20	0	97.2	80-120	18.3	6.09	30	
o-Xylene	18	1.0	20	0	90	80-120	17.69	1.74	30	
Styrene	18.37	1.0	20	0	91.8	80-120	17.96	2.26	30	
Tetrachloroethene	17.37	2.0	20	0	86.8	80-120	16.69	3.99	30	
Toluene	18.16	1.0	20	0	90.8	80-120	17.66	2.79	30	
trans-1,2-Dichloroethene	19.07	1.0	20	0	95.4	80-120	17.99	5.83	30	
trans-1,3-Dichloropropene	17.8	1.0	20	0	89	80-120	18.19	2.17	30	
Trichloroethene	18.77	1.0	20	0	93.8	80-120	17.7	5.87	30	
Vinyl chloride	16.29	1.0	20	0	81.4	80-120	15.25	6.59	30	
Surr: 1,2-Dichloroethane-d4	95.88	0	100	0	95.9	80-120	94.22	1.75	30	
Surr: 4-Bromofluorobenzene	93.92	0	100	0	93.9	80-120	94.71	0.838	30	
Surr: Dibromofluoromethane	104.5	0	100	0	105	80-120	101.9	2.51	30	
Surr: Toluene-d8	96.83	0	100	0	96.8	80-120	97.16	0.34	30	

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P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32348** InstrumentID: **VMS1**

MS Sample ID: **0509002-08C MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 20:45**

Client ID: Run ID: **VMS1_050909A** SeqNo: **477121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	18.56	1.0	20	0	92.8	70-130	0			
Benzene	20.57	1.0	20	0	103	70-130	0			
Chlorobenzene	19.51	1.0	20	0	97.6	70-130	0			
Toluene	18.49	1.0	20	0	92.4	70-130	0			
Trichloroethene	20.17	1.0	20	0	101	70-130	0			
Surr: 1,2-Dichloroethane-d4	97.82	0	100	0	97.8	70-130	0			
Surr: 4-Bromofluorobenzene	92.83	0	100	0	92.8	70-130	0			
Surr: Dibromofluoromethane	103.3	0	100	0	103	70-130	0			
Surr: Toluene-d8	93.92	0	100	0	93.9	70-130	0			

MSD Sample ID: **0509002-08C MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 21:51**

Client ID: Run ID: **VMS1_050909A** SeqNo: **477122** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.51	1.0	20	0	97.6	70-130	18.56	4.99	30	
Benzene	20.81	1.0	20	0	104	70-130	20.57	1.16	30	
Chlorobenzene	19.62	1.0	20	0	98.1	70-130	19.51	0.562	30	
Toluene	19.04	1.0	20	0	95.2	70-130	18.49	2.93	30	
Trichloroethene	19.78	1.0	20	0	98.9	70-130	20.17	1.95	30	
Surr: 1,2-Dichloroethane-d4	103.6	0	100	0	104	70-130	97.82	5.73	30	
Surr: 4-Bromofluorobenzene	94.35	0	100	0	94.4	70-130	92.83	1.62	30	
Surr: Dibromofluoromethane	102	0	100	0	102	70-130	103.3	1.33	30	
Surr: Toluene-d8	94.75	0	100	0	94.8	70-130	93.92	0.88	30	

The following samples were analyzed in this batch: 0508612-14F 0508612-15A 0508612-16F

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S - Spike Recovery outside accepted recovery limits
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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32375** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW1-050909** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 10:36**

Client ID: Run ID: **VMS2_050909A** SeqNo: **477012** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methylene chloride	ND	5.0								
o-Xylene	ND	1.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
1,2-Dichloroethene, Total	ND	2.0								
1,3-Dichloropropene, Total	ND	2.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	92	0	100	0	92	80-120		0		
Surr: 4-Bromofluorobenzene	92.48	0	100	0	92.5	80-120		0		
Surr: Dibromofluoromethane	99.77	0	100	0	99.8	80-120		0		
Surr: Toluene-d8	109.8	0	100	0	110	80-120		0		

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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32375** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050909** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 14:06**

Client ID: Run ID: **VMS2_050909A** SeqNo: **477016** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23.07	1.0	20	0	115	80-120	0			
1,1,2,2-Tetrachloroethane	18.36	1.0	20	0	91.8	80-120	0			
1,1,2-Trichloroethane	21.5	1.0	20	0	108	80-120	0			
1,1-Dichloroethane	22.16	1.0	20	0	111	80-120	0			
1,1-Dichloroethene	25.05	1.0	20	0	125	80-120	0			S
1,2-Dichloroethane	23.16	1.0	20	0	116	80-120	0			
1,2-Dichloropropane	20.63	2.0	20	0	103	80-120	0			
2-Butanone	21.56	5.0	20	0	108	80-120	0			
2-Hexanone	23.62	5.0	20	0	118	80-120	0			
4-Methyl-2-pentanone	23.54	5.0	20	0	118	80-120	0			
Benzene	21.7	1.0	20	0	108	80-120	0			
Bromodichloromethane	20.73	1.0	20	0	104	80-120	0			
Bromoform	22.54	1.0	20	0	113	80-120	0			
Carbon disulfide	20.04	2.5	20	0	100	80-120	0			
Carbon tetrachloride	23.94	1.0	20	0	120	80-120	0			
Chlorobenzene	21.19	1.0	20	0	106	80-120	0			
Chloroethane	17.4	1.0	20	0	87	80-120	0			
Chloroform	21.4	1.0	20	0	107	80-120	0			
cis-1,2-Dichloroethene	19.12	1.0	20	0	95.6	80-120	0			
cis-1,3-Dichloropropene	21.2	1.0	20	0	106	80-120	0			
Dibromochloromethane	21.61	1.0	20	0	108	80-120	0			
Ethylbenzene	20.85	1.0	20	0	104	80-120	0			
m,p-Xylene	43.72	2.0	40	0	109	80-120	0			
Methylene chloride	18.34	5.0	20	0	91.7	80-120	0			
o-Xylene	21.29	1.0	20	0	106	80-120	0			
Styrene	21.75	1.0	20	0	109	80-120	0			
Tetrachloroethene	20.65	2.0	20	0	103	80-120	0			
Toluene	20.88	1.0	20	0	104	80-120	0			
trans-1,2-Dichloroethene	21.19	1.0	20	0	106	80-120	0			
trans-1,3-Dichloropropene	23.48	1.0	20	0	117	80-120	0			
Trichloroethene	21.82	1.0	20	0	109	80-120	0			
Vinyl chloride	16.21	1.0	20	0	81	80-120	0			
Surr: 1,2-Dichloroethane-d4	103	0	100	0	103	80-120	0			
Surr: 4-Bromofluorobenzene	90.13	0	100	0	90.1	80-120	0			
Surr: Dibromofluoromethane	101.1	0	100	0	101	80-120	0			
Surr: Toluene-d8	100.7	0	100	0	101	80-120	0			

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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32375** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW2-050909** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 15:55**

Client ID: Run ID: **VMS2_050909A** SeqNo: **477018** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	22.25	1.0	20	0	111	80-120	23.07	3.62	30	
1,1,2,2-Tetrachloroethane	19.34	1.0	20	0	96.7	80-120	18.36	5.2	30	
1,1,2-Trichloroethane	21.19	1.0	20	0	106	80-120	21.5	1.45	30	
1,1-Dichloroethane	22.44	1.0	20	0	112	80-120	22.16	1.26	30	
1,1-Dichloroethene	20.16	1.0	20	0	101	80-120	25.05	21.6	30	
1,2-Dichloroethane	22.45	1.0	20	0	112	80-120	23.16	3.11	30	
1,2-Dichloropropane	20.26	2.0	20	0	101	80-120	20.63	1.81	30	
2-Butanone	18.97	5.0	20	0	94.8	80-120	21.56	12.8	30	
2-Hexanone	19.54	5.0	20	0	97.7	80-120	23.62	18.9	30	
4-Methyl-2-pentanone	20.7	5.0	20	0	103	80-120	23.54	12.8	30	
Benzene	21.84	1.0	20	0	109	80-120	21.7	0.643	30	
Bromodichloromethane	21.05	1.0	20	0	105	80-120	20.73	1.53	30	
Bromoform	22.65	1.0	20	0	113	80-120	22.54	0.487	30	
Carbon disulfide	19.94	2.5	20	0	99.7	80-120	20.04	0.5	30	
Carbon tetrachloride	23.77	1.0	20	0	119	80-120	23.94	0.713	30	
Chlorobenzene	21.27	1.0	20	0	106	80-120	21.19	0.377	30	
Chloroethane	19.76	1.0	20	0	98.8	80-120	17.4	12.7	30	
Chloroform	21.47	1.0	20	0	107	80-120	21.4	0.327	30	
cis-1,2-Dichloroethene	19.03	1.0	20	0	95.2	80-120	19.12	0.472	30	
cis-1,3-Dichloropropene	21.78	1.0	20	0	109	80-120	21.2	2.7	30	
Dibromochloromethane	22.72	1.0	20	0	114	80-120	21.61	5.01	30	
Ethylbenzene	21.61	1.0	20	0	108	80-120	20.85	3.58	30	
m,p-Xylene	43.22	2.0	40	0	108	80-120	43.72	1.15	30	
Methylene chloride	18.7	5.0	20	0	93.5	80-120	18.34	1.94	30	
o-Xylene	22.48	1.0	20	0	112	80-120	21.29	5.44	30	
Styrene	23.19	1.0	20	0	116	80-120	21.75	6.41	30	
Tetrachloroethene	22.77	2.0	20	0	114	80-120	20.65	9.77	30	
Toluene	21.57	1.0	20	0	108	80-120	20.88	3.25	30	
trans-1,2-Dichloroethene	21.49	1.0	20	0	107	80-120	21.19	1.41	30	
trans-1,3-Dichloropropene	23.13	1.0	20	0	116	80-120	23.48	1.5	30	
Trichloroethene	22.75	1.0	20	0	114	80-120	21.82	4.17	30	
Vinyl chloride	15.83	1.0	20	0	79.1	80-120	16.21	2.37	30	S
Surr: 1,2-Dichloroethane-d4	98.36	0	100	0	98.4	80-120	103	4.65	30	
Surr: 4-Bromofluorobenzene	94.93	0	100	0	94.9	80-120	90.13	5.19	30	
Surr: Dibromofluoromethane	100.6	0	100	0	101	80-120	101.1	0.526	30	
Surr: Toluene-d8	103.5	0	100	0	104	80-120	100.7	2.72	30	

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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32375** InstrumentID: **VMS2**

MS Sample ID: **0509035-01C MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 22:21**

Client ID: Run ID: **VMS2_050909A** SeqNo: **477028** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	24.86	1.0	20	0	124	70-130	0			
Benzene	22.43	1.0	20	1.12	107	70-130	0			
Chlorobenzene	20.2	1.0	20	0	101	70-130	0			
Toluene	20.48	1.0	20	0	102	70-130	0			
Trichloroethene	20.67	1.0	20	0	103	70-130	0			
Surr: 1,2-Dichloroethane-d4	104.5	0	100	0	104	70-130	0			
Surr: 4-Bromofluorobenzene	92.69	0	100	0	92.7	70-130	0			
Surr: Dibromofluoromethane	102	0	100	0	102	70-130	0			
Surr: Toluene-d8	100	0	100	0	100	70-130	0			

MSD Sample ID: **0509035-01C MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/09/05 22:51**

Client ID: Run ID: **VMS2_050909A** SeqNo: **477029** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	23.01	1.0	20	0	115	70-130	24.86	7.73	30	
Benzene	21.6	1.0	20	1.12	102	70-130	22.43	3.77	30	
Chlorobenzene	19.95	1.0	20	0	99.8	70-130	20.2	1.25	30	
Toluene	19.82	1.0	20	0	99.1	70-130	20.48	3.28	30	
Trichloroethene	19.95	1.0	20	0	99.8	70-130	20.67	3.55	30	
Surr: 1,2-Dichloroethane-d4	103.9	0	100	0	104	70-130	104.5	0.509	30	
Surr: 4-Bromofluorobenzene	94.32	0	100	0	94.3	70-130	92.69	1.74	30	
Surr: Dibromofluoromethane	101.5	0	100	0	101	70-130	102	0.56	30	
Surr: Toluene-d8	100.4	0	100	0	100	70-130	100	0.409	30	

The following samples were analyzed in this batch: 0508612-13F

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32532** InstrumentID: **VMS1**

MBLK Sample ID: **VBLKW1-050916** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/16/05 10:18**

Client ID: Run ID: **VMS1_050916A** SeqNo: **479677** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
m,p-Xylene	ND	2.0								
Methylene chloride	ND	5.0								
o-Xylene	ND	1.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
1,2-Dichloroethene, Total	ND	2.0								
1,3-Dichloropropene, Total	ND	2.0								
Xylenes, Total	ND	3.0								
Surr: 1,2-Dichloroethane-d4	91.59	0	100	0	91.6	80-120		0		
Surr: 4-Bromofluorobenzene	98.6	0	100	0	98.6	80-120		0		
Surr: Dibromofluoromethane	98.4	0	100	0	98.4	80-120		0		
Surr: Toluene-d8	96.24	0	100	0	96.2	80-120		0		

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O - Referenced analyte value is > 4 times amount spiked
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E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32532** InstrumentID: **VMS1**

LCS Sample ID: **VLCSW1-050916** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/16/05 11:24**

Client ID: Run ID: **VMS1_050916A** SeqNo: **479678** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.04	1.0	20	0	100	80-120	0			
1,1,2,2-Tetrachloroethane	19.18	1.0	20	0	95.9	80-120	0			
1,1,2-Trichloroethane	18.21	1.0	20	0	91	80-120	0			
1,1-Dichloroethane	19.95	1.0	20	0	99.8	80-120	0			
1,1-Dichloroethene	19.89	1.0	20	0	99.4	80-120	0			
1,2-Dichloroethane	18.65	1.0	20	0	93.2	80-120	0			
1,2-Dichloropropane	19.51	2.0	20	0	97.6	80-120	0			
2-Butanone	23.22	5.0	20	0	116	80-120	0			
2-Hexanone	20.15	5.0	20	0	101	80-120	0			
4-Methyl-2-pentanone	20.38	5.0	20	0	102	80-120	0			
Benzene	20.14	1.0	20	0	101	80-120	0			
Bromodichloromethane	18.16	1.0	20	0	90.8	80-120	0			
Bromoform	18.89	1.0	20	0	94.4	80-120	0			
Carbon disulfide	19.7	2.5	20	0	98.5	80-120	0			
Carbon tetrachloride	19.84	1.0	20	0	99.2	80-120	0			
Chlorobenzene	19.14	1.0	20	0	95.7	80-120	0			
Chloroethane	19.61	1.0	20	0	98	80-120	0			
Chloroform	19.82	1.0	20	0	99.1	80-120	0			
cis-1,2-Dichloroethene	20.54	1.0	20	0	103	80-120	0			
cis-1,3-Dichloropropene	19.04	1.0	20	0	95.2	80-120	0			
Dibromochloromethane	20.11	1.0	20	0	101	80-120	0			
Ethylbenzene	20.24	1.0	20	0	101	80-120	0			
m,p-Xylene	38.47	2.0	40	0	96.2	80-120	0			
Methylene chloride	19.39	5.0	20	0	97	80-120	0			
o-Xylene	18.93	1.0	20	0	94.6	80-120	0			
Styrene	19.51	1.0	20	0	97.6	80-120	0			
Tetrachloroethene	17.71	2.0	20	0	88.6	80-120	0			
Toluene	18.92	1.0	20	0	94.6	80-120	0			
trans-1,2-Dichloroethene	20.74	1.0	20	0	104	80-120	0			
trans-1,3-Dichloropropene	19.22	1.0	20	0	96.1	80-120	0			
Trichloroethene	19.69	1.0	20	0	98.4	80-120	0			
Vinyl chloride	16.13	1.0	20	0	80.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	94.66	0	100	0	94.7	80-120	0			
Surr: 4-Bromofluorobenzene	94.72	0	100	0	94.7	80-120	0			
Surr: Dibromofluoromethane	99.15	0	100	0	99.2	80-120	0			
Surr: Toluene-d8	94.34	0	100	0	94.3	80-120	0			

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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32532** InstrumentID: **VMS1**

LCSD Sample ID: **VLCSDW1-050916** Test Code: **EPA 8260** Units: **µg/L** Analysis Date: **09/16/05 11:57**

Client ID: Run ID: **VMS1_050916A** SeqNo: **479679** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.23	1.0	20	0	96.2	80-120	20.04	4.13	30	
1,1,2,2-Tetrachloroethane	18.2	1.0	20	0	91	80-120	19.18	5.24	30	
1,1,2-Trichloroethane	17.81	1.0	20	0	89	80-120	18.21	2.22	30	
1,1-Dichloroethane	19.5	1.0	20	0	97.5	80-120	19.95	2.28	30	
1,1-Dichloroethene	19.42	1.0	20	0	97.1	80-120	19.89	2.39	30	
1,2-Dichloroethane	17.68	1.0	20	0	88.4	80-120	18.65	5.34	30	
1,2-Dichloropropane	18.75	2.0	20	0	93.8	80-120	19.51	3.97	30	
2-Butanone	17.74	5.0	20	0	88.7	80-120	23.22	26.8	30	
2-Hexanone	21.78	5.0	20	0	109	80-120	20.15	7.77	30	
4-Methyl-2-pentanone	19.55	5.0	20	0	97.8	80-120	20.38	4.16	30	
Benzene	19.7	1.0	20	0	98.5	80-120	20.14	2.21	30	
Bromodichloromethane	17.4	1.0	20	0	87	80-120	18.16	4.27	30	
Bromoform	18.46	1.0	20	0	92.3	80-120	18.89	2.3	30	
Carbon disulfide	19.35	2.5	20	0	96.8	80-120	19.7	1.79	30	
Carbon tetrachloride	19.53	1.0	20	0	97.6	80-120	19.84	1.57	30	
Chlorobenzene	19.19	1.0	20	0	96	80-120	19.14	0.261	30	
Chloroethane	17.37	1.0	20	0	86.8	80-120	19.61	12.1	30	
Chloroform	18.92	1.0	20	0	94.6	80-120	19.82	4.65	30	
cis-1,2-Dichloroethene	19.89	1.0	20	0	99.4	80-120	20.54	3.22	30	
cis-1,3-Dichloropropene	18.25	1.0	20	0	91.2	80-120	19.04	4.24	30	
Dibromochloromethane	19.8	1.0	20	0	99	80-120	20.11	1.55	30	
Ethylbenzene	18.74	1.0	20	0	93.7	80-120	20.24	7.7	30	
m,p-Xylene	35.62	2.0	40	0	89	80-120	38.47	7.69	30	
Methylene chloride	18.81	5.0	20	0	94	80-120	19.39	3.04	30	
o-Xylene	18.96	1.0	20	0	94.8	80-120	18.93	0.158	30	
Styrene	18.95	1.0	20	0	94.8	80-120	19.51	2.91	30	
Tetrachloroethene	17.87	2.0	20	0	89.4	80-120	17.71	0.899	30	
Toluene	19.15	1.0	20	0	95.7	80-120	18.92	1.21	30	
trans-1,2-Dichloroethene	20.27	1.0	20	0	101	80-120	20.74	2.29	30	
trans-1,3-Dichloropropene	18.46	1.0	20	0	92.3	80-120	19.22	4.03	30	
Trichloroethene	19.05	1.0	20	0	95.2	80-120	19.69	3.3	30	
Vinyl chloride	16.08	1.0	20	0	80.4	80-120	16.13	0.31	30	
Surr: 1,2-Dichloroethane-d4	89.77	0	100	0	89.8	80-120	94.66	5.3	30	
Surr: 4-Bromofluorobenzene	93.4	0	100	0	93.4	80-120	94.72	1.4	30	
Surr: Dibromofluoromethane	96	0	100	0	96	80-120	99.15	3.23	30	
Surr: Toluene-d8	97.94	0	100	0	97.9	80-120	94.34	3.74	30	

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O - Referenced analyte value is > 4 times amount spiked
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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32532** InstrumentID: **VMS1**

MS Sample ID: **0509230-06A MS** Test Code: **EPA 8260** Units: **µg/Kg** Analysis Date: **09/16/05 22:43**

Client ID: Run ID: **VMS1_050916A** SeqNo: **480137** Prep Date: DF: **101**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	1940	30	2000	0	97	70-130	0			
Benzene	2023	26	2000	0	101	70-130	0			
Chlorobenzene	1906	9.5	2000	0	95.3	70-130	0			
Toluene	1886	52	2000	0	94.3	70-130	0			
Trichloroethene	1980	34	2000	0	99	70-130	0			
Surr: 1,2-Dichloroethane-d4	9416	0	10000	0	94.2	70-130	0			
Surr: 4-Bromofluorobenzene	9595	0	10000	0	96	70-130	0			
Surr: Dibromofluoromethane	9929	0	10000	0	99.3	70-130	0			
Surr: Toluene-d8	9644	0	10000	0	96.4	70-130	0			

MSD Sample ID: **0509230-06A MSD** Test Code: **EPA 8260** Units: **µg/Kg** Analysis Date: **09/16/05 23:16**

Client ID: Run ID: **VMS1_050916A** SeqNo: **480138** Prep Date: DF: **101**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	1901	30	2000	0	95	70-130	1940	2.05	30	
Benzene	2006	26	2000	0	100	70-130	2023	0.852	30	
Chlorobenzene	1911	9.5	2000	0	95.5	70-130	1906	0.265	30	
Toluene	1882	52	2000	0	94.1	70-130	1886	0.214	30	
Trichloroethene	1956	34	2000	0	97.8	70-130	1980	1.18	30	
Surr: 1,2-Dichloroethane-d4	9321	0	10000	0	93.2	70-130	9416	1.01	30	
Surr: 4-Bromofluorobenzene	10320	0	10000	0	103	70-130	9595	7.26	30	
Surr: Dibromofluoromethane	10290	0	10000	0	103	70-130	9929	3.53	30	
Surr: Toluene-d8	9718	0	10000	0	97.2	70-130	9644	0.762	30	

The following samples were analyzed in this batch: 0508612-15A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32134** InstrumentID: **IC2**

LCS Sample ID: **WLCSW1-083105** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **08/31/05 0:00**

Client ID: Run ID: **IC2_050831A** SeqNo: **473625** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10.03	1.0	10	0	100	80-120	0			
Nitrogen, Nitrate	0.2559	0.030	0.25	0	102	80-120	0			

LCSD Sample ID: **WLCSDW1-083105** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **08/31/05 0:00**

Client ID: Run ID: **IC2_050831A** SeqNo: **473642** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.975	1.0	10	0	99.8	80-120	10.03	0.514	20	
Nitrogen, Nitrate	0.2448	0.030	0.25	0	97.9	80-120	0.2559	4.43	20	

MS Sample ID: **0508612-08DMS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **08/31/05 0:00**

Client ID: **MW-5S (MS/MSD)** Run ID: **IC2_050831A** SeqNo: **473634** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	282.9	5.0	10	273.7	92.3	75-125	0			EO
Nitrogen, Nitrate	2.86	0.15	2.5	0	114	75-125	0			

MSD Sample ID: **0508612-08DMSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **08/31/05 0:00**

Client ID: **MW-5S (MS/MSD)** Run ID: **IC2_050831A** SeqNo: **473635** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	285.1	5.0	10	273.7	114	75-125	282.9	0.769	20	EO
Nitrogen, Nitrate	2.678	0.15	2.5	0	107	75-125	2.86	6.57	20	

The following samples were analyzed in this batch:

0508612-01D	0508612-02D	0508612-03D
0508612-04D	0508612-05D	0508612-06D
0508612-07D	0508612-08D	0508612-09D
0508612-10D	0508612-11D	0508612-12D
0508612-13D	0508612-14D	

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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32202** InstrumentID: **IC2**

MBLK Sample ID: **WBLKW1-090205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: Run ID: **IC2_050902A** SeqNo: **474689** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								

LCS Sample ID: **WLCSW1-090205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: Run ID: **IC2_050902A** SeqNo: **474690** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.95	1.0	10	0	99.5	80-120	0			

LCSD Sample ID: **WLCSDW1-090205** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: Run ID: **IC2_050902A** SeqNo: **474707** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.935	1.0	10	0	99.4	80-120	9.95	0.154	20	

MS Sample ID: **0508612-08DMS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **IC2_050902A** SeqNo: **474699** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	281.6	10	20	272.8	44	75-125	0			SEO

MSD Sample ID: **0508612-08DMSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/02/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **IC2_050902A** SeqNo: **474700** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	285.3	10	20	272.8	62.4	75-125	281.6	1.3	20	SEO

The following samples were analyzed in this batch:

0508612-04D	0508612-08D	0508612-09D
0508612-10D	0508612-11D	0508612-12D
0508612-13D	0508612-14D	

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CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32205** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090105** Test Code: **EPA 354.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: Run ID: **WETCHEM_050901Q** SeqNo: **474823** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrite	ND	0.010								

LCS Sample ID: **WLCSW1-090105** Test Code: **EPA 354.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: Run ID: **WETCHEM_050901Q** SeqNo: **474824** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrite	0.1611	0.010	0.152	0	106	80-120		0		

LCSD Sample ID: **WLCSDW1-090105** Test Code: **EPA 354.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: Run ID: **WETCHEM_050901Q** SeqNo: **474842** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrite	0.1597	0.010	0.152	0	105	80-120	0.1611	0.873	20	

MS Sample ID: **0508612-08D MS** Test Code: **EPA 354.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050901Q** SeqNo: **474834** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrite	0.1371	0.010	0.152	0.0025	88.6	75-125		0		

MSD Sample ID: **0508612-08D MSD** Test Code: **EPA 354.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050901Q** SeqNo: **474835** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrite	0.1347	0.010	0.152	0.0025	87	75-125	0.1371	1.77	20	

The following samples were analyzed in this batch:

0508612-01D	0508612-02D	0508612-03D
0508612-04D	0508612-05D	0508612-06D
0508612-07D	0508612-08D	0508612-09D
0508612-10D	0508612-11D	0508612-12D
0508612-13D	0508612-14D	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32216** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090105** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906C** SeqNo: **474981** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.0050								

LCS Sample ID: **WLCSW1-090105** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906C** SeqNo: **474982** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3878	0.0050	0.3948	0	98.2	80-120		0		

LCSD Sample ID: **WLCSDW1-090105** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906C** SeqNo: **474995** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3706	0.0050	0.3948	0	93.9	80-120	0.3878	4.54	20	

MS Sample ID: **0508612-08AMS** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050906C** SeqNo: **474991** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.4072	0.0050	0.3949	0.0038	102	75-125		0		

MSD Sample ID: **0508612-08AMSD** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050906C** SeqNo: **474992** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.405	0.0050	0.3949	0.0038	102	75-125	0.4072	0.542	20	

The following samples were analyzed in this batch:

0508612-01A	0508612-02A	0508612-03A
0508612-04A	0508612-05A	0508612-06A
0508612-07A	0508612-08A	0508612-09A
0508612-10A		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32228** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090605** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906I** SeqNo: **475166** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.0050								

LCS Sample ID: **WLCSW1-090605** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906I** SeqNo: **475167** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3728	0.0050	0.3948	0	94.4	80-120		0		

LCSD Sample ID: **WLCSDW1-090605** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906I** SeqNo: **475182** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.4164	0.0050	0.3948	0	105	80-120	0.3728	11	20	

MS Sample ID: **0509002-15D MS** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906I** SeqNo: **475180** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.4118	0.0050	0.3949	0.036	95.2	75-125		0		

MSD Sample ID: **0509002-15D MSD** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906I** SeqNo: **475181** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.4004	0.0050	0.3949	0.036	92.3	75-125	0.4118	2.81	20	

The following samples were analyzed in this batch:

0508612-11A 0508612-12A 0508612-13A
0508612-14A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32229** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090605** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906J** SeqNo: **475183** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	5.0								

LCS Sample ID: **WLCSW1-090605** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906J** SeqNo: **475184** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	607	5.0	600	0	101	75-125	0			

LCSD Sample ID: **WLCSDW1-090605** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: Run ID: **WETCHEM_050906J** SeqNo: **475206** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	614	5.0	600	0	102	75-125	607	1.15	20	

MS Sample ID: **0508612-08EMS** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050906J** SeqNo: **475198** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	686	10	600	60.34	104	70-130	0			

MSD Sample ID: **0508612-08EMSD** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/06/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050906J** SeqNo: **475199** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	672	10	600	60.34	102	70-130	686	2.06	20	

The following samples were analyzed in this batch:

0508612-01E	0508612-02E	0508612-03E
0508612-04E	0508612-05E	0508612-06E
0508612-07E	0508612-08E	0508612-09E
0508612-10E	0508612-11E	0508612-12E
0508612-13E	0508612-14E	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32235** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090205** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **09/02/05 0:00**

Client ID: Run ID: **WETCHEM_050902G** SeqNo: **475278** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	ND	2.0								

DUP Sample ID: **0508011-56A DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **09/02/05 0:00**

Client ID: Run ID: **WETCHEM_050902G** SeqNo: **475282** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	153.3	2.0	0	0	0	0-0	143.3	6.74	20	

DUP Sample ID: **0508612-08D DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **09/02/05 0:00**

Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050902G** SeqNo: **475290** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	17.33	2.0	0	0	0	0-0	20	14.3	20	

The following samples were analyzed in this batch:

0508612-08D	0508612-09D	0508612-12D
0508612-13D	0508612-14D	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32236** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090205** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **09/02/05 0:00**

Client ID: Run ID: **WETCHEM_050902H** SeqNo: **475298** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	ND	2.0								

DUP Sample ID: **0508612-01D DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **09/02/05 0:00**

Client ID: **MW-10M** Run ID: **WETCHEM_050902H** SeqNo: **475300** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	6	2.0	0	0	0	0-0	6	0	20	

The following samples were analyzed in this batch:

0508612-01D	0508612-02D	0508612-03D
0508612-04D	0508612-05D	0508612-06D
0508612-07D	0508612-10D	0508612-11D

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
O - Referenced analyte value is > 4 times amount spiked
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
P - Dual Column results percent difference > 40%
B - Analyte detected in assoc. Method Blank
U - Analyzed for but not detected
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32244** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090105** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: Run ID: **WETCHEM_050901S** SeqNo: **475388** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	ND	5.0								

LCS Sample ID: **WLCSW1-090105** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: Run ID: **WETCHEM_050901S** SeqNo: **475389** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	484	5.0	498	0	97.2	80-120	0			

LCSD Sample ID: **WLCSDW1-090105** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: Run ID: **WETCHEM_050901S** SeqNo: **475407** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	477	5.0	498	0	95.8	80-120	484	1.46	20	

DUP Sample ID: **0508612-06D DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: **MW-6MR** Run ID: **WETCHEM_050901S** SeqNo: **475396** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1138	5.0	0	0	0	0-0	1137	0.0879	20	

DUP Sample ID: **0508612-14D DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/01/05 0:00**
Client ID: **MW-9D** Run ID: **WETCHEM_050901S** SeqNo: **475405** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	683	5.0	0	0	0	0-0	700	2.46	20	

The following samples were analyzed in this batch:

0508612-01D	0508612-02D	0508612-03D
0508612-04D	0508612-05D	0508612-06D
0508612-07D	0508612-08D	0508612-09D
0508612-10D	0508612-11D	0508612-12D
0508612-13D	0508612-14D	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32261** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090705** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907I** SeqNo: **475658** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.0050								

LCS Sample ID: **WLCSW1-090705** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907I** SeqNo: **475659** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.4038	0.0050	0.3948	0	102	80-120		0		

LCSD Sample ID: **WLCSDW1-090705** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907I** SeqNo: **475677** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.4004	0.0050	0.3948	0	101	80-120	0.4038	0.846	20	

MS Sample ID: **0508612-16A MS** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050907I** SeqNo: **475663** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3786	0.0050	0.3949	0.0532	82.4	75-125		0		

MSD Sample ID: **0508612-16A MSD** Test Code: **EPA 9014** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050907I** SeqNo: **475664** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3762	0.0050	0.3949	0.0532	81.8	75-125	0.3786	0.636	20	

The following samples were analyzed in this batch: 0508612-16A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32264** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090705** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907K** SeqNo: **475782** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	ND	0.050								

LCS Sample ID: **WLCSW1-090705** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907K** SeqNo: **475783** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.215	0.050	0.2	0	108	80-120	0			

LCSD Sample ID: **WLCSDW1-090705** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907K** SeqNo: **475790** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.201	0.050	0.2	0	100	80-120	0.215	6.73	20	

MS Sample ID: **0508474-22F MS** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907K** SeqNo: **475792** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.402	0.10	0.4	0	100	75-125	0			

MSD Sample ID: **0508474-22F MSD** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907K** SeqNo: **475793** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.402	0.10	0.4	0	100	75-125	0.402	0	20	

The following samples were analyzed in this batch:

0508612-01B 0508612-02B 0508612-03B
0508612-04B

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32278** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090705** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **09/07/05 0:00**

Client ID: Run ID: **WETCHEM_050907Q** SeqNo: **475846** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	ND	2.0								

DUP Sample ID: **0509025-04A DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date: **09/07/05 0:00**

Client ID: Run ID: **WETCHEM_050907Q** SeqNo: **475857** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	160	2.0	0	0	0	0-0	152	5.13	20	

The following samples were analyzed in this batch: 0508612-16D

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32280** InstrumentID: **IC2**

MBLK Sample ID: **WBLKW1-090605** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/06/05 0:00**

Client ID: Run ID: **IC2_050906A** SeqNo: **475875** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								
Nitrogen, Nitrate	ND	0.030								
Nitrogen, Nitrite	ND	0.010								

LCS Sample ID: **WLCSW1-090605** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/06/05 0:00**

Client ID: Run ID: **IC2_050906A** SeqNo: **475876** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10.32	1.0	10	0	103	80-120	0			
Nitrogen, Nitrate	0.2439	0.030	0.25	0	97.6	80-120	0			
Nitrogen, Nitrite	0.262	0.010	0.25	0	105	80-120	0			

LCSD Sample ID: **WLCSDW1-090605** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/06/05 0:00**

Client ID: Run ID: **IC2_050906A** SeqNo: **475887** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.989	1.0	10	0	99.9	80-120	10.32	3.25	20	
Nitrogen, Nitrate	0.2444	0.030	0.25	0	97.8	80-120	0.2439	0.205	20	
Nitrogen, Nitrite	0.2264	0.010	0.25	0	90.6	80-120	0.262	14.6	20	

MS Sample ID: **0509035-01A MS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/06/05 0:00**

Client ID: Run ID: **IC2_050906A** SeqNo: **475890** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	165.3	10	20	143.9	107	75-125	0			O
Nitrogen, Nitrate	5.353	0.30	5	0	107	75-125	0			H

MSD Sample ID: **0509035-01A MSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/06/05 0:00**

Client ID: Run ID: **IC2_050906A** SeqNo: **475891** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	162.8	10	20	143.9	94.4	75-125	165.3	1.55	20	O
Nitrogen, Nitrate	5.489	0.30	5	0	110	75-125	5.353	2.51	20	H

The following samples were analyzed in this batch: 0508612-16D

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32290** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090805** Test Code: **EPA 350.2** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908A** SeqNo: **476039** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	ND	0.50								

LCS Sample ID: **WLCSW1-090805** Test Code: **EPA 350.2** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908A** SeqNo: **476040** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	974.4	0.50	1000	0	97.4	80-120		0		

LCSD Sample ID: **WLCSDW1-090805** Test Code: **EPA 350.2** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908A** SeqNo: **476044** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	940.8	0.50	1000	0	94.1	80-120	974.4	3.51	20	

MS Sample ID: **0509014-07B MS** Test Code: **EPA 350.2** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908A** SeqNo: **476042** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	85.68	0.50	50	37.52	96.3	75-125		0		

MSD Sample ID: **0509014-07B MSD** Test Code: **EPA 350.2** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908A** SeqNo: **476043** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	90.72	0.50	50	37.52	106	75-125	85.68	5.71	20	

The following samples were analyzed in this batch:

0508612-10E	0508612-11E	0508612-12E
0508612-14E	0508612-16E	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32311** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090705** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907W** SeqNo: **476317** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	5.0								

LCS Sample ID: **WLCSW1-090705** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907W** SeqNo: **476318** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	611	5.0	600	0	102	75-125	0			

LCSD Sample ID: **WLCSDW1-090705** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: Run ID: **WETCHEM_050907W** SeqNo: **476340** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	609	5.0	600	0	101	75-125	611	0.328	20	

MS Sample ID: **0508612-16E MS** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050907W** SeqNo: **476320** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	648	10	600	41.8	101	70-130	0			

MSD Sample ID: **0508612-16E MSD** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date: **09/07/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050907W** SeqNo: **476321** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	652	10	600	41.8	102	70-130	648	0.615	20	

The following samples were analyzed in this batch: 0508612-16E

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32312** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090805** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908L** SeqNo: **476365** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	ND	0.020								

LCS Sample ID: **WLCSW1-090805** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908L** SeqNo: **476366** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.3011	0.020	0.3	0	100	80-120		0		

LCSD Sample ID: **WLCSDW1-090805** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908L** SeqNo: **476387** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.2849	0.020	0.3	0	95	80-120	0.3011	5.53	20	

MS Sample ID: **0508612-08EMS** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050908L** SeqNo: **476375** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	38.78	2.0	20	17.01	109	75-125		0		

MSD Sample ID: **0508612-08EMSD** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050908L** SeqNo: **476376** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	39.07	2.0	20	17.01	110	75-125	38.78	0.745	20	

The following samples were analyzed in this batch:

0508612-01E	0508612-02E	0508612-03E
0508612-04E	0508612-05E	0508612-06E
0508612-07E	0508612-08E	0508612-09E
0508612-10E	0508612-11E	0508612-12E
0508612-13E	0508612-14E	0508612-16E

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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32319** InstrumentID: **IC2**

MBLK Sample ID: **WBLKW1-090805** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **IC2_050908A** SeqNo: **476442** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								

LCS Sample ID: **WLCSW1-090805** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **IC2_050908A** SeqNo: **476443** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.931	1.0	10	0	99.3	80-120	0			

LCSD Sample ID: **WLCSDW1-090805** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **IC2_050908A** SeqNo: **476453** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.872	1.0	10	0	98.7	80-120	9.931	0.599	20	

MS Sample ID: **0508612-08DMS** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **IC2_050908A** SeqNo: **476450** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	279.3	25	10	265.2	141	75-125	0			SO

MSD Sample ID: **0508612-08DMSD** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **IC2_050908A** SeqNo: **476451** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	282.7	25	10	265.2	176	75-125	279.3	1.23	20	SO

The following samples were analyzed in this batch:

0508612-02D	0508612-03D	0508612-05D
0508612-06D	0508612-07D	0508612-08D

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32362** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-090805** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908T** SeqNo: **476824** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	ND	5.0								

LCS Sample ID: **WLCSW1-090805** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908T** SeqNo: **476825** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	459	5.0	498	0	92.2	80-120	0			

LCSD Sample ID: **WLCSDW1-090805** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: Run ID: **WETCHEM_050908T** SeqNo: **476832** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	479	5.0	498	0	96.2	80-120	459	4.26	20	

DUP Sample ID: **0508612-16D DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date: **09/08/05 0:00**
Client ID: **MW-5DR** Run ID: **WETCHEM_050908T** SeqNo: **476827** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1062	5.0	0	0	0	0-0	1066	0.376	20	

The following samples were analyzed in this batch: 0508612-16D

ND - Not Detected at the Reporting Limit
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B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32374** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-091205** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **09/12/05 0:00**
Client ID: Run ID: **WETCHEM_050912B** SeqNo: **476970** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	ND	0.050								

LCS Sample ID: **WLCSW1-091205** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **09/12/05 0:00**
Client ID: Run ID: **WETCHEM_050912B** SeqNo: **476971** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2151	0.050	0.2	0	108	80-120		0		

LCSD Sample ID: **WLCSDW1-091205** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date: **09/12/05 0:00**
Client ID: Run ID: **WETCHEM_050912B** SeqNo: **476974** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2014	0.050	0.2	0	101	80-120	0.2151	6.58	20	

MS Sample ID: **0508612-08BMS** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **09/12/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050912B** SeqNo: **477801** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.1946	0.050	0.2	0	97.3	75-125		0		

MSD Sample ID: **0508612-08BMSD** Test Code: **EPA 9065** Units: **mg/L** Analysis Date: **09/12/05 0:00**
Client ID: **MW-5S (MS/MSD)** Run ID: **WETCHEM_050912B** SeqNo: **477802** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2082	0.050	0.2	0	104	75-125	0.1946	6.75	20	

The following samples were analyzed in this batch:

0508612-05B	0508612-06B	0508612-07B
0508612-08B	0508612-09B	0508612-10B
0508612-11B	0508612-12B	0508612-13B
0508612-14B	0508612-16B	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0508612
Project: GSD - RSL GROUNDWATER

QC BATCH REPORT

Batch ID: **R32644** InstrumentID: **IC2**

MBLK Sample ID: **WBLKW1-092005** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/20/05 0:00**
Client ID: Run ID: **IC2_050920A** SeqNo: **481472** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								
Nitrogen, Nitrate	ND	0.030								

LCS Sample ID: **WLCSW1-092005** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/20/05 0:00**
Client ID: Run ID: **IC2_050920A** SeqNo: **481473** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.932	1.0	10	0	99.3	80-120	0			
Nitrogen, Nitrate	0.2501	0.030	0.25	0	100	80-120	0			

LCSD Sample ID: **WLCSDW1-092005** Test Code: **EPA 9056** Units: **mg/L** Analysis Date: **09/20/05 0:00**
Client ID: Run ID: **IC2_050920A** SeqNo: **481476** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	10.07	1.0	10	0	101	80-120	9.932	1.4	20	
Nitrogen, Nitrate	0.256	0.030	0.25	0	102	80-120	0.2501	2.33	20	

MS Sample ID: **0509380-11B MS** Test Code: **EPA 300.0** Units: **mg/L** Analysis Date: **09/20/05 0:00**
Client ID: Run ID: **IC2_050920A** SeqNo: **481738** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	168.9	10	20	158.3	53	75-125	0			SO
Nitrogen, Nitrate	4.836	0.30	5	0	96.7	75-125	0			

MSD Sample ID: **0509380-11B MSD** Test Code: **EPA 300.0** Units: **mg/L** Analysis Date: **09/20/05 0:00**
Client ID: Run ID: **IC2_050920A** SeqNo: **481739** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	169.9	10	20	158.3	58.1	75-125	168.9	0.599	20	SO
Nitrogen, Nitrate	5.216	0.30	5	0	104	75-125	4.836	7.56	20	

The following samples were analyzed in this batch: 0508612-16D

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

0808602 -01

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar
Well ID: 10M Well Type and Owner: Gary Sanitary District
Sampling Date: 8/30/2005 Purge Method: Pump Parastaltic pump Bailer _____
Purge START Time: 7:51 AM Purge STOP Time: 8:50 Purge Rate (mL/min.): 460 ml/min - 500
Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____
Sample Collection Time and Analysis: 0850
Weather Conditions: SUNNY - 70°F Lt WIND
Observations/Comments: Lubricated lock / SAMPLE FOAMS

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000
Initial Reading at Mouth of Well Pipe: 0 Time = 0 mins.
Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 7.80 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 22.75 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)
H = Height of Water in Well (ft) = WD-SWL: H = 14.95 ft ☐
V = One Well Volume = "Y"*H (gal): V = 2.43 gallons ☐

"Y" Values for various well diameters:
0.163 gal/foot of water for a 2" well.
0.653 gal/foot of water for a 4" well.
☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = ~~2.43~~ 7.31 Gallons.
Method to Measure Purge Water Volume: Five gallon bucket
Purge Water Scanned? Yes _____ No X Reading? _____
Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**
After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	Dissolved Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
834 1	7.74	14.8	0.355	-	~~5.560~~	SWL-7.90 Purge Water - Coffee colored
840 2	7.74	14.6	0.357	-	~~6.0~~ 6.50	SWL-7.90
844 3	7.74	14.7	0.358	-	~~6.5~~ 7.00	SWL-7.90
850 4	7.74	14.7	0.358	-	7.5	SWL-7.90
5				-		

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

050806L
- 02

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar

Well ID: 2M Well Type and Owner: Gary Sanitary District

Sampling Date: 8/30/2005 Purge Method: Pump Parastaltic pump Bailer _____

Purge START Time: 0953 Purge STOP Time: ~~1000~~ 1100 Purge Rate (mL/min.): 500

Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____

Sample Collection Time and Analysis: ~~10:05~~ 1100

Weather Conditions: Pty Sunny - 75°F

Observations/Comments: _____

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000

Initial Reading at Mouth of Well Pipe: 0.3 Time = 0 mins.

Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 4.58 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 19.78 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** 2

7) **WELL VOLUME** (V in gallons)

H = Height of Water in Well (ft) = WD-SWL: H = 15.20 ft ☐

V = One Well Volume = "Y"*H (gal): V = 2.48 gallons ☐

"Y" Values for various well diameters:

0.163 gal/foot of water for a 2" well.

0.653 gal/foot of water for a 4" well.

☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 7.43 Gallons.

Method to Measure Purge Water Volume: Five gallon bucket

Purge Water Scanned? Yes _____ No X Reading? _____

Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**

After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	Dissolved Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
1048 ~~0948~~ 1	7.53	14.8	1.91		7.5	SWL - 4.60
1052 ~~0953~~ 2	7.53	14.8	1.66		7.8	
1056 ~~0956~~ 3	7.53	14.8	1.66		8.0	
1059 ~~0959~~ 4	7.53	14.8	1.66		8.3	
5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

-03

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar
Well ID: 7DR Well Type and Owner: Gary Sanitary District
Sampling Date: 8/30 Purge Method: Pump Parastaltic pump Bailer _____
Purge START Time: 1318 Purge STOP Time: 1502 Purge Rate (mL/min.): 500
Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____
Sample Collection Time and Analysis: 1511
Weather Conditions: _____
Observations/Comments: _____

1) **CONDITION OF WELL:**

			Describe/Photograph
Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	Yes	No	– PARTIALLY BROKE – GROUND HAS SUNKEN ON S. SIDE OF WELL

2) **AIR MONITORING:** Instrument Mini RAE 2000
Initial Reading at Mouth of Well Pipe: 0.1 Time = 0 mins.
Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 2.00 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 30.40 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)
H = Height of Water in Well (ft) = WD-SWL: H = 28.40 ft ☐
V = One Well Volume = "Y"*H (gal): V = 4.63 gallons ☐

"Y" Values for various well diameters:
0.163 gal/foot of water for a 2" well.
0.653 gal/foot of water for a 4" well.
☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 13.89 Gallons.
Method to Measure Purge Water Volume: Five gallon bucket
Purge Water Scanned? Yes ____ No X Reading? _____
Purge Water Retained? Yes ____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**
After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

	Trial	Ph	Temp (°C)	Conductivity (mS/cm)	Dissolved Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
							SWL 1339 – 2.00
1502	1	7.49	14.7	0.608	–	14	
1505	2	7.41	14.4	0.607	–	14.3	2.00
1508	3	7.35	14.3	0.605	–	14.6	2.00
1511	4	7.33	14.2	0.593	–	14.9	
	5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

-04

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar
Well ID: 7MR Well Type and Owner: Gary Sanitary District
Sampling Date: _____ Purge Method: Pump Parastaltic pump Bailer _____
Purge START Time: 1150 Purge STOP Time: 1250 Purge Rate (mL/min.): 500
Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____
Sample Collection Time and Analysis: 1255
Weather Conditions: SUNNY
Observations/Comments: _____

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000
Initial Reading at Mouth of Well Pipe: 0.1 Time = 0 mins.
Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 2.60 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 19.08 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)
H = Height of Water in Well (ft) = WD-SWL: H = 16.48 ft ☐
V = One Well Volume = "Y"*H (gal): V = 2.69 gallons ☐

"Y" Values for various well diameters:
0.163 gal/foot of water for a 2" well.
0.653 gal/foot of water for a 4" well.
☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 8.06 Gallons.
Method to Measure Purge Water Volume: Five gallon bucket
Purge Water Scanned? Yes ____ No X Reading? _____
Purge Water Retained? Yes ____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**
After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

	Trial	Ph	Temp (°C)	Conductivity (mS/cm)	Dissolved Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
1250	1	7.69	15.0	0.570		8	SWL- 1218 2.45
1253	2	7.67	14.7	0.561		8.5	
1256	3	7.66	14.6	0.558		9	
	4						
	5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

-05

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar

Well ID: 75 Well Type and Owner: Gary Sanitary District

Sampling Date: 8/30/05 Purge Method: Pump Parastaltic pump Bailer _____

Purge START Time: 1203 Purge STOP Time: 1234 Purge Rate (mL/min.): 500mls/min

Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____

Sample Collection Time and Analysis: 1234

Weather Conditions: _____

Observations/Comments: _____

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000

Initial Reading at Mouth of Well Pipe: 0.2 Time = 0 mins.

Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 2.60 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 8.15 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)

H = Height of Water in Well (ft) = WD-SWL: H = 5.55 ft ☐

V = One Well Volume = "Y"*H (gal): V = 0.90 gallons ☐

"Y" Values for various well diameters:

0.163 gal/foot of water for a 2" well.

0.653 gal/foot of water for a 4" well.

☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 2.70 Gallons.

Method to Measure Purge Water Volume: Five gallon bucket

Purge Water Scanned? Yes _____ No X Reading? _____

Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**

After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	Dissolved Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
1219 1						Lt. Brown; no odor SWL-2.70
1228 2	7.61	19.0	1.44	–	2.7	SWL-2.65
1231 3	7.61	19.0	1.45	–	2.9	
1234 4	7.61	19.0	1.45	–	3.3	SWL-2.65
5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

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MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar
Well ID: 6MR Well Type and Owner: Gary Sanitary District
Sampling Date: 8/30/05 Purge Method: Pump Parastaltic pump Bailer _____
Purge START Time: 1333 Purge STOP Time: 1436 Purge Rate (mL/min.): ~ 500
Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____
Sample Collection Time and Analysis: 1436
Weather Conditions: Sunny - 78°F
Observations/Comments: _____

FLD DUP
6MR-01

1) **CONDITION OF WELL:**

			Describe/Photograph
Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000
Initial Reading at Mouth of Well Pipe: 0.1 Time = 0 mins.
Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 3.05 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 20.95 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)
H = Height of Water in Well (ft) = WD-SWL: H = 17.9 ft ☐
V = One Well Volume = "Y"*H (gal): V = 2.92 gallons ☐

"Y" Values for various well diameters:
0.163 gal/foot of water for a 2" well.
0.653 gal/foot of water for a 4" well.
☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 8.8 Gallons.
Method to Measure Purge Water Volume: Five gallon bucket
Purge Water Scanned? Yes ____ No X Reading? _____
Purge Water Retained? Yes ____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**
After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	Dissolved Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
1				–		SWL 1338 – 3.15
1430 2	8.03	13.2	1.98	–	8.5	
1433 3	8.04	13.2	1.98	–	8.8	
1436 4	8.04	13.1	1.98	–	9.2	
5				–		

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

-08
-09

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar
Well ID: SS Well Type and Owner: Gary Sanitary District
Sampling Date: 8/30/05 Purge Method: Pump Parastaltic pump Bailer _____
Purge START Time: 1601 Purge STOP Time: 1631 Purge Rate (mL/min.): 440
Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____
Sample Collection Time and Analysis: _____
Weather Conditions: Clouding & wind picking up
Observations/Comments: Purge water dark

SS & SS-01 plus MS/MSD on SS

1) **CONDITION OF WELL:**

			Describe/Photograph
Casing Locked?	(Yes)	No	~~Casing slight~~ (CAP) (TOP) Slightly damaged
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	Yes	(No)	

2) **AIR MONITORING:** Instrument Mini RAE 2000
Initial Reading at Mouth of Well Pipe: 7.5 - 5.3 - 2.0 Time = 0 mins.
Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 4.13 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 8.90 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)
H = Height of Water in Well (ft) = WD-SWL: H = 4.77 ft ☐
V = One Well Volume = "Y"*H (gal): V = 0.77 gallons ☐

"Y" Values for various well diameters:
0.163 gal/foot of water for a 2" well.
0.653 gal/foot of water for a 4" well.
☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 2.33 Gallons.
Method to Measure Purge Water Volume: Five gallon bucket
Purge Water Scanned? Yes _____ No X Reading? _____
Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**
After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	Dissolved Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
~~1605~~ 1605				SWL 4.30		
1625	6.80	20.9	1.33	4.95	2.3	
1630	6.80	20.8	1.33	4.98	2.8	Purge Water Lt brown
1634	6.80	20.8	1.33	4.99	3.0	
5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

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MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar

Well ID: 4MR Well Type and Owner: Gary Sanitary District

Sampling Date: 8/30/2005 Purge Method: Pump Parastaltic pump Bailer _____

Purge START Time: 1800 Purge STOP Time: 1930 Purge Rate (mL/min.): 480

Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____

Sample Collection Time and Analysis: 1937

Weather Conditions: _____

Observations/Comments: _____

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000

Initial Reading at Mouth of Well Pipe: 0 Time = 0 mins.

Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 5.35 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 26.30 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)

H = Height of Water in Well (ft) = WD-SWL: H = 20.95 ft ☐

V = One Well Volume = "Y"*H (gal): V = 3.41 gallons ☐

"Y" Values for various well diameters:

0.163 gal/foot of water for a 2" well.

0.653 gal/foot of water for a 4" well.

☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 10.23 Gallons.

Method to Measure Purge Water Volume: Five gallon bucket

Purge Water Scanned? Yes _____ No X Reading? _____

Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**

After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	~~Dissolved Oxygen~~ SWL	Gallons Purged	Remarks (i.e. Color etc.)
1930	6.86	14.5	2.20		10.25	
1932	6.86	14.5	2.20		10.50	
1934	6.86	14.5	2.20		10.8	
4						
5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar

Well ID: 35 Well Type and Owner: Gary Sanitary District

Sampling Date: 8/30/2005 Purge Method: Pump Parastaltic pump Bailer _____

Purge START Time: 1847 Purge STOP Time: 1908 Purge Rate (mL/min.): _____

Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____

Sample Collection Time and Analysis: 1908

Weather Conditions: _____

Observations/Comments: _____

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000

Initial Reading at Mouth of Well Pipe: 0 Time = 0 mins.

Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 4.35 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 7.70 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)

H = Height of Water in Well (ft) = WD-SWL: H = 3.35 ft ☐

V = One Well Volume = "Y"*H (gal): V = 0.54 gallons ☐

"Y" Values for various well diameters:

0.163 gal/foot of water for a 2" well.

0.653 gal/foot of water for a 4" well.

☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 1.64 Gallons.

Method to Measure Purge Water Volume: Five gallon bucket

Purge Water Scanned? Yes _____ No X Reading? _____

Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**

After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	SWL ~~Dissolved~~ Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
1857				4.35		
1902 2	7.00	18.3	1.34 ~~1.55~~ mm	4.35	1.5	Clear-
1905 3	7.00	18.3	1.34	4.35	1.75	
1908 4	7.00	18.3	1.34	4.35	1.95	
5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

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MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar

Well ID: 3MR Well Type and Owner: Gary Sanitary District

Sampling Date: 8/30/05 Purge Method: Pump Parastaltic pump Bailer _____

Purge START Time: 1654 Purge STOP Time: 1817 Purge Rate (mL/min.): _____

Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____

Sample Collection Time and Analysis: 1817

Weather Conditions: _____

Observations/Comments: _____

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	Cracked

2) **AIR MONITORING:** Instrument Mini RAE 2000

Initial Reading at Mouth of Well Pipe: 0.1 Time = 0 mins.

Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 3.75 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 20.60 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)

H = Height of Water in Well (ft) = WD-SWL: H = 16.85 ft ☐

V = One Well Volume = "Y"*H (gal): V = 2.75 gallons ☐

"Y" Values for various well diameters:

0.163 gal/foot of water for a 2" well.

0.653 gal/foot of water for a 4" well.

☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 8.25 Gallons.

Method to Measure Purge Water Volume: Five gallon bucket

Purge Water Scanned? Yes _____ No X Reading? _____

Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**

After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	~~Dissolved Oxygen~~ SWL	Gallons Purged	Remarks (i.e. Color etc.)
1657 1				3.85		
1808 2	7.12	13.9	1.52	3.85	8.25	
1813 3	7.12	13.9	1.74	3.85	8.5	
1814 4	7.12	13.9	1.52		8.8	
1817 5	7.12	13.9	1.52		9.0	

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

-13

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar
Well ID: 9SM Well Type and Owner: Gary Sanitary District
Sampling Date: 08/31/05 Purge Method: Pump Parastaltic pump Bailer _____
Purge START Time: 0725 Purge STOP Time: 0822 Purge Rate (mL/min.): 500
Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____
Sample Collection Time and Analysis: 0830
Weather Conditions: _____
Observations/Comments: _____

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000
Initial Reading at Mouth of Well Pipe: 0.0 Time = 0 mins.
Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 3.80 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 19.30 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)
H = Height of Water in Well (ft) = WD-SWL: H = 15.50 ft ☐
V = One Well Volume = "Y"*H (gal): V = 2.53 gallons ☐

"Y" Values for various well diameters:
0.163 gal/foot of water for a 2" well.
0.653 gal/foot of water for a 4" well.
☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 7.58 Gallons.
Method to Measure Purge Water Volume: Five gallon bucket
Purge Water Scanned? Yes _____ No X Reading? _____
Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**
After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

	Trial	Ph	Temp (°C)	Conductivity (mS/cm)	Dissolved Oxygen	Gallons Purged	Remarks (i.e. Color etc.)
0822	1	8.83	13.8	1.16		7.5	SWL - 0745 3.90
0825	2	8.85	13.4	1.16		8.0	
0828	3	8.85	13.4	1.16		8.5	
	4						
	5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

-14

MONITORING WELL SAMPLING DATA SHEET

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Csaszar
Well ID: 4D Well Type and Owner: Gary Sanitary District
Sampling Date: 8/31/05 Purge Method: Pump Parastaltic pump Bailer _____
Purge START Time: ~~0734~~ 0724 Purge STOP Time: 0903 Purge Rate (mL/min.): 500
Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____
Sample Collection Time and Analysis: 0903
Weather Conditions: _____
Observations/Comments: _____

Start @ 3.34 PSI
GSP 478

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	Yes	(No)	

2) **AIR MONITORING:** Instrument Mini RAE 2000
Initial Reading at Mouth of Well Pipe: 0.0 Time = 0 mins.
Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 3.85 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 30.45 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

97.5

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** _____

7) **WELL VOLUME** (V in gallons)
H = Height of Water in Well (ft) = WD-SWL: H = 26.6 ft ☐
V = One Well Volume = "Y"*H (gal): V = 4.33 gallons ☐

"Y" Values for various well diameters:
0.163 gal/foot of water for a 2" well.
0.653 gal/foot of water for a 4" well.
☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 13.0 Gallons.
Method to Measure Purge Water Volume: Five gallon bucket
Purge Water Scanned? Yes _____ No X Reading? _____
Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**
After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	~~Dissolved Oxygen~~ SWL	Gallons Purged	Remarks (i.e. Color etc.)
0857 1	7.95	13.4	1.36	4.00	13	Very lt. brown -
0900 2	7.95	13.4	1.36	3.95	13.2	
0903 3	7.95	13.4	1.36	3.95	13.4	
4						
5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

MONITORING WELL SAMPLING DATA SHEET

-16

Project Name: Gary San Dist – Ralston St Lagoon Task No.: _____ Sampled By: Arnold/Ribar
Well ID: MW-5 DL Well Type and Owner: GarySanitaryDistrict
Sampling Date: 9/6/05 Purge Method: Pump Parastalticpump Bailer _____
Purge START Time: 0825 Purge STOP Time: 1009 Purge Rate (mL/min.): 500
Sampling Method: Pump X Bailer VOCs Pump lines or Bailer ropes: New X Cleaned _____
Sample Collection Time and Analysis: 1019
Weather Conditions: _____
Observations/Comments: _____

1) **CONDITION OF WELL:** Describe/Photograph

Casing Locked?	(Yes)	No	
Any Vandalism?	Yes	(No)	
Well Cap Intact?	(Yes)	No	
Concrete Pad?	(Yes)	No	

2) **AIR MONITORING:** Instrument Mini RAE 2000
Initial Reading at Mouth of Well Pipe: 0.2 Time = 0 mins.
Final Reading at Mouth of Well Pipe: _____ Time = _____ mins.

3) **STATIC WATER LEVEL** (Depth from Top of Casing or MP): SWL = 3.65 ft.

4) **WELL DEPTH** (Depth from Top of Casing or MP): WD = 31.70 ft.

5) **WELL RISER DIAMETER:** D = 2 in.

6) **WELL SCREEN DIAMETER (in) AND INTERVAL (ft):** 2"

7) **WELL VOLUME** (V in gallons)
H = Height of Water in Well (ft) = WD-SWL: H = 28.05 ft
V = One Well Volume = "Y"*H (gal): V = 4.57 gallons

"Y" Values for various well diameters:
☐ 0.163 gal/foot of water for a 2" well.
☐ 0.653 gal/foot of water for a 4" well.
☐ 1.469 gal/foot of water for a 6" well.

8) **PURGE VOLUME** (PV) 3 Well Volumes, PV = 13.7 Gallons.
Method to Measure Purge Water Volume: Five gallon bucket
Purge Water Scanned? Yes _____ No X Reading? _____
Purge Water Retained? Yes _____ No X How Disposed of? Returned to lagoon/ground

9) **VERIFY PURGE QUALITY:**
After 3 well volumes purged, measure pH, conductivity, and temperature on 3 consecutive aliquots of discharged water. Purge is acceptable if three consecutive readings within these ranges: pH = ± 0.25; conductivity = ± 0.05 mS/cm (± 50 umhos/cm), and temperature = ± 0.5°C.

Trial	Ph	Temp (°C)	Conductivity (mS/cm)	~~Dissolved Oxygen~~ SOC	Gallons Purged	Remarks (i.e. Color etc.)
1012 1	7.10	14.1	2.01	3.75	13.6	
1016 2	6.99	13.8	2.01	3.70	13.9	
1019 3	6.97	13.8	2.01	3.70	14.2	
4						
5						

10) **DECON SAMPLE BOTTLES:** Yes No x See SAQAPP for proper procedures.

11) **DECON PUMP/BAILER:** Yes No x " "

12) **LABORATORY ANALYSIS PERFORMED BY:** e-Lab Analytical, Inc. – Holland, Mi

e-Lab ANALYTICAL
QUALITY • INTEGRITY • SERVICE

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 2

☑ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: LPA
e-Lab Work Order #: 0508612

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	RSL Groundwater	A	T. Cyanide (9014)
Work Order		Project Number		B	T. Phenolics (9065)
Company Name	Gary Sanitary District	Bill To Company		C	Dissolved Metals (6020B & 7470) -Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn - Hg
Send Report To	Spike Peller	Invoice Attn.		D	TSS,TDS,IC (Cl,NO3,NO2)
Address	3600 West 3rd Avenue	Address		E	COD, Ammonia-N
				F	VOCs 8260
City/State/Zip	Gary, IN 46404	City/State/Zip		G	SVOCs 8270
Phone	219-944-1211	Phone		H	PCB/Pesticides(8081/8082)
Fax		Fax		I	Field Parameters (pH, Spec. Cond, SWL, Well Depth, Temp)
e-Mail Address	spike@garysan.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-10M	08/30/05	0850	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
2	MW-2M	08/30/05	1100	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
3	MW-7DR	08/30/05	1511	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
4	MW-7MR	08/30/05	1255	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
5	MW-7S	08/30/05	1234	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
6	MW-6MR	08/30/05	1436	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
7	MW-6MR-01	08/30/05	1436	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
8	MW-5S includes MS/MSD	08/30/05	1631	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
9	MW-5S-01	08/30/05	1631	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
10	MW-4MR	08/30/05	1937	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		

Sampler(s): Please Print & Sign
J. Ribar, L. Arnold, A. Csaszar

Required Turnaround Time: (Check Box)
☑ 10 Wk Days ☐ 5 Wk Days ☐ 3 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
[signature]	8/31/05	1350				
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	
			[signature]	8/31/05	1350	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
[signature]	8/31/05	1400				

e-Lab Cooler ID	Cooler Temp	QC Package: (Check Box Below)	
		☐ Level II: Standard QC	☐ Level III: Raw Data
		☐ TRRP LRC	☐ TRRP Level IV
		☐ Level IV: SW846 Methods/CLP like	
		☐ Other: _____	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab ANALYTICAL
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☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 2 of 2

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: LPA | e-Lab Work Order #: 05081612

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	RSL Groundwater	A	T. Cyanide (9014)
Work Order		Project Number		B	T. Phenolics (9065)
Company Name	Gary Sanitary District	Bill To Company		C	Dissolved Metals (6020B & 7470) -Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn - Hg
Send Report To	Spike Peller	Invoice Attn.		D	TSS,TDS,IC (Cl,NO3,NO2)
Address	3600 West 3rd Avenue	Address		E	COD, Ammonia-N
				F	VOCs 8260
City/State/Zip	Gary, IN 46404	City/State/Zip		G	SVOCs 8270
Phone		Phone		H	PCB/Pesticides(8081/8082)
Fax		Fax		I	Field Parameters (pH, Spec. Cond, SWL, Well Depth, Temp)
e-Mail Address				J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-3S	08/30/05	1908	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
2	MW-3MR	08/30/05	1817	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
3	MW-9S	08/30/05	0830	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
4	MW-9D	08/31/05	0903	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
5	Trip Blank	~~08/30/05~~ 09/06/05		AQ		2						x					
6	MW 5DR	9/6/05	1020	GW	1,2,3,4,8		x	x	x	x	x	x	x	x	x		
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
J. Ribar, L. Arnold, A. Csaszar

Shipment Method:

Required Turnaround Time: (Check Box)
☑ 10 Wk Days ☐ 5 Wk Days ☐ 3 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
[signature]	9/6/05 8/31/05	9:00 1350	[signature]	9-6-05	1400	
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	
			[signature]	8-31-05	1650	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
[signature]	8-31-05	1400				

e-Lab Cooler ID	Cooler Temp	QC Package: (Check Box Below)	
		☐ Level II: Standard QC	☐ Level III: Raw Data
		☐ TRRP LRC	☐ TRRP Level IV
		☐ Level IV: SW846 Methods/CLP like	
		☐ Other: _____	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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e-Lab Analytical, Inc

Sample Receipt Checklist

Client Name GARYSD

Date/Time Received: 8/31/2005 1:50:00 PM

Work Order Number 0508612

Received by: AA

Checklist completed by _____ 8-31-05
Signature Date

Reviewed by _____ _____
Initials Date

Matrix:

Carrier name e-Lab Analytical, Inc.

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6 C		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐

Adjusted? _____ Checked b _____

Login Notes:

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

e-Lab Analtyical, Inc.
3352 128th Ave.
Holland, MI 49424
Ph 616.399.6070
Fx 616.399.6185
www.elabi.com

GARY SANITARY DISTRICT - RALSTON STREET LAGOON GROUNDWATER SAMPLING FIELD DATA
August 30-September 6, 2005

WELL ID	E-LAB ID	PURGE START TIME	SAMPLE COLL TIME	PID (ppm)*	SWL (ft)	WD (ft)	MIN PURGE VOL (gallons)	pH (std. Units)	Temp (°C)	Spec Cond (mS/cm)	VOL PURGED (gallons)
10M	0508612-01	0751	0850	0	7.80	22.75	7.3	7.74	14.7	0.36	7.5
2M	0508612-02	0953	1100	0	4.58	19.78	7.4	7.53	14.8	1.66	8.3
7DR	0508612-03	1318	1502	0.1	2.00	30.40	13.9	7.33	14.2	0.59	14.9
7MR	0508612-04	1150	1250	0.1	2.60	19.08	8.1	7.66	14.6	0.56	9.0
7S	0508612-05	1203	1234	0.2	2.60	8.15	2.7	7.61	19	1.45	3.3
6MR	0508612-06	1333	1436	0.1	3.05	20.95	8.8	8.04	13.1	1.98	9.2
6MR-01 (field dup)	0508612-07										
5S (MS/MSD)	0508612-08	1601	1631	7.5	4.13	8.90	2.3	6.8	20.8	1.33	3.0
5S-01 (field dup)	0508612-09										
5DR	0508612-16	0825	1009	0.2	3.65	31.70	13.7	6.97	13.8	2.01	14.0
4MR	0508612-10	1800	1930	0	5.35	26.30	10.2	6.88	14.5	2.20	10.8
3S	0508612-11	1847	1908	0	4.35	7.70	1.6	7	18.3	1.34	2.0
3MR	0508612-12	1654	1817	0.1	3.75	20.60	8.3	7.12	13.9	1.52	9.1
9M	0508612-13	0725	0822	0	3.80	19.30	7.6	8.85	13.4	1.16	8.5
9D	0508612-14	0724	0903	0	3.85	30.45	13.0	7.95	13.4	1.36	13.4

STAFF GAUGE READINGS:	05/31/05	06/21/05	08/30/05
US 20 Bridge	5.5	6.00	5.65
GSD Outfall	4.88	5.36	4.78
RSL @ East Pier	4.15	4.00	3.34
GCR @ Well Cluster 9	6.05		Not able to read

APPENDIX D

May 2005 Whole Effluent Toxicity (WET) Sampling and Analysis

GLEC

June 10, 2005

RECEIVED JUN 1 5 2005

Great Lakes Environmental Center

Applied Environmental Sciences

Traverse City Operations
739 Hastings St.
Traverse City
MI 49686

231 941-2230
231 941-2240 fax
glec@mich.com

Columbus Operations
1295 King Ave.
Columbus
OH 43212

614 487-1040
614 487-1920 fax
glec_ohio@compuserve.com

Bob Theodorou
White River Environmental Partnership
P. O. Box 388, 3600 W. 3rd Ave
Gary, IN 46406

RE: REPORT FOR RAUSTON LAGOON SAMPLES COLLECTED ON MAY 24/25, 2005.

Dear Bob:

We have completed our analyses of the static renewal *Ceriodaphnia dubia* and fathead minnow chronic toxicity tests performed on Rauston Lagoon samples collected by White River Environmental Partnership personnel on May 24/25, 2005 (GLC Number: 6419). Dilute mineral water (DMW) was used as dilution water for the *C. dubia* test and moderately hard reconstituted laboratory water was used as the dilution water for the fathead minnow test.

The lagoon samples were neither acutely nor chronically toxic to *C. dubia* or to fathead minnows. The 48-hour *C. dubia* and 96-hour fathead minnow LC_{50} (Median-Lethal-Toxicant-Concentration) estimates were both greater than 100 percent effluent, or 0 TU_a (acute toxic unit). The chronic No-Observed-Effect-Concentration (NOEC) estimates for *C. dubia* reproduction and survival, and fathead minnow survival and growth were all 100 percent effluent, or 0 TU_c (chronic toxic units).

Copies of the raw data sheets and standard reference toxicant data for the chronic toxicity tests are included with this report in Appendices A and B.

If you have any questions or comments concerning the results of these toxicity tests, please contact either me or Dennis McCauley at (231) 941-2230. Thank you for the opportunity to provide this service to White River Environmental Partnership. We look forward to working with you again in the future.

Sincerely,

Matthew W. Clarion
Laboratory Coordinator

MWC/m

Enclos

Ceriodaphnia dubia CHRONIC TOXICITY TEST REPORTING FORM

Facility Name: White River Environmental NPDES Permit No.: _____

ReceivingWater: _____ Outfall: Rauston Lagoon RWC: N/A

Test Dates: May 26- June 01, 2005 Report Date: June 10, 2005

Test Laboratory: Great Lakes Environmental Center, Inc., 739 Hastings St., Traverse City, MI 49686

BULK EFFLUENT SAMPLE/ARRIVAL CHEMISTRY INFORMATION

	GLC #6419 Lagoon Sample #1			Detection Method[1]
1. Sample Type[2]	Composite			
2. Sample Collection Date[3]	05/24/05-05/25/05			
3. Date Received	05/26/05			
4. Date of First Use	05/26/05			
5. Temperature (°C)	0.8			
6. TRC[4] (mg/L)	NM			
7. Total Ammonia (mg/L)[5]	1.0			

NM - Not measured

Were any samples dechlorinated? No Which samples? N/A

Describe dechlorination: N/A

What test methods were used: EPA/821/R/02/013

Describe any deviations[5] from test methods: _____

Was the effluent sample collected (check one): N/A

_____ before chlorination
_____ after chlorination
_____ after chlorination, before dechlorination
_____ after dechlorination
_____ facility does not chlorinate

(Form Revised: January 29, 1996)

 Facility Name: White River Environmental Test Date: 05/26/05-06/01/05

C. dubia TEST DESCRIPTION

#Replicates/Concentration: 10 #Organisms/Replicate: 1 Effluent Filtered? No

Diluent/Primary Control (0_1[6]): Dilute Mineral Water (DMW)

Secondary Control (0_2[7]): Boardman River water

Range of Test Organisms Age at Beginning of Test: ≤24 hours (8 hour range)

Source of Test Organism: In house; (BD 05/20/05)

Food/Frequency Fed: *Selenastrum capricornutum* and YTC at renewal

Test Solution Renewal Frequency: Daily

RESULTS

C. dubia 48-hour LC_{50} >100 (0 TU_a)% Confidence Intervals: Lower N/A Upper N/A

C. dubia 6-day Chronic Value[8] >100 % NOEC: 100 % LOEC: >100 % #TU_c[9]: 0

Chronic value based on: Survival/Reproduction? Survival/Reproduction

SUMMARY OF DATA*[10]

C. dubia Survival and Reproduction

Concentration of Effluent (%)	0_1[a]	0_2[b]	6.25%	12.5%	25%	50%	100%
48-hour Survival (%)	100	100	100	100	100	100	100
6-day Mean Reproduction/Female	27.5	25.5	26.9	28.1	30.1	23.5	25.3
6-day Mean Survival (%)	100	100	100	100	100	80	90

[a] Primary Control/Dilution Water
[b] Culture Water Control

[RAW DATA SHEETS ARE ATTACHED IN APPENDIX A]

Investigator: Mailee W. Garton

Contact: Mailee Garton/Dennis McCauley

Phone Number: (231) 941-2230

FATHEAD MINNOW CHRONIC TOXICITY TEST REPORTING FORM

Facility Name: White River Environmental NPDES Permit No.: _____

ReceivingWater: _____ Outfall: Rauston Lagoon RWC: N/A

Test Dates: May 26- June 01, 2005 Report Date: June 10, 2005

Test Laboratory: Great Lakes Environmental Center, Inc., 739 Hastings St., Traverse City, MI 49686

BULK EFFLUENT SAMPLE/ARRIVAL CHEMISTRY INFORMATION

	GLC #6419 Lagoon Sample #1			Detection Method[1]
1. Sample Type[2]	Composite			
2. Sample Collection Date[3]	05/24/05-05/25/05			
3. Date Received	05/26/05			
4. Date of First Use	05/26/05			
5. Temperature (°C)	0.8			
6. TRC[4] (mg/L)	NM			
7. Total Ammonia (mg/L)[5]	1.0			

NM - Not measured

Were any samples dechlorinated? No Which samples? N/A

Describe dechlorination: N/A

What test methods were used? EPA/821/R/02/013

Describe any deviations[5] from test methods: None.

Was the effluent sample collected (check one): N/A

_____ before chlorination
_____ after chlorination
_____ after chlorination, before dechlorination
_____ after dechlorination
_____ facility does not chlorinate

(Form Revised: January 29, 1996)

 Facility Name: White River Environmental Test Date: 05/26/05-06/02/05

FATHEAD MINNOW TEST DESCRIPTION

#Replicates/Concentration: 4 #Organisms/Replicate: 10 Effluent Filtered? No

Diluent/Primary Control (0_1[6]): Synthetic Laboratory Water (Moderately Hard)

Secondary Control (0_2[7]): None

Range of Test Organisms Age at Beginning of Test: <24 hours

Source of Test Organism: 05/25/05

Food/Frequency Fed: *Artemia nauplii*, twice daily

Test Solution Renewal Frequency: Daily

RESULTS

Fathead minnow 96-hour LC_{50} >100 (0 TU_a) % Confidence Intervals: Lower NA Upper NA

Fathead minnow 7-day Chronic Value[8] >100 % NOEC: 100 % LOEC: >100 % #TU_c[9]: 0

Chronic Value Based On: Survival/Growth? Growth/Survival

SUMMARY OF DATA*[10]

Fathead Minnow Survival and Growth

Concentration of Effluent (%)	0_1**	6.25%	12.5%	25%	50%	100%
96-hour Survival (%)	100	100	90	90	93	88
7-day Mean Growth*	0.691	0.681	0.731	0.701	0.732	0.783
7-day Mean Survival (%)	100	98	88	88	90	88

* Biomass Calculation
** Primary Control/Dilution water
* Significantly different from dilution water control (P>0.05)

[RAW DATA SHEETS ARE ATTACHED IN APPENDIX A]

Investigator: Mailee W. Garton

Contact: Mailee Garton/Dennis McCauley

Phone Number: (231) 941-2230

APPENDIX A

RAW DATA SHEETS

GLEC

Great Lakes Environmental Center

CHAIN OF CUSTODY RECORD
(TO BE COMPLETED ONSITE AND SUBMITTED WITH SAMPLES)

739 Hastings Street
Traverse City, MI 49686
Phone: (231) 941-2230
Fax: (231) 941-2240

Facility: GSD
Location: 3600 W 3rd AV GARY, IN 46406
Contact Person: BOB THEUSON
Phone Number: (219) 944-1211 x1211

Collector: BOB THEUSON
Date: 5/24/05
Witness: Mary Billckey
Date: 5/25/05

GLC NUMBER (Lab ID)	SAMPLE ID	DATE/TIME OF SAMPLE*	VOLUME COLLECTED	SAMPLE CONTAINER	DESCRIPTION (Type of sample, source, physical characteristics)	PRESERVATION	ANALYSES REQUIRED	Additional Parameters Measured at Collection	
								Ammonia mg/L	Chlorine mg/L
2419	ROUSTON	5/24/05	12 GAL	P	SURFACE WATER	NONE	CHRONIC		
	LAGOON	10:00 - 10:30AM			OUT OF LAGOON				
					GREEN COLOR		ACUTE		
					(ALGAE ??)		TOXICITY		
							DAPHNIA		
							& FAT HEAD		
					pH = 7.95				
					@ 12.9°C				

* For 24-Hour Composite samples, please indicate times and dates the sampling started and ended.

Temp @ collection - 18°C
Refrigerated @ 4°C

TRANSFER OF SAMPLES:
(First signature is sampler, last signature is authorized laboratory representative.)

	SHIPPER	RECEIVER	DATE	TIME	TEMPERATURE
1.	Bob Theuson		5/25/05	11:00 AM	8°C
2.		Gena Reid	5/26/05	0:7	☒ Received on Ice

Condition of Sample Upon Receipt:
Good

Great Lakes Environmental Center

EFFLUENT AND RECEIVING WATER CHECK-IN FORM

CLIENT: Gary Sanitary PROJECT NUMBER: 1727-00

INVESTIGATORS: Sara Reitz

INITIAL WATER CHEMISTRY (UPON RECEIPT)

DATE RECEIVED: 5/26/05	INITIALS	Ransten Lagoon		
GLC NUMBER:	SR	6419		
COLLECTION DATE: (Time Interval)		5/24-5/25/05 10:10:30 AM		
TEMPERATURE:		0.8°C		
EFFLUENT DESCRIPTION:		pale green NO odor		

WATER CHEMISTRY AT TEST TEMPERATURES

DATE RECEIVED:	INITIALS	Ransten Lagoon		
GLC NUMBER:	SR	6419		
TEMPERATURE	SR	25°C		
pH	JPS	7.96		
DISSOLVED OXYGEN (mg/L)	JPS	9.4		
CONDUCTIVITY (µmhos/cm)	JPS	1088		
HARDNESS (mg/L)	JPS	142		
ALKALINITY (mg/L)	JPS	126		
TOTAL CHLORINE (mg/L)*				
TOTAL AMMONIA (mg/L)*	JWA	1.0		

Check with project manager to see if necessary.

Hardness:

End mL: 3.55 End mL:_____
Start mL: 0 Start mL:_____

Sample Volume: 25mL Sample Volume:_____

Alkalinity:

End mL: 6.3 End mL:_____
Start mL: 0 Start mL:_____

Sample Volume: 50mL Sample Volume:_____

GLEC
Great Lakes Environmental Center

DAPHNID 7-DAY STATIC RENEWAL CHRONIC TOXICITY TEST

TEST MATERIAL: White River Environ Garry Sanitary
TYPE OF TEST: Regulatory
DILUTION WATER: DMW
PHOTOPERIOD (L:D): 16:8
TEST TEMPERATURE: 25±1°C
PROJECT NUMBER: ~~1727-00~~ 1754-00
INCUBATOR NUMBER: 9
DILUTION WATER BATCH NUMBER: DAY 0/1348 DAY 2/1349 DAY 6/1350
GLC NUMBER: DAY 0/449 DAY / DAY /
FOOD BATCH NUMBER: DAY 0/522 DAY 6/523
TEST SPECIES: C. dubia
YOUNG-AGE/SOURCE: < 24 hours in house Ba 5/20/05
TECHNICIANS: DAY: 0 5/26/05 TB 1 5/27/05 TB 2 5/28/05 SR 3 5/29/05 SR 4 5/30/05 SB/MA 5 5/31/05 SR 6 6/1/05 TB 7 /
2:45p 2:30p

CONCENTRATIONS	DAY	TEST CHAMBER NUMBER 1	2	3	4	5	6	7	8	9	10	pH NEW	pH OLD	DISSOLVED OXYGEN NEW	DISSOLVED OXYGEN OLD	TEMPERATURE NEW	TEMPERATURE OLD	SC NEW
DMW	0	+	+	+	+	+	+	+	+	+	+	8.09	/	7.8	/	25.0	/	186
	1	+	+	+	+	+	+	+	+	+	+	8.26	8.45	8.2	8.2	25.0	24.7	191
	2	e	e	e	+	e	e	e	+	e	e	8.10	8.57	8.2	8.5	25.0	24.8	191
	3	e6	e7	e5	+	e5	e4	e5	e	e3	e6	8.25	8.54	7.9	8.5	25.0	24.8	201
CON	4	e16	e	e	e4	e	e	e4	e4	e	e1	8.20	8.30	7.8	8.3	25.0	24.8	196
	5	e14	e9	e6	e6	e13	e13	e	e7	e11	e12	8.29	8.42	8.1	8.6	25.0	25.2	182
	6	e	e11	e15	e11	e16	e14	e14	e5	e18	e16	8.30	8.49	8.0	8.6	25.0	24.7	193
	7																	
A	0	+	+	+	+	+	+	+	+	+	+	8.13	/	7.9	/	25.0		236
	1	+	+	+	+	+	+	+	+	+	+	8.20	8.50	8.2	8.3	25.0		273
	2	e	e	e	+	e	e	e	e	e	e	8.15	8.54	8.2	8.6	25.0		270
	3	e6	e4	e7	+	e6	e7	e	e	e	e4	8.25	8.57	7.9	8.4	25.0		253
6.25%	4	e10	e9	e	e5	e	e	e	e	e	e	8.24	8.44	7.8	8.4	25.0		250
	5	e1	e	e14	e8	e13	e13	e13	e12	e10	*e12	8.25	8.59	8.0	8.6	25.0		257
	6	e	e17	e16	e8	e14	e16	e	e15	e15	e14	8.30	8.53	8.0	8.6	25.0		252
	7																	
B	0	+	+	+	+	+	+	+	+	+	+	8.13	/	8.0	/	25.0		297
	1	+	+	+	+	+	+	+	+	+	+	8.22	8.44	8.0	8.3	25.0		304
	2	e	e	e	+	e	e	e	e	e	e	8.19	8.53	8.2	8.6	25.0		300
	3	e6	e5	e4	~~e~~ +	e9	e5	e7	e3	e11	e7	8.21	8.54	7.9	8.5	25.0		315
12.5%	4	e10	e4	e1	e4	e12	e	e13	e	e3	e	8.22	8.40	7.8	8.4	25.0		315
	5	e2	e10	e1	e8	e	e14	e6	e13	e5	e12	8.19	8.57	8.1	8.4	25.0		323
	6	e12	e	e15	e10	e13	e17	e11	e15	e	e14	8.27	8.58	8.0	8.6	25.0		326
	7																	

NOTE: - D.O. & pH measured in low, medium, and high concentrations in new and old solutions. Key: + = alive; - = dead; e = eggs present;
- Temperature measured in all new solutions & two randomly selected old solutions.
Specific Conductance

P = Pale; F= Floating; SB = Stuck to bubble

Reviewed By: Matthew Harker
Date: 6/6/05

* 5/30/05 AM → SMALL COPEPODS PRESENT EVEN AFTER FILTERING
* 5/31/05 → " " " " " "

GLEC
Great Lakes Environmental Center

DAPHNID 7-DAY STATIC RENEWAL CHRONIC TOXICITY TEST

TEST MATERIAL: White River Environ Every Sunday
TYPE OF TEST: Regulatory
DILUTION WATER: DMW
PHOTOPERIOD (L:D): 16:8
TEST TEMPERATURE: 25±1°C
PROJECT NUMBER: ~~1727-00~~ 1754-00
INCUBATOR NUMBER: 9
DILUTION WATER BATCH NUMBER: DAY 0/ 1348 DAY 2/5 1349 DAY 6/ 1350
GLC NUMBER: DAY 0/ 6419 DAY / DAY / DAY /
FOOD BATCH NUMBER: DAY 0/ 522 DAY 4/ 523
TEST SPECIES: C. dubia
YOUNG-AGE/SOURCE: < 24 hours in house
TECHNICIANS: DAY: 0 5/26/05 TB 5/27 TB 2 5/28/05 SR 3 5/29/05 SR 4 5/30/05 AM 5 5/31/05 SR 6 6/1/05 TB 7 /

CONCENTRATIONS	DAY	TEST CHAMBER NUMBER 1	2	3	4	5	6	7	8	9	10	pH NEW	pH OLD	DISSOLVED OXYGEN NEW	DISSOLVED OXYGEN OLD	TEMPERATURE NEW	TEMPERATURE OLD	SC NEW
C	0	+	+	+	+	+	+	+	+	+	+	8.12	/	8.0	/	25.0	/	410
	1	+	+	+	+	+	+	+	+	+	+	8.19	8.46	8.0	8.3	25.0		452
	2	ae	ae	ae	+	ae	ae	ae	ae	ae	ae	8.17	8.55	8.2	8.6	25.0	24.9	440
	3	ae3	ae4	ae5	+	ae6	ae5	ae5	ae	ae5	ae6	8.14	8.57	7.9	8.6	25.0	24.8	423
25%	4	ae11	ae	ae	ae4	ae14	ae	ae10	ae5	ae6	ae	8.15	8.47	7.9	8.5	25.0	24.8	428
	5	ae13	ae6	ae14	ae10	ae	ae11	ae14	ae7	ae	ae12	8.12	8.65	8.1	8.5	25.0	25.3	438
	6	ae	ae13	ae17	ae7	ae19	ae17	ae	ae14	ae17	ae18	8.20	8.60	8.1	8.7	25.0	24.9	441
	7																	
D	0	+	+	+	+	+	+	+	+	+	+	8.10	/	8.1	/	25.0		638
	1	+	+	+	+	+	+	+	+	+	+	8.15	8.52	8.0	8.4	25.0		641
	2	ae	ae	ae	+	ae	ae	ae	ae	ae	ae	8.13	8.58	8.2	8.6	25.0		640
	3	ae4	ae4	ae5	+	ae4	ae	ae4	ae5	ae4	ae7	8.[illegible]	8.61	8.0	8.5	25.0		658
50%	4	ae8	ae9	ae	ae6	ae8	ae	ae8	ae7	ae	ae	8.05	8.51	8.2	8.6	25.0		666
	5	ae12	ae12	ae13	⊖	ae2	ae14	ae	ae3	⊖	ae13	8.00	8.61	8.6	8.6	25.0		632
	6	ae13 TB	ae	ae13	↓	ae12	ae16	ae11	ae13	↓	ae17	8.16	8.58	8.3	8.9	25.0		639
	7																	
E	0	+	+	+	+	+	+	+	+	+	+	8.07	/	8.8	/	25.0		1081
	1	+	+	+	+	+	+	+	+	+	+	8.07	8.55	8.4	8.5	25.0		1145
	2	ae	ae	ae	+	ae	ae	ae	ae	ae	ae	8.04	8.61	8.3	8.6	25.0		1130
	3	ae6	ae5	ae4	+	ae6	ae5	ae3	ae4	ae5	ae6	7.85	8.56	8.4	8.6	25.0		1076
100%	4	ae6	ae8	ae	ae8	ae7	ae	ae5	ae	ae6	ae	7.87	8.57	8.8	8.8	25.0		1168
	5	ae9	ae8	ae8	⊖	ae4	ae11	ae10	ae6	ae7	ae12	7.80	8.71	9.1	9.3	25.0		1100
	6	ae4	ae2	ae17	↓	⊖18	ae16	ae12	ae14	ae4	ae14	7.99	8.61	8.9	9.1	25.0		1120
	7																	

NOTE: - D.O. & pH measured in low, medium, and high concentrations in new and old solutions. Key: + = alive; - = dead; e = eggs present;
--Temperature measured in all new solutions & two randomly selected old solutions.
*Specific Conductance
P = Pale; F= Floating; SB = Stuck to bubble

Reviewed By: Marilyn Lewis
Date: 6-6-05

* 5/30/05 AM → SMALL COPEPODS PRESENT IN ALL REPS EVEN AFTER FILTERING
* 5/31/05 → " " " " " " "

GLEC
Great Lakes Environmental Center

DAPHNID 7-DAY STATIC RENEWAL CHRONIC TOXICITY TEST

TEST MATERIAL: White River Environ Gary Sanitary
PROJECT NUMBER: ~~1727-00~~ 1754-00
TEST SPECIES: *C. dubia*
YOUNG-AGE/SOURCE: < 24 hours in house

TYPE OF TEST: Regulatory
INCUBATOR NUMBER:

DILUTION WATER: BOARDMAN
DILUTION WATER BATCH NUMBER:
DAY ____ DAY ____ DAY ____

PHOTOPERIOD (L:D): 16:8
GLC NUMBER: DAY — DAY — DAY — DAY —
FOOD BATCH NUMBER: DAY 0/ 522 DAY 6/ 523

TEST TEMPERATURE: 25±1° C

TECHNICIANS: DAY: 0 5/26/05 TB 1 5/27/05 TB 2 5/28/05 SR 3 5/29 SR 4 5/30/05 SR/AM 5 5/31/05 SR 6 6/1/05 TB 7 ✓

CONCENTRATIONS	DAY	TEST CHAMBER NUMBER 1	2	3	4	5	6	7	8	9	10	pH NEW	pH OLD	DISSOLVED OXYGEN NEW	DISSOLVED OXYGEN OLD	TEMPERATURE NEW	TEMPERATURE OLD	SC* NEW
Bd	0	+	+	+	+	+	+	+	+	+	+	7.82	/	9.6	/	25.0	/	310
	1	+	+	+	+	+	+	+	+	+	+	7.94	8.54	8.3	8.2	25.0		316
	2	de	de	de	de	de	de	+	de	de	de		8.57		8.7			304
2° Con	3	de6	de4	de4	de5	de4	de6	de4	de5	de5	de6	8.08	8.60	8.2	8.60	25.0		253
	4	de	de	de	de	de	de	de5 P	de	de1	de6	8.14	8.54	9.2	8.4	25.0		318
	5	de12	de8	de10	de	de10	de12	+ P	de12	de11	de13	8.13	8.60	9.0	8.3	25.0		302
	6	de15	de16	de16	de9	de11	de17	de	de15	de16	de	8.21	8.55	8.96		25.0		311
	7																	
	0					TB												
	1																	
	2																	
	3																	
	4																	
	5																	
	6																	
	7																	
	0																	
	1																	
	2																	
	3																	
	4																	
	5																	
	6																	
	7																	

NOTE: - D.O. & pH measured in low, medium, and high concentrations in new and old solutions. Key: + = alive; - = dead; e = eggs present;
* - Temperature measured in all new solutions & two randomly selected old solutions.
Specific Conductance

P = Pale; F= Floating; SB = Stuck to bubble

Reviewed By: Marlee W. Larson
Date: 6-6-05

Initials: GTS
QC Initials: [illegible]

YOUNG SUMMARY

PROJECT NUMBER: 1754-00 CLIENT: White River TEST DATES: 5/26 - 6/1/05

	TEST CONCENTRATIONS						
REPLICATE	DMW Control	A 6.25%	B 12.5%	C 25%	D 50%	E 100%	2' Control
1	30	17	~~26~~ 26 mus	27	24	25	33
2	27	30	19	23	25	284	18
3	26	37	21	36	31	29	30
4	21	21	22	21	6 ⊖	~~0~~ ⊖	14
5	34	33	34	39	26	35 ⊖	30
6	31	36	36	33	30	32	35
7	23	13	37	29	23	20	5
8	16	27	31	26	28	34	32
9	32	25	22	31	4 ⊖	22	33
10	35	30	33	36	37	32	25
TOTAL YOUNG:							$\bar{X}$: 25.5

Title: WHITE RIVER ENVORN. C.DUBIA CHRONIC REPROD. MAY 2005
File: 6419cdr Transform: NO TRANSFORMATION

Chi-Square Test for Normality

Actual and Expected Frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	4.0200	14.5200	22.9200	14.5200	4.0200
OBSERVED	6	12	21	21	0

Chi-Square = 8.4853 (p-value = 0.0753)

Critical Chi-Square = 13.277 (alpha = 0.01 , df = 4)
= 9.488 (alpha = 0.05 , df = 4)

Data PASS normality test (alpha = 0.01). Continue analysis.

Title: WHITE RIVER ENVORN. C.DUBIA CHRONIC REPROD. MAY 2005
File: 6419cdr Transform: NO TRANSFORMATION

Bartlett's Test for Homogeneity of Variance

Calculated B1 statistic = 5.5654 (p-value = 0.3508)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

Critical B = 15.0863 (alpha = 0.01, df = 5)
= 11.0705 (alpha = 0.05, df = 5)

Title: WHITE RIVER ENVORN. C.DUBIA CHRONIC REPROD. MAY 2005
File: 6419cdr Transform: NO TRANSFORMATION

Summary Statistics on Data TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	DMW CONTROL	10	16.0000	35.0000	27.5000
2	A 6.25%	10	13.0000	37.0000	26.9000
3	B12.5%	10	19.0000	37.0000	28.1000
4	C 25%	10	21.0000	39.0000	30.1000
5	D 50%	10	4.0000	37.0000	23.5000
6	E 100%	10	0.0000	35.0000	25.3000

Title: WHITE RIVER ENVORN. C.DUBIA CHRONIC REPROD. MAY 2005
File: 6419cdr Transform: NO TRANSFORMATION

Summary Statistics on Data TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	DMW CONTROL	37.1667	6.0964	1.9279	22.1689
2	A 6.25%	63.4333	7.9645	2.5186	29.6078
3	B12.5%	46.7667	6.8386	2.1626	24.3367
4	C 25%	35.4333	5.9526	1.8824	19.7760
5	D 50%	111.1667	10.5436	3.3342	44.8662
6	E 100%	106.0111	10.2962	3.2559	40.6963

Title: WHITE RIVER ENVORN. C.DUBIA CHRONIC REPROD. MAY 2005
File: 6419cdr Transform: NO TRANSFORMATION

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	261.6000	52.3200	0.7848
Within (Error)	54	3599.8000	66.6630	
Total	59	3861.4000		

(p-value = 0.5651)

Critical F = 3.3769 (alpha = 0.01, df = 5,54)
= 2.3861 (alpha = 0.05, df = 5,54)

Since F < Critical F FAIL TO REJECT Ho: All equal (alpha = 0.05)

Title: WHITE RIVER ENVORN. C.DUBIA CHRONIC REPROD. MAY 2005
File: 6419cdr Transform: NO TRANSFORMATION

Dunnett's Test - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG 0.05
1	DMW CONTROL	27.5000	27.5000		
2	A 6.25%	26.9000	26.9000	0.1643	
3	B12.5%	28.1000	28.1000	-0.1643	
4	C 25%	30.1000	30.1000	-0.7121	
5	D 50%	23.5000	23.5000	1.0955	
6	E 100%	25.3000	25.3000	0.6025	

Dunnett critical value = 2.3100 (1 Tailed, alpha = 0.05, df [used] = 5,40)
(Actual df = 5,54)

Title: WHITE RIVER ENVORN. C.DUBIA CHRONIC REPROD. MAY 2005
File: 6419cdr Transform: NO TRANSFORMATION

Dunnett's Test - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	MIN SIG DIFF (IN ORIG. UNITS)	% OF CONTROL	DIFFERENCE FROM CONTROL
1	DMW CONTROL	10			
2	A 6.25%	10	8.4347	30.7	0.6000
3	B12.5%	10	8.4347	30.7	-0.6000
4	C 25%	10	8.4347	30.7	-2.6000
5	D 50%	10	8.4347	30.7	4.0000
6	E 100%	10	8.4347	30.7	2.2000

GLEC

Great Lakes Environmental Center

FATHEAD MINNOW 7-DAY STATIC-RENEWAL SURVIVAL AND GROWTH TOXICITY TEST

PROJECT NUMBER: 1727-00
TEST MATERIAL: Gary Sanitary
TREATMENT LEVEL: MH Control

NUMBER FRY/CHAMBER: 10
AGE OF FRY/SOURCE: < 24 hours in house 5/26/05
LIGHT INTENSITY (LUX): Ambient

DILUTION WATER: Med Hard
TEMPERATURE (°C): 25±1° C
PHOTOPERIOD (L:D): 16 : 8

DATE / TIME	TEST DAY	INITIALS	NUMBER DEAD/NUMBER ALIVE REP 1	REP 2	REP 3	REP 4	pH (SU) NEW	pH (SU) OLD	D.O. (mg/L) NEW	D.O. (mg/L) OLD	TEMPERATURE °C NEW	TEMPERATURE °C OLD	CONDUCTANCE (µmhos/cm) NEW	CONDUCTANCE (µmhos/cm) OLD	GLC AND/OR BATCH NUMBER
1:15 pm 5/26/05	0	TB	0/10	0/10	0/10	0/10	8.19		8.0		25.0		319		GLC 6419 / MH 1340
5/27/05	1	MWG	0/10	0/10	0/10	0/10	8.19	7.62	8.0	7.2	25.0	24.7	332		GLC 6419 / MH 1340
5/28/05	2	SR	0/10	0/10	0/10	0/10	8.10	7.70	8.2	7.0	25.0	24.9	328		GLC 6419 / MH 1341
5/29/05	3	SR	0/10	0/10	0/10	0/10	8.18	7.60	8.1	6.8	25.0	25.1	309		GLC 6419 / MH 1341
5/30/05	4	AM/SR	0/10	0/10	0/10	0/10	8.19	7.75	7.9	6.8	25.0	25.4	317		GLC# 6419 / MH# 1341
5/31/05	5	SR	0/10	0/10	0/10	0/10	8.18	7.65	8.2	7.1	25.0	24.7	310		GLC 6419 / MH# 1341
6/1/05	6	TB	0/10	0/10	0/10	0/10	8.16	7.63	8.2	6.9	25.0	24.6	321		GLC 6419 / MH 1342
11:15 6/2/05	7	SR	0/10	0/10	0/10	0/10		7.63		7.1		25.3			

N = Normal; ERR = Erratic Swimming; I = Immobilized; PM = Particulate Matter

Reviewed By: Marlee W. Larson

Date: 6/6/05

GLEC

Great Lakes Environmental Center

FATHEAD MINNOW 7-DAY STATIC-RENEWAL SURVIVAL AND GROWTH TOXICITY TEST

PROJECT NUMBER: 1727-00

TEST MATERIAL: GARY San.

TREATMENT LEVEL: A 6.25%

NUMBER FRY/CHAMBER: 10

AGE OF FRY/SOURCE: < 24 hours in house

LIGHT INTENSITY (LUX): Ambient

DILUTION WATER: Mod Hard

TEMPERATURE (°C): 25±1° C

PHOTOPERIOD (L:D): 16 : 8

DATE / TIME	TEST DAY	INITIALS	NUMBER DEAD/NUMBER ALIVE				pH (SU)		D.O. (mg/L)		TEMPERATURE °C		CONDUCTANCE (µmhos/cm)		GLC AND/OR BATCH NUMBER
			REP 1	REP 2	REP 3	REP 4	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	
5/26/05	0	TB	0/10	0/10	0/10	0/10	8.17		7.9		25.0		381		
5/27/05	1	MWG	0/10	0/10	0/10	0/10	8.19	7.77	8.2	7.7	25.0		379		
5/28/05	2	SR	0/10	0/10	0/10	0/10	8.17	7.74	8.2	7.0	25.0		382		
5/29/05	3	SR	0/10	0/10	0/10	0/10	8.19	7.72	8.1	7.4	25.0		371		
5/30/05	4	AM/SR	0/10	0/10	0/10	0/10	8.18	7.92	7.9	7.3	25.0		370		
5/31/05	5	SR	0/10	0/10	0/10	0/10	8.17	7.85	8.2	8.2	25.0		371		
6/1/05	6	TB	0/10	0/10	0/10	0/10	8.11	7.89	8.2	8.0	25.0		384		
6/2/05	7	SR	0/10	1/9	0/10	0/10		8.08		8.5					

= Normal; ERR = Erratic Swimming; I = Immobilized; PM = Particulate Matter

Reviewed By: Mollie W. Mason

Date: 6-6-05

GLEC

Great Lakes Environmental Center

FATHEAD MINNOW 7-DAY STATIC-RENEWAL SURVIVAL AND GROWTH TOXICITY TEST

PROJECT NUMBER: 1727-00

TEST MATERIAL: Gary Sanitary

TREATMENT LEVEL: B 12.5%

NUMBER FRY/CHAMBER: 10

AGE OF FRY/SOURCE: < 24 hours in house

LIGHT INTENSITY (LUX): Ambient

DILUTION WATER:

TEMPERATURE (°C): 25±1° C

PHOTOPERIOD (L:D): 16 : 8

DATE / TIME	TEST DAY	INITIALS	NUMBER DEAD/NUMBER ALIVE				pH (SU)		D.O. (mg/L)		TEMPERATURE °C		CONDUCTANCE (µmhos/cm)		GLC AND/OR BATCH NUMBER
			REP 1	REP 2	REP 3	REP 4	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	
5/26/05	0	TB	0/10	0/10	0/10	0/10	8.17		7.9		25.0		431		
5/27/05	1	MWG	0/10	0/10	0/10	0/10	8.16	7.84	8.2	8.0	25.0		446		
5/28/05	2	SR	0/10	0/10	0/10	0/10	8.17	7.80	8.2	8.2	25.0		440		
5/29/05	3	SR	0/10	0/10	1/9	0/10	8.15	7.78	7.9	7.0	25.0		421		
5/30/05	4	AM/SR	0/10	0/10	1/8	2/8	8.16	7.99	7.8	7.4	25.0		421		
5/31/05	5	SR	0/10	0/10	0/8	0/8	8.13	7.90	8.3	7.6	25.0		419		
6/1/05	6	TB	0/10	0/10	0/8	0/8	8.10	7.89	8.2	8.0	25.0		421		
6/2/05	7	SR	0/10	1/9	0/8	0/8		7.93		7.9					

N = Normal; ERR = Erratic Swimming; I = Immobilized; PM = Particulate Matter

Reviewed By: Maureen F. Harton

Date: 6.6.05

GLEC

Great Lakes Environmental Center

FATHEAD MINNOW 7-DAY STATIC-RENEWAL SURVIVAL AND GROWTH TOXICITY TEST

PROJECT NUMBER: 1727-00

TEST MATERIAL: Gary Sanitary

TREATMENT LEVEL: C 25%

NUMBER FRY/CHAMBER: 10

AGE OF FRY/SOURCE: < 24 hours in house

LIGHT INTENSITY (LUX): Ambient

DILUTION WATER:

TEMPERATURE (°C): 25±1° C

PHOTOPERIOD (L:D): 16 : 8

DATE / TIME	TEST DAY	INITIALS	NUMBER DEAD/NUMBER ALIVE				pH (SU)		D.O. (mg/L)		TEMPERATURE °C		CONDUCTANCE (µmhos/cm)		GLC AND/OR BATCH NUMBER
			REP 1	REP 2	REP 3	REP 4	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	
5/26/05	0	TB	0/10	0/10	0/10	0/10	8.15		7.8		25.0		530		
5/27/05	1	MWG	0/10	0/10	0/10	0/10	8.14	7.96	8.2	8.6	25.0	24.7	524		
5/28/05	2	SR	0/10	0/10	0/10	0/10	8.13	7.89	8.2	8.6	25.0	24.7	530		
5/29/05	3	SR	0/10	0/10	0/10	0/10	8.08	8.04	8.1	8.0	25.0	24.9	524		
5/30/05	4	AM/SR	0/10	1/9 *	0/10	3/7 *	8.10	8.11	7.9	7.7	25.0	25.2	526		
5/31/05	5	SR	0/10	0/9	0/10	1/6 *	8.07	7.96	8.3	7.6	25.0	25.2	505		
6/1/05	6	TB	0/10	0/9	0/10	0/6	8.03	7.91	8.3	7.9	25.0	24.9	511		
6/2/05	7	SR	0/10	0/9	0/10	0/6		7.94		8.3		25.1			

= Normal; ERR = Erratic Swimming; I = Immobilized; PM = Particulate Matter

* Dead w/ fungi

Reviewed By: Marilu W. Harton

Date: 6-6-05

GLEC

Great Lakes Environmental Center

FATHEAD MINNOW 7-DAY STATIC-RENEWAL SURVIVAL AND GROWTH TOXICITY TEST

PROJECT NUMBER: 1727-00

TEST MATERIAL: Gary Sanitam

TREATMENT LEVEL: D 50%

NUMBER FRY/CHAMBER: 10

AGE OF FRY/SOURCE: < 24 hours in house

LIGHT INTENSITY (LUX): Ambient

DILUTION WATER:

TEMPERATURE (°C): 25±1° C

PHOTOPERIOD (L:D): 16 : 8

DATE / TIME	TEST DAY	INITIALS	NUMBER DEAD/NUMBER ALIVE				pH (SU)		D.O. (mg/L)		TEMPERATURE °C		CONDUCTANCE (µmhos/cm)		GLC AND/OR BATCH NUMBER
			REP 1	REP 2	REP 3	REP 4	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	
5/26/05	0	TB	0/10	0/10	0/10	0/10	8.11		8.1		25.0		729		
5/27/05	1	MWG	0/10	0/10	0/10	0/10	8.06	8.32	8.7	9.5	25.0		714		
5/28/05	2	SR	0/10	0/10	0/10	1/9	8.10	8.17	8.6	9.3	25.0		720		
5/29/05	3	SR	0/10	0/10	0/10	1/8	8.00	8.68	8.3	9.8	25.0		722		
5/30/05	4	AM/SR	0/10	1/9	0/10	0/8	7.99	8.34	8.2	8.2	25.0		729		
5/31/05	5	SR	0/10	0/9	0/10	0/8	8.00	8.24	8.5	8.8	25.0		717		
6/1/05	6	TB	0/10	1/8 *	0/10	0/8	8.00	8.19	8.4	8.1	25.0		726		
6/2/05	7	SR	0/10	0/8	0/10	0/8		8.10		8.6					

= Normal; ERR = Erratic Swimming; I = Immobilized; PM = Particulate Matter

* FUNGUS ON DEAD FISH

Reviewed By: Mailee W. Harton

Date: 6-6-05

GLEC

Great Lakes Environmental Center

FATHEAD MINNOW 7-DAY STATIC-RENEWAL SURVIVAL AND GROWTH TOXICITY TEST

PROJECT NUMBER: 1727-00

TEST MATERIAL: Gary Sanitary

TREATMENT LEVEL: E 100%

NUMBER FRY/CHAMBER: 10

AGE OF FRY/SOURCE: < 24 hours in house

LIGHT INTENSITY (LUX): Ambient

DILUTION WATER: d

TEMPERATURE (°C): 25±1° C

PHOTOPERIOD (L:D): 16 : 8

DATE / TIME	TEST DAY	INITIALS	NUMBER DEAD/NUMBER ALIVE				pH (SU)		D.O. (mg/L)		TEMPERATURE °C		CONDUCTANCE (µmhos/cm)		GLC AND/OR BATCH NUMBER
			REP 1	REP 2	REP 3	REP 4	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	
5/26/05	0	TB	0/10	0/10	0/10	0/10	8.04		9.0		25.0		1112		
5/27/05	1	MWG	0/10	0/10	0/10	0/10	7.96	8.96	9.2	12.2	25.0		1103		
5/28/05	2	SR	1/9	0/10	0/10	0/10	8.00	8.90	9.3	12.0	25.0		1110		
5/29/05	3	SR	2/7	0/10	0/10	0/10	7.85	9.16	8.7	13.5	25.0		1122		
5/30/05	4	AM/SR	0/7	2/8	0/10	0/10	7.86	9.01	8.7	11.3	25.0		1127		
5/31/05	5	SR	0/7	0/10	0/10	0/10	7.81	9.8 13 9.13	9.4	13.8	25.0		1119		
6/1/05	6	TB	0/7	0/8	0/10	0/10	7.80	9.11	9.1	12.3	25.0		1123		
6/2/05	7	SR	0/7	0/8	0/10	0/10		8.77		12.0					

N = Normal; ERR = Erratic Swimming; I = Immobilized; PM = Particulate Matter

Reviewed By: Molly W. Harris

Date: 6-6-05

GLEC

Great Lakes Environmental Center

CHRONIC TOXICITY TEST - WEIGHT DATA

TEST MATERIAL: White River Environmental

TEST NUMBER: 1754-00

TECHNICIAN'S INITIALS: SR / QC=MWB

WEIGH DATE: 6/3/05

TEST DATE: 5/26/05 - 6/2/05

DRYING DURATION (HOURS): 24 hrs

TYPE/MODEL OF DRYING OVEN: BLUE M

OVEN TEMPERATURE (°C): 60°C

TEST SPECIES: FATHEAD MINNOW

TREATMENT LEVEL	REP. NUMBER	A WEIGHT OF PAN AND FRY (g)	B WEIGHT OF OVEN-DRIED PANS (g)	A-B TOTAL DRY FRY WEIGHT (g)	C NUMBER OF FRY WEIGHTED	A-B/C AVERAGE DRY FRY WEIGHT ~~(mg)~~ g	BIOMASS WEIGHT (mg)
MH Control	1	0.79122	0.78404	0.00718	10	0.000718	0.718
	2	0.79166	0.78517	0.00649	10	0.000649	0.649
	3	0.78722	0.78043	0.00679	10	0.000679	0.679
	4	0.79744	0.79026	0.00718	10	0.000718	0.718
A 6.25%	1	0.78826	0.78151	0.00675	10	0.000675	0.675
	2	0.78739	0.78135	0.00604	9	0.000671	0.604
	3	0.78893	0.78138	0.00755	10	0.000755	0.755
	4	0.78894	0.78204	0.00690	10	0.000690	0.690
B 12.5%	1	0.79710	0.78879	0.00831	10	0.000831	0.831
	2	0.79426	0.78750	0.00676	9	0.000751	0.676
	3	0.79464	0.78773	0.00691	8	0.000864	0.691
	4	0.79253	0.78529	0.00724	8	0.000905	0.724
INITIAL DRY WEIGHTS	A						
	B						

GLEC

Great Lakes Environmental Center

CHRONIC TOXICITY TEST - WEIGHT DATA

TEST MATERIAL: White River Environmental

WEIGH DATE: 6/3/05

TYPE/MODEL OF DRYING OVEN: BLUE M

TEST NUMBER: 1754.00

TEST DATE: 5/26-6/2/05

OVEN TEMPERATURE (°C): 60°C

TECHNICIAN'S INITIALS: SR MWB

DRYING DURATION (HOURS): 24 hrs

TEST SPECIES: Fat head Minnow

TREATMENT LEVEL	REP. NUMBER	A WEIGHT OF PAN AND FRY (g)	B WEIGHT OF OVEN-DRIED PANS (g)	A-B TOTAL DRY FRY WEIGHT (g)	C NUMBER OF FRY WEIGHTED	A-B/C AVERAGE DRY FRY WEIGHT ~~(mg)~~ g	BIOMASS WEIGHT (mg)
C 25%	1	0.79549	0.78827	0.00722	10	0.000722	0.722
	2	0.79393	0.78671	0.00722	9	0.000802	0.722
	3	0.78797	0.77988	0.00809	10	0.000809	0.809
	4	0.79342	0.78792	0.00550	6	0.000917	0.550
D 50%	1	0.80599	0.79797	0.00802	10	0.000802	0.802
	2	0.80959	0.80284	0.00675	8	0.000844	0.675
	3	0.79885	0.79144	0.00741	10	0.000741	0.741
	4	0.81134	0.80426	0.00708	8	0.000885	0.708
E 100%	1	0.79111	0.78436	0.00675	7	0.000964	0.675
	2	0.80864	0.80122	0.00742	8	0.000928	0.742
	3	0.80708	0.79836	0.00872	10	0.000872	0.872
	4	0.80844	0.80002	0.00842	10	0.000842	0.842
INITIAL DRY WEIGHTS	A						
	B						

Title: White River Environ. (GARY) FHM Growth Chronic MAY 05
File: fhg6419 Transform: NO TRANSFORMATION

Shapiro - Wilk's Test for Normality

D = 0.0985
W = 0.9772

Critical W = 0.8840 (alpha = 0.01 , N = 24)
W = 0.9160 (alpha = 0.05 , N = 24)

Data PASS normality test (alpha = 0.01). Continue analysis.

Title: White River Environ. (GARY) FHM Growth Chronic MAY 05
File: fhg6419 Transform: NO TRANSFORMATION

Bartlett's Test for Homogeneity of Variance

Calculated B1 statistic = 3.9679 (p-value = 0.5540)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

Critical B = 15.0863 (alpha = 0.01, df = 5)
= 11.0705 (alpha = 0.05, df = 5)

Title: White River Environ. (GARY) FHM Growth Chronic MAY 05
File: fhg6419 Transform: NO TRANSFORMATION

Summary Statistics on Data TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	MH Control	4	0.6490	0.7180	0.6910
2	A 6.25%	4	0.6040	0.7550	0.6810
3	B 12.5%	4	0.6760	0.8310	0.7305
4	C25%	4	0.5500	0.8090	0.7007
5	D 50%	4	0.6750	0.8020	0.7315
6	E 100%	4	0.6750	0.8720	0.7828

Title: White River Environ. (GARY) FHM Growth Chronic MAY 05
File: fhg6419 Transform: NO TRANSFORMATION

Summary Statistics on Data TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	MH Control	0.0011	0.0335	0.0167	4.8475
2	A 6.25%	0.0038	0.0620	0.0310	9.1003
3	B 12.5%	0.0049	0.0699	0.0350	9.5737
4	C25%	0.0118	0.1085	0.0543	15.4900
5	D 50%	0.0029	0.0542	0.0271	7.4061
6	E 100%	0.0082	0.0908	0.0454	11.6031

Title: White River Environ. (GARY) FHM Growth Chronic MAY 05
File: fhg6419 Transform: NO TRANSFORMATION

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.0276	0.0055	1.0108
Within (Error)	18	0.0985	0.0055	
Total	23	0.1261		

(p-value = 0.4399)

Critical F = 4.2479 (alpha = 0.01, df = 5,18)
= 2.7729 (alpha = 0.05, df = 5,18)

Since F < Critical F FAIL TO REJECT Ho: All equal (alpha = 0.05)

Title: White River Environ. (GARY) FHM Growth Chronic MAY 05
File: fhg6419 Transform: NO TRANSFORMATION

Dunnett's Test - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG 0.05
1	MH Control	0.6910	0.6910		
2	A 6.25%	0.6810	0.6810	0.1912	
3	B 12.5%	0.7305	0.7305	-0.7553	
4	C25%	0.7007	0.7007	-0.1864	
5	D 50%	0.7315	0.7315	-0.7744	
6	E 100%	0.7828	0.7828	-1.7544	

Dunnett critical value = 2.4100 (1 Tailed, alpha = 0.05, df = 5,18)

Title: White River Environ. (GARY) FHM Growth Chronic MAY 05
File: fhg6419 Transform: NO TRANSFORMATION

Dunnett's Test - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	MIN SIG DIFF (IN ORIG. UNITS)	% OF CONTROL	DIFFERENCE FROM CONTROL
1	MH Control	4			
2	A 6.25%	4	0.1260	18.2	0.0100
3	B 12.5%	4	0.1260	18.2	-0.0395
4	C25%	4	0.1260	18.2	-0.0097
5	D 50%	4	0.1260	18.2	-0.0405
6	E 100%	4	0.1260	18.2	-0.0917

APPENDIX B

REFERENCE TOXICANT DATA

GLEC

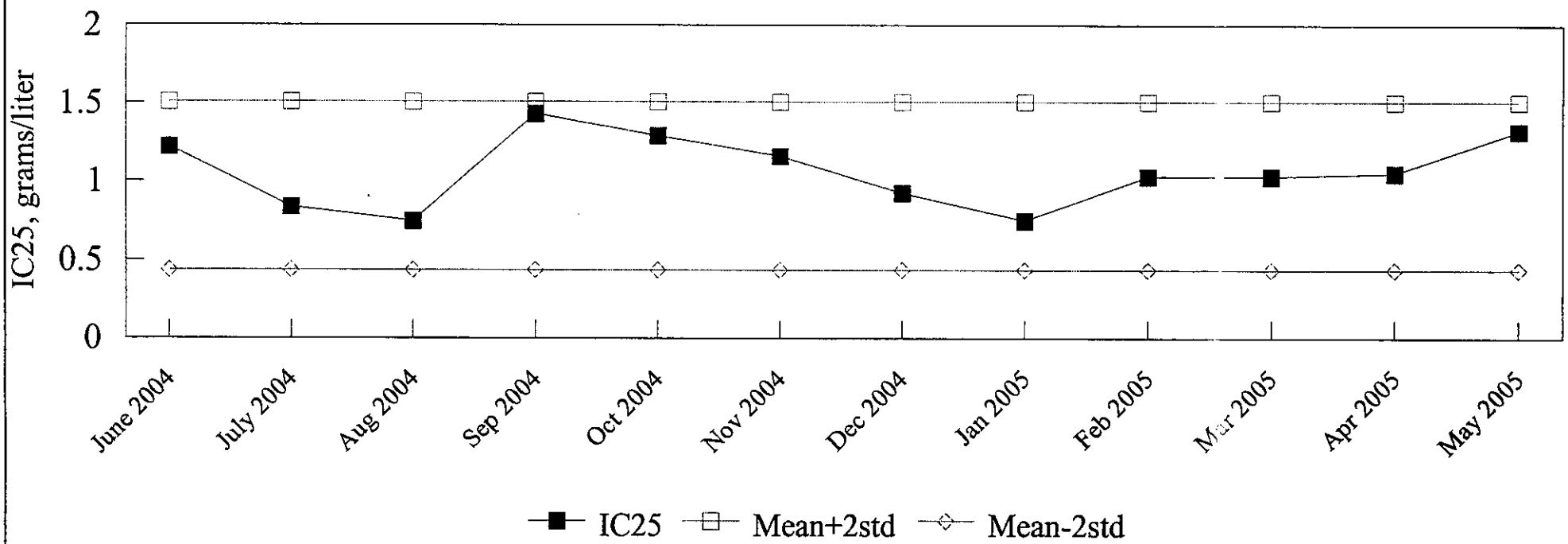
Great Lakes Environmental Center

Great Lakes Environmental Center

Ceriodaphnia dubia Reproduction

NaCl Reference Toxicant Data

2004-2005

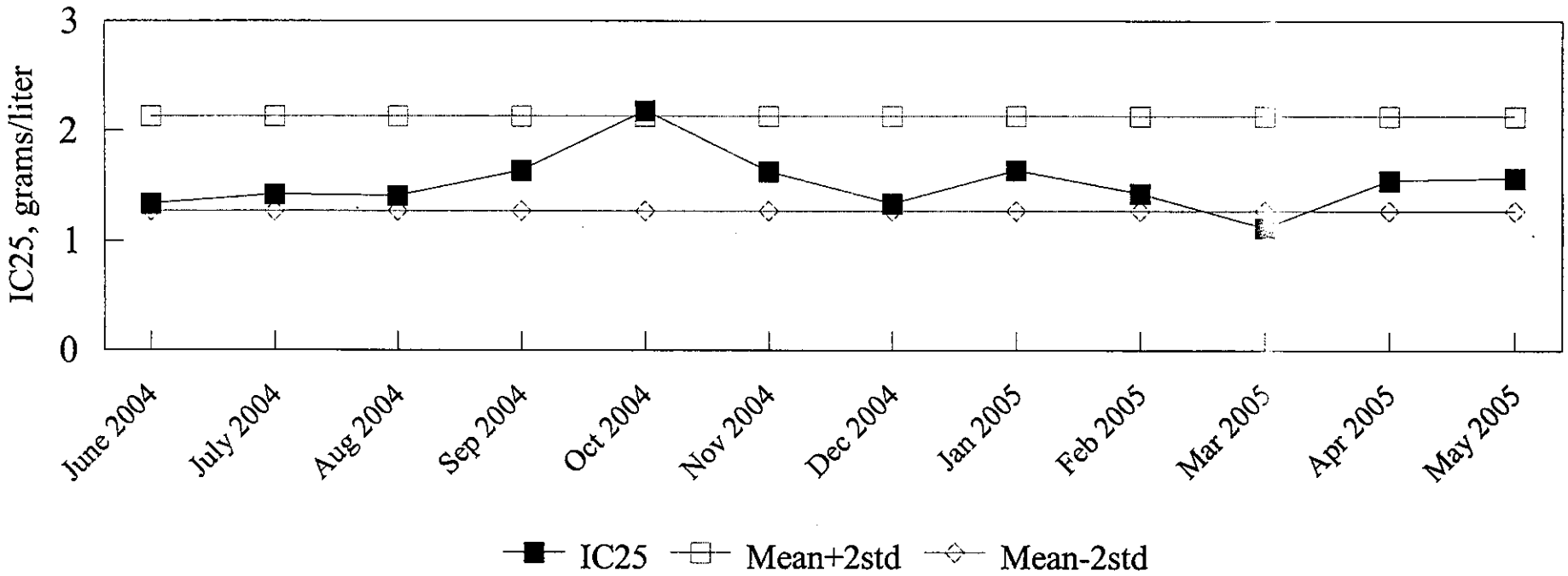


Great Lakes Environmental Center

Fathead Minnow Growth

NaCl Reference Toxicant Data

2004-2005



February 2005 Surface Water Sampling and Analysis

e-Lab Analytical, Inc

3352 128th Avenue Holland, Michigan 49424-9263 616-399-6070 Fax 616-399-6185

February 16, 2005

Charles Peller
Gary Sanitary District
3600 West 3rd Ave
Gary, IN 46404

Tel: (219) 944-0595
Fax: (219) 944-0250

Re: RALSTON STREET LAGOON SURFACE WATER Work Order : **0502192**

Dear Spike,

e-Lab Analytical, Inc received 5 samples on 2/10/2005 4:30:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from e-Lab Analytical, Inc. The total number of pages in this report is 62.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Les Arnold

Electronically approved by: Les Arnold

Les Arnold
Laboratory Director

e-Lab Analytical, Inc

Date: *February 16, 2005*

CLIENT: Gary Sanitary District
Project: RALSTON STREET LAGOON SURFACE WATER
Work Order: **0502192**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0502192-01	Sewer	Water		2/10/2005 11:07	2/10/2005 16:30	☐
0502192-02	West Pier - Mid Depth	Water		2/10/2005 12:50	2/10/2005 16:30	☐
0502192-03	Middle Pier - Mid Depth	Water		2/10/2005 13:15	2/10/2005 16:30	☐
0502192-04	East Pier - Mid Depth	Water		2/10/2005 13:45	2/10/2005 16:30	☐
0502192-05	Trip Blank	Trip Blank		2/10/2005	2/10/2005 16:30	☐

Case Narrative

Sampling Protocol – Ralston Street Lagoon Surface Water
Sampled Thursday, February 10, 2005

Sampled by e-Lab Analytical, Inc.
Les Arnold – Laboratory Director
Joe Ribar – Field Service Technician

At the request of Dan Vicari (CDM, Inc.) on behalf of the city of Gary, e-Lab Analytical was contracted to collect and analyze surface water samples from the Ralston Street Lagoon in Gary, Indiana.

Four sample locations were identified. The locations were:
·• The manhole located just outside the southeast corner of the lagoon, near the entrance.
·• From the north end of each of three piers, which extend approximately 100 feet into the lagoon (east, middle, west) from the south bank.

Samples were collected using a peristaltic pump with Teflon suction tubing. The suction line was attached to a 10' section of ½" PVC pipe, which served as a guide for the tubing..

At the manhole, the tubing/pipe was lowered into the standing water. Water was purged through the tubing for approximately 2 minutes. Appropriate sample containers were then filled for the requested analysis. Volatile organic (VOC) samples were obtained using a glass container, which was dipped into the standing water, which was then transferred into 40 ml VOC vials.

Samples from the piers were taken from the north end of each pier. The lagoon had approximately three inches of ice cover. A sledgehammer was used to break the ice to allow insertion of the sample tubing and PVC guide pipe. Samples were pumped from approximately seven feet below the water surface, well above the sludge layer. The line was purged for five minutes at each location prior to filling appropriate sample containers for the requested analysis.

Samples for VOC analysis were collected by pumping water slowly, to minimize agitation, into a new glass container. Sample was then transferred from the container into 40 ml VOC vials.

pH and temperature measurements were taken at the time of collection of each sample.

The pump and suction tubing were rinsed between samples using alconox soap and deionized water. The tubing was then rinsed with the target sample water for five minutes prior to sample collection.

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-01

Client Sample ID: Sewer
Collection Date: 2/10/2005 11:07:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 608**		Prep Date: **2/11/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	2/11/2005
Aroclor 1221	ND	0.40		µg/L	1	2/11/2005
Aroclor 1232	ND	0.40		µg/L	1	2/11/2005
Aroclor 1242	ND	0.40		µg/L	1	2/11/2005
Aroclor 1248	ND	0.40		µg/L	1	2/11/2005
Aroclor 1254	ND	0.40		µg/L	1	2/11/2005
Aroclor 1260	ND	0.40		µg/L	1	2/11/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 608**		Prep Date: **2/11/2005**	Analyst: **RM**
4,4´-DDD	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
4,4´-DDE	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
4,4´-DDT	ND	0.25		µg/L	1	2/14/2005 5:09:41 PM
Aldrin	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
alpha-BHC	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
beta-BHC	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Chlordane, Technical	ND	1.0		µg/L	1	2/14/2005 5:09:41 PM
delta-BHC	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Dieldrin	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Endosulfan I	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Endosulfan II	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Endosulfan sulfate	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Endrin	ND	0.10		µg/L	1	2/14/2005 5:09:41 PM
Endrin aldehyde	ND	0.10		µg/L	1	2/14/2005 5:09:41 PM
gamma-BHC (Lindane)	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Heptachlor	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Heptachlor epoxide	ND	0.050		µg/L	1	2/14/2005 5:09:41 PM
Methoxychlor	ND	0.50		µg/L	1	2/14/2005 5:09:41 PM
Toxaphene	ND	4.0		µg/L	1	2/14/2005 5:09:41 PM
MERCURY BY CVAA			**EPA 245.1**		Prep Date: **2/11/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	2/11/2005
METALS ANALYSIS BY ICP-MS			**EPA 200.8**		Prep Date: **2/11/2005**	Analyst: **RM**
Antimony	ND	0.0050		mg/L	1	2/11/2005 5:11:00 PM
Arsenic	0.014	0.0050		mg/L	1	2/11/2005 5:11:00 PM
Beryllium	ND	0.0020		mg/L	1	2/11/2005 5:11:00 PM
Cadmium	ND	0.00020		mg/L	1	2/11/2005 5:11:00 PM
Chromium	ND	0.0050		mg/L	1	2/11/2005 5:11:00 PM
Copper	ND	0.0050		mg/L	1	2/11/2005 5:11:00 PM
Iron	0.56	0.080		mg/L	1	2/11/2005 5:11:00 PM
Lead	ND	0.0050		mg/L	1	2/11/2005 5:11:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-01

Client Sample ID: Sewer
Collection Date: 2/10/2005 11:07:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Nickel	ND	0.0050		mg/L	1	2/11/2005 5:11:00 PM
Selenium	ND	0.0050		mg/L	1	2/11/2005 5:11:00 PM
Silver	ND	0.0050		mg/L	1	2/11/2005 5:11:00 PM
Thallium	ND	0.0050		mg/L	1	2/11/2005 5:11:00 PM
Zinc	ND	0.010		mg/L	1	2/11/2005 5:11:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.0			s.u.	1	2/10/2005
PRIORITY POLLUTANT SEMI-VOLATILES			**EPA 625**		Prep Date: **2/12/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
1,2-Diphenylhydrazine	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	2/13/2005 11:45:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	2/13/2005 11:45:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	2/13/2005 11:45:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	2/13/2005 11:45:00 PM
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
4-Nitrophenol	ND	20		µg/L	1	2/13/2005 11:45:00 PM
Acenaphthene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Acenaphthylene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Anthracene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Benzidine	ND	50		µg/L	1	2/13/2005 11:45:00 PM
Benzo(a)anthracene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Benzo(a)pyrene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Benzo(b)fluoranthene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM

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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-01

Client Sample ID: Sewer
Collection Date: 2/10/2005 11:07:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Chrysene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Dibenzo(a,h)anthracene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Diethyl phthalate	ND	20		µg/L	1	2/13/2005 11:45:00 PM
Dimethyl phthalate	ND	20		µg/L	1	2/13/2005 11:45:00 PM
Fluoranthene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Fluorene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Hexachlorocyclopentadiene	ND	20		µg/L	1	2/13/2005 11:45:00 PM
Hexachloroethane	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Isophorone	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
N-Nitrosodimethylamine	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Naphthalene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Nitrobenzene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Pentachlorophenol	ND	20		µg/L	1	2/13/2005 11:45:00 PM
Phenanthrene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Phenol	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
Pyrene	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
SEMI-VOLATILE ORGANIC COMPOUNDS		**EPA 625**			Prep Date: **2/12/2005**	Analyst: **HL**
Caffeine	ND	5.0		µg/L	1	2/13/2005 11:45:00 PM
PRIORITY POLLUTANT VOLATILES		**EPA 624**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	2/14/2005 1:13:00 PM
Acrolein	ND	5.0		µg/L	1	2/14/2005 1:13:00 PM
Acrylonitrile	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Benzene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM

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* - Value exceeds Maximum Contaminant Level
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-01

Client Sample ID: Sewer
Collection Date: 2/10/2005 11:07:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Bromoform	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Bromomethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Chlorobenzene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Chloroethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Chloroform	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Chloromethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Ethylbenzene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Methylene chloride	ND	5.0		µg/L	1	2/14/2005 1:13:00 PM
Tetrachloroethene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Toluene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Trichloroethene	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
Vinyl chloride	ND	1.0		µg/L	1	2/14/2005 1:13:00 PM
BIOCHEMICAL OXYGEN DEMAND			**EPA 405.1**		Prep Date: **2/11/2005**	Analyst: **JJG**
Biochemical Oxygen Demand	2.6	2.4		mg/L	1	2/16/2005
CHLORIDE			**EPA 325.3**			Analyst: **JJG**
Chloride	190	1.0		mg/L	1	2/14/2005
CYANIDE, TOTAL			**EPA 335.2**			Analyst: **KAE**
Cyanide, Total	0.0052	0.0050		mg/L	2	2/13/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	27	5.0		mg/L	1	2/11/2005
FLUORIDE			**EPA 340.1**			Analyst: **JJG**
Fluoride, Total	ND	1.0		mg/L	5	2/14/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	1.6	0.25		mg/L	5	2/14/2005
NITROGEN, NITRATE			**EPA 353.3**			Analyst: **JA**
Nitrogen, Nitrate	0.11	0.041		mg/L	1	2/14/2005
OIL AND GREASE			**EPA 1664**			Analyst: **DB**
Oil and Grease	ND	5.0		mg/L	1	2/10/2005
PHOSPHORUS, TOTAL			**EPA 365.2**			Analyst: **JJG**
Phosphorus, Total	0.25	0.070		mg/L	1	2/14/2005

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	Sewer
Work Order:	0502192	**Collection Date:**	2/10/2005 11:07:00 AM
Project:	RALSTON STREET LAGOON SURFACE WATER		
Lab ID:	0502192-01	**Matrix:**	WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PHENOLICS, TOTAL			**EPA 420.1**			Analyst: **MB**
Phenolics, Total	ND	0.0062		mg/L	1.25	2/14/2005
SULFATE			**EPA 375.4**			Analyst: **MB**
Sulfate	68	18		mg/L	2.5	2/14/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **JJG**
Total Dissolved Solids	640	5.0		mg/L	1	2/11/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **JJG**
Total Suspended Solids	6.4	6.0		mg/L	1	2/11/2005

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-02

Client Sample ID: West Pier - Mid Depth
Collection Date: 2/10/2005 12:50:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 608**		Prep Date: **2/11/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	2/11/2005
Aroclor 1221	ND	0.40		µg/L	1	2/11/2005
Aroclor 1232	ND	0.40		µg/L	1	2/11/2005
Aroclor 1242	ND	0.40		µg/L	1	2/11/2005
Aroclor 1248	ND	0.40		µg/L	1	2/11/2005
Aroclor 1254	ND	0.40		µg/L	1	2/11/2005
Aroclor 1260	ND	0.40		µg/L	1	2/11/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 608**		Prep Date: **2/11/2005**	Analyst: **RM**
4,4´-DDD	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
4,4´-DDE	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
4,4´-DDT	ND	5.0		µg/L	20	2/14/2005 6:59:18 PM
Aldrin	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
alpha-BHC	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
beta-BHC	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Chlordane, Technical	ND	20		µg/L	20	2/14/2005 6:59:18 PM
delta-BHC	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Dieldrin	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Endosulfan I	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Endosulfan II	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Endosulfan sulfate	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Endrin	ND	2.0		µg/L	20	2/14/2005 6:59:18 PM
Endrin aldehyde	ND	2.0		µg/L	20	2/14/2005 6:59:18 PM
gamma-BHC (Lindane)	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Heptachlor	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Heptachlor epoxide	ND	1.0		µg/L	20	2/14/2005 6:59:18 PM
Methoxychlor	ND	10		µg/L	20	2/14/2005 6:59:18 PM
Toxaphene	ND	80		µg/L	20	2/14/2005 6:59:18 PM
MERCURY BY CVAA			**EPA 245.1**		Prep Date: **2/11/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	2/11/2005
METALS ANALYSIS BY ICP-MS			**EPA 200.8**		Prep Date: **2/11/2005**	Analyst: **RM**
Antimony	ND	0.0050		mg/L	1	2/11/2005 5:27:00 PM
Arsenic	0.0088	0.0050		mg/L	1	2/11/2005 5:27:00 PM
Beryllium	ND	0.0020		mg/L	1	2/11/2005 5:27:00 PM
Cadmium	ND	0.00020		mg/L	1	2/11/2005 5:27:00 PM
Chromium	ND	0.0050		mg/L	1	2/11/2005 5:27:00 PM
Copper	ND	0.0050		mg/L	1	2/11/2005 5:27:00 PM
Iron	1.8	0.080		mg/L	1	2/11/2005 5:27:00 PM
Lead	ND	0.0050		mg/L	1	2/11/2005 5:27:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-02

Client Sample ID: West Pier - Mid Depth
Collection Date: 2/10/2005 12:50:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Nickel	ND	0.0050		mg/L	1	2/11/2005 5:27:00 PM
Selenium	ND	0.0050		mg/L	1	2/11/2005 5:27:00 PM
Silver	ND	0.0050		mg/L	1	2/11/2005 5:27:00 PM
Thallium	ND	0.0050		mg/L	1	2/11/2005 5:27:00 PM
Zinc	ND	0.010		mg/L	1	2/11/2005 5:27:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.3			s.u.	1	2/10/2005
PRIORITY POLLUTANT SEMI-VOLATILES			**EPA 625**		Prep Date: **2/12/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
1,2-Diphenylhydrazine	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	2/14/2005 12:16:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	2/14/2005 12:16:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	2/14/2005 12:16:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	2/14/2005 12:16:00 PM
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
4-Nitrophenol	ND	20		µg/L	1	2/14/2005 12:16:00 PM
Acenaphthene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Acenaphthylene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Anthracene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Benzidine	ND	50		µg/L	1	2/14/2005 12:16:00 PM
Benzo(a)anthracene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Benzo(a)pyrene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Benzo(b)fluoranthene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-02

Client Sample ID: West Pier - Mid Depth
Collection Date: 2/10/2005 12:50:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Chrysene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Dibenzo(a,h)anthracene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Diethyl phthalate	ND	20		µg/L	1	2/14/2005 12:16:00 PM
Dimethyl phthalate	ND	20		µg/L	1	2/14/2005 12:16:00 PM
Fluoranthene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Fluorene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Hexachlorocyclopentadiene	ND	20		µg/L	1	2/14/2005 12:16:00 PM
Hexachloroethane	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Isophorone	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
N-Nitrosodimethylamine	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Naphthalene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Nitrobenzene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Pentachlorophenol	ND	20		µg/L	1	2/14/2005 12:16:00 PM
Phenanthrene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Phenol	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
Pyrene	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
SEMI-VOLATILE ORGANIC COMPOUNDS		**EPA 625**			Prep Date: **2/12/2005**	Analyst: **HL**
Caffeine	ND	5.0		µg/L	1	2/14/2005 12:16:00 PM
PRIORITY POLLUTANT VOLATILES		**EPA 624**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	2/14/2005 1:46:00 PM
Acrolein	ND	5.0		µg/L	1	2/14/2005 1:46:00 PM
Acrylonitrile	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Benzene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-02

Client Sample ID: West Pier - Mid Depth
Collection Date: 2/10/2005 12:50:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Bromoform	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Bromomethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Chlorobenzene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Chloroethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Chloroform	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Chloromethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Ethylbenzene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Methylene chloride	ND	5.0		µg/L	1	2/14/2005 1:46:00 PM
Tetrachloroethene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Toluene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Trichloroethene	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
Vinyl chloride	ND	1.0		µg/L	1	2/14/2005 1:46:00 PM
BIOCHEMICAL OXYGEN DEMAND			**EPA 405.1**		Prep Date: **2/11/2005**	Analyst: **JJG**
Biochemical Oxygen Demand	12	2.4		mg/L	1	2/16/2005
CHLORIDE			**EPA 325.3**			Analyst: **JJG**
Chloride	280	1.0		mg/L	1	2/14/2005
CYANIDE, TOTAL			**EPA 335.2**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	2/13/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	96	5.0		mg/L	1	2/11/2005
FLUORIDE			**EPA 340.1**			Analyst: **JJG**
Fluoride, Total	ND	1.0		mg/L	5	2/14/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	3.6	1.2		mg/L	25	2/14/2005
NITROGEN, NITRATE			**EPA 353.3**			Analyst: **JA**
Nitrogen, Nitrate	0.81	0.20		mg/L	5	2/14/2005
OIL AND GREASE			**EPA 1664**			Analyst: **DB**
Oil and Grease	ND	5.0		mg/L	1	2/10/2005
PHOSPHORUS, TOTAL			**EPA 365.2**			Analyst: **JJG**
Phosphorus, Total	0.41	0.070		mg/L	1	2/14/2005

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E - Value above quantitation range
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e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	West Pier - Mid Depth
Work Order:	0502192	**Collection Date:**	2/10/2005 12:50:00 PM
Project:	RALSTON STREET LAGOON SURFACE WATER		
Lab ID:	0502192-02	**Matrix:**	WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PHENOLICS, TOTAL			**EPA 420.1**			Analyst: **MB**
Phenolics, Total	ND	0.0062		mg/L	1.25	2/14/2005
SULFATE			**EPA 375.4**			Analyst: **MB**
Sulfate	27	18		mg/L	2.5	2/14/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **JJG**
Total Dissolved Solids	670	5.0		mg/L	1	2/11/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **JJG**
Total Suspended Solids	30	6.0		mg/L	1	2/11/2005

Qualifiers:

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-03

Client Sample ID: Middle Pier - Mid Depth
Collection Date: 2/10/2005 1:15:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 608**		Prep Date: **2/11/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	2/11/2005
Aroclor 1221	ND	0.40		µg/L	1	2/11/2005
Aroclor 1232	ND	0.40		µg/L	1	2/11/2005
Aroclor 1242	ND	0.40		µg/L	1	2/11/2005
Aroclor 1248	ND	0.40		µg/L	1	2/11/2005
Aroclor 1254	ND	0.40		µg/L	1	2/11/2005
Aroclor 1260	ND	0.40		µg/L	1	2/11/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 608**		Prep Date: **2/11/2005**	Analyst: **RM**
4,4´-DDD	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
4,4´-DDE	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
4,4´-DDT	ND	5.0		µg/L	20	2/14/2005 7:35:54 PM
Aldrin	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
alpha-BHC	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
beta-BHC	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Chlordane, Technical	ND	20		µg/L	20	2/14/2005 7:35:54 PM
delta-BHC	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Dieldrin	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Endosulfan I	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Endosulfan II	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Endosulfan sulfate	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Endrin	ND	2.0		µg/L	20	2/14/2005 7:35:54 PM
Endrin aldehyde	ND	2.0		µg/L	20	2/14/2005 7:35:54 PM
gamma-BHC (Lindane)	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Heptachlor	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Heptachlor epoxide	ND	1.0		µg/L	20	2/14/2005 7:35:54 PM
Methoxychlor	ND	10		µg/L	20	2/14/2005 7:35:54 PM
Toxaphene	ND	80		µg/L	20	2/14/2005 7:35:54 PM
MERCURY BY CVAA			**EPA 245.1**		Prep Date: **2/11/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	2/11/2005
METALS ANALYSIS BY ICP-MS			**EPA 200.8**		Prep Date: **2/11/2005**	Analyst: **RM**
Antimony	ND	0.0050		mg/L	1	2/11/2005 5:32:00 PM
Arsenic	0.0087	0.0050		mg/L	1	2/11/2005 5:32:00 PM
Beryllium	ND	0.0020		mg/L	1	2/11/2005 5:32:00 PM
Cadmium	ND	0.00020		mg/L	1	2/11/2005 5:32:00 PM
Chromium	ND	0.0050		mg/L	1	2/11/2005 5:32:00 PM
Copper	ND	0.0050		mg/L	1	2/11/2005 5:32:00 PM
Iron	2.2	0.080		mg/L	1	2/11/2005 5:32:00 PM
Lead	ND	0.0050		mg/L	1	2/11/2005 5:32:00 PM

Qualifiers:
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B - Analyte detected in the associated Method Blank
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-03

Client Sample ID: Middle Pier - Mid Depth
Collection Date: 2/10/2005 1:15:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Nickel	ND	0.0050		mg/L	1	2/11/2005 5:32:00 PM
Selenium	ND	0.0050		mg/L	1	2/11/2005 5:32:00 PM
Silver	ND	0.0050		mg/L	1	2/11/2005 5:32:00 PM
Thallium	ND	0.0050		mg/L	1	2/11/2005 5:32:00 PM
Zinc	0.013	0.010		mg/L	1	2/11/2005 5:32:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.4			s.u.	1	2/10/2005
PRIORITY POLLUTANT SEMI-VOLATILES			**EPA 625**		Prep Date: **2/12/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
1,2-Diphenylhydrazine	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
2,4-Dichlorophenol	ND	10		µg/L	1	2/14/2005 12:47:00 PM
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
2,4-Dinitrophenol	ND	20		µg/L	1	2/14/2005 12:47:00 PM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
2-Chloronaphthalene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
2-Chlorophenol	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
2-Nitrophenol	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	2/14/2005 12:47:00 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	2/14/2005 12:47:00 PM
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
4-Nitrophenol	ND	20		µg/L	1	2/14/2005 12:47:00 PM
Acenaphthene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Acenaphthylene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Anthracene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Benzidine	ND	50		µg/L	1	2/14/2005 12:47:00 PM
Benzo(a)anthracene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Benzo(a)pyrene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Benzo(b)fluoranthene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-03

Client Sample ID: Middle Pier - Mid Depth
Collection Date: 2/10/2005 1:15:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Chrysene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Dibenzo(a,h)anthracene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Diethyl phthalate	ND	20		µg/L	1	2/14/2005 12:47:00 PM
Dimethyl phthalate	ND	20		µg/L	1	2/14/2005 12:47:00 PM
Fluoranthene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Fluorene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Hexachlorobenzene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Hexachlorocyclopentadiene	ND	20		µg/L	1	2/14/2005 12:47:00 PM
Hexachloroethane	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Isophorone	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
N-Nitrosodimethylamine	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Naphthalene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Nitrobenzene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Pentachlorophenol	ND	20		µg/L	1	2/14/2005 12:47:00 PM
Phenanthrene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Phenol	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
Pyrene	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
SEMI-VOLATILE ORGANIC COMPOUNDS		**EPA 625**			Prep Date: **2/12/2005**	Analyst: **HL**
Caffeine	ND	5.0		µg/L	1	2/14/2005 12:47:00 PM
PRIORITY POLLUTANT VOLATILES		**EPA 624**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	2/14/2005 2:21:00 PM
Acrolein	ND	5.0		µg/L	1	2/14/2005 2:21:00 PM
Acrylonitrile	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Benzene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-03

Client Sample ID: Middle Pier - Mid Depth
Collection Date: 2/10/2005 1:15:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Bromoform	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Bromomethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Chlorobenzene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Chloroethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Chloroform	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Chloromethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Ethylbenzene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Methylene chloride	ND	5.0		µg/L	1	2/14/2005 2:21:00 PM
Tetrachloroethene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Toluene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Trichloroethene	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
Vinyl chloride	ND	1.0		µg/L	1	2/14/2005 2:21:00 PM
BIOCHEMICAL OXYGEN DEMAND			**EPA 405.1**		Prep Date: **2/11/2005**	Analyst: **JJG**
Biochemical Oxygen Demand	12	2.4		mg/L	1	2/16/2005
CHLORIDE			**EPA 325.3**			Analyst: **JJG**
Chloride	280	1.0		mg/L	1	2/14/2005
CYANIDE, TOTAL			**EPA 335.2**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	2/13/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	96	5.0		mg/L	1	2/11/2005
FLUORIDE			**EPA 340.1**			Analyst: **JJG**
Fluoride, Total	ND	1.0		mg/L	5	2/14/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	4.6	1.2		mg/L	25	2/14/2005
NITROGEN, NITRATE			**EPA 353.3**			Analyst: **JA**
Nitrogen, Nitrate	0.59	0.082		mg/L	2	2/14/2005
OIL AND GREASE			**EPA 1664**			Analyst: **DB**
Oil and Grease	ND	5.0		mg/L	1	2/10/2005
PHOSPHORUS, TOTAL			**EPA 365.2**			Analyst: **JJG**
Phosphorus, Total	0.41	0.070		mg/L	1	2/14/2005

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	Middle Pier - Mid Depth
Work Order:	0502192	**Collection Date:**	2/10/2005 1:15:00 PM
Project:	RALSTON STREET LAGOON SURFACE WATER		
Lab ID:	0502192-03	**Matrix:**	WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PHENOLICS, TOTAL			**EPA 420.1**			Analyst: **MB**
Phenolics, Total	ND	0.0062		mg/L	1.25	2/14/2005
SULFATE			**EPA 375.4**			Analyst: **MB**
Sulfate	27	18		mg/L	2.5	2/14/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **JJG**
Total Dissolved Solids	650	5.0		mg/L	1	2/11/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **JJG**
Total Suspended Solids	30	6.0		mg/L	1	2/11/2005

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S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-04

Client Sample ID: East Pier - Mid Depth
Collection Date: 2/10/2005 1:45:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 608**		Prep Date: **2/11/2005**	Analyst: **RM**
Aroclor 1016	ND	0.40		µg/L	1	2/11/2005
Aroclor 1221	ND	0.40		µg/L	1	2/11/2005
Aroclor 1232	ND	0.40		µg/L	1	2/11/2005
Aroclor 1242	ND	0.40		µg/L	1	2/11/2005
Aroclor 1248	ND	0.40		µg/L	1	2/11/2005
Aroclor 1254	ND	0.40		µg/L	1	2/11/2005
Aroclor 1260	ND	0.40		µg/L	1	2/11/2005
PRIORITY POLLUTANT PESTICIDES			**EPA 608**		Prep Date: **2/11/2005**	Analyst: **RM**
4,4´-DDD	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
4,4´-DDE	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
4,4´-DDT	ND	5.0		µg/L	20	2/14/2005 8:12:23 PM
Aldrin	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
alpha-BHC	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
beta-BHC	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Chlordane, Technical	ND	20		µg/L	20	2/14/2005 8:12:23 PM
delta-BHC	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Dieldrin	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Endosulfan I	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Endosulfan II	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Endosulfan sulfate	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Endrin	ND	2.0		µg/L	20	2/14/2005 8:12:23 PM
Endrin aldehyde	ND	2.0		µg/L	20	2/14/2005 8:12:23 PM
gamma-BHC (Lindane)	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Heptachlor	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Heptachlor epoxide	ND	1.0		µg/L	20	2/14/2005 8:12:23 PM
Methoxychlor	ND	10		µg/L	20	2/14/2005 8:12:23 PM
Toxaphene	ND	80		µg/L	20	2/14/2005 8:12:23 PM
MERCURY BY CVAA			**EPA 245.1**		Prep Date: **2/11/2005**	Analyst: **DB**
Mercury	ND	0.00020		mg/L	1	2/11/2005
METALS ANALYSIS BY ICP-MS			**EPA 200.8**		Prep Date: **2/11/2005**	Analyst: **RM**
Antimony	ND	0.0050		mg/L	1	2/11/2005 5:37:00 PM
Arsenic	0.0090	0.0050		mg/L	1	2/11/2005 5:37:00 PM
Beryllium	ND	0.0020		mg/L	1	2/11/2005 5:37:00 PM
Cadmium	ND	0.00020		mg/L	1	2/11/2005 5:37:00 PM
Chromium	ND	0.0050		mg/L	1	2/11/2005 5:37:00 PM
Copper	ND	0.0050		mg/L	1	2/11/2005 5:37:00 PM
Iron	2.0	0.080		mg/L	1	2/11/2005 5:37:00 PM
Lead	ND	0.0050		mg/L	1	2/11/2005 5:37:00 PM

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e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-04

Client Sample ID: East Pier - Mid Depth
Collection Date: 2/10/2005 1:45:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Nickel	ND	0.0050		mg/L	1	2/11/2005 5:37:00 PM
Selenium	ND	0.0050		mg/L	1	2/11/2005 5:37:00 PM
Silver	ND	0.0050		mg/L	1	2/11/2005 5:37:00 PM
Thallium	ND	0.0050		mg/L	1	2/11/2005 5:37:00 PM
Zinc	ND	0.010		mg/L	1	2/11/2005 5:37:00 PM
PH (FIELD)			**EPA 150.1**			Analyst: **LA**
pH (field)	7.3			s.u.	1	2/10/2005
PRIORITY POLLUTANT SEMI-VOLATILES			**EPA 625**		Prep Date: **2/12/2005**	Analyst: **HL**
1,2,4-Trichlorobenzene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
1,2-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
1,2-Diphenylhydrazine	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
1,3-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
1,4-Dichlorobenzene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
2,4-Dichlorophenol	ND	10		µg/L	1	2/14/2005 1:18:00 AM
2,4-Dimethylphenol	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
2,4-Dinitrophenol	ND	20		µg/L	1	2/14/2005 1:18:00 AM
2,4-Dinitrotoluene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
2,6-Dinitrotoluene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
2-Chloronaphthalene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
2-Chlorophenol	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
2-Nitrophenol	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
3,3´-Dichlorobenzidine	ND	20		µg/L	1	2/14/2005 1:18:00 AM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	2/14/2005 1:18:00 AM
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
4-Nitrophenol	ND	20		µg/L	1	2/14/2005 1:18:00 AM
Acenaphthene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Acenaphthylene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Anthracene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Benzidine	ND	50		µg/L	1	2/14/2005 1:18:00 AM
Benzo(a)anthracene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Benzo(a)pyrene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Benzo(b)fluoranthene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM

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e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-04

Client Sample ID: East Pier - Mid Depth
Collection Date: 2/10/2005 1:45:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Butyl benzyl phthalate	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Chrysene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Di-n-butyl phthalate	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Di-n-octyl phthalate	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Dibenzo(a,h)anthracene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Diethyl phthalate	ND	20		µg/L	1	2/14/2005 1:18:00 AM
Dimethyl phthalate	ND	20		µg/L	1	2/14/2005 1:18:00 AM
Fluoranthene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Fluorene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Hexachlorobenzene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Hexachlorobutadiene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Hexachlorocyclopentadiene	ND	20		µg/L	1	2/14/2005 1:18:00 AM
Hexachloroethane	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Isophorone	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
N-Nitrosodimethylamine	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
N-Nitrosodiphenylamine	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Naphthalene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Nitrobenzene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Pentachlorophenol	ND	20		µg/L	1	2/14/2005 1:18:00 AM
Phenanthrene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Phenol	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
Pyrene	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
SEMI-VOLATILE ORGANIC COMPOUNDS		**EPA 625**			Prep Date: **2/12/2005**	Analyst: **HL**
Caffeine	ND	5.0		µg/L	1	2/14/2005 1:18:00 AM
PRIORITY POLLUTANT VOLATILES		**EPA 624**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	2/14/2005 2:13:00 PM
Acrolein	ND	5.0		µg/L	1	2/14/2005 2:13:00 PM
Acrylonitrile	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Benzene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM

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e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WATER
Lab ID: 0502192-04

Client Sample ID: East Pier - Mid Depth
Collection Date: 2/10/2005 1:45:00 PM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Bromoform	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Bromomethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Chlorobenzene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Chloroethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Chloroform	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Chloromethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Ethylbenzene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Methylene chloride	ND	5.0		µg/L	1	2/14/2005 2:13:00 PM
Tetrachloroethene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Toluene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Trichloroethene	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
Vinyl chloride	ND	1.0		µg/L	1	2/14/2005 2:13:00 PM
BIOCHEMICAL OXYGEN DEMAND			**EPA 405.1**		Prep Date: **2/11/2005**	Analyst: **JJG**
Biochemical Oxygen Demand	12	2.4		mg/L	1	2/16/2005
CHLORIDE			**EPA 325.3**			Analyst: **JJG**
Chloride	270	1.0		mg/L	1	2/14/2005
CYANIDE, TOTAL			**EPA 335.2**			Analyst: **KAE**
Cyanide, Total	ND	0.0050		mg/L	2	2/13/2005
CHEMICAL OXYGEN DEMAND			**EPA 410.4**			Analyst: **JJG**
Chemical Oxygen Demand	100	5.0		mg/L	1	2/11/2005
FLUORIDE			**EPA 340.1**			Analyst: **JJG**
Fluoride, Total	ND	1.0		mg/L	5	2/14/2005
NITROGEN, AMMONIA			**EPA 350.1**			Analyst: **JJG**
Nitrogen, Ammonia	4.0	1.2		mg/L	25	2/14/2005
NITROGEN, NITRATE			**EPA 353.3**			Analyst: **JA**
Nitrogen, Nitrate	0.56	0.082		mg/L	2	2/14/2005
OIL AND GREASE			**EPA 1664**			Analyst: **DB**
Oil and Grease	ND	5.0		mg/L	1	2/10/2005
PHOSPHORUS, TOTAL			**EPA 365.2**			Analyst: **JJG**
Phosphorus, Total	0.51	0.070		mg/L	1	2/14/2005

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e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	East Pier - Mid Depth
Work Order:	0502192	**Collection Date:**	2/10/2005 1:45:00 PM
Project:	RALSTON STREET LAGOON SURFACE WATER		
Lab ID:	0502192-04	**Matrix:**	WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PHENOLICS, TOTAL			**EPA 420.1**			Analyst: **MB**
Phenolics, Total	ND	0.0062		mg/L	1.25	2/14/2005
SULFATE			**EPA 375.4**			Analyst: **MB**
Sulfate	28	18		mg/L	2.5	2/14/2005
TOTAL DISSOLVED SOLIDS			**EPA 160.1**			Analyst: **JJG**
Total Dissolved Solids	640	5.0		mg/L	1	2/11/2005
TOTAL SUSPENDED SOLIDS			**EPA 160.2**			Analyst: **JJG**
Total Suspended Solids	31	6.0		mg/L	1	2/11/2005

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e-Lab Analytical, Inc

Date: *February 17, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	Trip Blank
Work Order:	0502192	**Collection Date:**	2/10/2005
Project:	RALSTON STREET LAGOON SURFACE WATER		
Lab ID:	0502192-05	**Matrix:**	TRIP BLANK

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PRIORITY POLLUTANT VOLATILES		**EPA 624**				Analyst: **BAT**
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
1,2-Dichloroethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
2-Chloroethyl vinyl ether	ND	10		µg/L	1	2/14/2005 12:01:00 PM
Acrolein	ND	5.0		µg/L	1	2/14/2005 12:01:00 PM
Acrylonitrile	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Benzene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Bromoform	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Bromomethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Carbon tetrachloride	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Chlorobenzene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Chloroethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Chloroform	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Chloromethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
cis-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Ethylbenzene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Methylene chloride	ND	5.0		µg/L	1	2/14/2005 12:01:00 PM
Tetrachloroethene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Toluene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
trans-1,2-Dichloroethene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Trichloroethene	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM
Vinyl chloride	ND	1.0		µg/L	1	2/14/2005 12:01:00 PM

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e-Lab Analytical, Inc

Date: *Feb 16 2005*

CLIENT: Gary Sanitary District

Work Order: 0502192

Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5854** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-5854** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/11/05 0:00**

Client ID: Run ID: **GC4_050211A** SeqNo: **402491** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.40								
Aroclor 1221	ND	0.40								
Aroclor 1232	ND	0.40								
Aroclor 1242	ND	0.40								
Aroclor 1248	ND	0.40								
Aroclor 1254	ND	0.40								
Aroclor 1260	ND	0.40								
Surr: Decachlorobiphenyl	0.078	0	0.1	0	78	50-130	0			

LCS Sample ID: **PLCSW2-5854** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/11/05 0:00**

Client ID: Run ID: **GC4_050211A** SeqNo: **402493** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	2.168	0.40	2.5	0	86.7	50-130	0			
Aroclor 1260	2.034	0.40	2.5	0	81.4	50-130	0			
Surr: Decachlorobiphenyl	0.08	0	0.1	0	80	50-130	0			

LCSD Sample ID: **PLCSDW2-5854** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/11/05 0:00**

Client ID: Run ID: **GC4_050211A** SeqNo: **402492** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	2.215	0.40	2.5	0	88.6	50-130	2.168	2.14	25	
Aroclor 1260	2.084	0.40	2.5	0	83.4	50-130	2.034	2.43	25	
Surr: Decachlorobiphenyl	0.078	0	0.1	0	78	50-130	0.08	2.53	25	

MS Sample ID: **0502192-01G MS** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/11/05 0:00**

Client ID: **Sewer** Run ID: **GC4_050211A** SeqNo: **402486** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	9.644	1.8	11.11	0	86.8	40-140	0			
Aroclor 1260	9.071	1.8	11.11	0	81.6	40-140	0			
Surr: Decachlorobiphenyl	0.3733	0	0.4444	0	84	40-140	0			

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R - RPD outside accepted recovery limits

U - Analyzed for but not detected

O - Referenced analyte value is > 4 times amount spiked

P - Dual Column results percent difference > 40%

E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5854** InstrumentID: **GC4**

MSD Sample ID: **0502192-01G MSD** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/11/05 0:00**

Client ID: **Sewer** Run ID: **GC4_050211A** SeqNo: **402487** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	10.92	1.8	11.11	0	98.3	40-140	9.644	12.4	50	
Aroclor 1260	9.564	1.8	11.11	0	86.1	40-140	9.071	5.29	50	
Surr: Decachlorobiphenyl	0.3511	0	0.4444	0	79	40-140	0.3733	6.13	50	

The following samples were analyzed in this batch:

0502192-01G	0502192-02G	0502192-03G
0502192-04G		

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CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5855** InstrumentID: **GC4**

MBLK Sample ID: **PBLKW1-5855** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/14/05 15:19**

Client ID: Run ID: **GC4_050214A** SeqNo: **402627** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	ND	0.050								
4,4´-DDE	ND	0.050								
4,4´-DDT	ND	0.25								
Aldrin	ND	0.050								
alpha-BHC	ND	0.050								
beta-BHC	ND	0.050								
Chlordane, Technical	ND	1.0								
delta-BHC	ND	0.050								
Dieldrin	ND	0.050								
Endosulfan I	ND	0.050								
Endosulfan II	ND	0.050								
Endosulfan sulfate	ND	0.050								
Endrin	ND	0.10								
Endrin aldehyde	ND	0.10								
gamma-BHC (Lindane)	ND	0.050								
Heptachlor	ND	0.050								
Heptachlor epoxide	ND	0.050								
Methoxychlor	ND	0.50								
Toxaphene	ND	4.0								
Surr: Decachlorobiphenyl	0.096	0	0.1	0	96	50-130		0		
Surr: Tetrachloro-m-xylene	0.075	0	0.1	0	75	50-130		0		

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CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5855** InstrumentID: **GC4**

LCS Sample ID: **PLCSW1-5855** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/14/05 15:56**

Client ID: Run ID: **GC4_050214A** SeqNo: **402628** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.095	0.050	0.1	0	95	50-130	0			
4,4´-DDE	0.105	0.050	0.1	0	105	50-130	0			
4,4´-DDT	0.093	0.25	0.1	0	93	50-130	0			J
Aldrin	0.086	0.050	0.1	0	86	50-130	0			
alpha-BHC	0.082	0.050	0.1	0	82	50-130	0			
beta-BHC	0.091	0.050	0.1	0	91	50-130	0			
delta-BHC	0.063	0.050	0.1	0	63	50-130	0			
Dieldrin	0.103	0.050	0.1	0	103	50-130	0			
Endosulfan I	0.095	0.050	0.1	0	95	50-130	0			
Endosulfan II	0.104	0.050	0.1	0	104	50-130	0			
Endosulfan sulfate	0.101	0.050	0.1	0	101	50-130	0			
Endrin	0.106	0.10	0.1	0	106	50-130	0			
Endrin aldehyde	0.101	0.10	0.1	0	101	50-130	0			
gamma-BHC (Lindane)	0.088	0.050	0.1	0	88	50-130	0			
Heptachlor	0.082	0.050	0.1	0	82	50-130	0			
Heptachlor epoxide	0.095	0.050	0.1	0	95	50-130	0			
Methoxychlor	0.105	0.50	0.1	0	105	50-130	0			J
Surr: Decachlorobiphenyl	0.103	0	0.1	0	103	50-130	0			
Surr: Tetrachloro-m-xylene	0.07	0	0.1	0	70	50-130	0			

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CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5855** InstrumentID: **GC4**

LCSD Sample ID: **PLCSDW1-5855** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/14/05 16:33**

Client ID: Run ID: **GC4_050214A** SeqNo: **402629** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.095	0.050	0.1	0	95	50-130	0.095	0	50	
4,4´-DDE	0.103	0.050	0.1	0	103	50-130	0.105	1.92	50	
4,4´-DDT	0.095	0.25	0.1	0	95	50-130	0.093	0	50	J
Aldrin	0.093	0.050	0.1	0	93	50-130	0.086	7.82	50	
alpha-BHC	0.085	0.050	0.1	0	85	50-130	0.082	3.59	50	
beta-BHC	0.089	0.050	0.1	0	89	50-130	0.091	2.22	50	
delta-BHC	0.067	0.050	0.1	0	67	50-130	0.063	6.15	50	
Dieldrin	0.103	0.050	0.1	0	103	50-130	0.103	0	50	
Endosulfan I	0.095	0.050	0.1	0	95	50-130	0.095	0	50	
Endosulfan II	0.103	0.050	0.1	0	103	50-130	0.104	0.966	50	
Endosulfan sulfate	0.102	0.050	0.1	0	102	50-130	0.101	0.985	50	
Endrin	0.104	0.10	0.1	0	104	50-130	0.106	1.9	50	
Endrin aldehyde	0.103	0.10	0.1	0	103	50-130	0.101	1.96	50	
gamma-BHC (Lindane)	0.087	0.050	0.1	0	87	50-130	0.088	1.14	50	
Heptachlor	0.083	0.050	0.1	0	83	50-130	0.082	1.21	50	
Heptachlor epoxide	0.096	0.050	0.1	0	96	50-130	0.095	1.05	50	
Methoxychlor	0.105	0.50	0.1	0	105	50-130	0.105	0	50	J
Surr: Decachlorobiphenyl	0.098	0	0.1	0	98	50-130	0.103	4.98	50	
Surr: Tetrachloro-m-xylene	0.07	0	0.1	0	70	50-130	0.07	0	50	

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CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5855** InstrumentID: **GC4**

MS Sample ID: **0502192-01G MS** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/14/05 17:46**

Client ID: **Sewer** Run ID: **GC4_050214A** SeqNo: **402631** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.4081	0.22	0.4484	0	91	40-140	0			
4,4´-DDE	0.4439	0.22	0.4484	0	99	40-140	0			
4,4´-DDT	0.3901	1.1	0.4484	0	87	40-140	0			J
Aldrin	0.3408	0.22	0.4484	0	76	40-140	0			
alpha-BHC	0.3453	0.22	0.4484	0	77	40-140	0			
beta-BHC	0.3722	0.22	0.4484	0	83	40-140	0			
delta-BHC	0.2556	0.22	0.4484	0	57	40-140	0			
Dieldrin	0.4215	0.22	0.4484	0	94	40-140	0			
Endosulfan I	0.3901	0.22	0.4484	0	87	40-140	0			
Endosulfan II	0.4305	0.22	0.4484	0	96	40-140	0			
Endosulfan sulfate	0.3901	0.22	0.4484	0	87	40-140	0			
Endrin	0.435	0.45	0.4484	0	97	40-140	0			J
Endrin aldehyde	0.3946	0.45	0.4484	0	88	40-140	0			J
gamma-BHC (Lindane)	0.3632	0.22	0.4484	0	81	40-140	0			
Heptachlor	0.3363	0.22	0.4484	0	75	40-140	0			
Heptachlor epoxide	0.3857	0.22	0.4484	0	86	40-140	0			
Methoxychlor	0.4439	2.2	0.4484	0	99	40-140	0			J
Surr: Decachlorobiphenyl	0.435	0	0.4484	0	97	40-140	0			
Surr: Tetrachloro-m-xylene	0.287	0	0.4484	0	64	40-140	0			

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CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5855** InstrumentID: **GC4**

MSD Sample ID: **0502192-01G MSD** Test Code: **EPA 608** Units: **µg/L** Analysis Date **02/14/05 18:22**

Client ID: **Sewer** Run ID: **GC4_050214A** SeqNo: **402632** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	0.426	0.22	0.4484	0	95	40-140	0.4081	4.3	50	
4,4´-DDE	0.4664	0.22	0.4484	0	104	40-140	0.4439	4.93	50	
4,4´-DDT	0.417	1.1	0.4484	0	93	40-140	0.3901	0	50	J
Aldrin	0.3812	0.22	0.4484	0	85	40-140	0.3408	11.2	50	
alpha-BHC	0.3857	0.22	0.4484	0	86	40-140	0.3453	11	50	
beta-BHC	0.4036	0.22	0.4484	0	90	40-140	0.3722	8.09	50	
delta-BHC	0.287	0.22	0.4484	0	64	40-140	0.2556	11.6	50	
Dieldrin	0.4529	0.22	0.4484	0	101	40-140	0.4215	7.18	50	
Endosulfan I	0.4215	0.22	0.4484	0	94	40-140	0.3901	7.73	50	
Endosulfan II	0.4619	0.22	0.4484	0	103	40-140	0.4305	7.04	50	
Endosulfan sulfate	0.4215	0.22	0.4484	0	94	40-140	0.3901	7.73	50	
Endrin	0.4619	0.45	0.4484	0	103	40-140	0.435	6	50	
Endrin aldehyde	0.4215	0.45	0.4484	0	94	40-140	0.3946	0	50	J
gamma-BHC (Lindane)	0.4036	0.22	0.4484	0	90	40-140	0.3632	10.5	50	
Heptachlor	0.3946	0.22	0.4484	0	88	40-140	0.3363	16	50	
Heptachlor epoxide	0.417	0.22	0.4484	0	93	40-140	0.3857	7.82	50	
Methoxychlor	0.4484	2.2	0.4484	0	100	40-140	0.4439	0	50	J
Surr: Decachlorobiphenyl	0.4439	0	0.4484	0	99	40-140	0.435	2.04	50	
Surr: Tetrachloro-m-xylene	0.3274	0	0.4484	0	73	40-140	0.287	13.1	50	

The following samples were analyzed in this batch:

0502192-01G	0502192-02G	0502192-03G
0502192-04G		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5858** InstrumentID: **HG1**

MBLK Sample ID: **MB-5858** Test Code: **EPA 245.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **HG1_050211A** SeqNo: **402015** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-5858** Test Code: **EPA 245.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **HG1_050211A** SeqNo: **402016** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00208	0.00020	0.002	0	104	80-120	0			

LCSD Sample ID: **LCSD-5858** Test Code: **EPA 245.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **HG1_050211A** SeqNo: **402026** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00208	0.00020	0.002	0	104	80-120	0.00208	0	20	

MS Sample ID: **0502192-01C MS** Test Code: **EPA 245.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: **Sewer** Run ID: **HG1_050211A** SeqNo: **402021** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00202	0.00020	0.002	-0.000014	102	75-125	0			

MSD Sample ID: **0502192-01C MSD** Test Code: **EPA 245.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: **Sewer** Run ID: **HG1_050211A** SeqNo: **402022** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00201	0.00020	0.002	-0.000014	101	75-125	0.00202	0.496	20	

The following samples were analyzed in this batch:

0502192-01C 0502192-02C 0502192-03C
0502192-04C

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5862** InstrumentID: **ICPMS1**

MBLK Sample ID: **MBLKW1-021105** Test Code: **EPA 200.8** Units: **mg/L** Analysis Date **02/11/05 16:56**

Client ID: Run ID: **ICPMS1_050211A** SeqNo: **402095** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.00020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.080								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

MBLK Sample ID: **MBLKW1-021105** Test Code: **EPA 6020A** Units: **mg/L** Analysis Date **02/14/05 17:52**

Client ID: Run ID: **ICPMS1_050214A** SeqNo: **402695** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0020								
Arsenic	ND	0.0010								

LCS Sample ID: **MLCSW1-021105** Test Code: **EPA 200.8** Units: **mg/L** Analysis Date **02/11/05 17:43**

Client ID: Run ID: **ICPMS1_050211A** SeqNo: **402103** Prep Date: **2/11/2005** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.9582	0.050	1	0	95.8	85-115	0			
Arsenic	0.9106	0.050	1	0	91.1	85-115	0			
Beryllium	0.9803	0.020	1	0	98	85-115	0			
Cadmium	0.9444	0.0020	1	0	94.4	85-115	0			
Chromium	0.9712	0.050	1	0	97.1	85-115	0			
Copper	0.9951	0.050	1	0	99.5	85-115	0			
Iron	1.093	0.80	1	0	109	85-115	0			
Lead	0.931	0.050	1	0	93.1	85-115	0			
Nickel	0.9971	0.050	1	0	99.7	85-115	0			
Selenium	0.8956	0.050	1	0	89.6	85-115	0			
Silver	0.9423	0.050	1	0	94.2	85-115	0			
Thallium	0.9318	0.050	1	0	93.2	85-115	0			
Zinc	0.955	0.10	1	0	95.5	85-115	0			

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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5862** InstrumentID: **ICPMS1**

LCSD Sample ID: **MLCSDW1-02110** Test Code: **EPA 200.8** Units: **mg/L** Analysis Date **02/11/05 17:06**

Client ID: Run ID: **ICPMS1_050211A** SeqNo: **402096** Prep Date: **2/11/2005** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.9594	0.050	1	0	95.9	85-115	0.9582	0.125	20	
Arsenic	0.9227	0.050	1	0	92.3	85-115	0.9106	1.32	20	
Beryllium	0.9588	0.020	1	0	95.9	85-115	0.9803	2.22	20	
Cadmium	0.9251	0.0020	1	0	92.5	85-115	0.9444	2.06	20	
Chromium	0.9456	0.050	1	0	94.6	85-115	0.9712	2.67	20	
Copper	0.9907	0.050	1	0	99.1	85-115	0.9951	0.443	20	
Iron	1.049	0.80	1	0	105	85-115	1.093	4.11	20	
Lead	0.9294	0.050	1	0	92.9	85-115	0.931	0.172	20	
Nickel	0.9913	0.050	1	0	99.1	85-115	0.9971	0.583	20	
Selenium	0.9223	0.050	1	0	92.2	85-115	0.8956	2.94	20	
Silver	0.941	0.050	1	0	94.1	85-115	0.9423	0.138	20	
Thallium	0.8753	0.050	1	0	87.5	85-115	0.9318	6.25	20	
Zinc	0.9645	0.10	1	0	96.4	85-115	0.955	0.99	20	

MS Sample ID: **0502192-01C MS** Test Code: **EPA 200.8** Units: **mg/L** Analysis Date **02/11/05 17:17**

Client ID: **Sewer** Run ID: **ICPMS1_050211A** SeqNo: **402098** Prep Date: **2/11/2005** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.9741	0.050	1	0.0009928	97.3	70-130	0			
Arsenic	0.9255	0.050	1	0.01401	91.1	70-130	0			
Beryllium	0.995	0.020	1	0.0001734	99.5	70-130	0			
Cadmium	0.9301	0.0020	1	0.0001876	93	70-130	0			
Chromium	0.9418	0.050	1	0.0005692	94.1	70-130	0			
Copper	0.9501	0.050	1	0.001373	94.9	70-130	0			
Iron	1.589	0.80	1	0.5602	103	70-130	0			
Lead	0.9348	0.050	1	0.001139	93.4	70-130	0			
Nickel	0.9758	0.050	1	0.001439	97.4	70-130	0			
Selenium	0.9516	0.050	1	0.0005519	95.1	70-130	0			
Silver	0.9208	0.050	1	0.00008028	92.1	70-130	0			
Thallium	0.8461	0.050	1	0.002046	84.4	70-130	0			
Zinc	0.9298	0.10	1	0.006252	92.4	70-130	0			

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O - Referenced analyte value is > 4 times amount spiked
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E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5862** InstrumentID: **ICPMS1**

MSD Sample ID: **0502192-01C MSD** Test Code: **EPA 200.8** Units: **mg/L** Analysis Date **02/11/05 17:22**

Client ID: **Sewer** Run ID: **ICPMS1_050211A** SeqNo: **402099** Prep Date: **2/11/2005** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.9707	0.050	1	0.0009928	97	70-130	0.9741	0.35	20	
Arsenic	0.9774	0.050	1	0.01401	96.3	70-130	0.9255	5.45	20	
Beryllium	0.9996	0.020	1	0.0001734	99.9	70-130	0.995	0.461	20	
Cadmium	0.9256	0.0020	1	0.0001876	92.5	70-130	0.9301	0.485	20	
Chromium	0.9448	0.050	1	0.0005692	94.4	70-130	0.9418	0.318	20	
Copper	0.9713	0.050	1	0.001373	97	70-130	0.9501	2.21	20	
Iron	1.564	0.80	1	0.5602	100	70-130	1.589	1.59	20	
Lead	0.9349	0.050	1	0.001139	93.4	70-130	0.9348	0.0107	20	
Nickel	0.9671	0.050	1	0.001439	96.6	70-130	0.9758	0.896	20	
Selenium	0.9291	0.050	1	0.0005519	92.9	70-130	0.9516	2.39	20	
Silver	0.9286	0.050	1	0.00008028	92.9	70-130	0.9208	0.844	20	
Thallium	0.8634	0.050	1	0.002046	86.1	70-130	0.8461	2.02	20	
Zinc	0.9623	0.10	1	0.006252	95.6	70-130	0.9298	3.44	20	

The following samples were analyzed in this batch:

0502192-01C	0502192-02C	0502192-03C
0502192-04C		

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CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5856** InstrumentID: **SVMS4**

MBLK Sample ID: **SBLKW1-5856** Test Code: **EPA 625** Units: **µg/L** Analysis Date **02/13/05 19:06**

Client ID: Run ID: **SVMS4_050213A** SeqNo: **402317** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
1,2-Dichlorobenzene	ND	5.0								
1,2-Diphenylhydrazine	ND	5.0								
1,3-Dichlorobenzene	ND	5.0								
1,4-Dichlorobenzene	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	20								
4,6-Dinitro-2-methylphenol	ND	20								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitrophenol	ND	20								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzidine	ND	50								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Chrysene	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Dibenzo(a,h)anthracene	ND	5.0								
Diethyl phthalate	ND	20								
Dimethyl phthalate	ND	20								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								

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E - Value above quantitation range

Batch ID: **5856** InstrumentID: **SVMS4**

Hexachlorobenzene	ND	5.0						
Hexachlorobutadiene	ND	5.0						
Hexachlorocyclopentadiene	ND	20						
Hexachloroethane	ND	5.0						
Indeno(1,2,3-cd)pyrene	ND	5.0						
Isophorone	ND	5.0						
N-Nitrosodi-n-propylamine	ND	5.0						
N-Nitrosodimethylamine	ND	5.0						
N-Nitrosodiphenylamine	ND	5.0						
Naphthalene	ND	5.0						
Nitrobenzene	ND	5.0						
Pentachlorophenol	ND	20						
Phenanthrene	ND	5.0						
Phenol	ND	5.0						
Pyrene	ND	5.0						
Surr: 2,4,6-Tribromophenol	39.88	0	50	0	79.8	24-162	0	
Surr: 2-Fluorobiphenyl	36.74	0	50	0	73.5	20-122	0	
Surr: 2-Fluorophenol	25.7	0	50	0	51.4	7-75	0	
Surr: 4-Terphenyl-d14	38.08	0	50	0	76.2	22-172	0	
Surr: Nitrobenzene-d5	42.41	0	50	0	84.8	8-115	0	
Surr: Phenol-d6	18.74	0	50	0	37.5	3-67	0	

MBLK Sample ID: **SBLKW1-5856** Test Code: **EPA 8270** Units: **µg/L** Analysis Date **02/13/05 19:06**

Client ID: Run ID: **SVMS4_050213A** SeqNo: **402343** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	20								
Surr: 2,4,6-Tribromophenol	39.88	0	50	0	79.8	4-158	0			
Surr: 2-Fluorobiphenyl	36.74	0	50	0	73.5	22-148	0			
Surr: 2-Fluorophenol	25.7	0	50	0	51.4	8-104	0			
Surr: 4-Terphenyl-d14	38.08	0	50	0	76.2	41-156	0			
Surr: Nitrobenzene-d5	42.41	0	50	0	84.8	6-142	0			
Surr: Phenol-d6	18.74	0	50	0	37.5	1-120	0			

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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5856** InstrumentID: **SVMS4**

LCS Sample ID: **SLCSW1-5856** Test Code: **EPA 625** Units: **µg/L** Analysis Date **02/13/05 19:37**

Client ID: Run ID: **SVMS4_050213A** SeqNo: **402318** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	28.16	5.0	40	0	70.4	33-78	0			
1,4-Dichlorobenzene	52.75	5.0	100	0	52.8	29-74	0			
2,4-Dinitrotoluene	79.25	5.0	100	0	79.2	32-107	0			
2-Chlorophenol	28.72	5.0	40	0	71.8	25-85	0			
4-Chloro-3-methylphenol	35.23	5.0	40	0	88.1	19-103	0			
4-Nitrophenol	14.02	20	40	0	35	1-58	0			J
Acenaphthene	30.88	5.0	40	0	77.2	30-108	0			
N-Nitrosodi-n-propylamine	30.56	5.0	40	0	76.4	24-82	0			
Pentachlorophenol	76.45	20	100	0	76.4	25-156	0			
Phenol	13.55	5.0	40	0	33.9	12-43	0			
Pyrene	31.39	5.0	40	0	78.5	35-135	0			
Surr: 2,4,6-Tribromophenol	46.5	0	50	0	93	24-162	0			
Surr: 2-Fluorobiphenyl	34.32	0	50	0	68.6	20-122	0			
Surr: 2-Fluorophenol	23.93	0	50	0	47.9	7-75	0			
Surr: 4-Terphenyl-d14	38.9	0	50	0	77.8	22-172	0			
Surr: Nitrobenzene-d5	41.45	0	50	0	82.9	8-115	0			
Surr: Phenol-d6	17	0	50	0	34	3-67	0			

LCS Sample ID: **SLCSW1-5856** Test Code: **EPA 8270** Units: **µg/L** Analysis Date **02/13/05 19:37**

Client ID: Run ID: **SVMS4_050213A** SeqNo: **402344** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	52.75	5.0	60	0	87.9	7-118	0			
2,4,6-Trichlorophenol	52.36	5.0	60	0	87.3	1-138	0			
2,4-Dinitrotoluene	79.25	5.0	60	0	132	4-151	0			
Hexachlorobenzene	54.87	5.0	60	0	91.4	23-157	0			
Hexachloroethane	32.76	5.0	60	0	54.6	7-119	0			
Nitrobenzene	51.32	5.0	60	0	85.5	10-117	0			
Pentachlorophenol	76.45	20	60	0	127	1-144	0			
Surr: 2,4,6-Tribromophenol	46.5	0	50	0	93	4-158	0			
Surr: 2-Fluorobiphenyl	34.32	0	50	0	68.6	22-148	0			
Surr: 2-Fluorophenol	23.93	0	50	0	47.9	8-104	0			
Surr: 4-Terphenyl-d14	38.9	0	50	0	77.8	41-156	0			
Surr: Nitrobenzene-d5	41.45	0	50	0	82.9	6-142	0			
Surr: Phenol-d6	17	0	50	0	34	1-120	0			

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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5856** InstrumentID: **SVMS4**

LCSD Sample ID: **SLCSDW1-5856** Test Code: **EPA 625** Units: **µg/L** Analysis Date **02/13/05 20:08**

Client ID: Run ID: **SVMS4_050213A** SeqNo: **402319** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	28.7	5.0	40	0	71.8	33-78	28.16	1.9	30	
1,4-Dichlorobenzene	52.99	5.0	100	0	53	29-74	52.75	0.454	27	
2,4-Dinitrotoluene	77.68	5.0	100	0	77.7	32-107	79.25	2	35	
2-Chlorophenol	28.8	5.0	40	0	72	25-85	28.72	0.278	32	
4-Chloro-3-methylphenol	36.64	5.0	40	0	91.6	19-103	35.23	3.92	31	
4-Nitrophenol	14.13	20	40	0	35.3	1-58	14.02	0	43	J
Acenaphthene	31.61	5.0	40	0	79	30-108	30.88	2.34	44	
N-Nitrosodi-n-propylamine	32.24	5.0	40	0	80.6	24-82	30.56	5.35	36	
Pentachlorophenol	76.47	20	100	0	76.5	25-156	76.45	0.0262	34	
Phenol	13.65	5.0	40	0	34.1	12-43	13.55	0.735	34	
Pyrene	32.44	5.0	40	0	81.1	35-135	31.39	3.29	22	
Surr: 2,4,6-Tribromophenol	47.53	0	50	0	95.1	24-162	46.5	2.19	40	
Surr: 2-Fluorobiphenyl	34.43	0	50	0	68.9	20-122	34.32	0.32	40	
Surr: 2-Fluorophenol	24.32	0	50	0	48.6	7-75	23.93	1.62	40	
Surr: 4-Terphenyl-d14	39.69	0	50	0	79.4	22-172	38.9	2.01	40	
Surr: Nitrobenzene-d5	43.34	0	50	0	86.7	8-115	41.45	4.46	40	
Surr: Phenol-d6	17.53	0	50	0	35.1	3-67	17	3.07	40	

LCSD Sample ID: **SLCSDW1-5856** Test Code: **EPA 8270** Units: **µg/L** Analysis Date **02/13/05 20:08**

Client ID: Run ID: **SVMS4_050213A** SeqNo: **402345** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	52.99	5.0	60	0	88.3	7-118	52.75	0.454	61	
2,4,6-Trichlorophenol	52.49	5.0	60	0	87.5	1-138	52.36	0.248	54	
2,4-Dinitrotoluene	77.68	5.0	60	0	129	4-151	79.25	2	47	
Hexachlorobenzene	56.42	5.0	60	0	94	23-157	54.87	2.79	44	
Hexachloroethane	31.4	5.0	60	0	52.3	7-119	32.76	4.24	60	
Nitrobenzene	52.56	5.0	60	0	87.6	10-117	51.32	2.39	56	
Pentachlorophenol	76.47	20	60	0	127	1-144	76.45	0.0262	42	
Surr: 2,4,6-Tribromophenol	47.53	0	50	0	95.1	4-158	46.5	2.19	50	
Surr: 2-Fluorobiphenyl	34.43	0	50	0	68.9	22-148	34.32	0.32	50	
Surr: 2-Fluorophenol	24.32	0	50	0	48.6	8-104	23.93	1.62	50	
Surr: 4-Terphenyl-d14	39.69	0	50	0	79.4	41-156	38.9	2.01	50	
Surr: Nitrobenzene-d5	43.34	0	50	0	86.7	6-142	41.45	4.46	50	
Surr: Phenol-d6	17.53	0	50	0	35.1	1-120	17	3.07	50	

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5856** InstrumentID: **SVMS4**

MS Sample ID: **0502192-03G MS** Test Code: **EPA 625** Units: **µg/L** Analysis Date **02/13/05 20:39**

Client ID: **Middle Pier - Mid Depth** Run ID: **SVMS4_050213A** SeqNo: **402341** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	55.14	10	80	0	68.9	33-78	0			
1,4-Dichlorobenzene	104.7	10	200	0	52.4	29-74	0			
2,4-Dinitrotoluene	157.1	10	200	0	78.5	32-107	0			
2-Chlorophenol	54.86	10	80	0	68.6	25-85	0			
4-Chloro-3-methylphenol	73.46	10	80	0	91.8	19-103	0			
4-Nitrophenol	31.48	40	80	0	39.4	1-58	0			J
Acenaphthene	61.18	10	80	0	76.5	30-108	0			
N-Nitrosodi-n-propylamine	63.56	10	80	0	79.4	24-82	0			
Pentachlorophenol	153	40	200	0	76.5	25-156	0			
Phenol	27.26	10	80	0	34.1	12-43	0			
Pyrene	60.6	10	80	0	75.8	35-135	0			
Surr: 2,4,6-Tribromophenol	96.84	0	100	0	96.8	24-162	0			
Surr: 2-Fluorobiphenyl	65.28	0	100	0	65.3	20-122	0			
Surr: 2-Fluorophenol	44.72	0	100	0	44.7	7-75	0			
Surr: 4-Terphenyl-d14	71.42	0	100	0	71.4	22-172	0			
Surr: Nitrobenzene-d5	81.72	0	100	0	81.7	8-115	0			
Surr: Phenol-d6	33.7	0	100	0	33.7	3-67	0			

MS Sample ID: **0502192-03G MS** Test Code: **EPA 8270** Units: **µg/L** Analysis Date **02/13/05 20:39**

Client ID: **Middle Pier - Mid Depth** Run ID: **SVMS4_050213A** SeqNo: **402346** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	104.7	10	200	0	52.4	7-118	0			
2,4,6-Trichlorophenol	104.9	10	120	0	87.4	1-138	0			
2,4-Dinitrotoluene	157.1	10	200	0	78.5	4-151	0			*
Hexachlorobenzene	103.9	10	120	0	86.6	23-157	0			
Hexachloroethane	61.8	10	120	0	51.5	7-119	0			
Nitrobenzene	98.36	10	120	0	82	10-117	0			
Pentachlorophenol	153	40	200	0	76.5	1-144	0			
Surr: 2,4,6-Tribromophenol	96.84	0	100	0	96.8	4-158	0			
Surr: 2-Fluorobiphenyl	65.28	0	100	0	65.3	22-148	0			
Surr: 2-Fluorophenol	44.72	0	100	0	44.7	8-104	0			
Surr: 4-Terphenyl-d14	71.42	0	100	0	71.4	41-156	0			
Surr: Nitrobenzene-d5	81.72	0	100	0	81.7	6-142	0			
Surr: Phenol-d6	33.7	0	100	0	33.7	1-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5856** InstrumentID: **SVMS4**

MSD Sample ID: **0502192-03G MSD** Test Code: **EPA 625** Units: **µg/L** Analysis Date **02/13/05 21:10**

Client ID: **Middle Pier - Mid Depth** Run ID: **SVMS4_050213A** SeqNo: **402342** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	45.5	10	80	0	56.9	33-78	55.14	19.2	30	
1,4-Dichlorobenzene	86.72	10	200	0	43.4	29-74	104.7	18.8	27	
2,4-Dinitrotoluene	151.4	10	200	0	75.7	32-107	157.1	3.68	35	
2-Chlorophenol	40.66	10	80	0	50.8	25-85	54.86	29.7	32	
4-Chloro-3-methylphenol	64.52	10	80	0	80.6	19-103	73.46	13	31	
4-Nitrophenol	24.46	40	80	0	30.6	1-58	31.48	0	43	J
Acenaphthene	57.08	10	80	0	71.4	30-108	61.18	6.93	44	
N-Nitrosodi-n-propylamine	54.68	10	80	0	68.4	24-82	63.56	15	36	
Pentachlorophenol	159	40	200	0	79.5	25-156	153	3.82	34	
Phenol	17.58	10	80	0	22	12-43	27.26	43.2	34	R
Pyrene	63	10	80	0	78.8	35-135	60.6	3.88	22	
Surr: 2,4,6-Tribromophenol	90.16	0	100	0	90.2	24-162	96.84	7.14	40	
Surr: 2-Fluorobiphenyl	58.78	0	100	0	58.8	20-122	65.28	10.5	40	
Surr: 2-Fluorophenol	29.72	0	100	0	29.7	7-75	44.72	40.3	40	R
Surr: 4-Terphenyl-d14	73.64	0	100	0	73.6	22-172	71.42	3.06	40	
Surr: Nitrobenzene-d5	66.74	0	100	0	66.7	8-115	81.72	20.2	40	
Surr: Phenol-d6	22.48	0	100	0	22.5	3-67	33.7	39.9	40	

MSD Sample ID: **0502192-03G MSD** Test Code: **EPA 8270** Units: **µg/L** Analysis Date **02/13/05 21:10**

Client ID: **Middle Pier - Mid Depth** Run ID: **SVMS4_050213A** SeqNo: **402347** Prep Date: **2/12/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	86.72	10	200	0	43.4	7-118	104.7	18.8	61	
2,4,6-Trichlorophenol	93.68	10	120	0	78.1	1-138	104.9	11.3	54	
2,4-Dinitrotoluene	151.4	10	200	0	75.7	4-151	157.1	3.68	47	*
Hexachlorobenzene	100.4	10	120	0	83.6	23-157	103.9	3.45	44	
Hexachloroethane	37.42	10	120	0	31.2	7-119	61.8	49.1	60	
Nitrobenzene	80.1	10	120	0	66.8	10-117	98.36	20.5	56	
Pentachlorophenol	159	40	200	0	79.5	1-144	153	3.82	42	
Surr: 2,4,6-Tribromophenol	90.16	0	100	0	90.2	4-158	96.84	7.14	50	
Surr: 2-Fluorobiphenyl	58.78	0	100	0	58.8	22-148	65.28	10.5	50	
Surr: 2-Fluorophenol	29.72	0	100	0	29.7	8-104	44.72	40.3	50	
Surr: 4-Terphenyl-d14	73.64	0	100	0	73.6	41-156	71.42	3.06	50	
Surr: Nitrobenzene-d5	66.74	0	100	0	66.7	6-142	81.72	20.2	50	
Surr: Phenol-d6	22.48	0	100	0	22.5	1-120	33.7	39.9	50	

The following samples were analyzed in this batch:

0502192-01G 0502192-02G 0502192-03G
0502192-04G

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27237** InstrumentID: **VMS1**

MBLK Sample ID: **VBLKW1-050214** Test Code: **EPA 8260** Units: **µg/L** Analysis Date **02/14/05 9:49**

Client ID: Run ID: **VMS1_050214A** SeqNo: **402410** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Chloroethyl vinyl ether	ND	10								
Acrolein	ND	5.0								
Acrylonitrile	ND	1.0								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Methylene chloride	ND	5.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
Surr: 1,2-Dichloroethane-d4	100.8	0	100	0	101	80-120		0		
Surr: 4-Bromofluorobenzene	118.6	0	100	0	119	80-120		0		
Surr: Dibromofluoromethane	108.1	0	100	0	108	80-120		0		
Surr: Toluene-d8	87.73	0	100	0	87.7	80-120		0		

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S - Spike Recovery outside accepted recovery limits
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R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27237** InstrumentID: **VMS1**

LCS Sample ID: **VLCSW1-050214** Test Code: **EPA 8260** Units: **µg/L** Analysis Date **02/14/05 10:55**

Client ID: Run ID: **VMS1_050214A** SeqNo: **402411** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	17.55	1.0	20	0	87.8	80-120	0			
1,1,2,2-Tetrachloroethane	21.11	1.0	20	0	106	80-120	0			
1,1,2-Trichloroethane	16.37	1.0	20	0	81.8	80-120	0			
1,1-Dichloroethane	20.35	1.0	20	0	102	80-120	0			
1,1-Dichloroethene	23.55	1.0	20	0	118	80-120	0			
1,2-Dichloroethane	17.32	1.0	20	0	86.6	80-120	0			
1,2-Dichloropropane	18.47	2.0	20	0	92.4	80-120	0			
Benzene	19.45	1.0	20	0	97.2	80-120	0			
Bromodichloromethane	19.5	1.0	20	0	97.5	80-120	0			
Bromoform	17.53	1.0	20	0	87.6	80-120	0			
Carbon tetrachloride	21.09	1.0	20	0	105	80-120	0			
Chlorobenzene	16.66	1.0	20	0	83.3	80-120	0			
Chloroethane	16.01	1.0	20	0	80	80-120	0			
Chloroform	19.24	1.0	20	0	96.2	80-120	0			
cis-1,2-Dichloroethene	19.82	1.0	20	0	99.1	80-120	0			
cis-1,3-Dichloropropene	21.18	1.0	20	0	106	80-120	0			
Dibromochloromethane	16.47	1.0	20	0	82.4	80-120	0			
Ethylbenzene	17.26	1.0	20	0	86.3	80-120	0			
Methylene chloride	20.67	5.0	20	0	103	80-120	0			
Tetrachloroethene	16.96	2.0	20	0	84.8	80-120	0			
Toluene	17.84	1.0	20	0	89.2	80-120	0			
trans-1,2-Dichloroethene	23.3	1.0	20	0	116	80-120	0			
trans-1,3-Dichloropropene	19.87	1.0	20	0	99.4	80-120	0			
Trichloroethene	19.62	1.0	20	0	98.1	80-120	0			
Vinyl chloride	18.87	1.0	20	0	94.4	80-120	0			
Surr: 1,2-Dichloroethane-d4	99.86	0	100	0	99.9	80-120	0			
Surr: 4-Bromofluorobenzene	110.8	0	100	0	111	80-120	0			
Surr: Dibromofluoromethane	111.3	0	100	0	111	80-120	0			
Surr: Toluene-d8	87.02	0	100	0	87	80-120	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27237** InstrumentID: **VMS1**

LCSD Sample ID: **VLCSDW1-050214** Test Code: **EPA 8260** Units: **µg/L** Analysis Date **02/14/05 11:28**

Client ID: Run ID: **VMS1_050214A** SeqNo: **402412** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.06	1.0	20	0	90.3	80-120	17.55	2.86	30	
1,1,2,2-Tetrachloroethane	23.46	1.0	20	0	117	80-120	21.11	10.5	30	
1,1,2-Trichloroethane	18.14	1.0	20	0	90.7	80-120	16.37	10.3	30	
1,1-Dichloroethane	20.98	1.0	20	0	105	80-120	20.35	3.05	30	
1,1-Dichloroethene	22.89	1.0	20	0	114	80-120	23.55	2.84	30	
1,2-Dichloroethane	17.04	1.0	20	0	85.2	80-120	17.32	1.63	30	
1,2-Dichloropropane	19.38	2.0	20	0	96.9	80-120	18.47	4.81	30	
Benzene	20.3	1.0	20	0	102	80-120	19.45	4.28	30	
Bromodichloromethane	19.55	1.0	20	0	97.8	80-120	19.5	0.256	30	
Bromoform	21.89	1.0	20	0	109	80-120	17.53	22.1	30	
Carbon tetrachloride	21.29	1.0	20	0	106	80-120	21.09	0.944	30	
Chlorobenzene	17.62	1.0	20	0	88.1	80-120	16.66	5.6	30	
Chloroethane	17.02	1.0	20	0	85.1	80-120	16.01	6.12	30	
Chloroform	19.95	1.0	20	0	99.8	80-120	19.24	3.62	30	
cis-1,2-Dichloroethene	20.11	1.0	20	0	101	80-120	19.82	1.45	30	
cis-1,3-Dichloropropene	21.55	1.0	20	0	108	80-120	21.18	1.73	30	
Dibromochloromethane	17.41	1.0	20	0	87	80-120	16.47	5.55	30	
Ethylbenzene	18.21	1.0	20	0	91	80-120	17.26	5.36	30	
Methylene chloride	21.67	5.0	20	0	108	80-120	20.67	4.72	30	
Tetrachloroethene	16.53	2.0	20	0	82.6	80-120	16.96	2.57	30	
Toluene	18.56	1.0	20	0	92.8	80-120	17.84	3.96	30	
trans-1,2-Dichloroethene	23.03	1.0	20	0	115	80-120	23.3	1.17	30	
trans-1,3-Dichloropropene	19.35	1.0	20	0	96.8	80-120	19.87	2.65	30	
Trichloroethene	20.5	1.0	20	0	102	80-120	19.62	4.39	30	
Vinyl chloride	18.88	1.0	20	0	94.4	80-120	18.87	0.053	30	
Surr: 1,2-Dichloroethane-d4	93.74	0	100	0	93.7	80-120	99.86	6.32	30	
Surr: 4-Bromofluorobenzene	113.4	0	100	0	113	80-120	110.8	2.37	30	
Surr: Dibromofluoromethane	109.2	0	100	0	109	80-120	111.3	1.88	30	
Surr: Toluene-d8	91.01	0	100	0	91	80-120	87.02	4.48	30	

The following samples were analyzed in this batch:

0502192-01H 0502192-02H 0502192-03H
0502192-05A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27240** InstrumentID: **VMS2**

MBLK Sample ID: **VBLKW1-050214** Test Code: **EPA 8260** Units: **µg/L** Analysis Date **02/14/05 10:07**

Client ID: Run ID: **VMS2_050214A** SeqNo: **402433** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
2-Chloroethyl vinyl ether	ND	10								
Acrolein	ND	5.0								
Acrylonitrile	ND	1.0								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Methylene chloride	ND	5.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								
trans-1,2-Dichloroethene	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
Surr: 1,2-Dichloroethane-d4	103.3	0	100	0	103	80-120		0		
Surr: 4-Bromofluorobenzene	90.96	0	100	0	91	80-120		0		
Surr: Dibromofluoromethane	102	0	100	0	102	80-120		0		
Surr: Toluene-d8	92.48	0	100	0	92.5	80-120		0		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27240** InstrumentID: **VMS2**

LCS Sample ID: **VLCSW1-050214** Test Code: **EPA 8260** Units: **µg/L** Analysis Date **02/14/05 11:30**

Client ID: Run ID: **VMS2_050214A** SeqNo: **402434** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.36	1.0	20	0	102	80-120	0			
1,1,2,2-Tetrachloroethane	18.54	1.0	20	0	92.7	80-120	0			
1,1,2-Trichloroethane	18.76	1.0	20	0	93.8	80-120	0			
1,1-Dichloroethane	23.1	1.0	20	0	116	80-120	0			
1,1-Dichloroethene	23.48	1.0	20	0	117	80-120	0			
1,2-Dichloroethane	22.95	1.0	20	0	115	80-120	0			
1,2-Dichloropropane	23.38	2.0	20	0	117	80-120	0			
Benzene	22.06	1.0	20	0	110	80-120	0			
Bromodichloromethane	21.08	1.0	20	0	105	80-120	0			
Bromoform	20.28	1.0	20	0	101	80-120	0			
Carbon tetrachloride	21.43	1.0	20	0	107	80-120	0			
Chlorobenzene	17.53	1.0	20	0	87.6	80-120	0			
Chloroethane	19.41	1.0	20	0	97	80-120	0			
Chloroform	20.92	1.0	20	0	105	80-120	0			
cis-1,2-Dichloroethene	20.3	1.0	20	0	102	80-120	0			
cis-1,3-Dichloropropene	22.9	1.0	20	0	114	80-120	0			
Dibromochloromethane	19.53	1.0	20	0	97.6	80-120	0			
Ethylbenzene	18.33	1.0	20	0	91.6	80-120	0			
Methylene chloride	22.26	5.0	20	0	111	80-120	0			
Tetrachloroethene	23.48	2.0	20	0	117	80-120	0			
Toluene	18.97	1.0	20	0	94.8	80-120	0			
trans-1,2-Dichloroethene	23.81	1.0	20	0	119	80-120	0			
trans-1,3-Dichloropropene	20.68	1.0	20	0	103	80-120	0			
Trichloroethene	22.43	1.0	20	0	112	80-120	0			
Vinyl chloride	19	1.0	20	0	95	80-120	0			
Surr: 1,2-Dichloroethane-d4	106.6	0	100	0	107	80-120	0			
Surr: 4-Bromofluorobenzene	97.14	0	100	0	97.1	80-120	0			
Surr: Dibromofluoromethane	101.2	0	100	0	101	80-120	0			
Surr: Toluene-d8	94.42	0	100	0	94.4	80-120	0			

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S - Spike Recovery outside accepted recovery limits
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J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27240** InstrumentID: **VMS2**

LCSD Sample ID: **VLCSDW2-050214** Test Code: **EPA 8260** Units: **µg/L** Analysis Date **02/14/05 13:37**

Client ID: Run ID: **VMS2_050214A** SeqNo: **402435** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.74	1.0	20	0	109	80-120	20.36	6.56	30	
1,1,2,2-Tetrachloroethane	19.23	1.0	20	0	96.2	80-120	18.54	3.65	30	
1,1,2-Trichloroethane	19.8	1.0	20	0	99	80-120	18.76	5.39	30	
1,1-Dichloroethane	23.29	1.0	20	0	116	80-120	23.1	0.819	30	
1,1-Dichloroethene	23.63	1.0	20	0	118	80-120	23.48	0.637	30	
1,2-Dichloroethane	23.64	1.0	20	0	118	80-120	22.95	2.96	30	
1,2-Dichloropropane	23.68	2.0	20	0	118	80-120	23.38	1.27	30	
Benzene	22.9	1.0	20	0	114	80-120	22.06	3.74	30	
Bromodichloromethane	22.86	1.0	20	0	114	80-120	21.08	8.1	30	
Bromoform	21.99	1.0	20	0	110	80-120	20.28	8.09	30	
Carbon tetrachloride	22.18	1.0	20	0	111	80-120	21.43	3.44	30	
Chlorobenzene	18.74	1.0	20	0	93.7	80-120	17.53	6.67	30	
Chloroethane	20.59	1.0	20	0	103	80-120	19.41	5.9	30	
Chloroform	21.85	1.0	20	0	109	80-120	20.92	4.35	30	
cis-1,2-Dichloroethene	21.07	1.0	20	0	105	80-120	20.3	3.72	30	
cis-1,3-Dichloropropene	23.56	1.0	20	0	118	80-120	22.9	2.84	30	
Dibromochloromethane	20.92	1.0	20	0	105	80-120	19.53	6.87	30	
Ethylbenzene	19.34	1.0	20	0	96.7	80-120	18.33	5.36	30	
Methylene chloride	21.17	5.0	20	0	106	80-120	22.26	5.02	30	
Tetrachloroethene	23.27	2.0	20	0	116	80-120	23.48	0.898	30	
Toluene	20.01	1.0	20	0	100	80-120	18.97	5.34	30	
trans-1,2-Dichloroethene	23.6	1.0	20	0	118	80-120	23.81	0.886	30	
trans-1,3-Dichloropropene	22.6	1.0	20	0	113	80-120	20.68	8.87	30	
Trichloroethene	23.54	1.0	20	0	118	80-120	22.43	4.83	30	
Vinyl chloride	19.07	1.0	20	0	95.4	80-120	19	0.368	30	
Surr: 1,2-Dichloroethane-d4	105.2	0	100	0	105	80-120	106.6	1.32	30	
Surr: 4-Bromofluorobenzene	92.79	0	100	0	92.8	80-120	97.14	4.58	30	
Surr: Dibromofluoromethane	99.81	0	100	0	99.8	80-120	101.2	1.42	30	
Surr: Toluene-d8	92.07	0	100	0	92.1	80-120	94.42	2.52	30	

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J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27240** InstrumentID: **VMS2**

MS Sample ID: **0502211-11A MS** Test Code: **EPA 8260** Units: **µg/L** Analysis Date **02/14/05 22:10**

Client ID: Run ID: **VMS2_050214A** SeqNo: **402904** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	24.14	1.0	20	0	121	70-130	0			
Benzene	21.69	1.0	20	0	108	70-130	0			
Chlorobenzene	17.29	1.0	20	0	86.4	70-130	0			
Toluene	18.77	1.0	20	0	93.8	70-130	0			
Trichloroethene	20.95	1.0	20	0	105	70-130	0			
Surr: 1,2-Dichloroethane-d4	109.1	0	100	0	109	70-130	0			
Surr: 4-Bromofluorobenzene	96.35	0	100	0	96.4	70-130	0			
Surr: Dibromofluoromethane	102.8	0	100	0	103	70-130	0			
Surr: Toluene-d8	93.61	0	100	0	93.6	70-130	0			

MSD Sample ID: **0502211-11A MSD** Test Code: **EPA 8260** Units: **µg/L** Analysis Date **02/14/05 22:39**

Client ID: Run ID: **VMS2_050214A** SeqNo: **402905** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	24.01	1.0	20	0	120	70-130	24.14	0.54	30	
Benzene	21.6	1.0	20	0	108	70-130	21.69	0.416	30	
Chlorobenzene	16.34	1.0	20	0	81.7	70-130	17.29	5.65	30	
Toluene	17.48	1.0	20	0	87.4	70-130	18.77	7.12	30	
Trichloroethene	20.3	1.0	20	0	102	70-130	20.95	3.15	30	
Surr: 1,2-Dichloroethane-d4	110.5	0	100	0	111	70-130	109.1	1.27	30	
Surr: 4-Bromofluorobenzene	94.87	0	100	0	94.9	70-130	96.35	1.55	30	
Surr: Dibromofluoromethane	100.9	0	100	0	101	70-130	102.8	1.79	30	
Surr: Toluene-d8	90.47	0	100	0	90.5	70-130	93.61	3.41	30	

The following samples were analyzed in this batch: 0502192-04H

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **5861** InstrumentID: **WETCHEM**

MBLK Sample ID: **MB-5861** Test Code: **EPA 405.1** Units: **mg/L** Analysis Date **02/16/05 0:00**
Client ID: Run ID: **WETCHEM_050216A** SeqNo: **402991** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	ND	2.4								

LCS Sample ID: **LCS-5861** Test Code: **EPA 405.1** Units: **mg/L** Analysis Date **02/16/05 0:00**
Client ID: Run ID: **WETCHEM_050216A** SeqNo: **402992** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	202.9	2.4	198	0	102	85-115	0			

LCSD Sample ID: **LCSD-5861** Test Code: **EPA 405.1** Units: **mg/L** Analysis Date **02/16/05 0:00**
Client ID: Run ID: **WETCHEM_050216A** SeqNo: **403012** Prep Date: **2/11/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Biochemical Oxygen Demand	180.1	2.4	198	0	90.9	85-115	202.9	11.9	20	

The following samples were analyzed in this batch:

0502192-01A	0502192-02A	0502192-03A
0502192-04A		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27202** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021005** Test Code: **EPA 1664** Units: **mg/L** Analysis Date **02/10/05 0:00**
Client ID: Run ID: **WETCHEM_050210K** SeqNo: **401890** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	1.5	5.0								J

LCS Sample ID: **WLCSW1-021005** Test Code: **EPA 1664** Units: **mg/L** Analysis Date **02/10/05 0:00**
Client ID: Run ID: **WETCHEM_050210K** SeqNo: **401891** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	38.3	5.0	40	0	95.7	78-114	0			

LCSD Sample ID: **WLCSDW1-02100** Test Code: **EPA 1664** Units: **mg/L** Analysis Date **02/10/05 0:00**
Client ID: Run ID: **WETCHEM_050210K** SeqNo: **401910** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	36.2	5.0	40	0	90.5	78-114	38.3	5.64	18	

MS Sample ID: **0502023-06A MS** Test Code: **EPA 1664** Units: **mg/L** Analysis Date **02/10/05 0:00**
Client ID: Run ID: **WETCHEM_050210K** SeqNo: **401892** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	75	5.0	80	0	93.8	78-114	0			

MSD Sample ID: **0502023-06A MSD** Test Code: **EPA 1664** Units: **mg/L** Analysis Date **02/10/05 0:00**
Client ID: Run ID: **WETCHEM_050210K** SeqNo: **401893** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	75.6	5.0	80	0	94.5	78-114	75	0.797	18	

The following samples were analyzed in this batch:

0502192-01B 0502192-02B 0502192-03B
0502192-04B

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27219** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021105** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date **02/13/05 0:00**
Client ID: Run ID: **WETCHEM_050213A** SeqNo: **402144** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.0050								

LCS Sample ID: **WLCSW1-021105** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date **02/13/05 0:00**
Client ID: Run ID: **WETCHEM_050213A** SeqNo: **402145** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3656	0.0050	0.369	0	99.1	80-120	0			

MS Sample ID: **0502192-01D MS** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date **02/13/05 0:00**
Client ID: **Sewer** Run ID: **WETCHEM_050213A** SeqNo: **402148** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3564	0.0050	0.369	0.0052	95.2	75-125	0			

MSD Sample ID: **0502192-01D MSD** Test Code: **EPA 335.2** Units: **mg/L** Analysis Date **02/13/05 0:00**
Client ID: **Sewer** Run ID: **WETCHEM_050213A** SeqNo: **402149** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.3746	0.0050	0.369	0.0052	100	75-125	0.3564	4.98	20	

The following samples were analyzed in this batch:

0502192-01D	0502192-02D	0502192-03D
0502192-04D		

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27222** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021105** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211E** SeqNo: **402164** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	ND	5.0								

LCS Sample ID: **WLCSW1-021105** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211E** SeqNo: **402165** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	595	5.0	600	0	99.2	75-125	0			

LCSD Sample ID: **WLCSDW1-02110** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211E** SeqNo: **402183** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	585	5.0	600	0	97.5	75-125	595	1.69	20	

MS Sample ID: **0502169-05A MS** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211E** SeqNo: **402184** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	1106	10	600	526	96.7	70-130	0			

MSD Sample ID: **0502169-05A MSD** Test Code: **EPA 410.4** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211E** SeqNo: **402173** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chemical Oxygen Demand	1088	10	600	526	93.7	70-130	1106	1.64	20	

The following samples were analyzed in this batch:

0502192-01E 0502192-02E 0502192-03E
0502192-04E

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27228** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021105** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date **02/11/05 0:00**

Client ID: Run ID: **WETCHEM_050211G** SeqNo: **402231** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	ND	6.0								

DUP Sample ID: **0502038-20A DUP** Test Code: **EPA 160.2** Units: **mg/L** Analysis Date **02/11/05 0:00**

Client ID: Run ID: **WETCHEM_050211G** SeqNo: **402236** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Suspended Solids	408	6.0	0	0	0	0-0	436	6.64	20	

The following samples were analyzed in this batch:

0502192-01A 0502192-02A 0502192-03A
0502192-04A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27234** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021105** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211H** SeqNo: **402349** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	6	5.0								

LCS Sample ID: **WLCSW1-021105** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211H** SeqNo: **402350** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	482	5.0	498	0	96.8	80-120	0			

LCSD Sample ID: **WLCSDW1-02110** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211H** SeqNo: **402366** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	467	5.0	498	0	93.8	80-120	482	3.16	20	

DUP Sample ID: **0502158-02A DUP** Test Code: **EPA 160.1** Units: **mg/L** Analysis Date **02/11/05 0:00**
Client ID: Run ID: **WETCHEM_050211H** SeqNo: **402360** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1334	5.0	0	0	0	0-0	1299	2.66	20	

The following samples were analyzed in this batch:

0502192-01A 0502192-02A 0502192-03A
0502192-04A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27235** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021405** Test Code: **EPA 365.2** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214B** SeqNo: **402367** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	ND	0.070								

LCS Sample ID: **WLCSW1-021405** Test Code: **EPA 365.2** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214B** SeqNo: **402368** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	0.4725	0.070	0.5	0	94.5	80-120	0			

LCSD Sample ID: **WLCSDW1-02140** Test Code: **EPA 365.2** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214B** SeqNo: **402391** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	0.4836	0.070	0.5	0	96.7	80-120	0.4725	2.32	20	

MS Sample ID: **0502060-29A MS** Test Code: **EPA 365.2** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214B** SeqNo: **402373** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	0.5169	0.070	0.5	0.0452	94.3	75-125	0			

MSD Sample ID: **0502060-29A MSD** Test Code: **EPA 365.2** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214B** SeqNo: **402374** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total	0.4989	0.070	0.5	0.0452	90.7	75-125	0.5169	3.54	20	

The following samples were analyzed in this batch:

0502192-01E 0502192-02E 0502192-03E
0502192-04E

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27236** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021405** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214C** SeqNo: **402392** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	ND	0.050								

LCS Sample ID: **WLCSW1-021405** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214C** SeqNo: **402393** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.2992	0.050	0.3	0	99.7	80-120	0			

LCSD Sample ID: **WLCSDW1-02140** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214C** SeqNo: **402409** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	0.2924	0.050	0.3	0	97.5	80-120	0.2992	2.3	20	

MS Sample ID: **0502030-14B MS** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214C** SeqNo: **402396** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	9.888	1.2	10	0.0381	98.5	75-125	0			

MSD Sample ID: **0502030-14B MSD** Test Code: **EPA 350.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214C** SeqNo: **402397** Prep Date: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia	10.06	1.2	10	0.0381	100	75-125	9.888	1.68	20	

The following samples were analyzed in this batch:

0502192-01E 0502192-02E 0502192-03E
0502192-04E

ND - Not Detected at the Reporting Limit
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U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27241** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021405** Test Code: **EPA 340.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214D** SeqNo: **402440** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride, Total	ND	0.20								

LCS Sample ID: **WLCSW1-021405** Test Code: **EPA 340.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214D** SeqNo: **402441** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride, Total	0.4013	0.20	0.4	0	100	80-120	0			

LCSD Sample ID: **WLCSDW1-02140** Test Code: **EPA 340.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214D** SeqNo: **402448** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride, Total	0.4218	0.20	0.4	0	105	80-120	0.4013	4.98	20	

MS Sample ID: **0502192-01A MS** Test Code: **EPA 340.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: **Sewer** Run ID: **WETCHEM_050214D** SeqNo: **402443** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride, Total	3.008	1.0	2	0	150	75-125	0			S

MSD Sample ID: **0502192-01A MSD** Test Code: **EPA 340.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: **Sewer** Run ID: **WETCHEM_050214D** SeqNo: **402444** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride, Total	2.75	1.0	2	0	138	75-125	3.008	8.93	20	S

The following samples were analyzed in this batch:

0502192-01A 0502192-02A 0502192-03A
0502192-04A

ND - Not Detected at the Reporting Limit
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CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27242** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021405** Test Code: **EPA 325.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214E** SeqNo: **402449** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								

LCS Sample ID: **WLCSW1-021405** Test Code: **EPA 325.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214E** SeqNo: **402450** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	51.49	1.0	50	0	103	80-120	0			

LCSD Sample ID: **WLCSDW1-02140** Test Code: **EPA 325.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214E** SeqNo: **402464** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	52.49	1.0	50	0	105	80-120	51.49	1.92	20	

MS Sample ID: **0502030-12A MS** Test Code: **EPA 325.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214E** SeqNo: **402453** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	192	1.0	50	136	112	75-125	0			

MSD Sample ID: **0502030-12A MSD** Test Code: **EPA 325.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214E** SeqNo: **402454** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	190	1.0	50	136	108	75-125	192	1.05	20	

The following samples were analyzed in this batch:

0502192-01A 0502192-02A 0502192-03A
0502192-04A

ND - Not Detected at the Reporting Limit
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E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27244** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKIW1-021405** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214F** SeqNo: **402499** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	ND	0.050								

LCS Sample ID: **WLCSW1-021405** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214F** SeqNo: **402500** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2224	0.050	0.2	0	111	80-120	0			

LCSD Sample ID: **WLCSDW1-02140** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214F** SeqNo: **402503** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.2297	0.050	0.2	0	115	80-120	0.2224	3.23	20	

MS Sample ID: **0502192-04F MS** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: **East Pier - Mid Depth** Run ID: **WETCHEM_050214F** SeqNo: **402511** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.4448	0.10	0.4	0	111	75-125	0			

MSD Sample ID: **0502192-04F MSD** Test Code: **EPA 420.1** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: **East Pier - Mid Depth** Run ID: **WETCHEM_050214F** SeqNo: **402512** Prep Date: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total	0.4152	0.10	0.4	0	104	75-125	0.4448	6.88	20	

The following samples were analyzed in this batch:

0502192-01F 0502192-02F 0502192-03F
0502192-04F

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27252** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021405** Test Code: **EPA 375.4** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214H** SeqNo: **402579** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	ND	7.0								

LCS Sample ID: **WLCSW1-021405** Test Code: **EPA 375.4** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214H** SeqNo: **402580** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	41.1	7.0	40	0	103	80-120	0			

LCSD Sample ID: **WLCSDW1-02140** Test Code: **EPA 375.4** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214H** SeqNo: **402590** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	41.43	7.0	40	0	104	80-120	41.1	0.8	20	

MS Sample ID: **0502158-03A MS** Test Code: **EPA 375.4** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214H** SeqNo: **402584** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	41.26	7.0	40	0	103	75-125	0			

MSD Sample ID: **0502158-03A MSD** Test Code: **EPA 375.4** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214H** SeqNo: **402585** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	39.83	7.0	40	0	99.6	75-125	41.26	3.53	20	

The following samples were analyzed in this batch:

0502192-01A 0502192-02A 0502192-03A
0502192-04A

ND - Not Detected at the Reporting Limit
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E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502192
Project: RALSTON STREET LAGOON SURFACE WA

QC BATCH REPORT

Batch ID: **R27254** InstrumentID: **WETCHEM**

MBLK Sample ID: **WBLKW1-021405** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214I** SeqNo: **402599** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate	ND	0.041								

LCS Sample ID: **WLCSW1-021405** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214I** SeqNo: **402600** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate	0.1716	0.041	0.152	0	113	80-120	0			

LCSD Sample ID: **WLCSDW1-02140** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214I** SeqNo: **402609** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate	0.1761	0.041	0.152	0	116	80-120	0.1716	2.59	20	

MS Sample ID: **0502030-08A MS** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214I** SeqNo: **402603** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate	11.69	2.0	7.6	3.129	113	75-125	0			

MSD Sample ID: **0502030-08A MSD** Test Code: **EPA 353.3** Units: **mg/L** Analysis Date **02/14/05 0:00**
Client ID: Run ID: **WETCHEM_050214I** SeqNo: **402604** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate	11.99	2.0	7.6	3.129	117	75-125	11.69	2.55	20	

The following samples were analyzed in this batch:

0502192-01E 0502192-02E 0502192-03E
0502192-04E

ND - Not Detected at the Reporting Limit
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O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

e-Lab
QUALITY • INTEGRITY • SERVICE

e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
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Chain of Custody Form

Page 1 of 1

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: LRA
e-Lab Work Order #: 0502192

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	RSC Surface Water	A	TDS, TSS, Chloride (325.3), Fluoride (340.1), Sulfate (375.4) *
Work Order		Project Number		B	FOG
Company Name	Gary Sanitary District	Bill To Company		C	PPL METALS; Hg (245.1), Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Ni, Se, Ag **
Send Report To	Spike Deller	Invoice Attn.		D	T. Cyanide (335.2)
Address	3600 W. 3rd Av.	Address		E	NH_3-N, PO_4-P, COD
				F	Phenolics (420.1)
City/State/Zip	Gary, IN 46404	City/State/Zip		G	PCB / PEST (608)
Phone	219-944-1211	Phone		H	SVOC PP List (625) + CAFFIENE
Fax	219-944-0250	Fax		I	VOC PP List (624)
e-Mail Address	spike@garysan.com	cc Results to: CDM, Greeley, Donna Urbikas		J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Sewer	2/10/05	1107	AQ	As Rec'd												
2	West Pier - MID DEPTH	↓	1250	↓	↓												
3	Middle Pier - MID DEPTH	↓	1315	↓	↓												
4	East Pier - MID DEPTH	↓	1345	↓	↓												
5	Trip Blank	2/10													X		
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign
L. Arnold & J. Ribble, e-Lab Analytical

Shipment Method: HAND

Required Turnaround Time: (Check Box) ☐ 10 Wk Days ☐ 5 Wk Days ☐ 3 Wk Days ☑ 2 Wk Days ☐ 24 Hour ☐ Other _____

Results Due Date: Monday, 5pm 2/14/05

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	2/10/05	1630			

Notes: * cont - BOD, NO_3-N (353.2)
** - Tl, Zn (200.8)

Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:
			[signature]	2/10/05	1630

Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):
[signature]	2/10/05	1640	

e-Lab Cooler ID	Cooler Temp

QC Package: (Check Box Below)
☐ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other: _____

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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Soil Boring 4M
PCB Analytical Data

e-Lab Analytical, Inc

3352 128th Avenue Holland, Michigan 49424-9263 616-399-6070 Fax 616-399-6185

February 04, 2005

Charles Peller
Gary Sanitary District
3600 West 3rd Ave
Gary, IN 46404

Tel: (219) 944-0595
Fax: (219) 944-0250

Re: Ralston Street Lagoon

Work Order : **0501445**

Dear Mr. Peller,

e-Lab Analytical, Inc received 1 sample on 1/28/2005 12:15:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from e-Lab Analytical, Inc. The total number of pages in this report is 6.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Les Arnold

Electronically approved by: Les Arnold

Les Arnold
Laboratory Director

e-Lab Analytical, Inc

Date: *February 04, 2005*

CLIENT: Gary Sanitary District
Project: Ralston Street Lagoon
Work Order: **0501445**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0501445-01	4MR-14'-16' RSL	Soil		1/19/2005 09:27	1/28/2005 12:15	☐

e-Lab Analytical, Inc

Date: *February 04, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	4MR-14'-16' RSL
Work Order:	0501445	**Collection Date:**	1/19/2005 9:27:00 AM
Project:	Ralston Street Lagoon		
Lab ID:	0501445-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/2/2005**	Analyst: **RM**
Aroclor 1016	ND	95		µg/Kg-dry	1	2/2/2005
Aroclor 1221	ND	95		µg/Kg-dry	1	2/2/2005
Aroclor 1232	ND	95		µg/Kg-dry	1	2/2/2005
Aroclor 1242	ND	95		µg/Kg-dry	1	2/2/2005
Aroclor 1248	ND	95		µg/Kg-dry	1	2/2/2005
Aroclor 1254	ND	95		µg/Kg-dry	1	2/2/2005
Aroclor 1260	ND	95		µg/Kg-dry	1	2/2/2005
Surr: Decachlorobiphenyl	87.1	40-140		%REC	1	2/2/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	38	0.010		% of sample	1	1/28/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: Gary Sanitary District
Work Order: 0501445
Project: Ralston Street Lagoon

Date: *Feb 04 2005*

QC BATCH REPORT

Batch ID: **5809** InstrumentID: **GC4**

MBLK Sample ID: **PBLKS1-5809** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/02/05 0:00**

Client ID: Run ID: **GC4_050202A** SeqNo: **399019** Prep Date: **2/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	40								
Aroclor 1221	ND	40								
Aroclor 1232	ND	40								
Aroclor 1242	ND	40								
Aroclor 1248	ND	40								
Aroclor 1254	ND	40								
Aroclor 1260	ND	40								
Surr: Decachlorobiphenyl	26.33	0	33.3	0	79.1	50-130	0			

LCS Sample ID: **PLCSS1-5809** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/02/05 0:00**

Client ID: Run ID: **GC4_050202A** SeqNo: **399021** Prep Date: **2/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	632.7	40	833	0	76	50-130	0			
Aroclor 1260	612.3	40	833	0	73.5	50-130	0			
Surr: Decachlorobiphenyl	26	0	33.3	0	78.1	50-130	0			

LCSD Sample ID: **PLCSDS1-5809** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/02/05 0:00**

Client ID: Run ID: **GC4_050202A** SeqNo: **399020** Prep Date: **2/2/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	674.3	40	833	0	81	50-130	632.7	6.38	25	
Aroclor 1260	626	40	833	0	75.2	50-130	612.3	2.21	25	
Surr: Decachlorobiphenyl	26.33	0	33.3	0	79.1	50-130	26	1.27	25	

MS Sample ID: **0501444-01A MS** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/02/05 0:00**

Client ID: Run ID: **GC4_050202A** SeqNo: **399016** Prep Date: **2/2/2005** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1272	290	1208	0	105	40-140	0			
Aroclor 1260	1175	290	1208	0	97.2	40-140	0			
Surr: Decachlorobiphenyl	50.77	0	48.31	0	105	40-140	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0501445
Project: Ralston Street Lagoon

QC BATCH REPORT

Batch ID: **5809** InstrumentID: **GC4**

MSD Sample ID: **0501444-01A MSD** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/02/05 0:00**

Client ID: Run ID: **GC4_050202A** SeqNo: **399017** Prep Date: **2/2/2005** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1348	310	1306	0	103	40-140	1272	5.82	50	
Aroclor 1260	1257	310	1306	0	96.2	40-140	1175	6.7	50	
Surr: Decachlorobiphenyl	54.86	0	52.19	0	105	40-140	50.77	7.73	50	

The following samples were analyzed in this batch: 0501445-01A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0501445
Project: Ralston Street Lagoon

QC BATCH REPORT

Batch ID: **R26912** InstrumentID: **WETCHEM**

DUP Sample ID: **0501431-01A DUP** Test Code: **EPA 160.3** Units: **% of sample** Analysis Date **01/28/05 0:00**

Client ID: Run ID: **WETCHEM_050128N** SeqNo: **397296** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	11.62	0.010	0	0	0	0-0	12.5	7.32	20	

The following samples were analyzed in this batch: 0501445-01A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

Soil Boring 9D
PCB Analytical Data

e-Lab Analytical, Inc

3352 128th Avenue Holland, Michigan 49424-9263 616-399-6070 Fax 616-399-6185

February 09, 2005

Charles Peller
Gary Sanitary District
3600 West 3rd Ave
Gary, IN 46404

Tel: (219) 944-0595
Fax: (219) 944-0250

Re: Ralston St Lagoon PER

Work Order : **0502035**

Dear Spike,

e-Lab Analytical, Inc received 9 samples on 2/2/2005 8:30:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by e-Lab Analytical, Inc. and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from e-Lab Analytical, Inc. The total number of pages in this report is 14.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Les Arnold

Electronically approved by: Les Arnold

Les Arnold
Laboratory Director

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT: Gary Sanitary District
Project: Ralston St Lagoon PER
Work Order: **0502035**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0502035-01	9D - 14'	Soil		1/31/2005 10:20	2/2/2005 08:30	☐
0502035-02	9D - 18'	Soil		1/31/2005 10:30	2/2/2005 08:30	☐
0502035-03	9D - 22'	Soil		1/31/2005 10:40	2/2/2005 08:30	☐
0502035-04	9D - 26'	Soil		1/31/2005 10:43	2/2/2005 08:30	☐
0502035-05	9D - 28'	Soil		1/31/2005 10:45	2/2/2005 08:30	☐
0502035-06	9D - 30'	Soil		1/31/2005 10:53	2/2/2005 08:30	☐
0502035-07	9D - 32'	Soil		1/31/2005 11:00	2/2/2005 08:30	☐
0502035-08	9D - 34'	Soil		1/31/2005 11:06	2/2/2005 08:30	☐
0502035-09	9D - 36'	Soil		1/31/2005 11:18	2/2/2005 08:30	☐

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 14'
Work Order:	0502035	**Collection Date:**	1/31/2005 10:20:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-01	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	57		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	57		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	57		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	57		µg/Kg-dry	1	2/8/2005
Aroclor 1248	790	57		µg/Kg-dry	1	2/8/2005
Aroclor 1254	ND	57		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	57		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	95.1	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	6.8	0.010		% of sample	1	2/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 18'
Work Order:	0502035	**Collection Date:**	1/31/2005 10:30:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-02	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	64		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	64		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	64		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	64		µg/Kg-dry	1	2/8/2005
Aroclor 1248	1,300	64		µg/Kg-dry	1	2/8/2005
Aroclor 1254	ND	64		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	64		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	98.1	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	17	0.010		% of sample	1	2/2/2005

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	P - Dual Column results percent difference > 40%
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 22'
Work Order:	0502035	**Collection Date:**	1/31/2005 10:40:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-03	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	69		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	69		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	69		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	69		µg/Kg-dry	1	2/8/2005
Aroclor 1248	1,300	69		µg/Kg-dry	1	2/8/2005
Aroclor 1254	ND	69		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	69		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	92.1	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	25	0.010		% of sample	1	2/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 26'
Work Order:	0502035	**Collection Date:**	1/31/2005 10:43:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-04	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	80		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	80		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	80		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	80		µg/Kg-dry	1	2/8/2005
Aroclor 1248	8,800	400		µg/Kg-dry	5	2/8/2005
Aroclor 1254	ND	80		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	80		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	74.1	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	37	0.010		% of sample	1	2/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 28'
Work Order:	0502035	**Collection Date:**	1/31/2005 10:45:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-05	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	74		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	74		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	74		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	74		µg/Kg-dry	1	2/8/2005
Aroclor 1248	17,000	370		µg/Kg-dry	5	2/8/2005
Aroclor 1254	ND	74		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	74		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	79.1	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	32	0.010		% of sample	1	2/2/2005

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below quantitation limits	P - Dual Column results percent difference > 40%
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	* - Value exceeds Maximum Contaminant Level	H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 30'
Work Order:	0502035	**Collection Date:**	1/31/2005 10:53:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-06	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	78		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	78		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	78		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	78		µg/Kg-dry	1	2/8/2005
Aroclor 1248	2,800	78		µg/Kg-dry	1	2/8/2005
Aroclor 1254	ND	78		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	78		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	119	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	37	0.010		% of sample	1	2/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 32'
Work Order:	0502035	**Collection Date:**	1/31/2005 11:00:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-07	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	61		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	61		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	61		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	61		µg/Kg-dry	1	2/8/2005
Aroclor 1248	1,300	61		µg/Kg-dry	1	2/8/2005
Aroclor 1254	ND	61		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	61		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	84.1	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	19	0.010		% of sample	1	2/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 34'
Work Order:	0502035	**Collection Date:**	1/31/2005 11:06:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-08	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	62		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	62		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	62		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	62		µg/Kg-dry	1	2/8/2005
Aroclor 1248	ND	62		µg/Kg-dry	1	2/8/2005
Aroclor 1254	ND	62		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	62		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	78.1	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	21	0.010		% of sample	1	2/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

Date: *February 09, 2005*

CLIENT:	Gary Sanitary District	**Client Sample ID:**	9D - 36'
Work Order:	0502035	**Collection Date:**	1/31/2005 11:18:00 AM
Project:	Ralston St Lagoon PER		
Lab ID:	0502035-09	**Matrix:**	SOIL

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **2/7/2005**	Analyst: **RM**
Aroclor 1016	ND	59		µg/Kg-dry	1	2/8/2005
Aroclor 1221	ND	59		µg/Kg-dry	1	2/8/2005
Aroclor 1232	ND	59		µg/Kg-dry	1	2/8/2005
Aroclor 1242	ND	59		µg/Kg-dry	1	2/8/2005
Aroclor 1248	260	59		µg/Kg-dry	1	2/8/2005
Aroclor 1254	ND	59		µg/Kg-dry	1	2/8/2005
Aroclor 1260	ND	59		µg/Kg-dry	1	2/8/2005
Surr: Decachlorobiphenyl	87.1	40-140		%REC	1	2/8/2005
MOISTURE			**EPA 160.3**			Analyst: **JJG**
Moisture	20	0.010		% of sample	1	2/2/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab Analytical, Inc

CLIENT: Gary Sanitary District
Work Order: 0502035
Project: Ralston St Lagoon PER

Date: *Feb 09 2005*

QC BATCH REPORT

Batch ID: **5825** InstrumentID: **GC4**

MBLK Sample ID: **PBLKS1-5825** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/08/05 0:00**

Client ID: Run ID: **GC4_050208B** SeqNo: **400754** Prep Date: **2/7/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	40								
Aroclor 1221	ND	40								
Aroclor 1232	ND	40								
Aroclor 1242	ND	40								
Aroclor 1248	ND	40								
Aroclor 1254	ND	40								
Aroclor 1260	ND	40								
Surr: Decachlorobiphenyl	30.33	0	33.3	0	91.1	50-130	0			

LCS Sample ID: **PLCSS1-5825** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/08/05 0:00**

Client ID: Run ID: **GC4_050208B** SeqNo: **400756** Prep Date: **2/7/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	874.7	40	833	0	105	50-130	0			
Aroclor 1260	753	40	833	0	90.4	50-130	0			
Surr: Decachlorobiphenyl	31	0	33.3	0	93.1	50-130	0			

LCSD Sample ID: **PLCSDS1-5825** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/08/05 0:00**

Client ID: Run ID: **GC4_050208B** SeqNo: **400755** Prep Date: **2/7/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	832.7	40	833	0	100	50-130	874.7	4.92	25	
Aroclor 1260	716	40	833	0	86	50-130	753	5.04	25	
Surr: Decachlorobiphenyl	29.33	0	33.3	0	88.1	50-130	31	5.52	25	

MS Sample ID: **0502035-09A MS** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/08/05 0:00**

Client ID: **9D - 36'** Run ID: **GC4_050208B** SeqNo: **400752** Prep Date: **2/7/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1059	56	1175	0	90.2	40-140	0			
Aroclor 1260	1018	56	1175	0	86.7	40-140	0			
Surr: Decachlorobiphenyl	39.02	0	46.97	0	83.1	40-140	0			

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502035
Project: Ralston St Lagoon PER

QC BATCH REPORT

Batch ID: **5825** InstrumentID: **GC4**

MSD Sample ID: **0502035-09A MSD** Test Code: **EPA 8082** Units: **µg/Kg** Analysis Date **02/08/05 0:00**

Client ID: **9D - 36'** Run ID: **GC4_050208B** SeqNo: **400753** Prep Date: **2/7/2005** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	945.6	51	1062	0	89	40-140	1059	11.3	50	
Aroclor 1260	898	51	1062	0	84.5	40-140	1018	12.6	50	
Surr: Decachlorobiphenyl	39.12	0	42.47	0	92.1	40-140	39.02	0.239	50	

The following samples were analyzed in this batch:

0502035-01A	0502035-02A	0502035-03A
0502035-04A	0502035-05A	0502035-06A
0502035-07A	0502035-08A	0502035-09A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

CLIENT: Gary Sanitary District
Work Order: 0502035
Project: Ralston St Lagoon PER

QC BATCH REPORT

Batch ID: **R27025** InstrumentID: **WETCHEM**

DUP Sample ID: **0501453-10B DUP** Test Code: **EPA 160.3** Units: **% of sample** Analysis Date **02/02/05 0:00**

Client ID: Run ID: **WETCHEM_050202P** SeqNo: **399296** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	4.218	0.010	0	0	0	0-0	4.816	13.2	20	

DUP Sample ID: **0502043-01A DUP** Test Code: **EPA 160.3** Units: **% of sample** Analysis Date **02/02/05 0:00**

Client ID: Run ID: **WETCHEM_050202P** SeqNo: **399310** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	58.5	0.010	0	0	0	0-0	58.39	0.19	20	

The following samples were analyzed in this batch:

0502035-01A	0502035-02A	0502035-03A
0502035-04A	0502035-05A	0502035-06A
0502035-07A	0502035-08A	0502035-09A

ND - Not Detected at the Reporting Limit
S - Spike Recovery outside accepted recovery limits
B - Analyte detected in assoc. Method Blank
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits
U - Analyzed for but not detected
O - Referenced analyte value is > 4 times amount spiked
P - Dual Column results percent difference > 40%
E - Value above quantitation range

APPENDIX E

Gary Sanitary District

Ralston Street Lagoon Berm Assessment and Recommendations

April 2005

CDM

HANNUM, WAGLE & CLINE engineering

Report

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Section 1
Introduction

Hannum, Wagle & Cline (HWC) is a subcontractor to Camp Dresser and McKee (CDM) to assess the Ralston Street Lagoon (RSL) berm condition, develop goals for berm improvements, evaluate alternatives and prepare recommendations. The recommendations include cost estimates, a disaster contingency plan, a summary of regulatory requirements and a preliminary berm design. **Exhibit 1** is a map that denotes the general site location, while **Exhibit 2** is an aerial photograph of the site.

This report will focus solely on the RSL berm. Subsequent reports will address additional issues related to the RSL and the efforts to comply with the Third Modified Consent Decree (2003) between the City of Gary and the US Department of Justice on behalf of US EPA Region 5 and IDEM.

Section 2
Background

The RSL has a long history. It began as a borrow pit for the Interstate Highway Toll Road Commission for Interstate 90, which passes adjacent to the site to the South. It was acquired by the City of Gary in 1962 and converted to a sludge lagoon through the addition of a berm on the north and northwest sides. Unconfirmed reports indicate that RSL remained active as a sludge disposal site until the late 1980's. According to current information, the lagoon encompasses approximately 19.2 acres of a 22-acre site.

Several studies on RSL have been conducted over approximately the past 20 years. Initially, IAE was hired by the Gary Sanitary District (GSD) to review RSL stabilization alternatives and develop a conceptual design. In 1989, three professors from Purdue — James Alleman, Ernest Blatchley and Jean-Lou Chameau — produced a comprehensive report evaluating the RSL, the hydrology, the geotechnical aspects, and the groundwater and proposing interim and long-term stabilization measures. In 1992, Fluor Daniel evaluated the 100-year flood levels and conducted an electromagnetic survey of parts of the berm. Fluor Daniel later prepared a Preliminary Risk Analysis that included any potential impacts due to potential flooding. These reports, along with other associated correspondence, will be referenced as appropriate in this report. The content of those reports will not be repeated here except as it relates to the new findings contained herein.

Section 3
Physical Survey

Part of the scope of work included physically surveying the RSL site. Robinson Engineering was hired to conduct a site survey in State Plane Coordinates. The National Geodetic Vertical Datum of 1929 (NGVD29) was used for vertical control. Horizontal control was based on approximate ground State Plane Coordinate System. The North American Vertical Datum of 1988 can be converted to by subtracting 0.34 feet from NGVD29. These are commonly accepted data used extensively for surveying in the United States. Six control points have been set at the RSL site and a Benchmark has been set at the entrance to the airport.

All visible structures were located and dimensioned, including the berm, concrete structures, drainage ways, wetlands, standing water and aboveground utilities. Below ground utilities were also shown to the extent that they could reliably be established. Survey results are shown in **Exhibits 3A** and **3B**.

Of particular note are the locations of the existing chain link fence, the overflow headwall, the outlet headwall and the piers. One-foot contours are also shown for the lagoon site, but this does not include the portion of the lagoon that is under water. This information will be used to note areas of the berm where obstructions may be encountered and to cut cross sections of the berm at appropriate locations. The survey also establishes the current berm height in relation to the water level in the river and lagoon, allowing a comparison of berm height and slope to historic records. Regarding utilities, a manhole to the southeast of the lagoon has been identified. Initially full of sludge, this manhole was an influent feed to the lagoon that was plugged when sludge storage activities ceased. It has subsequently been cleaned.

Locations of all subsurface exploration work, including borings and probes, are also noted on **Exhibit 3B**. This information will be used to analyze the geotechnical information on the berm, which is discussed in Section 4.

Section 4
Geotechnical Investigation

At HWC's direction, K&S Engineers (K&S) conducted a geotechnical exploration of the berm. Their report is incuded in the Appendix. Field exploration consisted of drilling twelve (12) soil borings and seven (7) soil probes at the locations shown on **Exhibit 3B**. Borings were drilled to depths of 40 to 45 feet. Representative soil samples and Shelby tube samples were collected at each location. The seven probes were performed in the northwest corner of the lagoon to determine any potential presence of foreign metallic objects, such as automobile body parts.

Calibrated pocket penetrometer resistance and natural moisture content were determined on all cohesive soil samples. Unconfined compression tests were performed on select cohesive soil samples. Some samples were selected for classification tests and specific gravity tests.

As can be seen from a review of the K&S report contained in the Appendix, fill materials were generally observed to a depth of three feet, with one result extending to as much as nine feet. Under the fill was a layer of loose to medium dense sand that extended to a consistent depth of 33 feet, with two borings showing a deeper layer to 36 and 40 feet. The natural sand had dark colored seams and a petrochemical odor in the northwest berm. The north berm showed a layer of peat approximately two feet thick at depths ranging from 8 to 15 feet. The natural sand was graded into silty clay of very soft-to-medium consistency. This clay layer appears to be continuous across the site. Groundwater depths ranged from three to six feet in most cases.

Table 1 is a summary of lab test results on the clay layer. Results indicate a lean clay with Atterberg limits of 15 to 32. The Atterberg limits measure the plastic range of the clay in percent moisture and can be used to estimate the compressibility of soft clays. Unconfined compressive strength test results ranged from 0.2 tons/ft^2 to 0.7 tons/ft^2. This test assesses how easily a soil can be penetrated and the amount of pressure (bearing capacity) that can be applied. These results indicate very soft clay that is easily penetrated. The coefficient of permeability for the clay ranged from 6.3 x 10^{-9} to 1.2 x10^{-8} inches/sec (1.6 to 3.0 x 10^{-8} cm/sec). This range of values can be described as practically impervious. By comparison, TSCA criteria for low permeability clay liners require 3.9 x 10^{-8} inches/sec (10^{-7} cm/sec) as a minimum. These values exceed that standard by a factor of three to six times. These are very good results and demonstrate that the clay will make a very good barrier to migration.

The coefficients of permeability of sand samples are estimated to range from 2.5 to 3.0 x 10^{-3} inches/sec (6.4 to 7.6 x 10^{-3} cm/sec). These ranges are considered relatively permeable and water would be expected to flow through the sand layer. The presence of dark seams in sand samples 6 to 10

feet deep and the petrochemical odor in the sand samples along the northwest berm indicate that the sand layer is a conduit for hydraulic transport.

The full geotechnical report from K&S Engineers, dated January 11, 2005 and titled "Geotechnical Services, Ralston Street Lagoon, Gary Sanitary District, Gary, Indiana"[1] is contained in the Appendix to this report.

Exhibit 4 provides a summary of the K&S boring logs and the logs of prior subsurface exploration efforts. All K&S borings were surveyed for ground elevation. By comparing the various soil layer elevations, the relationship of one boring to another can be obtained. **Table 2** summarizes the elevations for each defined layer and for the depths where sludge seams and peat layers were discovered. As **Exhibit 4** and **Table 2** show, groundwater levels are consistently at elevation 583 to 584, with the north side drawn down somewhat toward the wetland. The clay layer consistently begins at elevation 552 to 555 throughout the site and has been reported to be approximately 70 feet thick.[2] Sludge seams appear only on the north and northwest sides at elevations 574 to 583 and the peat layer appears only on the north side adjacent to the wetland at elevations 572 to 579. Previous borings by Canonie,[2] K&S[2] and Atec[2] are shown for comparison. Results obtained by K&S are consistent with past subsurface boring logs. Together, they provide a comprehensive record of the geotechnical condition of the berm.

Exhibit 5 is a profile of the north berm with boring logs shown along the profile. **Exhibit 6** provides the same information for the area south of the lagoon. **Exhibit 7** shows a cross-section of the existing lagoon berm at K&S Boring RS-9.

Improvements to the berm may include placing new fill materials, which could cause settlement of the existing embankment, especially the loose sand and peat soils. Based on the geotechnical results, the settlement of loose sand can be estimated. However, to estimate the consolidation settlement of peat soils, the compressibility characteristics of peat were determined after remobilization by K&S to collect an undisturbed peat sample (Shelby Tube).

Metal detection equipment revealed mechanical anomalies on the northwest corner of the lagoon section, but no reading was high enough to suggest the presence of previously suspected auto bodies. Documents obtained subsequent to the field and testing work indicated that these autos may have been buried at a point further east along the northwest berm than was initially probed so follow up probes were done in the suspected area. Again, no evidence of auto bodies was found at any location.

Section 5
Flood Evaluation

The Alleman Report,[2] submitted to GSD in 1986, included an evaluation of the Grand Calumet River and its potential for flooding the lagoon. At the time, there was no long-term record of flow in the river. The USGS had attempted to establish a gauging station on the river, but these efforts were reported to have been unsuccessful because a one-to-one relationship between stage and discharge could not be established. For a given stage, several different flow rates could be observed at a given location. The USGS determined that the vast majority of the dry weather flow from the East Branch of the River to the Indiana Harbor Ship Canal was attributed to industrial and municipal effluents from U.S. Steel and GSD, respectively. Over a 24-hour period of dry weather, the flow ranged from 356 to 604 cubic feet per second (CFS) or 230 to 390 million gallons per day (mgd).

Alleman also reports on a wasteload allocation study on the Grand Calumet River prepared for the Indiana State Board of Health in 1983.[2] As part of the study, effluent flow rates from industrial and municipal outfalls were measured. Monthly dry weather averages were 457 and 594 CFS (295 and 384 mgd) for the two months of the study.

The significance of these two studies is that they establish that dry weather flow in the river at the lagoon is highly variable and is almost completely dependent on the quantities discharged from US Steel and GSD. Natural dry weather flows are insignificant. Upstream of the discharges Alleman reports a discharge of 0.09 CFS (0.06 mgd).

The Federal Emergency Management Agency (FEMA) conducted a Flood Insurance Study of the Grand Calumet River in 1980 based on U.S. Army Corps of Engineers (COE) work and modeling studies. The report, dated September 2, 1981, shows the lagoon within the 100-year flood plain. According to FEMA data, the 100-year flood elevation in the vicinity of the lagoon was between 587 and 588 feet (NGVD29). A copy of the Rate Map and Floodway Data are included here as *Appendix A*.

In October 1992, Fluor Daniel Environmental Services prepared a study for GSD which included an analysis of the 100-year flood plain.[3] The study reports that, due to the sparse population of structures potentially subject to destruction by flooding and the low-lying swampy topography of the slow-moving Grand Calumet River, both the Army Corps and other researchers have concluded that the flooding dangers of the River may be minimal. The study analyzed the potential of polluting the river with PCB-contaminated sediments by overtopping the berms of the lagoon in the event of a 100-year flood. An updated hydraulic model (HEC2) was run using the COE model with new flows. The report concluded:

1. The average berm height is 586.6 feet (NGVD29).

2. Slopes of the berm have eroded and may not be stable.

3. Reducing the flow rate in the river by 35 percent reduced the river elevation at the lagoon by 0.06 feet — virtually no change.

4. The 100-year flood level of Lake Michigan is 584.2 feet (NGVD29).

5. There is no reason to doubt the validity of the FEMA study.

6. The new model can be used to predict berm height requirements to protect the river from discharges from the RSL during a 100-year flood.

7. The 100-year flood elevation at the lagoon is 587.35 feet (NGVD29).

8. The approximate river bottom at the lagoon location is 575.3 (NGVD29).

9. The berm should be raised to 588 feet allowing 0.7 feet of freeboard.

10. Mean velocity of the river during the 100-year flood at the lagoon location is 0.3 feet/sec (HEC 2 Model).

In 1996, Fluor Daniel conducted a Preliminary Risk Analysis that, in part, evaluated the potential flooding scenario. In this scenario flood waters overtop the berm, mix with lagoon contents and carry small amounts of sludge solids away down river. This would result in a very low PCB concentration in the floodwater. Subsequent deposition would not be likely to cause a significant increase in the PCB concentration in the soils outside the lagoon. It concluded that the risks to human health caused by this scenario are negligible. In rendering this conclusion, Fluor Daniel assumed that the berm would remain stable and that sludge in the lagoon would not be significantly disturbed during the flood. Therefore, interim measures for stabilizing the lagoon, such as raising the berm, were concluded to not be justified over the short term until final measures could be taken. Time has supported this conclusion, since nearly 10 years have past since the study and no evidence of berm destabilization has been found.

The USGS maintains a gauging station on the Grand Calumet River in cooperation with IDEM at Industrial Highway in Gary (USGS 04092677). The station lies just upstream of the lagoon and includes discharges from U.S. Steel and GSD. The gauging station has nine years of records, dating from 1995. A review of these records shows a peak daily stream flow of 1,130 cfs (730 MGD) occurred on July 27, 2003, with a recorded river elevation of 582.47 feet (NGVD29). The highest river elevation for a peak storm was 583.97 on July 18, 1996 for a stream flow of 891 cfs (576 mgd). Copies of records from the USGS web site are included in this report as *Appendix B*. These include peak flow by year, annual mean stream flow, monthly mean

stream flow, physical measurements of width, area, velocity and gauge height, and graphs of velocity, gauge height and discharge flow. The data do not tend to support the FEMA flood elevations derived in 1980.

HWC also investigated the Gary Chicago International Airport to determine if it had conducted any flood studies related to its runway expansion. Bob Gyruko, technical director, reported that the airport used the FEMA reported 100-year flood stage for its reports and studies.

Section 6
Assessment of Berm Condition

Based on a review of the past history of the berm, including design and subsequent reports and correspondence, the geotechnical investigation conducted by K&S Engineers and the physical survey of the lagoon site conducted by Robinson Engineering, the condition of the berm was assessed with the intent to answer the following questions:

1. Is the height of the berm adequate? If not, what height should it be to prevent overtopping?

2. Is the width of the berm adequate? If not, what should it be to allow for safe routine maintenance and access for groundwater monitoring?

3. Is the berm experiencing seepage? If so, is the seepage detrimental to the stability of the berm?

4. Are the berm slopes stable? If not, what slopes would be stable and what erosion control measures would be needed?

5. Are the soils in the berm stable? If not, what soils are required or what accommodations must be made to address the problem?

6. Is the vegetative cover and/or nuisance animal population detrimental to the stability of the slope? If so, what preventive measures are needed?

7. Is the site secure? If not, what level of security would be adequate?

Improvements are categorized as:

1. Critical — imminent failure of berm has or will occur in the near future and repairs should be instituted as soon as possible.

2. Interim — failure of berm possible if repairs are not made prior to the next 100-year flood event.

3. Long term — repairs that are recommended to improve the long term integrity of the berm system.

Berm Height

Based on the topological survey conducted by Robinson Engineering, the average height of the berm is 586.2 feet measured at the highest point at 50 foot intervals. **Table 3** summarizes the data. The elevation ranges from a low of 585.2 feet to a high of 587.4 feet. The 100-year flood elevation at the lagoon is 587.35 feet so the berm is as much as 2.15 feet lower than the 100-year flood elevation. **Exhibit 8** shows the areas of the berm that are lower. To prevent overtopping, the berm would need to be raised above 587.35. Given the

relative docility of the Grand Calumet River, its shallow nature and the lack of any significant wave action, designing for two feet of freeboard is excessive. In any case, the final berm height required to prevent overtopping during a 100-year flood is above 587.35 and could be as high as 589.4 feet. Berm raising costs are provided for two heights to evaluate the sensitivity of berm raising costs to the height desired.
Rating: **Interim**

Berm Width

Currently, the berm is approximately 13.2 feet wide at its narrowest stretch, as measured between elevation 584 river side and 584 lagoon side along the berm. **Table 3** summarizes the data. The minimum width required to allow vehicle access for maintenance is eight feet. Since the lagoon is on one side and the river is on the other, HWC/CDM recommend 12 feet as a minimum design width. The existing berm easily meets this requirement. However, raising the berm using fill would narrow the width beyond acceptable limits along much of the berm. To maintain a reasonable berm width, the fill would extend beyond the berm's current limits into the lagoon (or into the river/wetlands) unless a wall of sheetpiling or concrete is built to support the fill.
Rating: **Long term**

Seepage

Tests on soils samples in the berm show it to be predominately sand — loose to medium dense — with a coefficient of permeability of 2.5 to 3.0 x 10^{-3} inches/sec (6.4 to 7.6 x 10^{-3} cm/sec). The sand is relatively permeable, and water can be expected to flow through the soil. While normal seepage poses no problems, saturated embankment soils due to seepage generally results in reduced soil strengths leading to sloughing, sliding and instability. This may be corrected or slowed by intercepting the water before it exits on the downstream side. However, RSL shows no signs of this condition.

Based on available records,[2, 3] the water level in the lagoon has historically been approximately an inch or two higher than the river level. However, at the time of this writing, the lagoon water level was much higher than the river level due to the influence of groundwater. Because of the relative permeability of the sand layer, the minor elevational difference is a stable condition and normally results in little water migration. Should the lagoon level rise in relation to river levels and remain at those levels, serious instability is a possibility. In the current situation, this condition should not occur for any significant length of time because the soils will allow water to migrate and normalize water level elevations. There is no evidence of sloughing along the embankment, so seepage should not be considered a significant issue in the integrity of the lagoon berm. The condition of the berm has remained stable over the past 10 years of investigations.
Rating: **Long term**

Berm Slopes

Existing slopes on the river side of the berm range from 3.2:1 to 7.4:1 and on the lagoon side from 2.3:1 to 5.1:1. Slopes are considered stable if they are in the 3:1 to 4:1 range and flatter. Based on the topological survey prepared by Robinson Engineering, it appears that existing slopes are generally stable. In addition, a slope of 3:1 is considered to be the steepest slope that is safely mowable. This is an important consideration in the ongoing maintenance of the berm and slopes.
Rating: **Long term**

Soils

Two areas of structural concern have been addressed in the geotechnical work done by K&S Engineers. Their report is included in the Appendix. First, there is a peat layer approximately two feet thick extending along the north berm section (see **Exhibits 4** and **5**). The layer extends for approximately 1400 feet. The layer is classifies as PT, characterized by high moisture content, high organic content, structural weakness and high compressibility. This layer may have developed where sand and slag for berm fill was dumped onto wetland vegetation. The berm has remained stable over the last 40 years, but should any additional fill or other construction activity be proposed, this layer may compress. Second, although drawings from 1962 indicated that auto bodies were placed along a short stretch of the northwest berm, recent geotechnical work uncovered no evidence of auto bodies in this area so this concern appears to be unfounded.
Rating: **Interim**

Vegetative Cover/Nuisance Animal Population

During field work on the study, much of the berm was cleared of abundant trees and brush. However, much of the slopes still retain this vegetation. According to the Indiana Department of Natural Resources publication "Dam Safety: Trees and Brush", trees and brush should not be permitted on embankment surfaces because extensive root systems can provide seepage paths for water. Trees that blow down or fall over can leave large holes in the embankment and can lead to increased erosion. Brush obscures the surface limiting visual inspection, provides a haven for burrowing animals and retards growth of grass vegetation. Much of this has occurred at the RSL over the years. The security fence is badly damaged in areas due to fallen trees or growth into the fence lines. Evidence of muskrats and beavers is present. This condition is a detriment to the stability of the berm.

All trees and brush along the berm and the slopes should be cut and removed and replaced with grasses. Stumps and trees that cannot be pulled from the ground can be chemically treated so they will not form new sprouts. Small trees (less than six to 12 inches) should be cut flush and the stump treated to prevent new growth. Large trees should be removed completely — including the rootball. Once cleared, the site should be stabilized using

standard erosion control measures. When permanent cover is established, the berm should have regular maintenance to maintain a stable turf cover.
Rating: **Critical**

Site Security

The intrusion of trees and shrubs represents a threat to the berm stability. Fencing will need to be replaced in some form, depending on what other berm improvement options are selected.
Rating: **Critical**

Section 7
Berm Improvement Plan Goals

Based on the assessment of berm conditions contained in the previous section, the following berm improvement plan goals are established:

1. *Raise the berm height to prevent overtopping in a 100-year flood event.* The purpose is to bring RSL into compliance with TSCA while using Best Engineering Judgment and, possibly, a variance from TSCA standards.

2. *Maintain a minimum berm width of 12 feet.* Given the need for maintenance along the narrow stretch between the river and the lagoon, this is the minimum recommended width to facilitate entry.

3. *Ensure that all soils within the berm are stable.* Voids and seepage pathways could result in instability in the berm, causing a partial collapse.

4. *Maintain grass cover on the berm and berm slopes.* Trees and shrubs must be eliminated completely. These represent a serious threat to berm stability.

5. *Secure the lagoon site.* Unauthorized personnel must not have access to the lagoon property. Restricting access will prevent the possibility of unauthorized personnel contaminating the lagoon, tampering with or carrying lagoon contents off-site and lawsuits being initiated over trespasser accident or injury issues.

Section 8
Improvement Alternatives

Three alternatives were developed to meet the berm improvement plan goals outlined in the previous section. Within each alternative are two sub-alternatives: (1) Raising the berm to one foot above the 100-year flood level and (2) Raising the berm to two feet above the 100-year flood level. This was done to provide a sensitivity analysis of berm height costs. All alternatives assume a tie back to existing elevations to avoid construction around the entire perimeter. The alternatives are described below and in **Exhibits 8, 9** and **10**.

Alternative A (**Exhibit 8** and **Tables 4** and **5**) raises the berm with suitable fill. It includes 2:1 side slopes stabilized with vegetative matting and a top minimum berm width of twelve feet. The new berm would be planted completely in grasses, and all existing trees and shrubs would be removed. A new security fence would be installed around the lagoon perimeter.

Alternative B (**Exhibit 9** and **Tables 6** and **7**) raises the berm with suitable fill. However, retaining walls are built in lieu of steep side slopes. Again, the top width is maintained at a minimum width of 12 feet; the berm is planted in grass cover, and all trees and brush are removed. This alternative also includes a new security fence.

Alternative C (**Exhibit 10** and **Tables 8** and **9**) calls for a flood wall at the approximate location of the existing fence. A security fence would be installed on top of the flood wall, and all trees and shrubs would be removed and grasses would be planted.

Tables 4 through **9** summarize the estimated project costs for each alternative and sub-alternative. These costs were developed by reviewing previous bid data and conversations with local contractors. Alternative A assumed the berm would be built up with an impervious layer of clay. Clay would add slope stability and provide a start for alternatives calling for a cut-off wall. Alternative B uses sand fill since two retaining walls are included. The walls accomplish the stability and imperviousness that clay accomplishes in Alternative A. Alternative C was developed as a non-fill alternative. Some long-term alternatives may benefit from a berm that has not been altered. All alternatives include tasks for clearing of brush and shrubs, seeding and final grading and installation of a new chain link fence.

Alternative A — raising the berm with clay fill — is the lowest cost option for initial capital cost. It is an alternative that has been raised as a possibility since study of the lagoon options began in 1988. However, there are several negative aspects:

1. Work involves placing fill on the river bank, the wetlands bank and the lagoon bank. This is mitigated by the low river velocities and the consequent lack of potential for erosion.

2. The added fill increases the overburden on soft clays, peat and alleged auto bodies. Some compression may result and increase the quantity of fill required.

3. Existing monitoring wells would have to be adjusted to the new elevations.

Alternative B is double the cost of Alternative A and, of the three aforementioned negative aspects of Alternative A, it eliminates only the first one. Long-term maintenance of slopes would be more difficult under this option since it would be difficult to get a mower down to the embankment slopes. For these reasons, this alternative can be eliminated from further consideration.

Alternative C has a capital cost that is approximately 50 percent greater than Alternative A. In exchange, it eliminates all three negative aspects of Alternative A. Maintenance costs should be similar to those for Alternative A. Alternative C should be considered, as it relates to long-term options for the lagoon. The initial capital cost may be recovered in the long term through reduced long-term costs.

Combining the best aspects of Alternatives A and C should also be considered. There are places along the lagoon perimeter where different conditions may dictate different solutions.

In accepting a recommendation, GSD will consider the following:

1. Overall effectiveness

2. Protection of public health and environment

3. Long-term permanence

4. Technical feasibility

5. Administrative feasibility

6. Availability of service and materials

7. Cost

All alternatives would be effective and would protect the public health and the environment. Each is technically feasible, although the flood wall would be difficult to build on the narrow parts of the berm. Administratively, all require an IDNR Permit for construction in the floodway. A Corps of

Engineers Section 404 Permit for placing fill in a floodway may also be required and is more likely for Alternative A than C. Clay is available, although it is priced based on anticipated significant trucking costs.

Section 9
Recommendations

Based on our evaluation of alternatives in the preceding section, the following recommendations are presented:

1. The existing manhole southeast of the lagoon may be useful for future designs for long-term lagoon modifications. We recommended that this manhole be cleaned and detailed.

2. The peat layer along the north berm has been tested for unconfined compressive strength. We recommended that the results of this test be considered prior to finalizing a design that calls for significant changes to the berm loading.

3. A combination of Alternatives A and C is recommended as interim berm modifications to address berm stability. **Exhibit 11** shows a plan view of the recommended plan and **Table 10** provides an estimated project cost. HWC/CDM believes this combination provides the best low cost solution to the issues raised in this report. Installing a sheetpile wall along the narrow portions of the berm at elevation 589.4 is more practical than using fill. Construction of a raised berm with fill would be extremely difficult and would encroach on the embankments of the river, the wetland and the lagoon.

4. Security fencing should be replaced.

5. When GSD members have approved the final version of this report, it should be presented to EPA for review and approval before proceeding with an implementation plan and schedule.

Section 10
References

(1) "Report, Geotechnical Services, Ralston Street Lagoon, Gary Sanitary District, Gary, Indiana" by K&S Engineers, Inc., January 11, 2005.

(2) " Final Report on the Ralston Street Lagoon Remediation Project for the Gary Sanitary District" by James E. Alleman, Ph. D., Ernest R. Blatchley, Ph. D., and Jean-Lou Chameau, Ph. D., July 28, 1989.

(3) "Ralston Street Lagoon, Gary Sanitary District, Gary, Indiana, 100-Year Flood Plain, Sludge Characterization, and Electromagnetic Survey Report" by Fluor Daniel Environmental Services, Chicago, Illinois, October 1992.

(4) "Preliminary Risk Analysis for Gary Sanitary District, Ralston Street Lagoon, Project No. 87843310" by Fluor Daniel, GTI, May 31, 1996.

Exhibits

Ralston Street Lagoon

NORTH

GRAPHIC SCALE

0' 2500' 5000' 7500'

(IN FEET)

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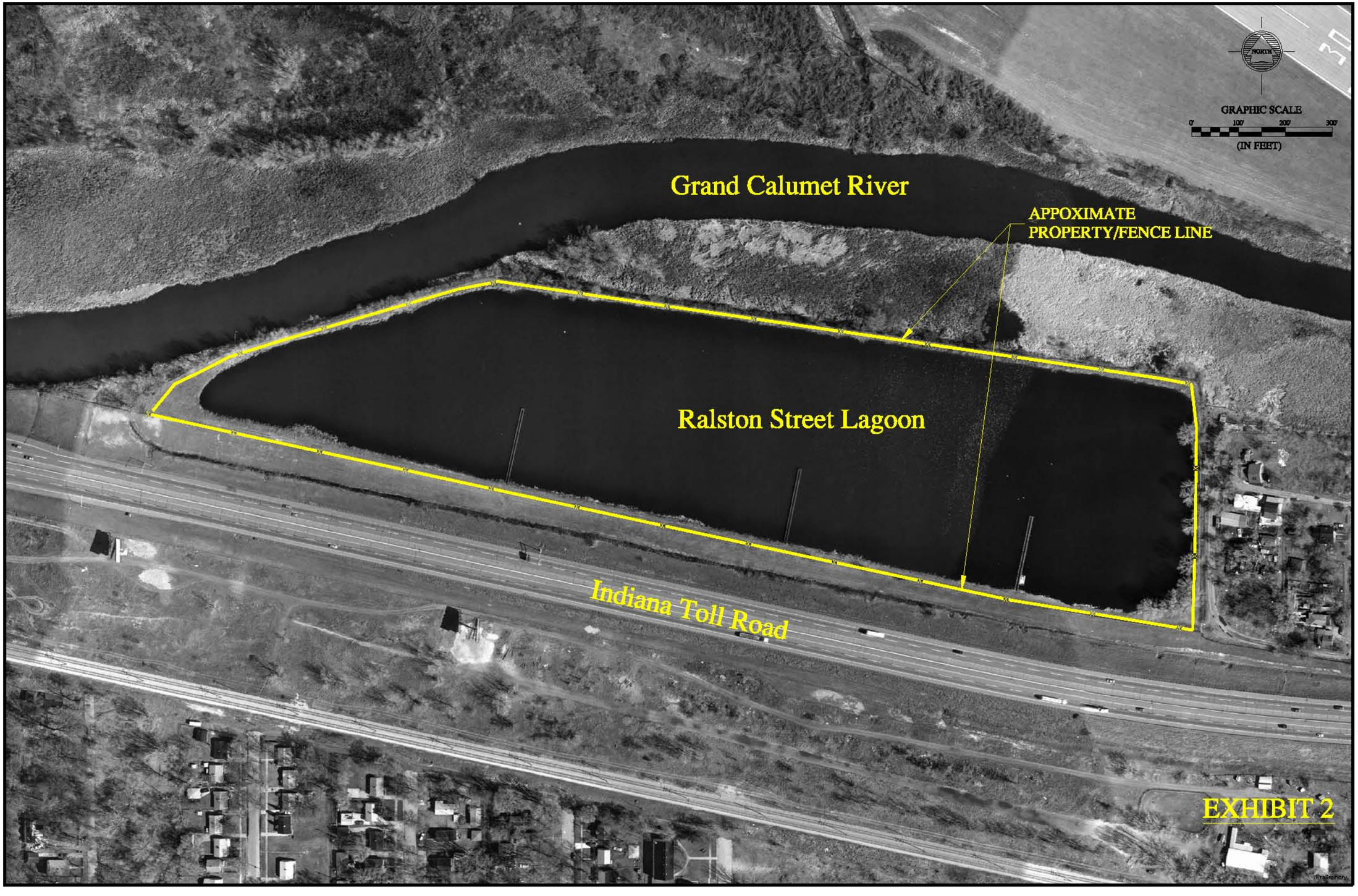
Exhibit 1
Ralston Street Lagoon
Sanitary District
Location Map
Gary, Indiana
February 9, 2005

HANNUM, WAGLE & CLINE
engineering



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Ralston Street Lagoon
Gary, Indiana

EXISTING LAGOON

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CHECKED BY
PED
DATE
2005
SCALE
AS SHOWN
JOB NUMBER
2004-235-B
SHEET
EX2

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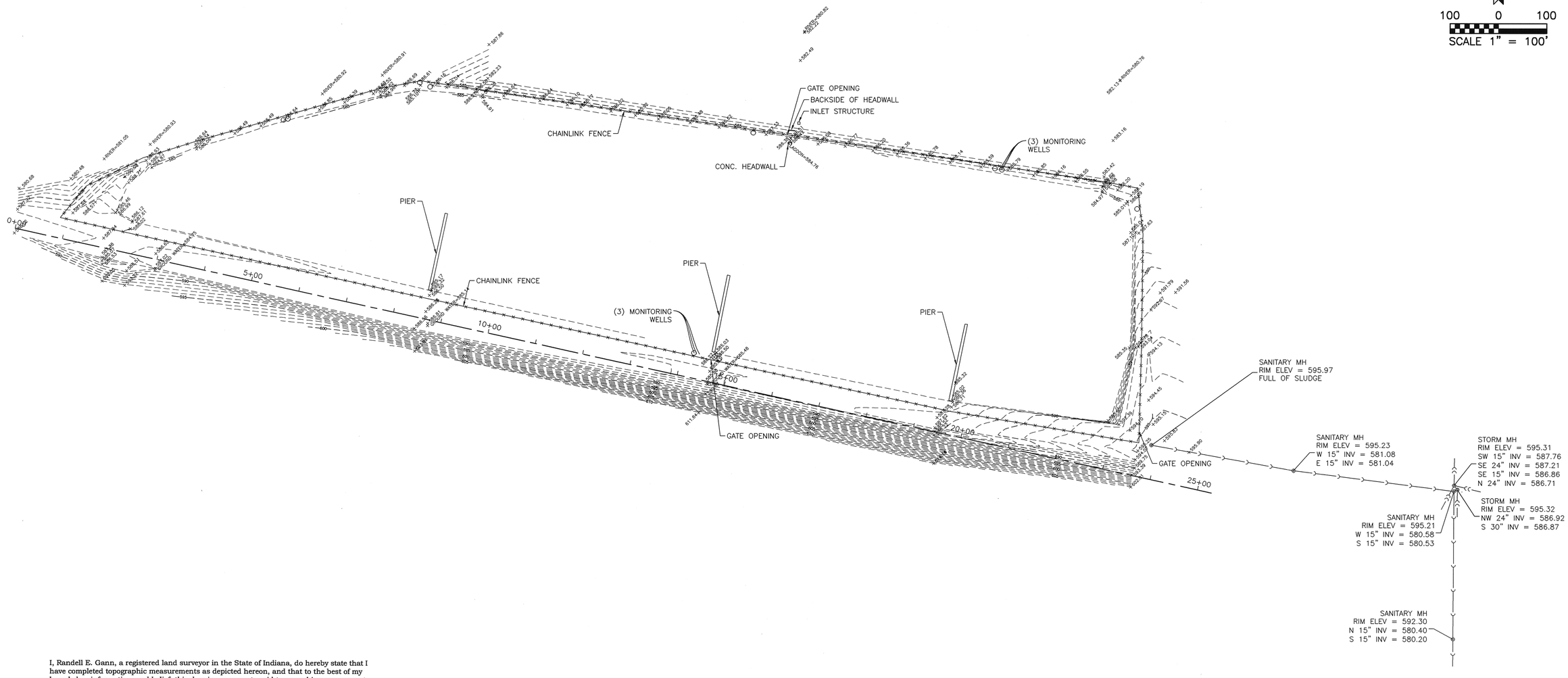
SECTION 1, TOWNSHIP 36 NORTH, RANGE 9 WEST OF THE 2ND P.M.

GARY SANITARY DISTRICT

RALSTON STREET LAGOON
CONTOURS & ELEVATIONS

N

100 0 100
SCALE 1" = 100'



I, Randell E. Gann, a registered land surveyor in the State of Indiana, do hereby state that I have completed topographic measurements as depicted hereon, and that to the best of my knowledge, information, and belief, this drawing represents said topographic measurements.

Randell E. Gann
Indiana Registered Land Surveyor #LS29600023
Expires July 31, 2006

The drawing is dated March 22, 2005.

RANDELL E. GANN REGISTERED NO. LS 29600023 STATE OF INDIANA LAND SURVEYOR

Exhibit 3A

BENCH MARK:

BENCH MARK GPS #93634
1/2" SS ROW IN A STANDARD GARY CAP
AT ENTRANCE TO GARY AIRPORT.
ELEVATION=NGVD 29(FEMA) 590.429

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RALSTON STREET LAGOON
GARY SANITARY DISTRICT
CONTOURS AND ELEVATIONS

GARY, INDIANA

Drawn by:	LTL/EDG	Date:	3/19/05
Checked by:	RS, REG	Scale:	1" = 100'
Sheet	1 of 2	Project No.	04-573

REVISIONS

No.	Date	Remarks
1	03/22/2005	CERT.

04573-TOPO-01

GARY SANITARY DISTRICT

RALSTON STREET LAGOON

SOIL BORING & MONITORING WELL LOCATIONS

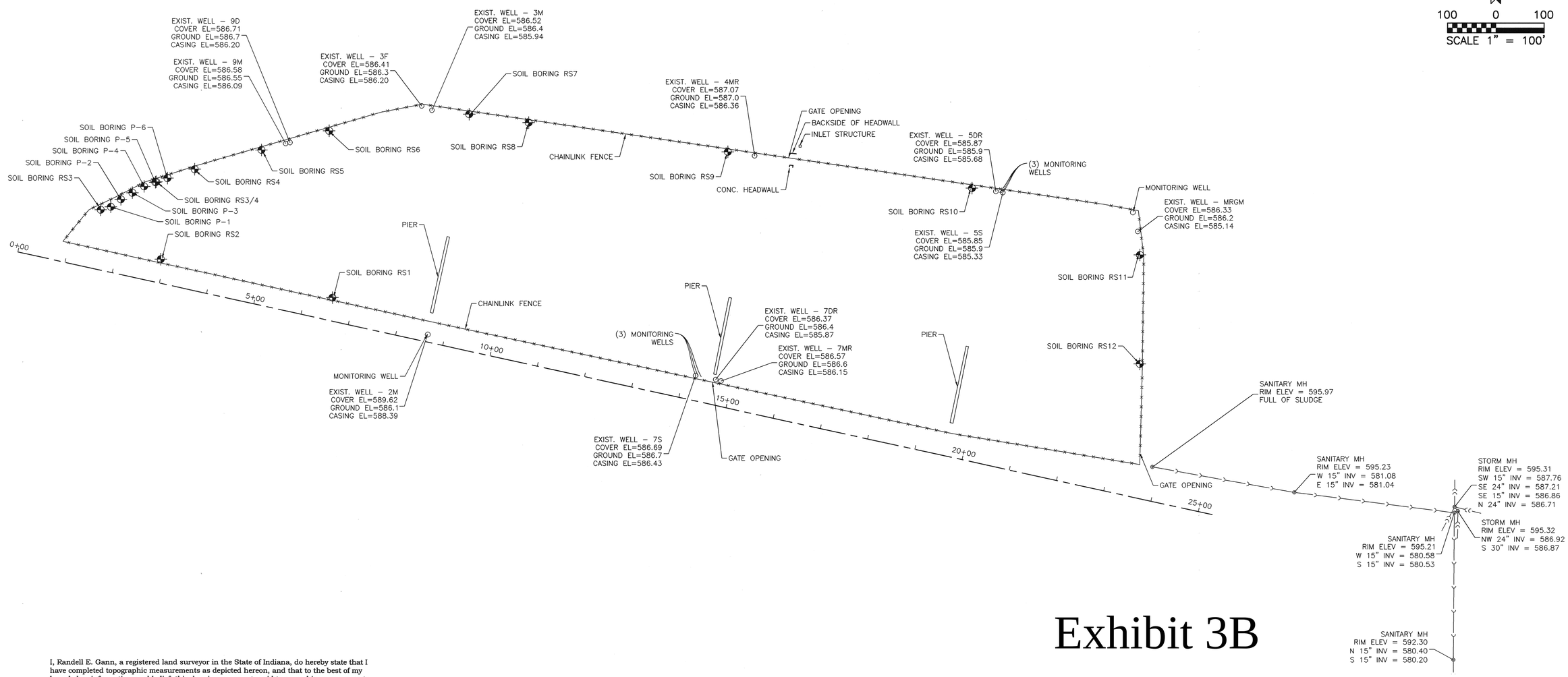

Exhibit 3B

I, Randell E. Gann, a registered land surveyor in the State of Indiana, do hereby state that I have completed topographic measurements as depicted hereon, and that to the best of my knowledge, information, and belief, this drawing represents said topographic measurements.

Randell E. Gann
Indiana Registered Land Surveyor #LS29600023
Expires July 31, 2006

The drawing is dated March 22, 2005.

RANDELL E. GANN
REGISTERED
NO. LS 29600023
STATE OF INDIANA
LAND SURVEYOR

LEGEND

- SOIL BORINGS
- MONITORING WELLS
- CHAINLINK FENCE
- PIER
- MANHOLE

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RALSTON STREET LAGOON
GARY SANITARY DISTRICT
BORING & MONITORING WELL LOCATIONS
GARY, INDIANA

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Checked by:	RS, REG	Scale:	1" = 100'
Sheet	2 of 2	Project No.	04-573

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2	03/22/2005	CERT.

04573-TOPO-01

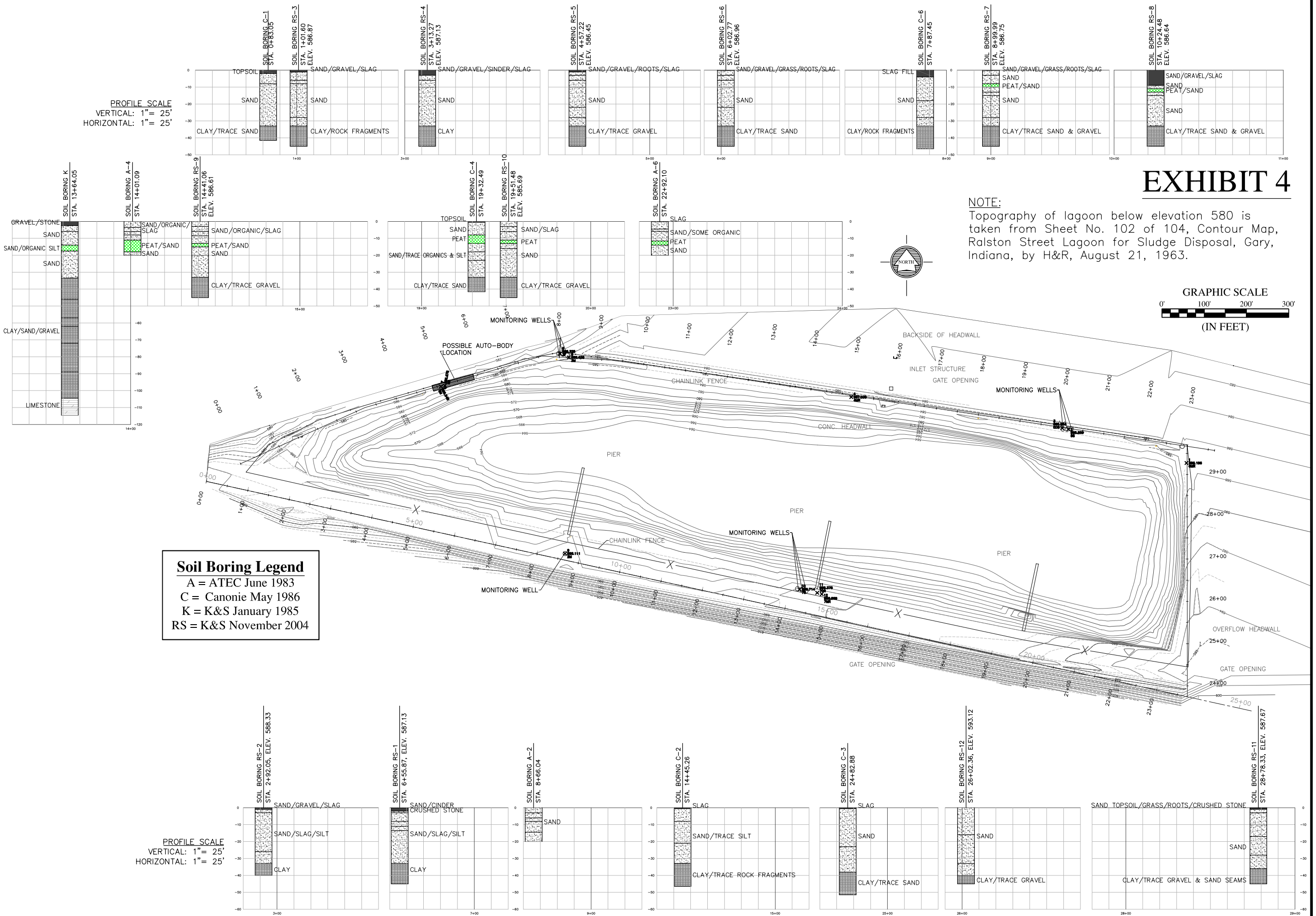

EXHIBIT 4

NOTE:
Topography of lagoon below elevation 580 is taken from Sheet No. 102 of 104, Contour Map, Ralston Street Lagoon for Sludge Disposal, Gary, Indiana, by H&R, August 21, 1963.

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Ralston Street Lagoon
Gary, Indiana

SOIL BORING PROFILES & PLAN

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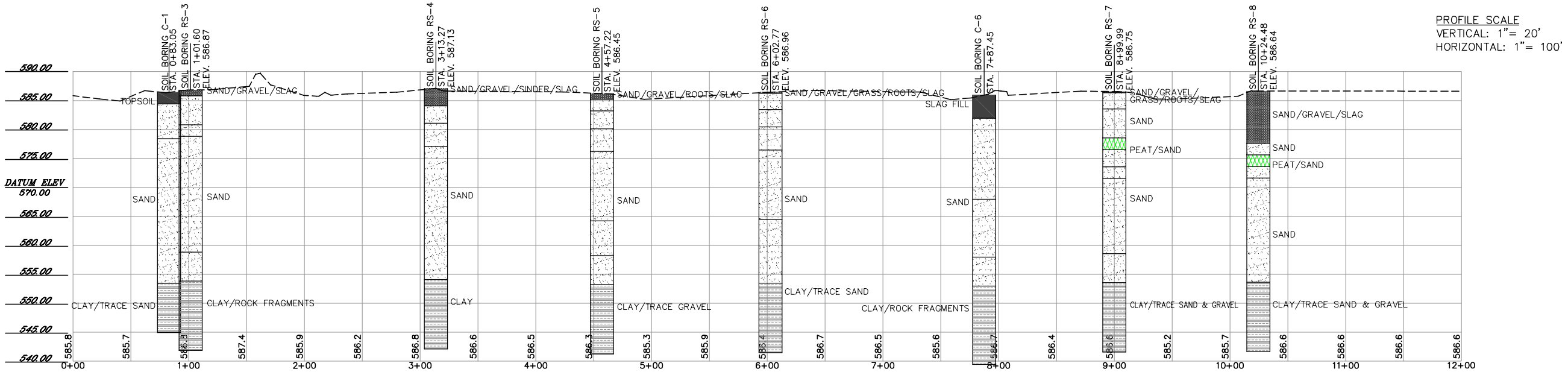

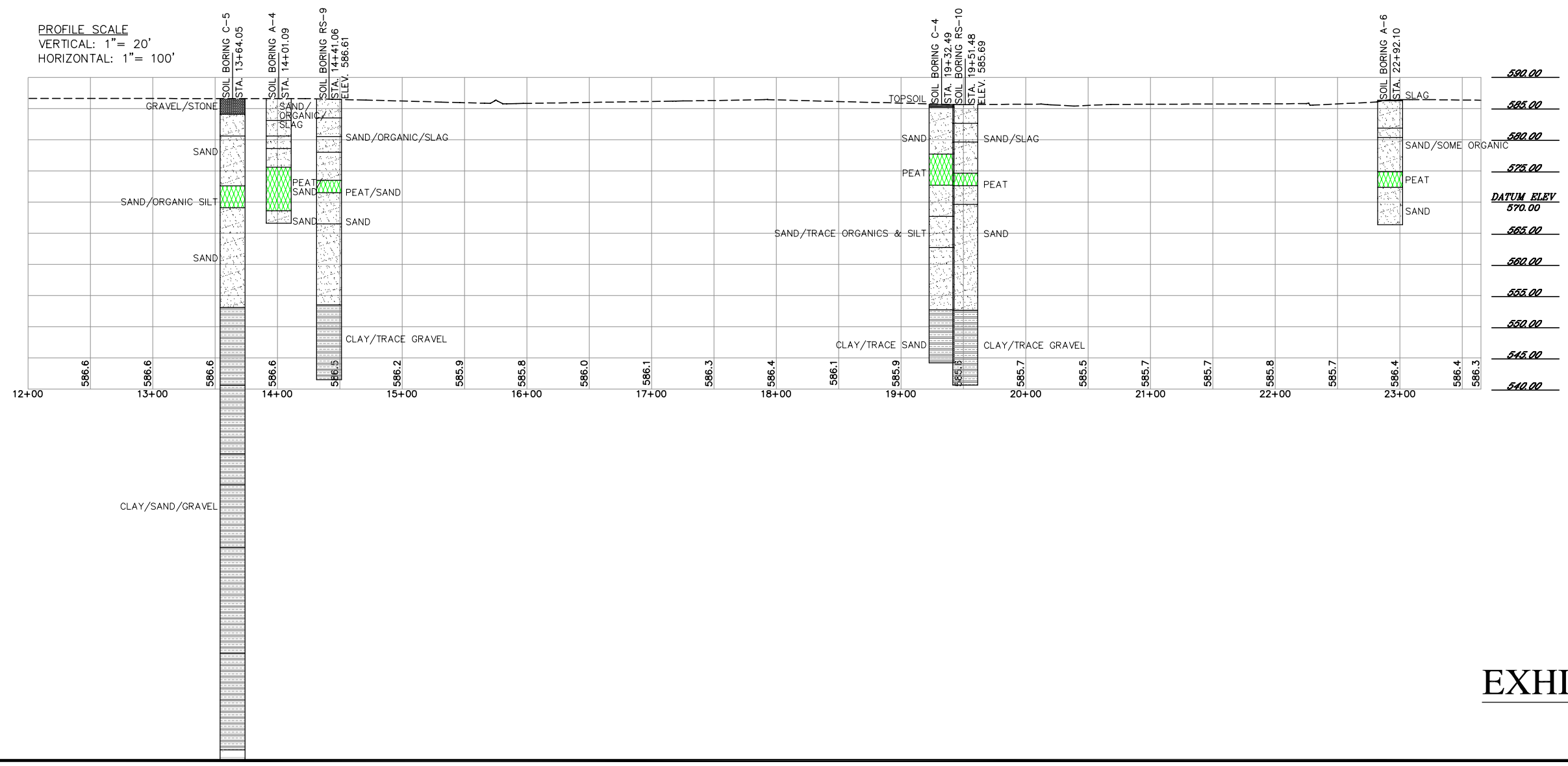

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Ralston Street Lagoon
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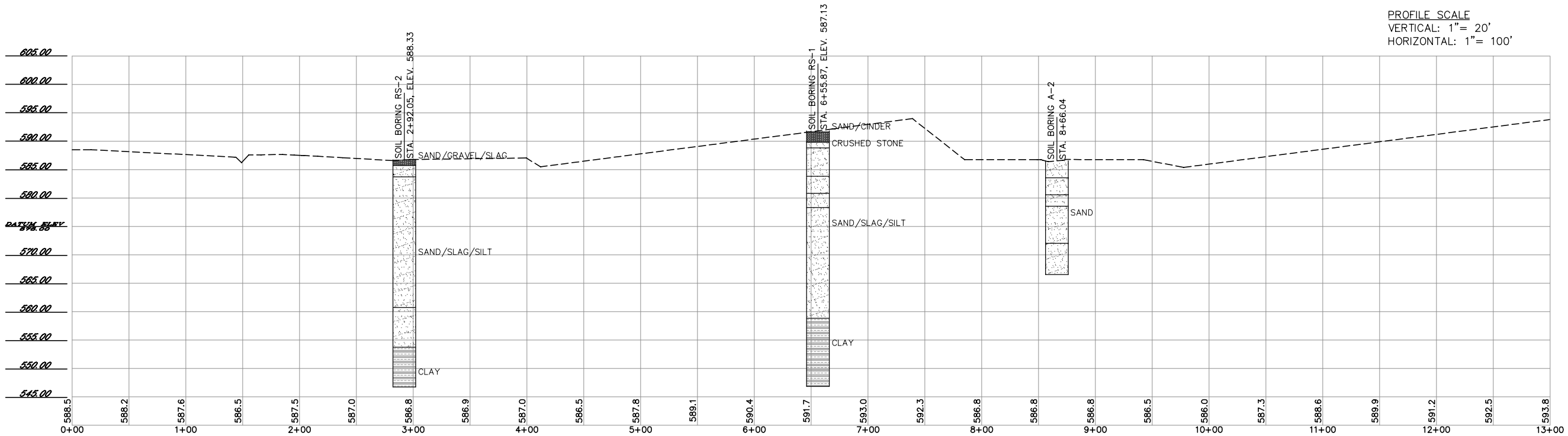

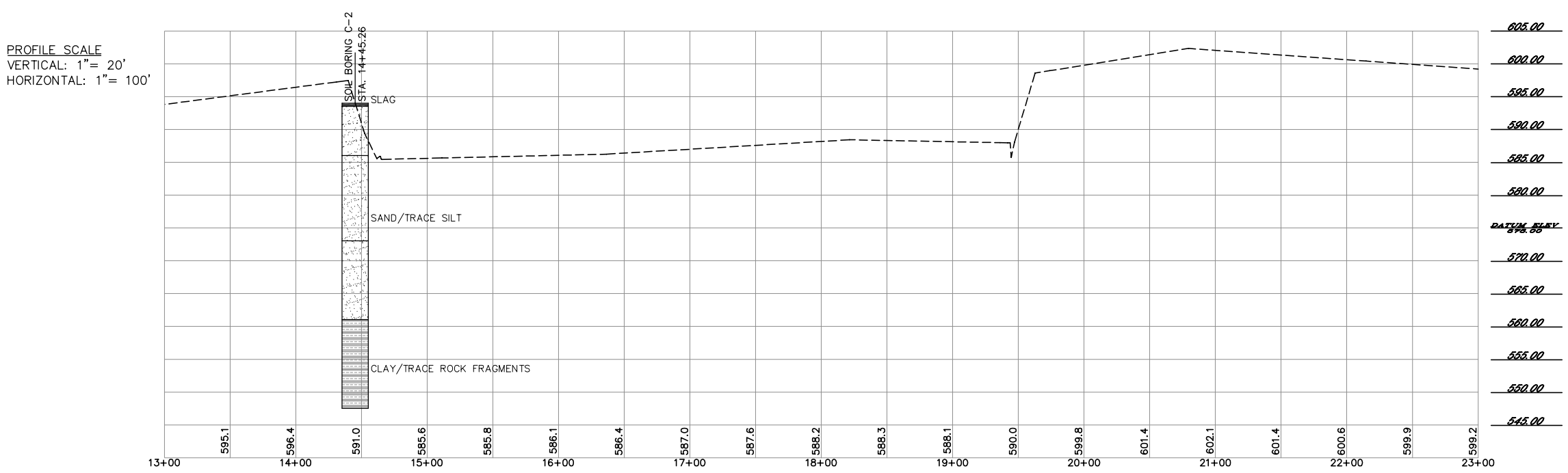

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Ralston Street Lagoon
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SOUTH BERM PROFILE

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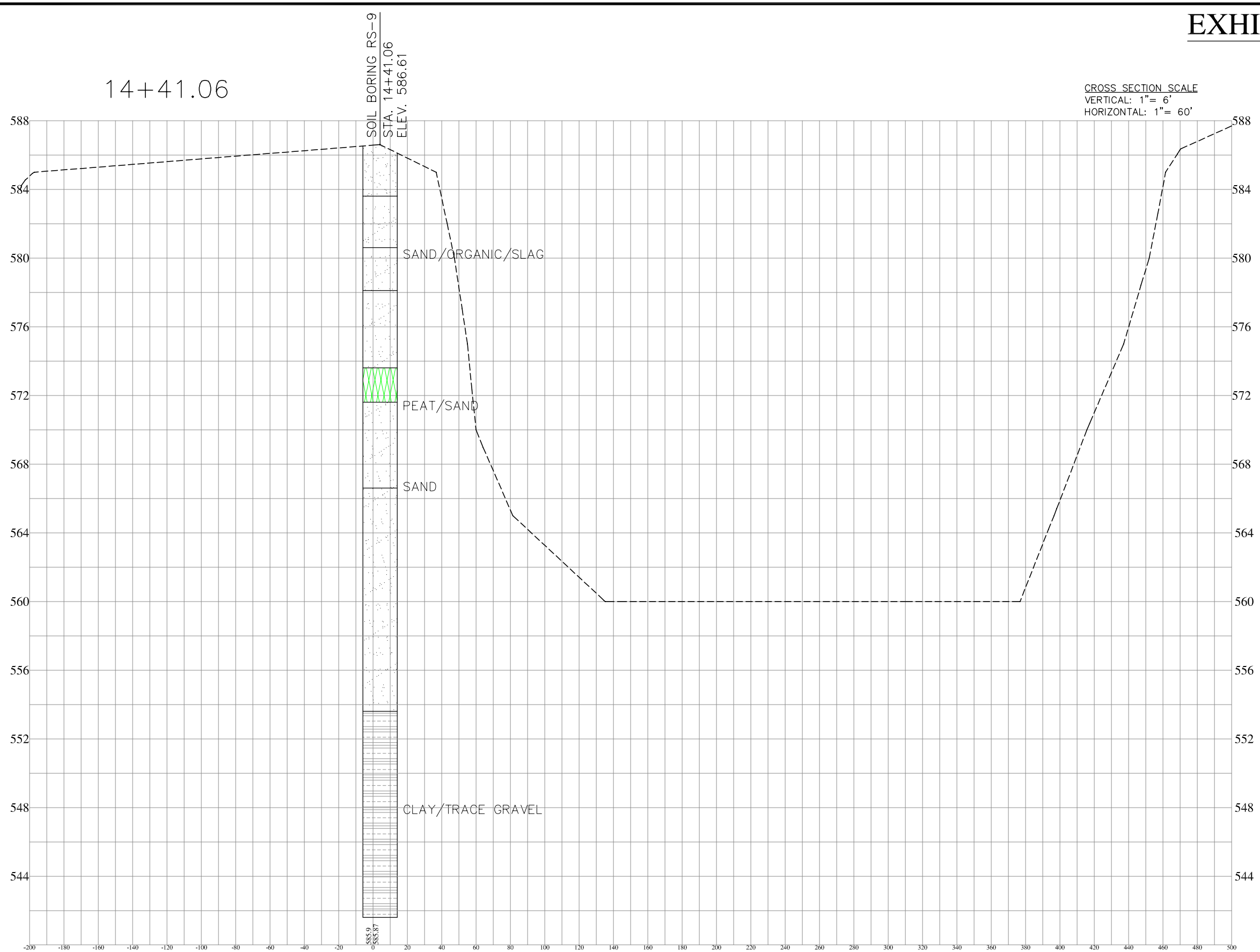

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X-SECTION OF EXIST. BERM 14+41.06

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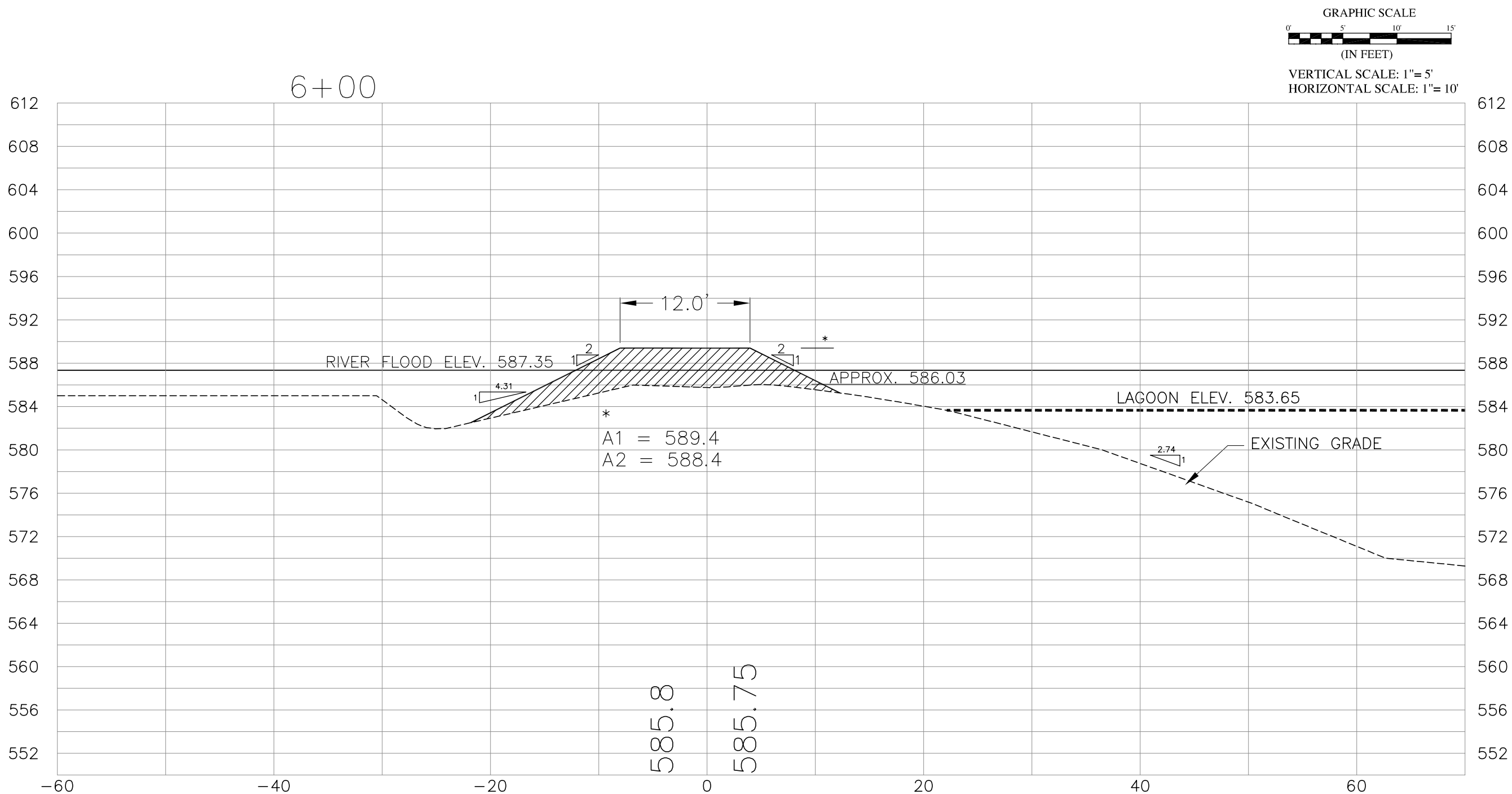

EXHIBIT 8
Alternative A

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Ralston St. Lagoon
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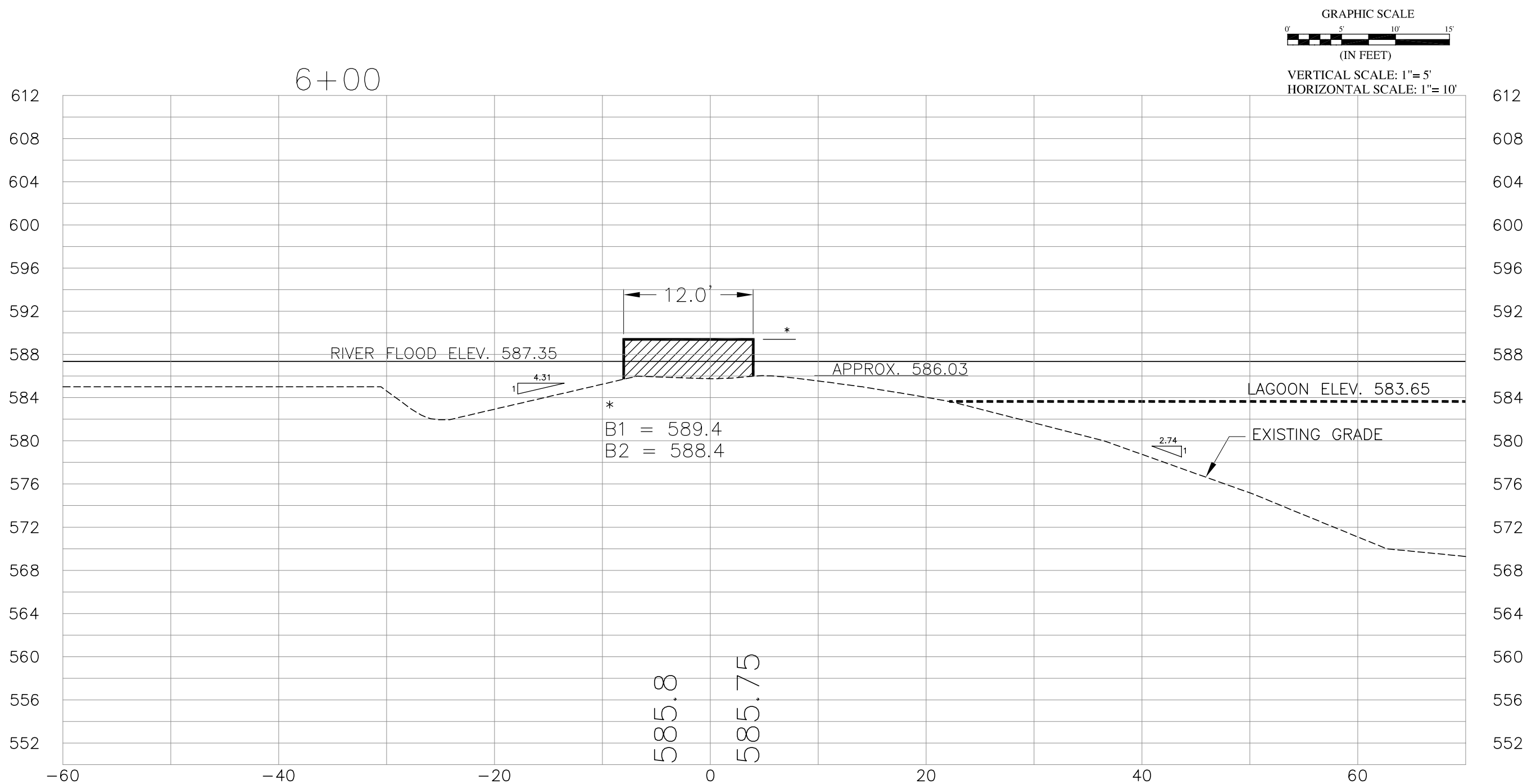

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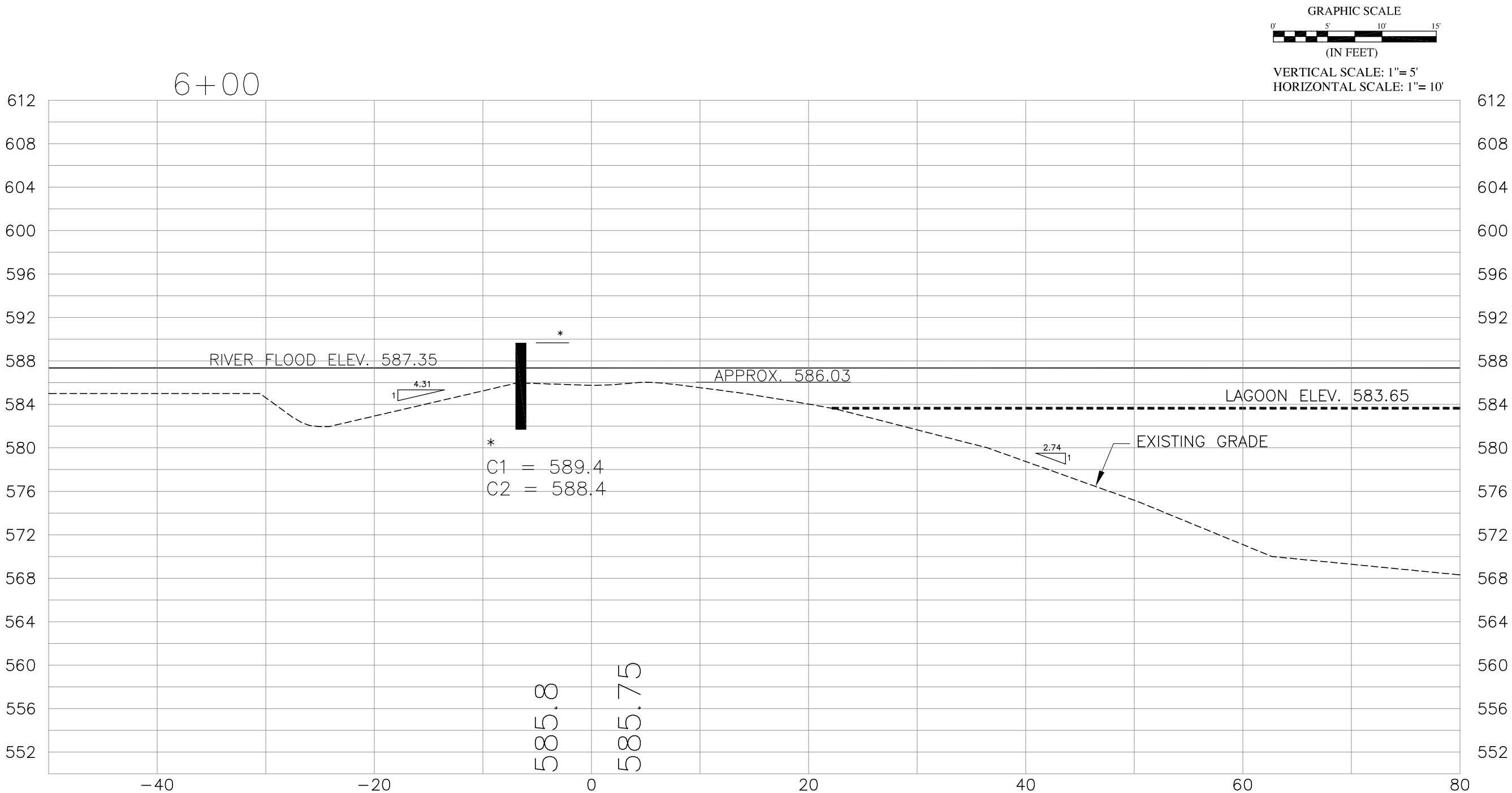

EXHIBIT 10
Alternative C

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RECOMMENDED PLAN

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SCALE
1"=200'
JOB NUMBER
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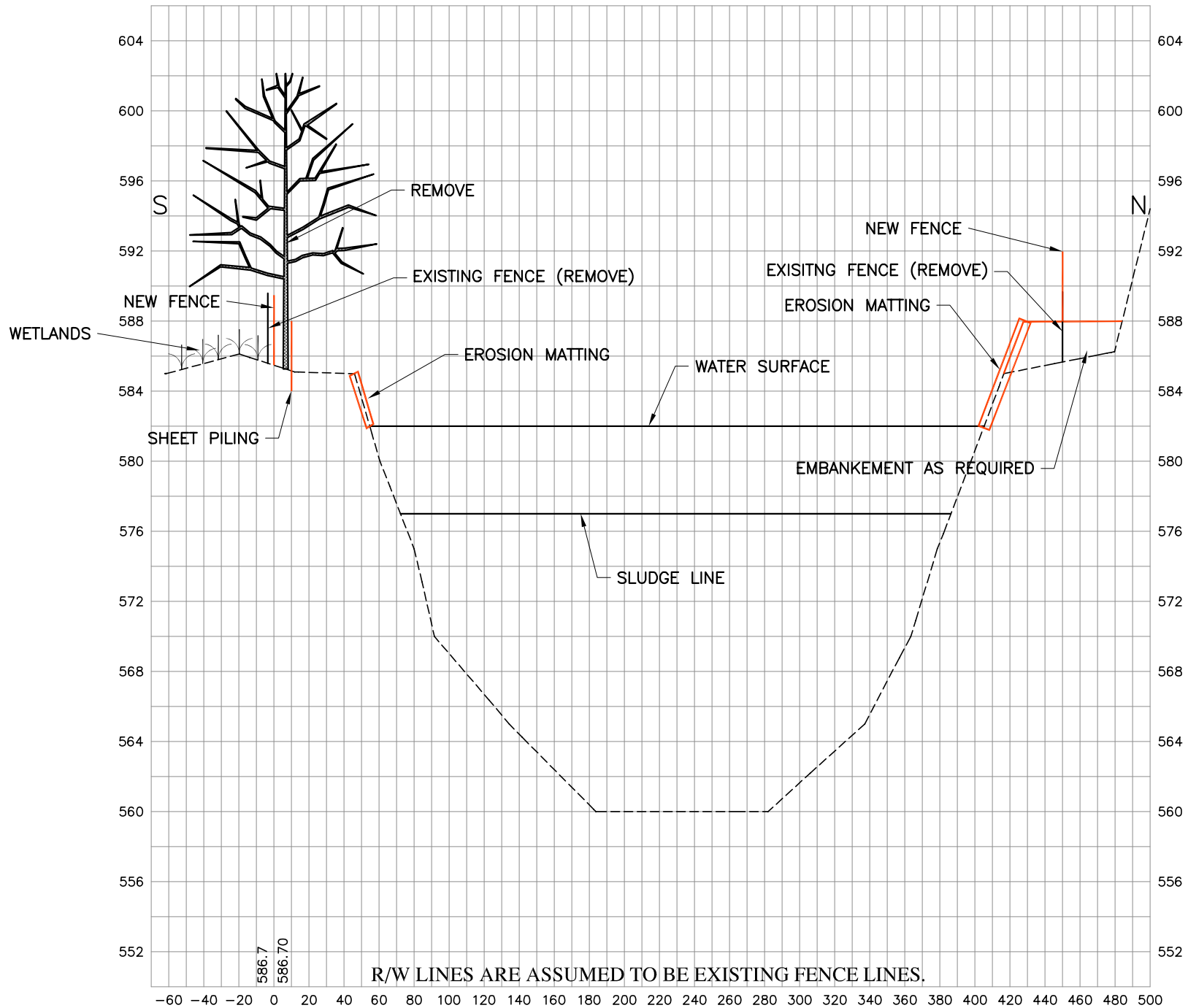
GRAPHIC SCALE

0' 5' 10' 15'

(IN FEET)

VERTICAL SCALE: 1"= 8'
HORIZONTAL SCALE: 1"= 80'



TYPICAL CROSS SECTION

EXHIBIT 12

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Ralston Street Lagoon
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RECOMMENDED ALTERNATIVE

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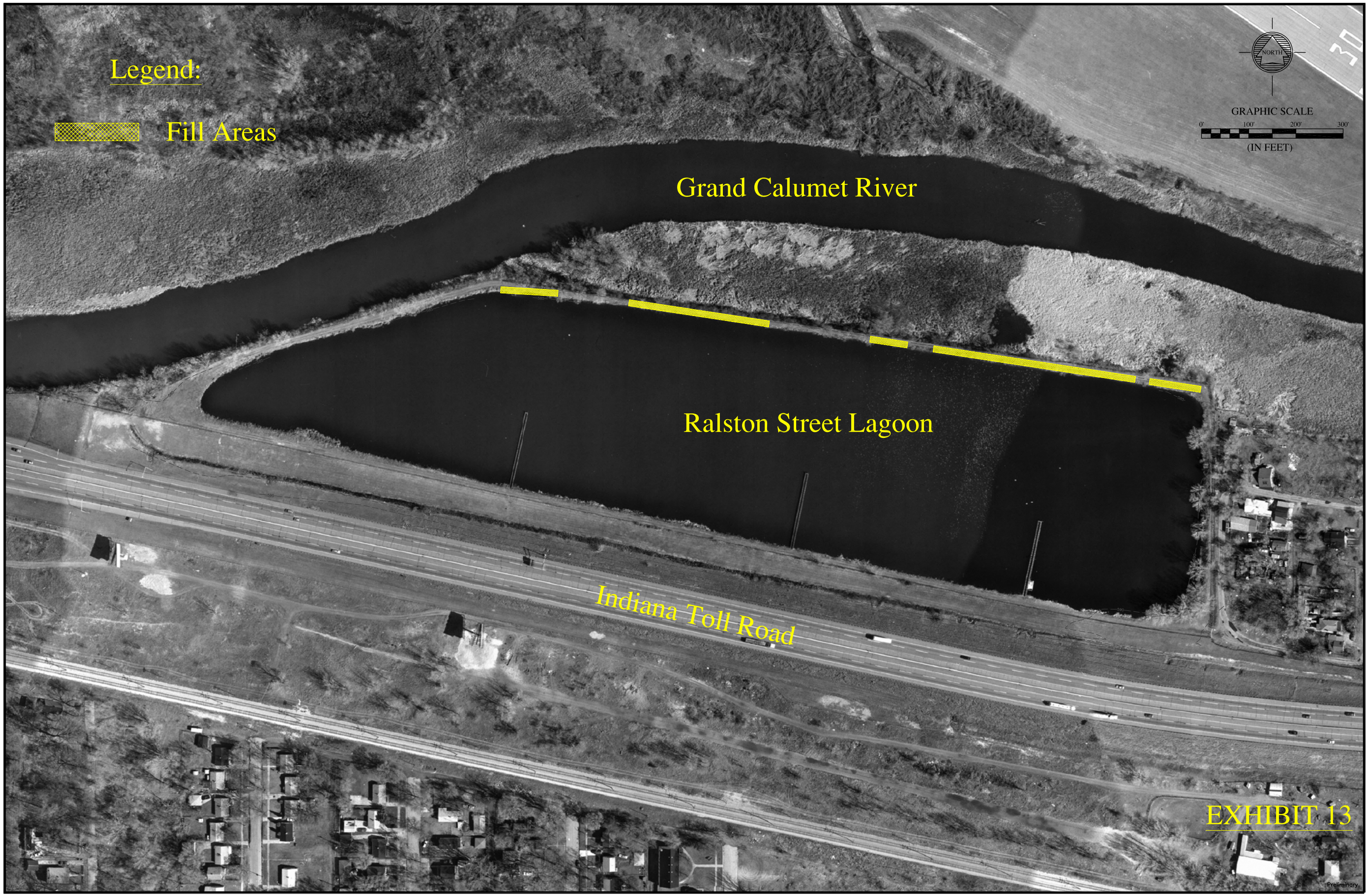

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Ralston Street Lagoon
Gary, Indiana

LOW AREAS OF BERM

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DATE
10/17/05
SCALE
1"=200'
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EX13

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Tables

Ralston Street Lagoon, Gary, Indiana								
Geotechnical Testing Results								
Table 1								
Boring #	**Sample #**	**DEPTH (FT)**	**Classification (based on Gradation)**	**Liquid Limit**	**Plastic Limit**	**Qu**	**Sp. Gravity**	**Coefficient of Permeability**
RS-1	S-11	35-37	Lean Clay	29	17	0.7	2.80	
RS-3	S-6	13.5-15.0	Poorly Graded Sand					
	S-9	28.5-30.0	Silty Sand					
	S-11	35-37	Lean Clay	29	17	0.6	2.81	
	S-13	38.5-40.5	Lean Clay	29	15	0.6	2.85	2.1×10^{-8} cm/sec.
RS-4	S-5	11-12.5	Poorly Graded Sand					
	S-11	35-37	Lean Clay	32	17	0.4	2.82	3.0×10^{-8} cm/sec.
RS-5	S-3	6.0-7.5	Poorly Graded Sand					
	S-6	13.5-15.0	Poorly Graded Sand					
	S-11	35-37	Lean Clay	29	18	0.6	2.81	
	S-13	38.5-40.5	Lean Clay	30	15	0.5	2.82	2.5×10^{-8} cm/sec.
RS-6	S-4	11-12.5	Silty Sand					
	S-11	35-37	Lean Clay with Sand	31	15	0.2	2.81	1.9×10^{-8} cm/sec.
RS-7	S-3	6.0-7.5	Poorly Graded Sand					
	S-6	13.5-15.0	Silty Sand					
	S-11	35-37	Lean Clay	31	17	0.6	2.82	
RS-8	S-6	13.5-15.0	Poorly Graded Sand					
RS-10	S-8	23.5-25.0	Silty Sand					
RS-11	S-12	40-42	Lean Clay	27	16	**	2.81	1.6×10^{-8} cm/sec.

Note:** Qu Test could not be performed on this one sample because of sand seams in the clay.

Ralston Street Lagoon, Gary, Indiana										
Geotechnical Information										
Table 2										
Boring Elevations										
Location	**Boring #**	**Depth (ft)**	**Ground Elevation**	**Fill/Sand**	**Sand/Clay**	**Seams Begin**	**Seams End**	**Peat Begin**	**Peat End**	**Groundwater**
S	RS-1	45.0	587.0	584.0	554.0	-	-	-	-	584.0
SW	RS-2	40.0	588.5	585.5	555.5	-	-	-	-	585.5
W	RS-3	45.0	587.0	586.0	554.0	-	-	-	-	583.0
W	RS-4	45.0	587.0	584.0	554.0	581.0	577.0	-	-	583.0
NW	RS-5	45.0	586.5	585.5	553.5	583.5	576.5	-	-	583.5
NW	RS-6	45.0	587.0	584.0	554.0	581.0	577.0	-	-	584.0
NW	RS-7	45.0	587.0	584.0	554.0	577.0	574.0	579.0	577.0	583.5
NW	RS-8	45.0	586.5	577.5	553.5	579.5	575.5	575.5	573.5	583.0
NW	RS-9	45.0	586.5	583.5	553.5	578.0	573.5	573.5	571.5	580.5
NW	RS-10	45.0	585.5	582.5	552.5	-	-	574.5	572.5	579.5
E	RS-11	45.0	587.5	584.5	551.5	-	-	-	-	584.0
E	RS-12	45.0	593.0	-	553.0	-	-	-	-	584.5

Ralston Street Lagoon, Gary, Indiana		
Berm Widths and Elevations		
Table 3		
Station	Elevation	Berm Width
0+00	585.80	-
0+50	585.70	-
1+00	586.80	-
1+50	587.40	-
1+00	585.90	-
1+50	586.20	-
2+00	586.80	-
2+50	586.60	-
3+00	586.80	15.11
3+50	586.60	13.25
4+00	586.50	13.53
4+50	586.30	16.14
5+00	585.30	20.03
5+50	585.90	23.11
6+00	586.40	13.55
6+50	586.70	14.11
7+00	586.50	14.94
7+50	585.60	17.14
8+00	586.70	18.74
8+50	586.40	17.89
9+00	586.60	13.31
9+50	585.20	12.00
10+00	585.70	14.00
10+50	586.60	41.38
11+00	586.60	41.25
11+50	586.60	40.89
12+00	586.60	39.67
12+50	586.60	37.83
13+00	586.60	36.41
13+50	586.60	36.25
14+00	586.60	30.50
14+50	586.50	29.65
15+00	586.20	26.56
15+50	585.90	24.00
16+00	585.80	28.13
16+50	586.00	26.87
17+00	586.10	26.70
17+50	586.30	30.00
18+00	586.40	33.74
18+50	586.10	32.23
19+00	585.90	34.88
19+50	585.60	36.55
20+00	585.70	39.54
20+50	585.50	40.46
21+00	585.70	40.45
21+50	585.70	40.17
22+00	585.80	30.78
22+50	585.70	30.00
23+00	586.40	-
23+50	586.40	-
Average Elevation=	**586.22**	
	Average Width=	**27.99**

Table 4
GARY SANITARY DISTRICT
RALSTON STREET LAGOON
BERM EXTENSION OPTIONS
ALTERNATIVE No. A-1
EXTEND BERM TO ELEV 589.4 USING EARTH FILL

	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
1	Stripping of Topsoil	SY	9,725	$1	$9,725
2	Earth Fill	CY	6,300	$24	$151,200
3	Erosion Control Matting	SY	7,000	$3	$21,000
4	Clearing of Brush and Trees	Ac	2	$20,000	$40,000
5	Seeding and Final Grading	SY	12,000	$1	$12,000
6	Chain Link Fence	LF	5,200	$20	$104,000
7	Bond, Mobilization, etc	LS	1	$25,300	$25,300
				Construction Subtotal	$363,225
				10% Contingencies	$36,300
				Total Construction Costs	$399,525
				Non-Construction Costs	$99,900
				Total Project Costs	$499,425

Table 5
GARY SANITARY DISTRICT
RALSTON STREET LAGOON
BERM EXTENSION OPTIONS
ALTERNATIVE No. A-2
EXTEND BERM TO ELEV 588.4 USING EARTH FILL

	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
1	Stripping of Topsoil	SY	7,225	$1	$7,225
2	Earth Fill	CY	3,615	$24	$86,760
3	Erosion Control Matting	SY	5,000	$3	$15,000
4	Clearing of Brush and Trees	Ac	2	$20,000	$40,000
5	Seeding and Final Grading	SY	12,000	$1	$12,000
6	Chain Link Fence	LF	5,200	$20	$104,000
7	Bond, Mobilization, etc	LS	1	$19,900	$19,900
				Construction Subtotal	$284,885
				10% Contingencies	$28,500
				Total Construction Costs	$313,385
				Non-Construction Costs	$78,300
				Total Project Costs	$391,685

Table 6
GARY SANITARY DISTRICT
RALSTON STREET LAGOON
BERM EXTENSION OPTIONS
ALTERNATIVE No. B-1
EXTEND BERM TO ELEV 589.4 USING RETAINING WALLS AND EARTH

	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
1	Stripping of Topsoil	SY	4,150	$1	$4,150
2	Earth Fill	CY	3,350	$14	$46,900
3	Retaining Walls	SF	25,000	$15	$375,000
4	Foundation Concrete	CY	370	$250	$92,500
5	Clearing of Brush and Trees	Ac	2	$20,000	$40,000
6	Seeding and Final Grading	SY	12,000	$1	$12,000
7	Chain Link Fence	LF	5,200	$20	$104,000
8	Bond, Mobilization, etc	LS	1	$50,600	$50,600
				Construction Subtotal	$725,150
				10% Contingencies	$72,500
				Total Construction Costs	$797,650
				Non-Construction Costs	$199,400
				Total Project Costs	$997,050

Table 7

GARY SANITARY DISTRICT

RALSTON STREET LAGOON

BERM EXTENSION OPTIONS

ALTERNATIVE No. B-2

EXTEND BERM TO ELEV 588.4 USING RETAINING WALLS AND EARTH

	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
1	Stripping of Topsoil	SY	4,150	$1	$4,150
2	Earth Fill	CY	2,225	$14	$31,150
3	Retaining Walls	SF	20,000	$15	$300,000
4	Foundation Concrete	CY	370	$250	$92,500
5	Clearing of Brush and Trees	Ac	2	$20,000	$40,000
6	Seeding and Final Grading	SY	12,000	$1	$12,000
7	Chain Link Fence	LF	5,200	$20	$104,000
8	Bond, Mobilization, etc	LS	1	$43,800	$43,800
				Construction Subtotal	$627,600
				10% Contingencies	$62,800
				Total Construction Costs	$690,400
				Non-Construction Costs	$172,600
				Total Project Costs	$863,000

Table 8
GARY SANITARY DISTRICT
RALSTON STREET LAGOON
BERM EXTENSION OPTIONS
ALTERNATIVE No. C-1
SHEET PILE FLOOD WALL TO ELEV 589.4

	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
1	Sheet Pile Wall	SF	20,000	$18	$360,000
2	Clearing of Brush and Trees	Ac	2	$20,000	$40,000
3	Seeding and Final Grading	SY	12,000	$1	$12,000
4	Chain Link Fence	LF	5,200	$20	$104,000
5	Bond, Mobilization, etc	LS	1	$38,700	$38,700
				Construction Subtotal	$554,700
				10% Contingencies	$55,500
				Total Construction Costs	$610,200
				Non-Construction Costs	$152,600
				Total Project Costs	$762,800

Table 9
GARY SANITARY DISTRICT
RALSTON STREET LAGOON
BERM EXTENSION OPTIONS
ALTERNATIVE No. C-2
SHEET PILE FLOOD WALL TO ELEV 588.4

	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
1	Sheet Pile Wall	SF	17,500	$18	$315,000
2	Clearing of Brush and Trees	Ac	2	$20,000	$40,000
3	Seeding and Final Grading	SY	12,000	$1	$12,000
4	Chain Link Fence	LF	5,200	$20	$104,000
5	Bond, Mobilization, etc	LS	1	$35,300	$35,300
				Construction Subtotal	$506,300
				10% Contingencies	$50,600
				Total Construction Costs	$556,900
				Non-Construction Costs	$139,200
				Total Project Costs	$696,100

Table 10
GARY SANITARY DISTRICT
RALSTON STREET LAGOON
BERM EXTENSION OPTIONS
RECOMMENDED PLAN
COMBINATION EARTH FILL AND SHEETPILE WALL

	ITEM	UNIT	QTY.	UNIT PRICE	AMOUNT
1	Stripping of Topsoil	SY	9,725	$1	$9,725
2	Earth Fill	CY	710	$24	$17,040
3	Sheetpile Wall	SF	17,760	$18	$319,680
4	Erosion Control Matting	SY	7,000	$3	$21,000
5	Clearing of Brush and Trees	Ac	2	$20,000	$40,000
6	Seeding and Final Grading	SY	12,000	$1	$12,000
7	Miscellaneous Obstruction Removal	LS	1	$20,000	$20,000
8	Chain Link Fence	LF	5,200	$20	$104,000
9	Bond, Mobilization, etc	LS	1	$40,800	$40,800
				Construction Subtotal	$584,245
				10% Contingencies	$58,400
				Total Construction Costs	$642,645
				Non-Construction Costs	$160,700
				Total Project Costs	$803,345

Appendix A

ELEVATION REFERENCE MARKS

REFERENCE MARKS	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 1	587.69	Top of 1.5-inch pipe used as gate holder located approximately 2500 feet south of hangers at Gary Municipal Airport, 5 feet west of fence.

KEY TO MAP

500-Year Flood Boundary
100-Year Flood Boundary
Zone Designations* With Date of Identification Feb. 15, 1974
100-Year Flood Boundary
500-Year Flood Boundary
ZONE B
ZONE A1 DATE
ZONE A3 DATE
ZONE B

Base Flood Elevation Line With Elevation In Feet** — 513

Base Flood Elevation In Feet Where Uniform Within Zone** — (EL 987)

Elevation Reference Mark — RM7 ×

River Mile — • M1.6

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard area (Zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all plainimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
JUNE 28, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
JUNE 4, 1976
APRIL 15, 1977

FLOOD INSURANCE RATE MAP EFFECTIVE:
MARCH 16, 1981

FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when structural flood proofing is required in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE
400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
GARY,
INDIANA
LAKE COUNTY

PANEL 18 OF 19
SEE MAP INDEX FOR PANELS NOT PRINTED

PROOF

COMMUNITY-PANEL NUMBER
180132 0018 C

EFFECTIVE DATE:
MARCH 16, 1981

federal emergency management agency
federal insurance administration

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION		
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	WITH FLOODWAY (NGVD)	WITHOUT FLOODWAY (NGVD)	DIFFERENCE
GRAND CALUMET RIVER							
A	8.737	131	1002	3.4	586.5	586.4	0.1
B	9.232	318	1949	1.7	587.2	587.1	0.1
C	9.601	423	2626	1.3	587.5	587.4	0.1
D	10.021	996	5969	0.4	587.6	587.5	0.1
E	10.518	335	2142	1.2	587.7	587.6	0.1
F	10.784	132	972	2.7	587.9	587.8	0.1
G	11.043	330	1865	1.4	588.2	588.1	0.1
H	11.157	165	1143	2.2	588.7	588.6	0.1
I	11.203	198	1732	1.5	589.0	588.9	0.1
J	11.677	254	1730	1.5	589.1	589.0	0.1
K	12.169	208	1738	1.5	589.5	589.4	0.1
L	12.371	459	2624	0.7	589.5	589.4	0.1
M	12.743	308	2301	0.8	589.6	589.5	0.1
N	13.189	244	1483	1.2	589.6	589.5	0.1
O	13.370	146	1114	1.6	589.6	589.5	0.1
P	13.576	89	1043	1.1	589.8	589.7	0.1
Q	13.663	127	996	1.2	589.8	589.7	0.1
R	13.951	129	1067	1.1	589.9	589.8	0.1
S	14.313	86	910	1.3	590.0	589.9	0.1
T	14.693	75	480	2.4	590.3	590.2	0.1
U	15.098	77	410	0.5	590.9	590.8	0.1
V	15.425	74	383	0.5	591.0	590.9	0.1
W	15.815	67	325	0.6	591.0	590.9	0.1
X	16.087	51	248	0.0	591.0	590.9	0.1

[1]MILES ABOVE MOUTH

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration
CITY OF GARY, IN
(LAKE CO.)

FLOODWAY DATA

GRAND CALUMET RIVER

Appendix B

Water Resources

Data Category: Surface Water | Geographic Area: United States | go

Peak Streamflow for the Nation

USGS 04092677 GRAND CALUMET RIVER AT INDUSTRIAL HWY AT GARY, IN

Available data for this site | Site home page | GO

Lake County, Indiana
Hydrologic Unit Code 04040001
Latitude 41°36'28", Longitude 87°23'37" NAD27
Gage datum 580.00 feet above sea level NGVD29

Output formats

- Table
- Graph
- Tab-separated file
- WATSTORE formatted file
- Reselect output format

Water Year	Date	Gage Height (feet)	Stream-flow (cfs)
1995	Jun. 07, 1995	3.20	688
1996	Jul. 18, 1996	3.97	891
1997	Feb. 21, 1997	3.19	720
1998	May 07, 1998	3.08	749
1999	Jun. 01, 1999	2.44	841
2000	Jun. 24, 2000	3.70	1,010
2001	2001		
2002	May 12, 2002	3.56	837
2003	Jul. 27, 2003	2.47	1,130

Questions about data Water Webserver Team
Feedback on this website NWISWeb Support Team

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Explanation of terms

Surface Water for USA: Peak Streamflow
http://waterdata.usgs.gov/nwis/peak?

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1.2 0.96 nadww01

Water Resources

Data Category: Surface Water
Geographic Area: United States
go

Calendar Year Streamflow Statistics for the Nation

USGS 04092677 GRAND CALUMET RIVER AT INDUSTRIAL HWY AT GARY, IN

Available data for this site Surface-water: Annual streamflow statistics GO

Lake County, Indiana
Hydrologic Unit Code 04040001
Latitude 41°36'28", Longitude 87°23'37" NAD27
Gage datum 580.00 feet above sea level NGVD29

Output formats

HTML table of all data
Tab-separated data
Reselect output format

Year	Annual mean streamflow, in ft^3/s	Year	Annual mean streamflow, in ft^3/s	Year	Annual mean streamflow, in ft^3/s
1995	457	1998	510	2001	508
1996	449	1999	559	2002	559
1997	462	2000	525		

Questions about data Water Webserver Team
Feedback on this website NWISWeb Support Team

Top
Explanation of terms

Surface Water data for USA: Calendar Year Streamflow Statistics
http://waterdata.usgs.gov/nwis/annual/calendar_year?

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1.21 0.99 nadww01

Water Resources

Data Category: Surface Water | Geographic Area: United States | go

Monthly Streamflow Statistics for the Nation

USGS 04092677 GRAND CALUMET RIVER AT INDUSTRIAL HWY AT GARY, IN

Available data for this site Surface-water: Monthly streamflow statistics GO

Lake County, Indiana
Hydrologic Unit Code 04040001
Latitude 41°36'28", Longitude 87°23'37" NAD27
Gage datum 580.00 feet above sea level NGVD29

Output formats

HTML table of all data
Tab-separated data
Reselect output format

YEAR	Monthly mean streamflow, in ft^3/s											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1994										454	473	455
1995	448	450	470	483	460	459	434	469	478	466	438	425
1996	427	419	404	381	400	496	493	493	482	482	463	444
1997	441	456	448	430	423	464	455	480	482	494	494	478
1998	513	515	532	531	516	479	502	523	508	494	506	501
1999	515	534	548	579	587	608	578	596	594	543	502	523
2000	487	497	538	548	575	612	572	535	532	500	478	431
2001	452	511	509	549	526	513	497	513	514	513	502	502
2002	416	488	503	541	608	662	711	597	625	591	510	457
2003	446	434	458	516	563	610	677	711	625			
Mean of monthly streamflows	461	478	490	506	518	545	547	546	538	504	485	468

Questions about data Water Webserver Team
Feedback on this website NWISWeb Support Team

Top
Explanation of terms

Surface Water data for USA: Monthly Streamflow Statistics
http://waterdata.usgs.gov/nwis/monthly?

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Water Resources

Data Category: Surface Water
Geographic Area: United States
go

Streamflow Measurements for the Nation

USGS 04092677 GRAND CALUMET RIVER AT INDUSTRIAL HWY AT GARY, IN

Available data for this site Surface-water: Measurements GO

Lake County, Indiana
Hydrologic Unit Code 04040001
Latitude 41°36'28", Longitude 87°23'37" NAD27
Gage datum 580.00 feet above sea level NGVD29

Output formats

- HTML table of all measurement data
- Tab-separated data
- Graph of measurement data (GIF format)
- Reselect output format

Number	Date	Made By	Width (ft)	Area (ft^2)	Mean Vel (ft/s)	Inside Gage Height (ft)	Outside Gage Height (ft)	Stream flow (ft^3/s)	Shift Adj (ft)	MS Rated	Number of Sections	GH Char (ft
25	2004-10-20 10:45	rgk/msh	73.6	323	1.72	1.61		554	0.00	F		0
24	2004-07-01 16:05	rgk/lmj	88.0	422	1.00	3.39		421	0.00	P		0
23	2004-04-15 11:24	rgk/blb	77.7	344	1.33	1.41		459	0.00	P		0
22	2004-02-25 12:50	rgk/msh	82.4	374	1.27	1.25		474	0.00	F		
21	2003-10-29 16:26	rgk/lmj	76.0	372	1.40	1.42		519	0.00	P		0
20	2003-06-04 13:48	rgk/lmj	74.7	282	2.10	1.21	1.21	592	0.00	F		-0
19	2002-11-20 08:50	rgk/cdm	80.4	293	1.82	1.14	1.14	532	0.00	F		0
	2002-											

18	05-06 14:32	sem/jhp	72.0	372	1.71	1.90	1.88	640	0.00	P		
17	1999-09-14 15:01	MSR/JAS			0.00	1.33	1.29	611	0.00	F		
16	1998-08-18 08:07	sem/htn			0.00	2.30		537	0.00	F		
15	1998-03-25 10:31	PRB/BTR	75.0	281	1.87	1.65	1.65	528	0.00	G	26	-0
14	1993-09-09 09:10	tje	66.0	256	1.99	1.94	1.95	505	0.00	G	24	-0
13	1993-07-27 09:30	TJE	73.0	340	1.31	3.36	3.37	446	0.00	G	26	+0
12	1993-06-04 09:55	TJE/RS	69.0	318	1.39	2.90	2.89	442	0.00	G	25	+0
11	1993-04-05 13:25	TJE	66.0	275	1.62	1.94	1.92	446	0.00	G	25	-0
10	1993-02-01 11:00	TJE	62.0	246	1.75	1.54	1.57	431	0.00	G	28	-0
9	1992-12-07 11:05	TJE/SEM	60.0	218	1.70	1.37	1.38	370	0.00	G	21	+0
8	1992-10-18 14:21	SEM	63.0	272	1.63	1.90	1.92	442	0.00	F	21	0
7	1992-06-30 08:55	JTL	81.0	393	1.11	3.48	3.50	437	0.00		28	+0
6	1992-04-28 13:00	SEM	81.0	326	1.59	2.24	2.25	518	0.00	G	31	+0
5	1992-03-10 15:00	SEM	65.0	258	1.34	2.36	2.39	358	0.00	G	28	0
4	1992-01-28 13:24	SEM	62.0	202	1.94	1.46	1.48	392	0.00	F	28	0
	1991-											

3	12-16 13:18	SEM/RGK	61.0	233	1.80	1.66	1.64	420	0.00	G	28	+0
2	1991-11-22 08:30	BLB/SEM	60.0	238	1.93	2.04	2.00	460	0.00	G	29	-0
1	1991-10-16 12:40	SEM	67.0	245	1.71	2.26	2.26	418	0.00	G	28	0

Questions about data Water Webserver Team
Feedback on this website NWIS Web Support Team

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Explanation of terms

Surface Water for USA: Streamflow Measurements
http://waterdata.usgs.gov/nwis/measurements?

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1.22 0.94 nadww01

Water Resources

Data Category: Real-time

Geographic Area: Indiana

go

NOTE: During winter months, stage and discharge may be affected by ice. Click here for more information.

USGS 04092677 GRAND CALUMET RIVER AT INDUSTRIAL HWY AT GARY, IN

PROVISIONAL DATA SUBJECT TO REVISION

Available data for this site Real-time GO

This gaging station is maintained in cooperation with:

- **Indiana Department of Environmental Management**
- **The U.S. Geological Survey**

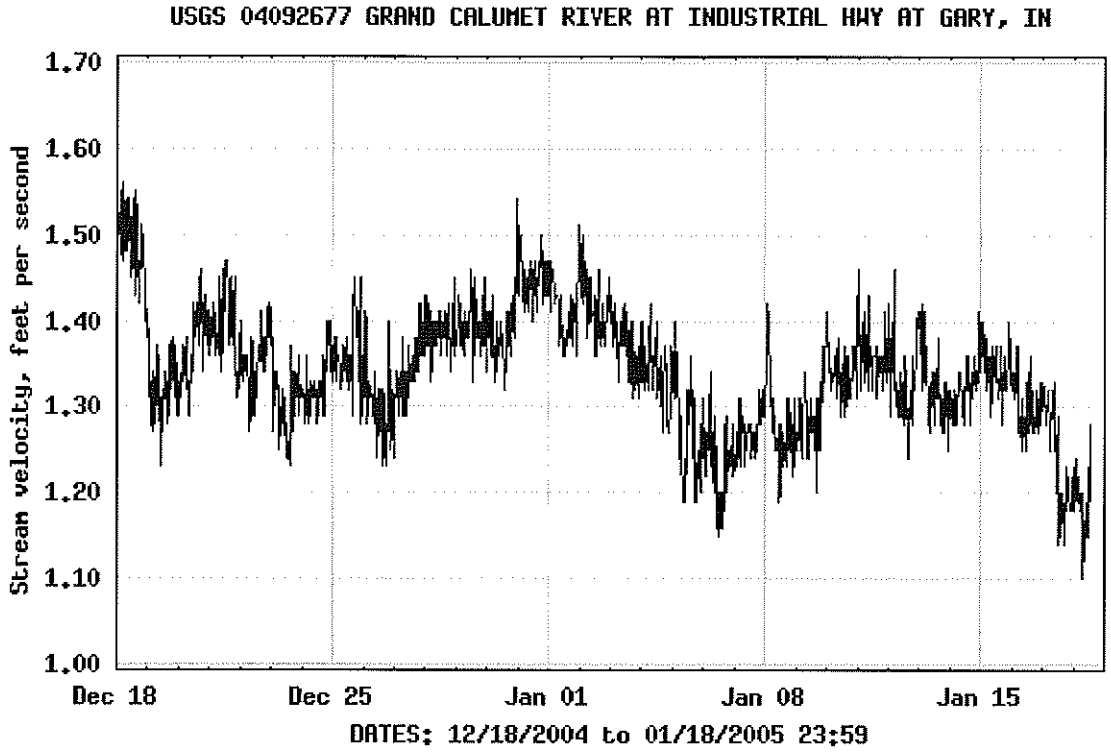
NWS River Forecasts

This station managed by the Indiana WRD District Office.

Available Parameters	Output format	Days	
All 3 parameters available at this site 00055 Stream velocity (DD 01) 00065 Gage height (DD 02) 00060 Discharge (DD 03)	Graph	31 (1-31)	get data

Stream velocity, feet per second

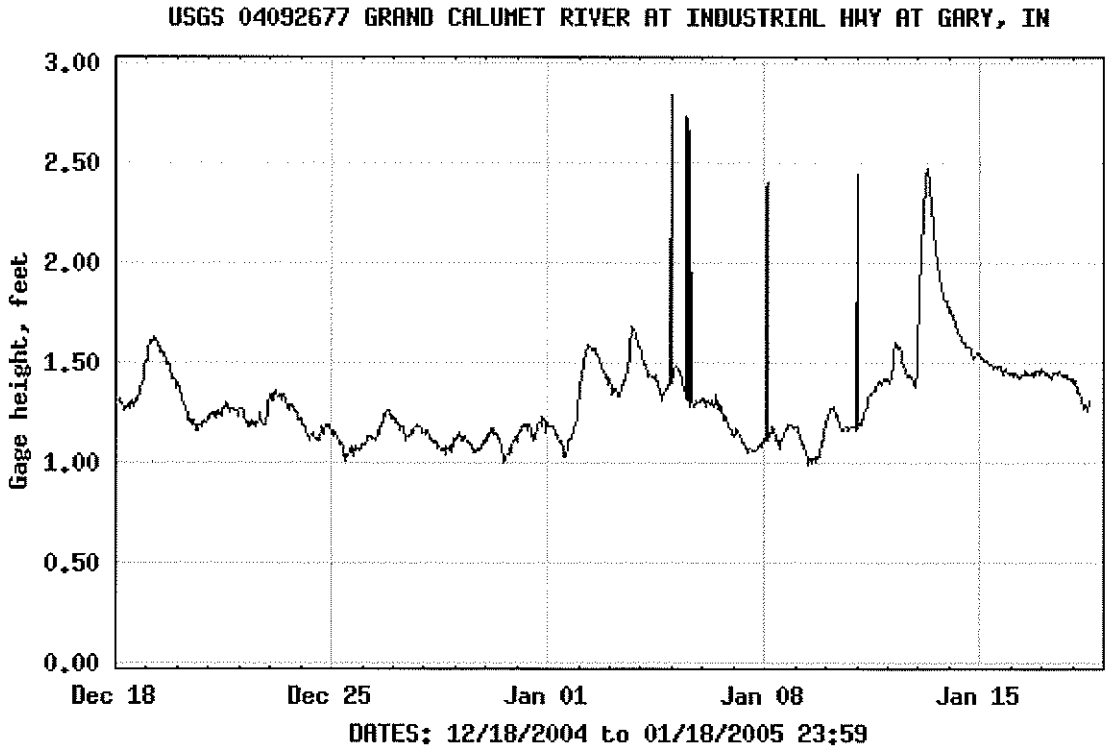
Most recent value: 1.28 01-18-2005 13:00



Download a presentation-quality graph Parameter Code 00055; DD 01

Gage height, feet

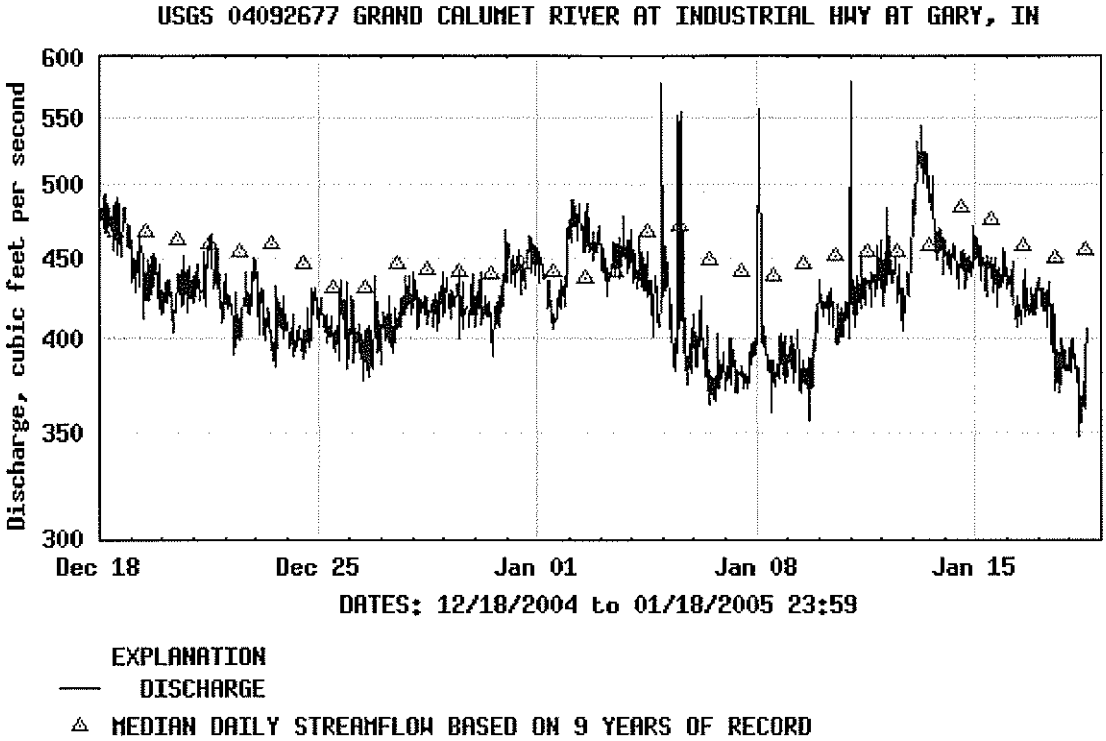
Most recent value: 1.31 01-18-2005 13:00



Download a presentation-quality graph Parameter Code 00065; DD 02

Discharge, cubic feet per second

Most recent value: 406 01-18-2005 13:00



Download a presentation-quality graph Parameter Code 00060; DD 03

Daily mean flow statistics for 1/18 based on 9 years of record in ft^3/sec

Current Flow	Minimum	Mean	Maximum	80 percent exceedance	50 percent exceedance	20 percent exceedance
406	366	463	540	443	455	516

Percent exceedance means that 80, 50, or 20 percent of all daily mean flows for 1/18 have been greater than the value shown.

Questions about data Indiana NWISWeb Data Inquiries Top
Feedback on this website Indiana NWISWeb Maintainer Explanation of terms

USGS Real-Time Water Data for Indiana
http://waterdata.usgs.gov/in/nwis/uv?

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SANITARY DISTRICT GARY STORM WATER MANAGEMENT DISTRICT

CDM

HANNUM, WAGLE & CLINE engineering

APPENDIX F

3121 Butterfield Road, Oak Brook, Illinois 60523

July 9, 2004

Mr. Charles G. "Spike" Peller
Director
Gary Sanitary District
3600 W. 3rd Avenue
Gary, Indiana 46406

Re: Final Waste Characterization Report
Ralston Street Lagoon
Gary, Indiana

Dear Mr. Peller:

Telephone
630.574.2006
Facsimile
630.574.2007

Earth Tech is pleased to provide this Waste Characterization Report to the Gary Sanitary District (GSD). This report describes and presents the results of sludge sampling and laboratory testing performed on two (2) samples of sludge obtained from the Ralston Street Lagoon in accordance with the approved Sampling Plan in the approved Quality Assurance Project Plan (QAPP) dated June 1996. The work was performed in accordance with Earth Tech's proposal dated March 25, 2003, and included discreet and bulk sampling of sludge from three locations within the Lagoon. The work was authorized by GSD with a written notice to proceed dated April 23, 2003. The results confirm previous work at the RSL that indicate the sludge is impacted principally by PCBs, and in particular, Aroclor 1248. It remains a regulated waste under the federal Toxic Substances Control Act (TSCA).

FIELD SAMPLING

Sampling of sludge from the RSL was performed on April 29th and May 7th of 2003. Earth Tech's original plans to sample from a boat were changed to sampling from the platform of Pier 2. This was done to better accommodate access and safety for the sampling team while still obtaining the required samples. The samples were obtained with hand held sampling equipment that was lowered over the steel railings that circumvented the pier. The weather during both sampling days was generally clear and mild with temperatures in the 50s. Ms. Donna Urbikas of Quality Environmental was present for a portion of the sampling on April 29th.

Sludge samples were collected from three (3) locations along the western side of Pier 2 to obtain sufficient sample quantity for treatability testing, while ensuring the material was representative of the PCB concentrations in the sludge. They were labeled as Pier 2 Northwest (approximately 110 feet out onto the pier), Pier

2 Middlewest (approximately 70 feet out onto the pier) and Pier 2 Southwest (approximately 15 feet out onto the pier). The Pier 2 Northwest and Southwest samples were used for laboratory testing. The Pier 2 Middlewest sample was held in reserve and has not been used for any of the treatability testing performed, because sufficient sample was available from the other two samples. The Pier 2 Northwest sample was collected from approximately 13 feet below the RSL water surface while the Pier 2 Southwest sample was collected form approximately 5-6 feet below the water surface. See the attached figure for approximate sampling locations. A duplicate sample was obtained at the Pier 2 Northwest location. These locations are similar to those used for the 1996 study.

Field screening for volatile organic compounds (VOCs) was performed during sampling using an Hnu. The results showed total concentrations in bulk sample buckets were less than 5 ppm (site background was 1 ppm). Earth Tech also attempted to screen sample locations for PCBs using immuno assay field extraction and testing kits. This proved unsuccessful due to matrix interferences even when using twice the recommended volume of solvent for the extraction. Screening for hydrogen sulfide was performed throughout sample collection activities. All hydrogen sulfide readings were non-detect.

Bulk (composite) samples of sludge were shipped in 5-gallon plastic buckets to Kemron and Howard University for performance of project treatability studies. Both bulk and grab samples of sludge for chemical and physical characterizations were hand carried by eLab from the RSL in Gary to their testing facility in Holland, Michigan. Reporting for the treatability study test results will be included in the final report for Task 2. The chemical and physical test results are reported herein.

LABORATORY (CHARACTERIZATION) TESTING

Sludge samples obtained from this investigation were tested for chemical parameters including: VOCs, SVOCs, metals, cyanides, PCBs (both Aroclor and congener specific), pesticides/herbicides, dioxins/furans, organic carbon, humic acid, BOD, COD, asbestos, radionucliides, and other compounds listed in the attached analytical results. Physical properties such as total solids and bulk density were also determined. Most of these tests were performed by eLab using SW-846 Standard Test Methods, though a portion was subcontracted to specialty laboratories. A summary of the detected constituents is attached to this report, followed by all of the analytical results. A summary of the PCB concentrations, in ppm, is provided in the following table:

SAMPLE	AROCLOR CONC.	AROCLOR CONC.	CONGENER CONC.	AVG CONC.
P2 Northwest	910	430	708	683
P2 Southwest	NA	220	305	263

These results are consistent with those found by others in previous investigations and are considered acceptable and useable when considering matrix interferences, the effects of testing bulk samples and inter-laboratory differences. Relatively minor concentrations of VOCs, SVOCs, metals, and other constituents were detected in the sludge. Our team subconsultant and noted PCB expert, Dr. William Mills, has provided a summary memorandum regarding the data, which is included as the final attachment to this report.

Possible complicating factors for ultimate treatment include: high organic carbon, high moisture content, fine particle size, low density, high sulfur levels, high phosphorus levels, high nitrogen levels, oil and grease, and low dewatering ability.

Earth Tech appreciates the opportunity to provide GSD with this report and look forward to completion of Task 2 of the project.

Please call me at 630-574-2188 with any questions that arise.

Sincerely,
Earth Tech, Inc.

Terri L. Blackmar, PE, PG
Vice President, Sr. Section Manager

c. D. Urbikas, Quality Environmental
W. Mills, Mills Consulting
J. Urek, Earth Tech

Attachments
Site Figure
Summary of Detects (eLab Data) Table
eLab Summary Tables
Dioxin, Furans, PCB Congener Tables
Radionucliides
Mills Consulting Memorandum

SITE FIGURE

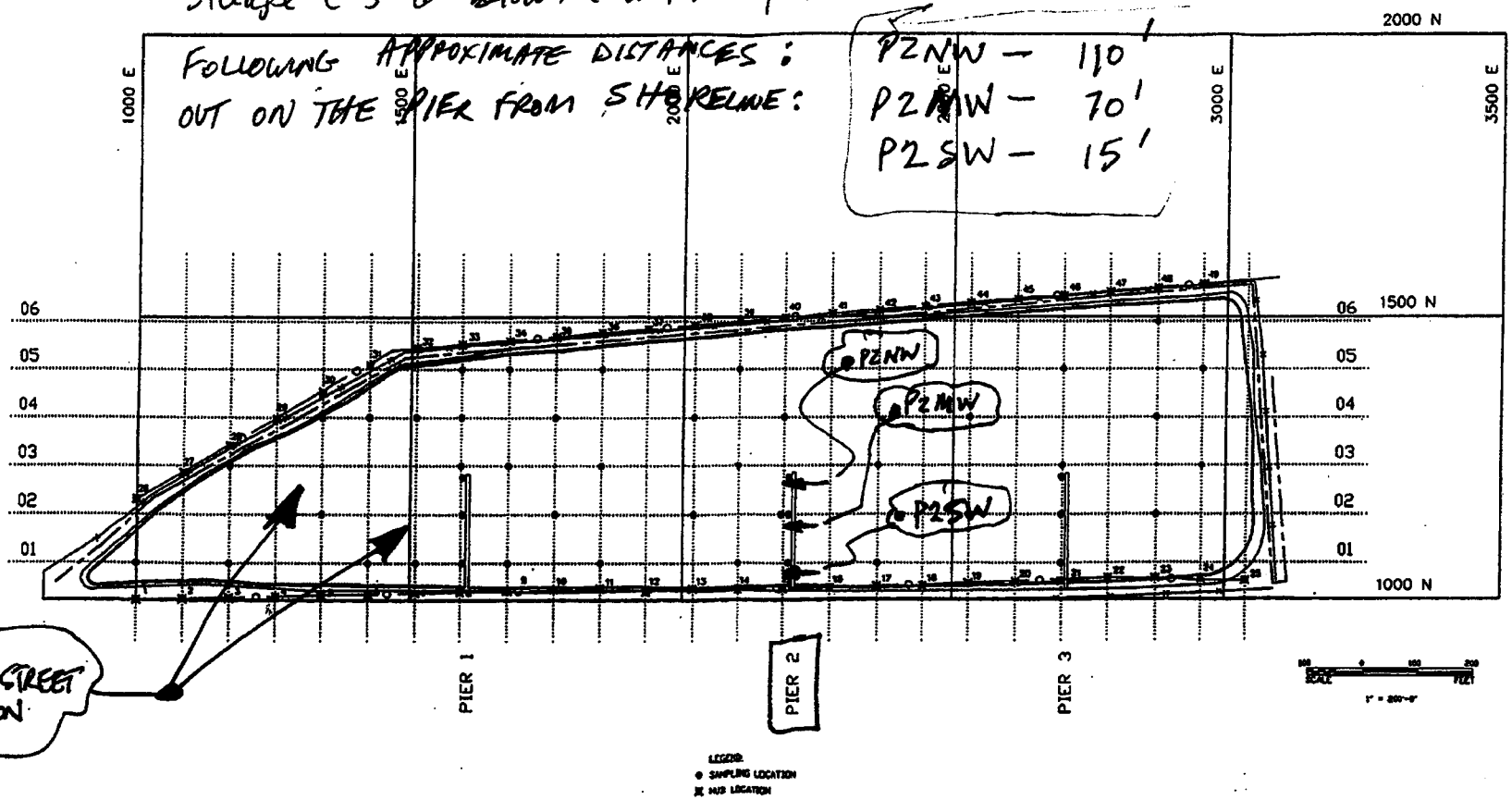
FIP

66939

NOTES: ALL 3 SLUDGE SAMPLES TAKEN OFF THE WEST SIDE OF PIER 2 (P2). SAMPLES P2NW (Pier 2, North End) and P2MW (Pier 2 @ Middle) were OBTAINED @ ~ 13' below the top of the water surface. SAMPLE P2SW (Pier 2, South end) was obtained from the top of the sludge @ 5-6' below the water surface. THE SAMPLES WERE TAKEN AT THE

FOLLOWING APPROXIMATE DISTANCES: OUT ON THE PIER FROM SHORELINE:

P2NW – 110'
P2MW – 70'
P2SW – 15'



FLOOR DANIEL CTI	GARY SANITARY DISTRICT GARY, INDIANA	1" = 200'-0"	
	RALSTON STREET LAGOON SAMPLING LOCATION	FIGURE 2	0

NOTES:
- SAMPLES P2NW & P2MW WERE OBTAINED ON APRIL 29, 2003.
- SAMPLE P2SW WAS COLLECTED ON MAY 7, 2003.
- FIELD SCREENING SHOWED AREA BACKGROUND ~ 1 PPM VOCs. SAMPLE HEADSPACE < 5 PPM VOCs.
- H2S METER - ND.

SUMMARY OF DETECTS (ELAB DATA) TABLE

Gary Sanitary District
Ralston Street Lagoon
Sludge Sampling Detects Summary

Analyses	Units	Sample ID		
		Pier 2 - Northwest	Duplicate	Pier 2 - Southwest
TCLP Metals (EPA 6010)				
Arsenic	mg/L	ND	0.018	0.011
Barium	mg/L	1.2	0.94	1.1
Cadmium	mg/L	0.010	ND	0.028
Chromium	mg/L	0.0098	ND	0.0055
Nickel	mg/L	0.25	0.30	0.073
Zinc	mg/L	5.0	4.5	2.6
PCBs (EPA 8082)				
Aroclor 1248	ug/kg-dry	430,000	430,000	220,000
SVOCs (EPA 8270)				
2-methylnaphthalene	ug/kg-dry	11,000	22,000	ND
4-methylphenol	ug/kg-dry	2,200	4,000	ND
Acenphthene	ug/kg-dry	13,000	22,000	ND
Dibenzofuran	ug/kg-dry	5,000	8,100	ND
Fluoranthene	ug/kg-dry	5,400	6,800	ND
Fluorene	ug/kg-dry	3,300	5,000	ND
Isophorone	ug/kg-dry	ND	2,800	ND
Naphthalene	ug/kg-dry	3,900	4,900	ND
Phenanthrene	ug/kg-dry	7,700	11,000	ND
Pyrene	ug/kg-dry	4,900	5,800	ND
Mercury (EPA 7471)				
Mercury	mg/kg-dry	ND	1.8	0.55
Metals, total (EPA 6010)				
Antinomy	mg/kg-dry	57	ND	ND
Arsenic	mg/kg-dry	75	17	14
Barium	mg/kg-dry	510	410	240
Beryllium	mg/kg-dry	52	ND	ND
Cadmium	mg/kg-dry	82	25	8.6
Chromium	mg/kg-dry	1,400	840	760
Copper	mg/kg-dry	700	390	600
Lead	mg/kg-dry	1,000	630	380
Nickel	mg/kg-dry	170	71	25
Silver	mg/kg-dry	ND	17	ND
Thallium	mg/kg-dry	40	ND	ND
Zinc	mg/kg-dry	3,600	3,500	1,600
Alkalinity, Total (EPA 310.1)				
Alkalinity, total	mg/kg-dry	980	850	680
BOD (EPA 405.1)				
BOD	mg/kg-dry	0.80	0.21	0.20
Bromide (EPA 9056)				
Bromide	mg/kg-dry	ND	ND	ND
Calorific Value (BTUS) (ASTM D240)				
Calorific Value (BTU)	BTU/lb	180	1,100	980
Chloride (EPA 9056)				
Chloride	mg/kg-dry	530	490	1500

Gary Sanitary District
Ralston Street Lagoon
Sludge Sampling Detects Summary

Analyses	Units	Sample ID		
		Pier 2 - Northwest	Duplicate	Pier 2 - Southwest
Cyanide, Total (EPA 9014)				
Cyanide, Total	mg/kg-dry	ND	4.7	ND
COD (EPA 410.4)				
COD	mg/kg-dry	1,600	1,400	1,400
Density- Bulk (ASTM D5057-90)				
Density- Bulk	lbs/ft^3	66	68	68
Fluoride (EPA 9056)				
Fluoride	mg/kg-dry	47	52	ND
Percent Moisture (EPA 160.3)				
Percent Moisture	% of sample	83	82	86
Nitrogen, Total (Calculation)				
Nitrogen, Total	mg/kg-dry	6,400	5,100	5,000
Nitrite (EPA 9056)				
Nitrite	mg/kg-dry	ND	ND	ND
Nitrate (EPA 9056)				
Nitrate	mg/kg-dry	ND	ND	ND
Oil and Grease (EPA 1664M)				
Oil and Grease	mg/kg-dry	90,000	81,000	110,000
Phosphorous, Total (EPA 365.2)				
Phosphorous, Total	mg/kg-dry	30,000	29,000	12,000
pH (EPA 9045)				
pH		8.0	7.5	7.1
Phenolics, Total (EPA 9065)				
Phenolics, Total	mg/kg-dry	12	1.9	14
Sulfide (EPA 9030)				
Sulfide	mg/kg-dry	2,100	610	8,500
Sulfate (EPA 9056)				
Sulfate	mg/kg-dry	ND	1,300	610
Nitrogen, Total Kjeldahl (SM 4500-N B)				
Nitrogen, Total Kjeldahl	mg/kg-dry	6,100	5,000	5,000
Total Organic Carbon (Titrametric)				
Total Organic Carbon	% by dry wt.	21	20	16
Total Solids (EPA 160.3)				
Total Solids	% of sample	17	18	14
SPLP Mercury (EPA 7470)				
Mercury	mg/L	0.00029	0.00035	ND
SPLP Metals (EPA 6010)				
Barium	mg/L	0.28	0.38	0.15
Chromium	mg/L	0.027	0.034	ND
Copper	mg/L	0.068	ND	ND
Nickel	mg/L	0.013	0.014	ND
Zinc	mg/L	0.14	0.17	0.055

ND - not detected

DIOXIN, FURANS PCB CONGENER TABLES

ALTA

Sample ID: PIER 2 NORTHWEST

EPA METHOD 1613

Client Data		Sample Data		Laboratory Data			
Name:	Earth Tech	Matrix:	Sludge	Lab Sample:	23714-001	Date Received:	8-May-03
Project:	GSD-RSL	Sample Size:	5.04 g	QC Batch No.:	4032	Date Extracted:	20-May-03
Date Collected:	29-Apr-03	%Solids:	15.9	Date Analyzed DB-5:	21-May-03	Date Analyzed DB-225:	NA
Time Collected:	1100						

Analyte	Conc. (pg/g)	DL[a]	EMPC[b]	MDL[c]	Qualifiers
2,3,7,8-TCDD	ND	21.2		0.234	
1,2,3,7,8-PeCDD	42.0			0.374	A
1,2,3,4,7,8-HxCDD	ND	138		0.202	
1,2,3,6,7,8-HxCDD	3010			0.615	
1,2,3,7,8,9-HxCDD	575			0.253	A
1,2,3,4,6,7,8-HpCDD	34900			0.268	
OCDD	203000			0.709	
2,3,7,8-TCDF	121			0.139	A
1,2,3,7,8-PeCDF	96.4			0.326	A
2,3,4,7,8-PeCDF	513			0.336	A
1,2,3,4,7,8-HxCDF	327			0.336	A
1,2,3,6,7,8-HxCDF	161			0.395	A
2,3,4,6,7,8-HxCDF	241			0.287	A
1,2,3,7,8,9-HxCDF	ND	40.7		0.380	
1,2,3,4,6,7,8-HpCDF	9930			0.217	
1,2,3,4,7,8,9-HpCDF	224			0.336	A
OCDF	10900			0.641	

	Labeled Standard	%R	LCL-UCL[d]	Qualifiers
IS	13C-2,3,7,8-TCDD	84.2	25 - 164	
	13C-1,2,3,7,8-PeCDD	88.9	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	99.3	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	77.8	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	100	23 - 140	
	13C-OCDD	86.3	17 - 157	
	13C-2,3,7,8-TCDF	87.8	24 - 169	
	13C-1,2,3,7,8-PeCDF	92.6	24 - 185	
	13C-2,3,4,7,8-PeCDF	92.8	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	92.2	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	73.5	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	78.8	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	87.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	79.0	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	89.6	26 - 138	
	13C-OCDF	74.9	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	76.9	35 - 197	

Totals

Total TCDD	ND	57.8
Total PeCDD	1130	1410
Total HxCDD	30200	
Total HpCDD	72400	
Total TCDF	4520	4670
Total PeCDF	2770	
Total HxCDF	10400	
Total HpCDF	30300	

Toxic Equivalent Quotient (TEQ) Data[e]

TEQ (Min): 1220

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on World Health Organization Toxic Equivalent Factors (WHO-1997).

Analyst: JMH

Approved By: Martha M. Maier 22-May-2003 14:14

ALTA

Client Data

Name: Earth Tech
Project: GSD-RSL
Date Collected: 29-Apr-03
Time Collected: 1100

Sample Data

Matrix: Sludge
Sample Size: 5.04 g
%Solids: 15.9

Laboratory Data

Lab Sample: 23714-001
QC Batch No.: 4032
Date Analyzed DB-1: 27-May-03
Date Received: 8-May-03
Date Extracted: 20-May-03
TEQ(WHO-Mammal) : 5950

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-1	237000	6260	0.498	
PCB-2	23100	6260	0.612	
PCB-3	127000	6260	0.632	
PCB-4/10	5140000	6260	4.33	
PCB-5/8	17300000	6260	4.41	
PCB-6	2450000	6260	2.22	
PCB-7/9	900000	6260	4.63	
PCB-11	26000	6260	4.99	*
PCB-12/13	444000	6260	6.05	
PCB-14	ND	6260	2.98	
PCB-15	6720000	6260	2.79	
PCB-16/32	30600000	6260	2.54	E
PCB-17	19800000	6260	1.30	E
PCB-18	54100000	6260	1.35	E
PCB-19	5140000	6260	0.946	
PCB-20/21/33	21800000	6260	1.35	
PCB-22	12000000	6260	0.914	
PCB-23	32300	6260	0.707	
PCB-24/27	3510000	6260	2.49	
PCB-25	2680000	6260	0.823	
PCB-26	6300000	6260	0.775	
PCB-28	33200000	6260	1.54	E
PCB-29	204000	6260	0.615	
PCB-30	26600	6260	0.906	
PCB-31	39100000	6260	1.17	E
PCB-34	203000	6260	0.930	
PCB-35	361000	6260	0.410	
PCB-36	ND	6260	0.885	
PCB-37	10800000	6260	0.589	E
PCB-38	158000	6260	0.861	
PCB-39	31800	6260	0.600	
PCB-40	8400000	12500	1.20	

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-41/64/71/72	36600000	12500	3.45	
PCB-42/59	14400000	12500	2.04	
PCB-43/49	33100000	12500	2.20	
PCB-44	38200000	12500	5.31	E
PCB-45	8850000	12500	1.27	
PCB-46	3620000	12500	1.07	
PCB-47	10700000	12500	3.42	
PCB-48/75	9270000	12500	1.75	
PCB-50	166000	12500	1.50	
PCB-51	2430000	12500	1.11	
PCB-52/69	34400000	12500	3.33	
PCB-53	7680000	12500	0.982	
PCB-54	121000	12500	1.90	
PCB-55	511000	12500	1.04	
PCB-56/60	24500000	12500	2.45	
PCB-57	187000	12500	1.18	
PCB-58	93100	12500	1.22	
PCB-61	ND	12500	1.20	
PCB-62	8600	12500	0.895	
PCB-63	1440000	12500	1.14	
PCB-65	21400	12500	1.30	
PCB-66	33300000	12500	1.78	E
PCB-67	1160000	12500	1.15	
PCB-68	104000	12500	1.34	
PCB-70	39800000	12500	1.44	E
PCB-73	ND	12500	0.724	
PCB-74	16700000	12500	1.09	
PCB-76	ND	12500	2.26	
PCB-77	2960000	12500	1.08	
PCB-78	38300	12500	2.81	
PCB-79	123000	12500	1.65	
PCB-80	ND	12500	0.850	

ALTA

Client Data		Sample Data		Laboratory Data			
Name:	Earth Tech	Matrix:	Sludge	Lab Sample:	23714-001	Date Received:	8-May-03
Project:	GSD-RSL	Sample Size:	5.04 g	QC Batch No.:	4032	Date Extracted:	20-May-03
Date Collected:	29-Apr-03	%Solids:	15.9	Date Analyzed DB-1:	27-May-03	TEQ(WHO-Mammal) :	5950
Time Collected:	1100						

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-81	276000	12500	1.02	
PCB-82	3600000	12500	1.30	
PCB-83	28100	12500	0.904	
PCB-84/92	7050000	12500	1.60	
PCB-85/116	3440000	12500	1.29	
PCB-86	281000	12500	1.78	
PCB-87/117/125	5680000	12500	1.81	
PCB-88/91	3020000	12500	1.63	
PCB-89	679000	12500	0.692	
PCB-90/101	11400000	12500	1.49	
PCB-93	ND	12500	1.53	
PCB-94	175000	12500	0.360	
PCB-95/98/102	10300000	12500	6.39	
PCB-96	369000	12500	0.540	
PCB-97	5480000	12500	1.25	
PCB-99	7310000	12500	0.967	
PCB-100	63300	12500	0.262	
PCB-103	104000	12500	0.436	
PCB-104	1940	12500	0.506	
PCB-105	5450000	12500	0.917	
PCB-106/118	9620000	12500	2.14	
PCB-107/109	868000	12500	1.27	
PCB-108/112	839000	12500	1.00	
PCB-110	11800000	12500	1.77	
PCB-113	ND	12500	1.04	
PCB-114	385000	12500	0.734	
PCB-111/115	410000	12500	1.72	
PCB-119	278000	12500	0.918	
PCB-120	7620	12500	1.04	
PCB-121	ND	12500	0.876	
PCB-122	206000	12500	0.984	
PCB-123	290000	12500	0.861	

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-124	410000	12500	1.12	
PCB-126	36800	12500	0.626	
PCB-127	ND	12500	0.780	
PCB-128/162	572000	12500	1.15	
PCB-129	208000	12500	0.793	
PCB-130	173000	12500	0.797	
PCB-131	3250	12500	2.54	
PCB-132/161	925000	12500	0.984	
PCB-133/142	98700	12500	3.90	
PCB-134/143	201000	12500	4.07	
PCB-135	353000	12500	1.42	
PCB-136	353000	12500	1.21	
PCB-137	228000	12500	1.01	
PCB-138/163/164	2550000	12500	2.08	
PCB-139/149	2000000	12500	1.84	
PCB-140	15600	12500	1.00	
PCB-141	498000	12500	0.579	
PCB-144	124000	12500	1.66	
PCB-145	3560	12500	1.06	
PCB-146/165	287000	12500	1.72	
PCB-147	63700	12500	0.727	
PCB-148	ND	12500	1.10	
PCB-150	3540	12500	1.29	
PCB-151	485000	12500	1.45	
PCB-152	5910	12500	1.25	
PCB-153	1870000	12500	1.18	
PCB-154	19000	12500	1.06	
PCB-155	ND	12500	0.852	
PCB-156	348000	12500	0.816	
PCB-157	82400	12500	0.551	
PCB-158/160	326000	12500	1.29	
PCB-159	12100	12500	0.465	

ALTA

Client Data		Sample Data		Laboratory Data			
Name:	Earth Tech	Matrix:	Sludge	Lab Sample:	23714-001	Date Received:	8-May-03
Project:	GSD-RSL	Sample Size:	5.04 g	QC Batch No.:	4032	Date Extracted:	20-May-03
Date Collected:	29-Apr-03	%Solids:	15.9	Date Analyzed DB-1:	27-May-03	TEQ(WHO-Mammal) :	5950
Time Collected:	1100						

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-166	17600	12500	0.610	
PCB-167	114000	12500	0.485	
PCB-168	3590	12500	0.430	
PCB-169	ND	12500	0.768	
PCB-170	427000	12500	0.408	
PCB-171	99000	12500	0.553	
PCB-172	63800	12500	0.490	
PCB-173	12200	12500	0.653	
PCB-174	343000	12500	1.36	
PCB-175	15300	12500	1.15	
PCB-176	51200	12500	0.430	
PCB-177	213000	12500	0.720	
PCB-178	66900	12500	0.588	
PCB-179	159000	12500	0.329	
PCB-180	794000	12500	0.675	
PCB-181	ND	12500	0.798	
PCB-182/187	432000	12500	1.08	
PCB-183	219000	12500	0.610	
PCB-184	ND	12500	0.482	
PCB-185	40300	12500	0.632	
PCB-186	ND	12500	0.786	
PCB-188	ND	12500	0.534	
PCB-189	19000	12500	0.286	
PCB-190	83500	12500	0.666	
PCB-191	13400	12500	0.521	
PCB-192	ND	12500	0.802	
PCB-193	35500	12500	0.492	
PCB-194	206000	18800	0.944	
PCB-195	78900	18800	2.06	
PCB-196/203	244000	18800	2.32	
PCB-197	6670	18800	0.939	
PCB-198	7090	18800	1.37	

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-199	240000	18800	1.54	
PCB-200	27000	18800	1.21	
PCB-201	27600	18800	1.14	
PCB-202	35500	18800	0.594	
PCB-204	ND	18800	0.737	
PCB-205	9350	18800	1.17	
PCB-206	84400	18800	0.533	
PCB-207	10300	18800	0.514	
PCB-208	19900	18800	0.737	
PCB-209	12200	18800	0.901	
Total monoCB	387000	6260		
Total diCB	32900000	6260		
Total triCB	240000000	6260		E
Total tetraCB	329000000	12500		E
Total pentaCB	89700000	12500		
Total hexaCB	11900000	12500		
Total heptaCB	3090000	12500		
Total octaCB	881000	18800		
Total nonaCB	115000	18800		
Total decaCB	12200	18800		
Total PCBs:	708000000			

ALTA

Sample ID: **PIER 2 SOUTHWEST** **EPA METHOD 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Earth Tech	Matrix:	Sludge	Lab Sample:	23714-003	Date Received:	8-May-03
Project:	GSD-RSL	Sample Size:	5.05 g	QC Batch No.:	4032	Date Extracted:	20-May-03
Date Collected:	7-May-03	%Solids:	12.9	Date Analyzed DB-5:	21-May-03	Date Analyzed DB-225:	NA
Time Collected:	0900						

Analyte	Conc. (pg/g)	DL[a]	EMPC[b]	MDL[c]	Qualifiers
2,3,7,8-TCDD	ND	45.0		0.234	
1,2,3,7,8-PeCDD	ND	69.5		0.374	
1,2,3,4,7,8-HxCDD	124			0.202	A
1,2,3,6,7,8-HxCDD	535			0.615	A
1,2,3,7,8,9-HxCDD	236			0.253	A
1,2,3,4,6,7,8-HpCDD	27000			0.268	
OCDD	460000			0.709	E
2,3,7,8-TCDF	122			0.139	A
1,2,3,7,8-PeCDF	ND		46.9	0.326	
2,3,4,7,8-PeCDF	354			0.336	A
1,2,3,4,7,8-HxCDF	181			0.336	A
1,2,3,6,7,8-HxCDF	92.6			0.395	A
2,3,4,6,7,8-HxCDF	164			0.287	A
1,2,3,7,8,9-HxCDF	ND	50.6		0.380	
1,2,3,4,6,7,8-HpCDF	1700			0.217	A
1,2,3,4,7,8,9-HpCDF	148			0.336	A
OCDF	7380			0.641	

	Labeled Standard	%R	LCL-UCL[d]	Qualifiers
IS	13C-2,3,7,8-TCDD	91.5	25 - 164	
	13C-1,2,3,7,8-PeCDD	96.7	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	104	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	83.3	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	114	23 - 140	
	13C-OCDD	95.6	17 - 157	
	13C-2,3,7,8-TCDF	95.3	24 - 169	
	13C-1,2,3,7,8-PeCDF	94.0	24 - 185	
	13C-2,3,4,7,8-PeCDF	95.5	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	98.0	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	75.5	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	88.2	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	94.9	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	83.8	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	94.0	26 - 138	
	13C-OCDF	81.3	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	90.4	35 - 197	

Totals

Total TCDD	ND	45.0	
Total PeCDD	117		159
Total HxCDD	3160		
Total HpCDD	49300		
Total TCDF	2320		2550
Total PeCDF	1700		1750
Total HxCDF	2050		
Total HpCDF	6610		

Toxic Equivalent Quotient (TEQ) Data[e]

TEQ (Min): **658**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on World Health Organization Toxic Equivalent Factors (WHO-1997).

Analyst: JMH

Approved By: Martha M. Maier 22-May-2003 14:14

ALTA

Client Data		Sample Data		Laboratory Data			
Name:	Earth Tech	Matrix:	Sludge	Lab Sample:	23714-003	Date Received:	8-May-03
Project:	GSD-RSL	Sample Size:	5.05 g	QC Batch No.:	4032	Date Extracted:	20-May-03
Date Collected:	7-May-03	%Solids:	12.9	Date Analyzed DB-1:	27-May-03	TEQ(WHO-Mammal) :	3250
Time Collected:	0900						

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-1	37100	7660	0.498	
PCB-2	6790	7660	0.612	
PCB-3	20700	7660	0.632	
PCB-4/10	619000	7660	4.33	
PCB-5/8	2260000	7660	4.41	
PCB-6	2880000	7660	2.22	
PCB-7/9	129000	7660	4.63	
PCB-11	105000	7660	4.99	
PCB-12/13	987000	7660	6.05	
PCB-14	ND	7660	2.98	
PCB-15	693000	7660	2.79	
PCB-16/32	7010000	7660	2.54	
PCB-17	5460000	7660	1.30	
PCB-18	15500000	7660	1.35	E
PCB-19	938000	7660	0.946	
PCB-20/21/33	5460000	7660	1.35	
PCB-22	3810000	7660	0.914	
PCB-23	6570	7660	0.707	
PCB-24/27	624000	7660	2.49	
PCB-25	7300000	7660	0.823	
PCB-26	6150000	7660	0.775	
PCB-28	14200000	7660	1.54	
PCB-29	25100	7660	0.615	
PCB-30	4870	7660	0.906	
PCB-31	15100000	7660	1.17	
PCB-34	198000	7660	0.930	
PCB-35	121000	7660	0.410	
PCB-36	ND	7660	0.885	
PCB-37	1790000	7660	0.589	
PCB-38	97200	7660	0.861	
PCB-39	43700	7660	0.600	
PCB-40	4160000	15300	1.20	

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-41/64/71/72	18900000	15300	3.45	
PCB-42/59	7170000	15300	2.04	
PCB-43/49	18800000	15300	2.20	
PCB-44	21200000	15300	5.31	
PCB-45	3820000	15300	1.27	
PCB-46	1640000	15300	1.07	
PCB-47	5970000	15300	3.42	
PCB-48/75	4240000	15300	1.75	
PCB-50	75400	15300	1.50	
PCB-51	1110000	15300	1.11	
PCB-52/69	19700000	15300	3.33	
PCB-53	3690000	15300	0.982	
PCB-54	44100	15300	1.90	
PCB-55	289000	15300	1.04	
PCB-56/60	8030000	15300	2.45	
PCB-57	107000	15300	1.18	
PCB-58	67200	15300	1.22	
PCB-61	ND	15300	1.20	
PCB-62	ND	15300	0.895	
PCB-63	841000	15300	1.14	
PCB-65	6270	15300	1.30	
PCB-66	10700000	15300	1.78	
PCB-67	711000	15300	1.15	
PCB-68	91800	15300	1.34	
PCB-70	16800000	15300	1.44	
PCB-73	ND	15300	0.724	
PCB-74	8080000	15300	1.09	
PCB-76	ND	15300	2.26	
PCB-77	1230000	15300	1.08	
PCB-78	26400	15300	2.81	
PCB-79	78100	15300	1.65	
PCB-80	ND	15300	0.850	

ALTA

Client Data		Sample Data		Laboratory Data			
Name:	Earth Tech	Matrix:	Sludge	Lab Sample:	23714-003	Date Received:	8-May-03
Project:	GSD-RSL	Sample Size:	5.05 g	QC Batch No.:	4032	Date Extracted:	20-May-03
Date Collected:	7-May-03	%Solids:	12.9	Date Analyzed DB-1:	27-May-03	TEQ(WHO-Mammal) :	3250
Time Collected:	0900						

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-81	108000	15300	1.02	
PCB-82	1940000	15300	1.30	
PCB-83	12700	15300	0.904	
PCB-84/92	4630000	15300	1.60	
PCB-85/116	2090000	15300	1.29	
PCB-86	105000	15300	1.78	
PCB-87/117/125	3140000	15300	1.81	
PCB-88/91	2090000	15300	1.63	
PCB-89	401000	15300	0.692	
PCB-90/101	7030000	15300	1.49	
PCB-93	ND	15300	1.53	
PCB-94	119000	15300	0.360	
PCB-95/98/102	6810000	15300	6.39	
PCB-96	243000	15300	0.540	
PCB-97	3450000	15300	1.25	
PCB-99	4670000	15300	0.967	
PCB-100	50200	15300	0.262	
PCB-103	75400	15300	0.436	
PCB-104	1710	15300	0.506	
PCB-105	2530000	15300	0.917	
PCB-106/118	6290000	15300	2.14	
PCB-107/109	538000	15300	1.27	
PCB-108/112	576000	15300	1.00	
PCB-110	8000000	15300	1.77	
PCB-113	ND	15300	1.04	
PCB-114	215000	15300	0.734	
PCB-111/115	272000	15300	1.72	
PCB-119	210000	15300	0.918	
PCB-120	ND	15300	1.04	
PCB-121	ND	15300	0.876	
PCB-122	114000	15300	0.984	
PCB-123	171000	15300	0.861	

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-124	210000	15300	1.12	
PCB-126	20000	15300	0.626	
PCB-127	ND	15300	0.780	
PCB-128/162	269000	15300	1.15	
PCB-129	102000	15300	0.793	
PCB-130	108000	15300	0.797	
PCB-131	2490	15300	2.54	
PCB-132/161	513000	15300	0.984	
PCB-133/142	52600	15300	3.90	
PCB-134/143	105000	15300	4.07	
PCB-135	212000	15300	1.42	
PCB-136	207000	15300	1.21	
PCB-137	104000	15300	1.01	
PCB-138/163/164	1260000	15300	2.08	
PCB-139/149	1140000	15300	1.84	
PCB-140	9780	15300	1.00	
PCB-141	243000	15300	0.579	
PCB-144	56700	15300	1.66	
PCB-145	2010	15300	1.06	
PCB-146/165	169000	15300	1.72	
PCB-147	46300	15300	0.727	
PCB-148	ND	15300	1.10	
PCB-150	2850	15300	1.29	
PCB-151	288000	15300	1.45	
PCB-152	4240	15300	1.25	
PCB-153	973000	15300	1.18	
PCB-154	17500	15300	1.06	
PCB-155	ND	15300	0.852	
PCB-156	172000	15300	0.816	
PCB-157	41600	15300	0.551	
PCB-158/160	161000	15300	1.29	
PCB-159	7560	15300	0.465	

ALTA

Client Data

Name: Earth Tech
Project: GSD-RSL
Date Collected: 7-May-03
Time Collected: 0900

Sample Data

Matrix: Sludge
Sample Size: 5.05 g
%Solids: 12.9

Laboratory Data

Lab Sample: 23714-003
QC Batch No.: 4032
Date Analyzed DB-1: 27-May-03
Date Received: 8-May-03
Date Extracted: 20-May-03
TEQ(WHO-Mammal) : 3250

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-166	9000	15300	0.610	
PCB-167	54400	15300	0.485	
PCB-168	2420	15300	0.430	
PCB-169	ND	15300	0.768	
PCB-170	226000	15300	0.408	
PCB-171	62600	15300	0.553	
PCB-172	39900	15300	0.490	
PCB-173	4710	15300	0.653	
PCB-174	210000	15300	1.36	
PCB-175	8830	15300	1.15	
PCB-176	30500	15300	0.430	
PCB-177	139000	15300	0.720	
PCB-178	49500	15300	0.588	
PCB-179	97800	15300	0.329	
PCB-180	514000	15300	0.675	
PCB-181	ND	15300	0.798	
PCB-182/187	282000	15300	1.08	
PCB-183	129000	15300	0.610	
PCB-184	ND	15300	0.482	
PCB-185	26000	15300	0.632	
PCB-186	ND	15300	0.786	
PCB-188	ND	15300	0.534	
PCB-189	9090	15300	0.286	
PCB-190	45600	15300	0.666	
PCB-191	9470	15300	0.521	
PCB-192	ND	15300	0.802	
PCB-193	22300	15300	0.492	
PCB-194	135000	23000	0.944	
PCB-195	51100	23000	2.06	
PCB-196/203	141000	23000	2.32	
PCB-197	4020	23000	0.939	
PCB-198	6210	23000	1.37	

Analyte	Conc. (pg/g)	RL	MDL	Qualifiers
PCB-199	134000	23000	1.54	
PCB-200	14700	23000	1.21	
PCB-201	15400	23000	1.14	
PCB-202	22300	23000	0.594	
PCB-204	ND	23000	0.737	
PCB-205	6430	23000	1.17	
PCB-206	46800	23000	0.533	
PCB-207	5720	23000	0.514	
PCB-208	9700	23000	0.737	
PCB-209	5270	23000	0.901	
Total monoCB	64500	7660		
Total diCB	7670000	7660		
Total triCB	83900000	7660		E
Total tetraCB	158000000	15300		
Total pentaCB	56000000	15300		
Total hexaCB	6330000	15300		
Total heptaCB	1910000	15300		
Total octaCB	530000	23000		
Total nonaCB	62200	23000		
Total decaCB	5270	23000		

Total PCBs: 315000000

ELAB SUMMARY TABLES

e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon

Work Order: 0305081

Lab ID: 0305081-01A
Client Sample ID: Pier 2 - Northwest

Collection Date: 4/29/2003 11:00:00 AM
Matrix: TCLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
TCLP HERBICIDES			**EPA 8151M**				Analyst: **RM**
2,4,5-TP (Silvex)	ND	1.0		µg/L	1	5/15/2003	5/16/2003
2,4-D	ND	1.0		µg/L	1	5/15/2003	5/16/2003
TCLP PESTICIDES			**EPA 8081**				Analyst: **RM**
Chlordane, Technical	ND	2.5		µg/L	1	5/16/2003	5/21/2003
Endrin	ND	0.20		µg/L	1	5/16/2003	5/21/2003
gamma-BHC (Lindane)	ND	0.10		µg/L	1	5/16/2003	5/21/2003
Heptachlor	ND	0.10		µg/L	1	5/16/2003	5/21/2003
Methoxychlor	ND	0.20		µg/L	1	5/16/2003	5/21/2003
Toxaphene	ND	5.0		µg/L	1	5/16/2003	5/21/2003
TCLP MERCURY BY CVAA			**EPA 7470**				Analyst: **JDA**
Mercury	ND	0.00020		mg/L	1	5/8/2003	5/16/2003 3:00:00 PM
TCLP METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Arsenic	ND	0.010		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Barium	1.2	0.0050		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Cadmium	0.010	0.010		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Chromium	0.0098	0.0050		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Copper	ND	0.020		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Lead	ND	0.040		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Nickel	0.25	0.0020		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Selenium	ND	0.050		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Silver	ND	0.020		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
Zinc	5.0	0.010		mg/L	1	5/12/2003	5/13/2003 11:35:00 AM
TCLP SEMI-VOLATILE ORGANICS			**EPA 8270**				Analyst: **HL**
1,4-Dichlorobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
2,4,5-Trichlorophenol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
2,4,6-Trichlorophenol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
2,4-Dinitrotoluene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
Hexachloro-1,3-butadiene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
Hexachlorobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
Hexachloroethane	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
m-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
Nitrobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
o-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
p-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
Pentachlorophenol	ND	100		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
Pyridine	ND	100		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc **Date:** *June 03, 2003*

CLIENT: Earth Tech, Inc. **Work Order:** 0305081
Project: GSD - Ralston St. Lagoon

TCLP VOLATILE ORGANICS **EPA 8260** Analyst: **DAH**

1,1-Dichloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
1,2-Dichloroethane	ND	20	µg/L	20	5/13/2003	5/14/2003
2-Butanone	ND	200	µg/L	20	5/13/2003	5/14/2003
Benzene	ND	20	µg/L	20	5/13/2003	5/14/2003
Carbon tetrachloride	ND	20	µg/L	20	5/13/2003	5/14/2003
Chlorobenzene	ND	20	µg/L	20	5/13/2003	5/14/2003
Chloroform	ND	20	µg/L	20	5/13/2003	5/14/2003
Tetrachloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
Trichloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
Vinyl chloride	ND	20	µg/L	20	5/13/2003	5/14/2003

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc **Date:** *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-01B
Client Sample ID: Pier 2 - Northwest
Collection Date: 4/29/2003 11:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	ND	2,200		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1221	ND	2,200		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1232	ND	2,200		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1242	ND	2,200		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1248	430,000	22,000		µg/Kg-dry	10	5/12/2003	5/14/2003
Aroclor 1254	ND	2,200		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1260	ND	2,200		µg/Kg-dry	1	5/12/2003	5/13/2003
PESTICIDES			**EPA 8081**				Analyst: **RM**
2,4'-DDD	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDD	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDE	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDT	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
Aldrin	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
alpha-BHC	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
alpha-Chlordane	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
beta-BHC	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
Chlordane, Technical	ND	10,000		µg/Kg-dry	20	5/13/2003	5/26/2003
delta-BHC	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
Dieldrin	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan I	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan II	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan sulfate	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin aldehyde	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin ketone	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
gamma-BHC (Lindane)	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
gamma-Chlordane	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
Heptachlor	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
Heptachlor epoxide	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
Hexachlorobenzene	ND	410		µg/Kg-dry	20	5/13/2003	5/26/2003
Methoxychlor	ND	820		µg/Kg-dry	20	5/13/2003	5/26/2003
Toxaphene	ND	21,000		µg/Kg-dry	20	5/13/2003	5/26/2003
SEMI-VOLATILE ORGANIC COMPOUNDS			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	ND	910		µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
1,2-Dichlorobenzene	ND	910		µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
1,2-Diphenylhydrazine	ND	9,100		µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
1,3-Dichlorobenzene	ND	910		µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

CLIENT: Earth Tech, Inc. **Work Order:** 0305081
Project: GSD - Ralston St. Lagoon

1,4-Dichlorobenzene	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2,4,5-Trichlorophenol	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2,4,6-Trichlorophenol	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2,4-Dichlorophenol	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2,4-Dimethylphenol	ND	1,900	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2,4-Dinitrophenol	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2,4-Dinitrotoluene	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2,6-Dinitrotoluene	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2-Chloronaphthalene	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2-Chlorophenol	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2-Methylnaphthalene	11,000	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2-Methylphenol	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2-Nitroaniline	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
2-Nitrophenol	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
3,3'-Dichlorobenzidine	ND	38,000	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
3-Nitroaniline	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
4,6-Dinitro-2-methylphenol	ND	19,000	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
4-Bromophenyl phenyl ether	ND	9,100	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
4-Chloro-3-methylphenol	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
4-Chloroaniline	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
4-Chlorophenyl phenyl ether	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
4-Methylphenol	2,200	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
4-Nitroaniline	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
4-Nitrophenol	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Acenaphthene	13,000	360	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Acenaphthylene	ND	360	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Anthracene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Benzidine	ND	57,000	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Benzo(a)anthracene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Benzo(a)pyrene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Benzo(b)fluoranthene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Benzo(g,h,i)perylene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Benzo(k)fluoranthene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Bis(2-chloroethoxy)methane	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Bis(2-chloroethyl)ether	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Bis(2-chloroisopropyl)ether	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Bis(2-ethylhexyl)phthalate	ND	19,000	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Butyl benzyl phthalate	ND	9,100	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Carbazole	ND	9,100	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Chrysene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Di-n-butyl phthalate	ND	19,000	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Di-n-octyl phthalate	ND	9,100	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Dibenzo(a,h)anthracene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Dibenzofuran	5,000	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Diethyl phthalate	ND	1,900	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM

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* - Value exceeds Maximum Contaminant Level
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CLIENT: Earth Tech, Inc. **Work Order:** 0305081
Project: GSD - Ralston St. Lagoon

Dimethyl phthalate	ND	1,900	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Fluoranthene	5,400	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Fluorene	3,300	360	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Hexachlorobenzene	ND	9,100	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Hexachlorobutadiene	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Hexachlorocyclopentadiene	ND	1,900	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Hexachloroethane	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Indeno(1,2,3-cd)pyrene	ND	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Isophorone	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
N-Nitrosodi-n-propylamine	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
N-Nitrosodimethylamine	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
N-Nitrosodiphenylamine	ND	9,100	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Naphthalene	3,900	360	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Nitrobenzene	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Pentachlorophenol	ND	19,000	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Phenanthrene	7,700	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM
Phenol	ND	910	µg/Kg-dry	1	5/12/2003	5/15/2003 12:47:00 PM
Pyrene	4,900	3,600	µg/Kg-dry	10	5/12/2003	5/16/2003 7:49:00 PM

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e-Lab, Inc **Date:** *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-01C
Client Sample ID: Pier 2 - Northwest
Collection Date: 4/29/2003 11:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
MERCURY BY CVAA			**EPA 7471**				Analyst: **JDA**
Mercury	ND	0.29		mg/Kg-dry	1		5/16/2003 2:00:00 PM
METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Antimony	57	23		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Arsenic	75	9.2		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Barium	510	4.6		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Beryllium	52	1.8		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Cadmium	82	4.6		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Chromium	1,400	4.6		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Copper	700	10		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Lead	1,000	9.2		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Nickel	170	9.2		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Selenium	ND	23		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Silver	ND	18		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Thallium	40	23		mg/Kg-dry	10	5/12/2003	5/21/2003 2:20:00 PM
Zinc	3,600	23		mg/Kg-dry	25	5/12/2003	5/23/2003 3:52:00 PM
ALKALINITY, TOTAL			**EPA 310.1**				Analyst: **JJG**
Alkalinity, Total (As CaCO3)	980			mg/Kg-dry	1		5/13/2003
BIOCHEMICAL OXYGEN DEMAND			**EPA 405.1**				Analyst: **JJG**
Biochemical Oxygen Demand	0.80		H	mg/Kg-dry	1		5/16/2003
BROMIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Bromide	ND	17		mg/Kg-dry	10	5/15/2003	5/19/2003
CALORIFIC VALUE (BTUS)			**ASTM D240**				Analyst: **AH**
Calorific Value (BTU)	180	100		BTU/lb as recd.	1		5/22/2003
CHLORIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Chloride	530	170		mg/Kg-dry	10	5/15/2003	5/15/2003
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	ND	2.9		mg/Kg-dry	1	5/13/2003	5/15/2003
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	1,600	29		mg/Kg-dry	1		5/13/2003
DENSITY - BULK			**ASTM D5057-90**				Analyst: **AH**
Density - Bulk	66		H	lbs/ft3	1		5/15/2003
FLUORIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Fluoride	47	17		mg/Kg-dry	10	5/15/2003	5/15/2003

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon

Work Order: 0305081

PERCENT MOISTURE			**EPA 160.3**					Analyst: **JJG**
Percent Moisture	83	0.010		% of sample	1		5/6/2003	
NITROGEN, TOTAL			**CALCULATION**					Analyst: **KAE**
Nitrogen, Total	6,400			mg/Kg-dry	1		5/28/2003	
NITRITE BY ION CHROMATOGRAPHY			**EPA 9056**					Analyst: **AH**
Nitrogen, Nitrite	ND	1.7		mg/Kg-dry	10	5/15/2003	5/15/2003	
NITRATE BY ION CHROMATOGRAPHY			**EPA 9056**					Analyst: **AH**
Nitrogen, Nitrate	ND	1.7		mg/Kg-dry	10	5/15/2003	5/15/2003	
OIL AND GREASE			**EPA 1664M**					Analyst: **KAE**
Oil and Grease	90,000	290		mg/Kg-dry	1	5/23/2003	5/20/2003	
PHOSPHORUS, TOTAL			**EPA 365.2**					Analyst: **JJG**
Phosphorus, Total	30,000	5.8		mg/Kg-dry	1		5/19/2003	
PH			**EPA 9045**					Analyst: **JJG**
pH	8.0			s.u.	1		5/19/2003	
PHENOLICS, TOTAL			**EPA 9065**					Analyst: **KAE**
Phenolics, Total	12	1.4		mg/Kg-dry	1.25		5/19/2003	
SULFIDE			**EPA 9030**					Analyst: **KAE**
Sulfide	2,100	5.8	H	mg/Kg-dry	1		5/23/2003	
SULFATE BY ION CHROMATOGRAPHY			**EPA 9056**					Analyst: **AH**
Sulfate	ND	170		mg/Kg-dry	10	5/15/2003	5/15/2003	
NITROGEN, TOTAL KJELDAHL			**SM 4500-N B**					Analyst: **KAE**
Nitrogen, Total Kjeldahl	6,100	290		mg/Kg-dry	1		5/7/2003	
TOTAL ORGANIC CARBON - WALKLEY-BLACK			**TITRAMETRIC**					Analyst: **KAE**
Total Organic Carbon - W-B	21	0.14		% by wt-dry	1		5/13/2003	
TOTAL SOLIDS			**EPA 160.3**					Analyst: **JJG**
Total Solids	17			% of sample	1		5/6/2003	

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon

Work Order: 0305081

Lab ID: 0305081-01D
Client Sample ID: Pier 2 - Northwest

Collection Date: 4/29/2003 11:00:00 AM
Matrix: SPLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
MERCURY BY CVAA			**EPA 7470**				Analyst: **JDA**
Mercury	0.00029	0.00020		mg/L	1		5/16/2003 1:00:00 PM
METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Arsenic	ND	0.010		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Barium	0.28	0.0050		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Cadmium	ND	0.010		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Chromium	0.027	0.0050		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Copper	0.068	0.020		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Lead	ND	0.040		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Nickel	0.013	0.0020		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Selenium	ND	0.050		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Silver	ND	0.020		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM
Zinc	0.14	0.010		mg/L	1	5/12/2003	5/16/2003 8:24:00 PM

Qualifiers:

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-01E
Client Sample ID: Pier 2 - Northwest
Collection Date: 4/29/2003 11:00:00 AM
Matrix: TCLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
ORGANIC COMPOUNDS BY GC-FID			**EPA 8015M**				Analyst: **RM**
1,1,2-Trichlorotrifluoroethane	ND	25		mg/L	1	5/13/2003	5/23/2003
2-Ethoxyethanol	ND	25		mg/L	1	5/13/2003	5/23/2003
2-Nitropropane	ND	25		mg/L	1	5/13/2003	5/23/2003
Cyclohexanone	ND	25		mg/L	1	5/13/2003	5/23/2003
Ethyl acetate	ND	25		mg/L	1	5/13/2003	5/23/2003
Ethyl ether	ND	25		mg/L	1	5/13/2003	5/23/2003
Isobutanol	ND	25		mg/L	1	5/13/2003	5/23/2003
Methanol	ND	25		mg/L	1	5/13/2003	5/23/2003
n-Butyl alcohol	ND	25		mg/L	1	5/13/2003	5/23/2003
SEMI-VOLATILE ORGANIC COMPOUNDS			**EPA 8270**				Analyst: **HL**
m-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
Nitrobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
o-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
p-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
Pyridine	ND	100		µg/L	1	5/16/2003	5/19/2003 6:22:00 PM
VOLATILE ORGANIC COMPOUNDS			**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	20		µg/L	20	5/13/2003	5/14/2003
1,1,2-Trichloroethane	ND	20		µg/L	20	5/13/2003	5/14/2003
1,2-Dichlorobenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
2-Butanone	ND	100		µg/L	20	5/13/2003	5/14/2003
4-Methyl-2-pentanone	ND	100		µg/L	20	5/13/2003	5/14/2003
Acetone	ND	400		µg/L	20	5/13/2003	5/14/2003
Benzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Carbon disulfide	ND	50		µg/L	20	5/13/2003	5/14/2003
Carbon tetrachloride	ND	20		µg/L	20	5/13/2003	5/14/2003
Chlorobenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Dichlorodifluoromethane	ND	20		µg/L	20	5/13/2003	5/14/2003
Ethylbenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Methyl methacrylate	ND	200		µg/L	20	5/13/2003	5/14/2003
Methylene chloride	ND	100		µg/L	20	5/13/2003	5/14/2003
Tetrachloroethene	ND	20		µg/L	20	5/13/2003	5/14/2003
Toluene	ND	20		µg/L	20	5/13/2003	5/14/2003
Trichloroethene	ND	20		µg/L	20	5/13/2003	5/14/2003
Trichlorofluoromethane	ND	20		µg/L	20	5/13/2003	5/14/2003
Xylenes, Total	ND	60		µg/L	20	5/13/2003	5/14/2003

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-01F
Client Sample ID: Pier 2 - Northwest
Collection Date: 4/29/2003 11:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
1,1,2,2-Tetrachloroethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
1,1,2-Trichloroethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
1,1-Dichloroethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
1,1-Dichloroethene	ND	29,000		µg/Kg-dry	5000		5/13/2003
1,2-Dichloroethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
1,2-Dichloropropane	ND	29,000		µg/Kg-dry	5000		5/13/2003
2-Butanone	ND	140,000		µg/Kg-dry	5000		5/13/2003
2-Chloroethyl vinyl ether	ND	290,000		µg/Kg-dry	5000		5/13/2003
2-Hexanone	ND	140,000		µg/Kg-dry	5000		5/13/2003
4-Methyl-2-pentanone	ND	140,000		µg/Kg-dry	5000		5/13/2003
Acetone	ND	720,000		µg/Kg-dry	5000		5/13/2003
Acrolein	ND	140,000		µg/Kg-dry	5000		5/13/2003
Acrylonitrile	ND	29,000		µg/Kg-dry	5000		5/13/2003
Benzene	ND	29,000		µg/Kg-dry	5000		5/13/2003
Bromodichloromethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
Bromoform	ND	29,000		µg/Kg-dry	5000		5/13/2003
Bromomethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
Carbon disulfide	ND	140,000		µg/Kg-dry	5000		5/13/2003
Carbon tetrachloride	ND	29,000		µg/Kg-dry	5000		5/13/2003
Chlorobenzene	ND	29,000		µg/Kg-dry	5000		5/13/2003
Chloroethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
Chloroform	ND	29,000		µg/Kg-dry	5000		5/13/2003
Chloromethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
cis-1,2-Dichloroethene	ND	29,000		µg/Kg-dry	5000		5/13/2003
cis-1,3-Dichloropropene	ND	29,000		µg/Kg-dry	5000		5/13/2003
Dibromochloromethane	ND	29,000		µg/Kg-dry	5000		5/13/2003
Ethylbenzene	ND	29,000		µg/Kg-dry	5000		5/13/2003
m,p-Xylene	ND	58,000		µg/Kg-dry	5000		5/13/2003
Methylene chloride	ND	140,000		µg/Kg-dry	5000		5/13/2003
o-Xylene	ND	29,000		µg/Kg-dry	5000		5/13/2003
Styrene	ND	29,000		µg/Kg-dry	5000		5/13/2003
Tetrachloroethene	ND	29,000		µg/Kg-dry	5000		5/13/2003
Toluene	ND	29,000		µg/Kg-dry	5000		5/13/2003
trans-1,2-Dichloroethene	ND	29,000		µg/Kg-dry	5000		5/13/2003
trans-1,3-Dichloropropene	ND	29,000		µg/Kg-dry	5000		5/13/2003
Trichloroethene	ND	29,000		µg/Kg-dry	5000		5/13/2003
Vinyl chloride	ND	29,000		µg/Kg-dry	5000		5/13/2003

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CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

1,2-Dichloroethene, Total	ND	58,000	µg/Kg-dry	5000	5/13/2003
1,3-Dichloropropene, Total	ND	58,000	µg/Kg-dry	5000	5/13/2003
Xylenes, Total	ND	87,000	µg/Kg-dry	5000	5/13/2003

Lab ID: 0305081-01G
Collection Date: 4/29/2003 11:00:00 AM
Client Sample ID: Pier 2 - Northwest
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
SUBCONTRACTED ANALYSES			**SUBCONTRACT**				Analyst: **LA**
Subcontracted Analyses	Complete			as noted	1		5/30/2003

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-03A
Client Sample ID: Pier 2 - Southwest
Collection Date: 5/7/2003 9:00:00 AM
Matrix: TCLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
TCLP HERBICIDES			**EPA 8151M**				Analyst: **RM**
2,4,5-TP (Silvex)	ND	1.0		µg/L	1	5/15/2003	5/16/2003
2,4-D	ND	1.0		µg/L	1	5/15/2003	5/16/2003
TCLP PESTICIDES			**EPA 8081**				Analyst: **RM**
Chlordane, Technical	ND	2.5		µg/L	1	5/16/2003	5/21/2003
Endrin	ND	0.20		µg/L	1	5/16/2003	5/21/2003
gamma-BHC (Lindane)	ND	0.10		µg/L	1	5/16/2003	5/21/2003
Heptachlor	ND	0.10		µg/L	1	5/16/2003	5/21/2003
Methoxychlor	ND	0.20		µg/L	1	5/16/2003	5/21/2003
Toxaphene	ND	5.0		µg/L	1	5/16/2003	5/21/2003
TCLP MERCURY BY CVAA			**EPA 7470**				Analyst: **JDA**
Mercury	ND	0.00020		mg/L	1	5/8/2003	5/16/2003 3:00:00 PM
TCLP METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Arsenic	0.011	0.010		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Barium	1.1	0.0050		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Cadmium	0.028	0.010		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Chromium	0.0055	0.0050		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Copper	ND	0.020		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Lead	ND	0.040		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Nickel	0.073	0.0020		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Selenium	ND	0.050		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Silver	ND	0.020		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
Zinc	2.6	0.010		mg/L	1	5/12/2003	5/13/2003 11:55:00 AM
TCLP SEMI-VOLATILE ORGANICS			**EPA 8270**				Analyst: **HL**
1,4-Dichlorobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
2,4,5-Trichlorophenol	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
2,4,6-Trichlorophenol	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
2,4-Dinitrotoluene	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
Hexachloro-1,3-butadiene	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
Hexachlorobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
Hexachloroethane	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
m-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
Nitrobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
o-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
p-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
Pentachlorophenol	ND	100		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
Pyridine	ND	100		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM

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e-Lab, Inc **Date:** *June 03, 2003*

CLIENT: Earth Tech, Inc. **Work Order:** 0305081
Project: GSD - Ralston St. Lagoon

TCLP VOLATILE ORGANICS **EPA 8260** Analyst: **DAH**

1,1-Dichloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
1,2-Dichloroethane	ND	20	µg/L	20	5/13/2003	5/14/2003
2-Butanone	ND	200	µg/L	20	5/13/2003	5/14/2003
Benzene	ND	20	µg/L	20	5/13/2003	5/14/2003
Carbon tetrachloride	ND	20	µg/L	20	5/13/2003	5/14/2003
Chlorobenzene	ND	20	µg/L	20	5/13/2003	5/14/2003
Chloroform	ND	20	µg/L	20	5/13/2003	5/14/2003
Tetrachloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
Trichloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
Vinyl chloride	ND	20	µg/L	20	5/13/2003	5/14/2003

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-03B
Client Sample ID: Pier 2 - Southwest
Collection Date: 5/7/2003 9:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	ND	2,800		µg/Kg-dry	1	5/8/2003	5/8/2003
Aroclor 1221	ND	2,800		µg/Kg-dry	1	5/8/2003	5/8/2003
Aroclor 1232	ND	2,800		µg/Kg-dry	1	5/8/2003	5/8/2003
Aroclor 1242	ND	2,800		µg/Kg-dry	1	5/8/2003	5/8/2003
Aroclor 1248	220,000	28,000		µg/Kg-dry	10	5/8/2003	5/8/2003
Aroclor 1254	ND	2,800		µg/Kg-dry	1	5/8/2003	5/8/2003
Aroclor 1260	ND	2,800		µg/Kg-dry	1	5/8/2003	5/8/2003
PESTICIDES			**EPA 8081**				Analyst: **RM**
2,4'-DDD	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDD	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDE	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDT	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
Aldrin	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
alpha-BHC	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
alpha-Chlordane	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
beta-BHC	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
Chlordane, Technical	ND	11,000		µg/Kg-dry	20	5/13/2003	5/26/2003
delta-BHC	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
Dieldrin	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan I	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan II	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan sulfate	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin aldehyde	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin ketone	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
gamma-BHC (Lindane)	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
gamma-Chlordane	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
Heptachlor	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
Heptachlor epoxide	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
Hexachlorobenzene	ND	450		µg/Kg-dry	20	5/13/2003	5/26/2003
Methoxychlor	ND	910		µg/Kg-dry	20	5/13/2003	5/26/2003
Toxaphene	ND	23,000		µg/Kg-dry	20	5/13/2003	5/26/2003
SEMI-VOLATILE ORGANIC COMPOUNDS			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	ND	1,100		µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
1,2-Dichlorobenzene	ND	1,100		µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
1,2-Diphenylhydrazine	ND	1,100		µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
1,3-Dichlorobenzene	ND	1,100		µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM

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CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

1,4-Dichlorobenzene	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2,4,5-Trichlorophenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2,4,6-Trichlorophenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2,4-Dichlorophenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2,4-Dimethylphenol	ND	2,200	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2,4-Dinitrophenol	ND	4,400	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2,4-Dinitrotoluene	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2,6-Dinitrotoluene	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2-Chloronaphthalene	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2-Chlorophenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2-Methylnaphthalene	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2-Methylphenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2-Nitroaniline	ND	4,400	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
2-Nitrophenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
3,3'-Dichlorobenzidine	ND	4,400	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
3-Nitroaniline	ND	4,400	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
4,6-Dinitro-2-methylphenol	ND	2,200	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
4-Bromophenyl phenyl ether	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
4-Chloro-3-methylphenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
4-Chloroaniline	ND	4,400	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
4-Chlorophenyl phenyl ether	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
4-Methylphenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
4-Nitroaniline	ND	4,400	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
4-Nitrophenol	ND	4,400	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Acenaphthene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Acenaphthylene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Anthracene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Benzidine	ND	6,700	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Benzo(a)anthracene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Benzo(a)pyrene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Benzo(b)fluoranthene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Benzo(g,h,i)perylene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Benzo(k)fluoranthene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Bis(2-chloroethoxy)methane	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Bis(2-chloroethyl)ether	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Bis(2-chloroisopropyl)ether	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Bis(2-ethylhexyl)phthalate	ND	2,200	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Butyl benzyl phthalate	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Carbazole	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Chrysene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Di-n-butyl phthalate	ND	2,200	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Di-n-octyl phthalate	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Dibenzo(a,h)anthracene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Dibenzofuran	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Diethyl phthalate	ND	2,200	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM

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CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Dimethyl phthalate	ND	2,200	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Fluoranthene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Fluorene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Hexachlorobenzene	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Hexachlorobutadiene	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Hexachlorocyclopentadiene	ND	2,200	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Hexachloroethane	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Indeno(1,2,3-cd)pyrene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Isophorone	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
N-Nitrosodi-n-propylamine	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
N-Nitrosodimethylamine	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
N-Nitrosodiphenylamine	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Naphthalene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Nitrobenzene	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Pentachlorophenol	ND	2,200	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Phenanthrene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Phenol	ND	1,100	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM
Pyrene	ND	430	µg/Kg-dry	1	5/12/2003	5/15/2003 9:59:00 AM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-03C
Client Sample ID: Pier 2 - Southwest
Collection Date: 5/7/2003 9:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
MERCURY BY CVAA			**EPA 7471**				Analyst: **JDA**
Mercury	0.55	0.35		mg/Kg-dry	1		5/16/2003 2:00:00 PM
METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Antimony	ND	18		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Arsenic	14	7.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Barium	240	3.6		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Beryllium	ND	1.4		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Cadmium	8.6	3.6		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Chromium	760	3.6		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Copper	600	7.8		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Lead	380	7.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Nickel	25	7.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Selenium	ND	18		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Silver	ND	14		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Thallium	ND	18		mg/Kg-dry	10	5/12/2003	5/21/2003 2:50:00 PM
Zinc	1,600	18		mg/Kg-dry	25	5/12/2003	5/23/2003 4:01:00 PM
ALKALINITY, TOTAL			**EPA 310.1**				Analyst: **JJG**
Alkalinity, Total (As CaCO3)	680			mg/Kg-dry	1		5/13/2003
BIOCHEMICAL OXYGEN DEMAND			**EPA 405.1**				Analyst: **JJG**
Biochemical Oxygen Demand	0.20		H	mg/Kg-dry	1		5/16/2003
BROMIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Bromide	ND	21		mg/Kg-dry	10	5/15/2003	5/19/2003
CALORIFIC VALUE (BTUS)			**ASTM D240**				Analyst: **AH**
Calorific Value (BTU)	980	100		BTU/lb as recd.	1		5/27/2003
CHLORIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Chloride	1,500	210		mg/Kg-dry	10	5/15/2003	5/15/2003
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	NA	3.5	H	mg/Kg-dry	1		5/22/2003
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	1,400	35		mg/Kg-dry	1	5/15/2003	5/12/2003
DENSITY - BULK			**ASTM D5057-90**				Analyst: **AH**
Density - Bulk	68			lbs/ft3	1		5/15/2003
FLUORIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Fluoride	ND	21		mg/Kg-dry	10	5/15/2003	5/15/2003

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
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e-Lab, Inc **Date:** *June 03, 2003*

CLIENT: Earth Tech, Inc. **Work Order:** 0305081
Project: GSD - Ralston St. Lagoon

PERCENT MOISTURE			**EPA 160.3**				Analyst: **CES**
Percent Moisture	86	0.010	% of sample	1		5/8/2003	
NITROGEN, TOTAL			**CALCULATION**				Analyst: **KAE**
Nitrogen, Total	5,000		mg/Kg-dry	1		5/28/2003	
NITRITE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Nitrogen, Nitrite	ND	2.1	mg/Kg-dry	10	5/15/2003	5/15/2003	
NITRATE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Nitrogen, Nitrate	ND	2.1	mg/Kg-dry	10	5/15/2003	5/15/2003	
OIL AND GREASE			**EPA 1664M**				Analyst: **KAE**
Oil and Grease	110,000	350	mg/Kg-dry	1	5/23/2003	5/20/2003	
PHOSPHORUS, TOTAL			**EPA 365.2**				Analyst: **JJG**
Phosphorus, Total	12,000	7.0	mg/Kg-dry	1		5/13/2003	
PH			**EPA 9045**				Analyst: **JJG**
pH	7.1		s.u.	1		5/19/2003	
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **KAE**
Phenolics, Total	14	1.7	mg/Kg-dry	1.25		5/19/2003	
SULFIDE			**EPA 9030**				Analyst: **KAE**
Sulfide	8,500	7.0	H mg/Kg-dry	1		5/23/2003	
SULFATE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Sulfate	610	210	mg/Kg-dry	10	5/15/2003	5/15/2003	
NITROGEN, TOTAL KJELDAHL			**SM 4500-N B**				Analyst: **KAE**
Nitrogen, Total Kjeldahl	5,000	350	mg/Kg-dry	1		5/7/2003	
TOTAL ORGANIC CARBON - WALKLEY-BLACK			**TITRAMETRIC**				Analyst: **KAE**
Total Organic Carbon - W-B	16	0.17	% by wt-dry	1		5/13/2003	
TOTAL SOLIDS			**EPA 160.3**				Analyst: **CES**
Total Solids	14		% of sample	1		5/8/2003	

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon

Work Order: 0305081

Lab ID: 0305081-03D
Client Sample ID: Pier 2 - Southwest

Collection Date: 5/7/2003 9:00:00 AM
Matrix: SPLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
MERCURY BY CVAA			**EPA 7470**				Analyst: **JDA**
Mercury	ND	0.00020		mg/L	1		5/16/2003 1:00:00 PM
METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Arsenic	ND	0.010		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Barium	0.15	0.0050		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Cadmium	ND	0.010		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Chromium	ND	0.0050		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Copper	ND	0.020		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Lead	ND	0.040		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Nickel	ND	0.0020		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Selenium	ND	0.050		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Silver	ND	0.020		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM
Zinc	0.055	0.010		mg/L	1	5/12/2003	5/16/2003 8:42:00 PM

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E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc **Date:** *June 03, 2003*

CLIENT: Earth Tech, Inc. **Work Order:** 0305081
Project: GSD - Ralston St. Lagoon

Lab ID: 0305081-03E **Collection Date:** 5/7/2003 9:00:00 AM
Client Sample ID: Pier 2 - Southwest **Matrix:** TCLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
ORGANIC COMPOUNDS BY GC-FID			**EPA 8015M**				Analyst: **RM**
1,1,2-Trichlorotrifluoroethane	ND	25		mg/L	1	5/13/2003	5/23/2003
2-Ethoxyethanol	ND	25		mg/L	1	5/13/2003	5/23/2003
2-Nitropropane	ND	25		mg/L	1	5/13/2003	5/23/2003
Cyclohexanone	ND	25		mg/L	1	5/13/2003	5/23/2003
Ethyl acetate	ND	25		mg/L	1	5/13/2003	5/23/2003
Ethyl ether	ND	25		mg/L	1	5/13/2003	5/23/2003
Isobutanol	ND	25		mg/L	1	5/13/2003	5/23/2003
Methanol	ND	25		mg/L	1	5/13/2003	5/23/2003
n-Butyl alcohol	ND	25		mg/L	1	5/13/2003	5/23/2003
SEMI-VOLATILE ORGANIC COMPOUNDS			**EPA 8270**				Analyst: **HL**
m-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
Nitrobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
o-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
p-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
Pyridine	ND	100		µg/L	1	5/16/2003	5/19/2003 7:29:00 PM
VOLATILE ORGANIC COMPOUNDS			**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	20		µg/L	20	5/13/2003	5/14/2003
1,1,2-Trichloroethane	ND	20		µg/L	20	5/13/2003	5/14/2003
1,2-Dichlorobenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
2-Butanone	ND	100		µg/L	20	5/13/2003	5/14/2003
4-Methyl-2-pentanone	ND	100		µg/L	20	5/13/2003	5/14/2003
Acetone	ND	400		µg/L	20	5/13/2003	5/14/2003
Benzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Carbon disulfide	ND	50		µg/L	20	5/13/2003	5/14/2003
Carbon tetrachloride	ND	20		µg/L	20	5/13/2003	5/14/2003
Chlorobenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Dichlorodifluoromethane	ND	20		µg/L	20	5/13/2003	5/14/2003
Ethylbenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Methyl methacrylate	ND	200		µg/L	20	5/13/2003	5/14/2003
Methylene chloride	ND	100		µg/L	20	5/13/2003	5/14/2003
Tetrachloroethene	ND	20		µg/L	20	5/13/2003	5/14/2003
Toluene	ND	20		µg/L	20	5/13/2003	5/14/2003
Trichloroethene	ND	20		µg/L	20	5/13/2003	5/14/2003
Trichlorofluoromethane	ND	20		µg/L	20	5/13/2003	5/14/2003
Xylenes, Total	ND	60		µg/L	20	5/13/2003	5/14/2003

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-03F
Client Sample ID: Pier 2 - Southwest
Collection Date: 5/7/2003 9:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
1,1,2,2-Tetrachloroethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
1,1,2-Trichloroethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
1,1-Dichloroethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
1,1-Dichloroethene	ND	27,000		µg/Kg-dry	3800		5/13/2003
1,2-Dichloroethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
1,2-Dichloropropane	ND	27,000		µg/Kg-dry	3800		5/13/2003
2-Butanone	ND	130,000		µg/Kg-dry	3800		5/13/2003
2-Chloroethyl vinyl ether	ND	270,000		µg/Kg-dry	3800		5/13/2003
2-Hexanone	ND	130,000		µg/Kg-dry	3800		5/13/2003
4-Methyl-2-pentanone	ND	130,000		µg/Kg-dry	3800		5/13/2003
Acetone	ND	660,000		µg/Kg-dry	3800		5/13/2003
Acrolein	ND	130,000		µg/Kg-dry	3800		5/13/2003
Acrylonitrile	ND	27,000		µg/Kg-dry	3800		5/13/2003
Benzene	ND	27,000		µg/Kg-dry	3800		5/13/2003
Bromodichloromethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
Bromoform	ND	27,000		µg/Kg-dry	3800		5/13/2003
Bromomethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
Carbon disulfide	ND	130,000		µg/Kg-dry	3800		5/13/2003
Carbon tetrachloride	ND	27,000		µg/Kg-dry	3800		5/13/2003
Chlorobenzene	ND	27,000		µg/Kg-dry	3800		5/13/2003
Chloroethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
Chloroform	ND	27,000		µg/Kg-dry	3800		5/13/2003
Chloromethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
cis-1,2-Dichloroethene	ND	27,000		µg/Kg-dry	3800		5/13/2003
cis-1,3-Dichloropropene	ND	27,000		µg/Kg-dry	3800		5/13/2003
Dibromochloromethane	ND	27,000		µg/Kg-dry	3800		5/13/2003
Ethylbenzene	ND	27,000		µg/Kg-dry	3800		5/13/2003
m,p-Xylene	ND	53,000		µg/Kg-dry	3800		5/13/2003
Methylene chloride	ND	130,000		µg/Kg-dry	3800		5/13/2003
o-Xylene	ND	27,000		µg/Kg-dry	3800		5/13/2003
Styrene	ND	27,000		µg/Kg-dry	3800		5/13/2003
Tetrachloroethene	ND	27,000		µg/Kg-dry	3800		5/13/2003
Toluene	ND	27,000		µg/Kg-dry	3800		5/13/2003
trans-1,2-Dichloroethene	ND	27,000		µg/Kg-dry	3800		5/13/2003
trans-1,3-Dichloropropene	ND	27,000		µg/Kg-dry	3800		5/13/2003
Trichloroethene	ND	27,000		µg/Kg-dry	3800		5/13/2003
Vinyl chloride	ND	27,000		µg/Kg-dry	3800		5/13/2003

Qualifiers:
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CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

1,2-Dichloroethene, Total	ND	53,000	µg/Kg-dry	3800		5/13/2003
1,3-Dichloropropene, Total	ND	53,000	µg/Kg-dry	3800		5/13/2003
Xylenes, Total	ND	80,000	µg/Kg-dry	3800		5/13/2003

Lab ID: 0305081-03G
Collection Date: 5/7/2003 9:00:00 AM
Client Sample ID: Pier 2 - Southwest
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
SUBCONTRACTED ANALYSES			**SUBCONTRACT**				Analyst: **LA**
Subcontracted Analyses	Complete			as noted	1		5/30/2003

Qualifiers:
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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-02A
Client Sample ID: Duplicate
Collection Date: 4/29/2003 11:00:00 AM
Matrix: TCLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
TCLP HERBICIDES			**EPA 8151M**				Analyst: **RM**
2,4,5-TP (Silvex)	ND	1.0		µg/L	1	5/15/2003	5/16/2003
2,4-D	ND	1.0		µg/L	1	5/15/2003	5/16/2003
TCLP PESTICIDES			**EPA 8081**				Analyst: **RM**
Chlordane, Technical	ND	2.5		µg/L	1	5/16/2003	5/21/2003
Endrin	ND	0.20		µg/L	1	5/16/2003	5/21/2003
gamma-BHC (Lindane)	ND	0.10		µg/L	1	5/16/2003	5/21/2003
Heptachlor	ND	0.10		µg/L	1	5/16/2003	5/21/2003
Methoxychlor	ND	0.20		µg/L	1	5/16/2003	5/21/2003
Toxaphene	ND	5.0		µg/L	1	5/16/2003	5/21/2003
TCLP MERCURY BY CVAA			**EPA 7470**				Analyst: **JDA**
Mercury	ND	0.00020		mg/L	1	5/8/2003	5/16/2003 3:00:00 PM
TCLP METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Arsenic	0.018	0.010		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Barium	0.94	0.0050		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Cadmium	ND	0.010		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Chromium	ND	0.0050		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Copper	ND	0.020		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Lead	ND	0.040		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Nickel	0.30	0.0020		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Selenium	ND	0.050		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Silver	ND	0.020		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
Zinc	4.5	0.010		mg/L	1	5/12/2003	5/13/2003 11:50:00 AM
TCLP SEMI-VOLATILE ORGANICS			**EPA 8270**				Analyst: **HL**
1,4-Dichlorobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
2,4,5-Trichlorophenol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
2,4,6-Trichlorophenol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
2,4-Dinitrotoluene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
Hexachloro-1,3-butadiene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
Hexachlorobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
Hexachloroethane	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
m-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
Nitrobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
o-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
p-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
Pentachlorophenol	ND	100		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
Pyridine	ND	100		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM

Qualifiers:
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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc **Date:** *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

TCLP VOLATILE ORGANICS **EPA 8260** Analyst: **DAH**

1,1-Dichloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
1,2-Dichloroethane	ND	20	µg/L	20	5/13/2003	5/14/2003
2-Butanone	ND	200	µg/L	20	5/13/2003	5/14/2003
Benzene	ND	20	µg/L	20	5/13/2003	5/14/2003
Carbon tetrachloride	ND	20	µg/L	20	5/13/2003	5/14/2003
Chlorobenzene	ND	20	µg/L	20	5/13/2003	5/14/2003
Chloroform	ND	20	µg/L	20	5/13/2003	5/14/2003
Tetrachloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
Trichloroethene	ND	20	µg/L	20	5/13/2003	5/14/2003
Vinyl chloride	ND	20	µg/L	20	5/13/2003	5/14/2003

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P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-02B
Client Sample ID: Duplicate
Collection Date: 4/29/2003 11:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS			**EPA 8082**				Analyst: **RM**
Aroclor 1016	ND	2,100		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1221	ND	2,100		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1232	ND	2,100		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1242	ND	2,100		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1248	430,000	21,000		µg/Kg-dry	10	5/12/2003	5/14/2003
Aroclor 1254	ND	2,100		µg/Kg-dry	1	5/12/2003	5/13/2003
Aroclor 1260	ND	2,100		µg/Kg-dry	1	5/12/2003	5/13/2003
PESTICIDES			**EPA 8081**				Analyst: **RM**
2,4'-DDD	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDD	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDE	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
4,4'-DDT	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
Aldrin	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
alpha-BHC	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
alpha-Chlordane	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
beta-BHC	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
Chlordane, Technical	ND	9,400		µg/Kg-dry	20	5/13/2003	5/26/2003
delta-BHC	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
Dieldrin	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan I	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan II	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
Endosulfan sulfate	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin aldehyde	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
Endrin ketone	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
gamma-BHC (Lindane)	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
gamma-Chlordane	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
Heptachlor	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
Heptachlor epoxide	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
Hexachlorobenzene	ND	380		µg/Kg-dry	20	5/13/2003	5/26/2003
Methoxychlor	ND	750		µg/Kg-dry	20	5/13/2003	5/26/2003
Toxaphene	ND	19,000		µg/Kg-dry	20	5/13/2003	5/26/2003
SEMI-VOLATILE ORGANIC COMPOUNDS			**EPA 8270**				Analyst: **HL**
1,2,4-Trichlorobenzene	ND	920		µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
1,2-Dichlorobenzene	ND	920		µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
1,2-Diphenylhydrazine	ND	9,200		µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
1,3-Dichlorobenzene	ND	920		µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM

Qualifiers:
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CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

1,4-Dichlorobenzene	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2,4,5-Trichlorophenol	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2,4,6-Trichlorophenol	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2,4-Dichlorophenol	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2,4-Dimethylphenol	ND	1,900	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2,4-Dinitrophenol	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2,4-Dinitrotoluene	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2,6-Dinitrotoluene	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2-Chloronaphthalene	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2-Chlorophenol	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2-Methylnaphthalene	22,000	9,200	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
2-Methylphenol	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2-Nitroaniline	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
2-Nitrophenol	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
3,3'-Dichlorobenzidine	ND	38,000	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
3-Nitroaniline	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
4,6-Dinitro-2-methylphenol	ND	19,000	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
4-Bromophenyl phenyl ether	ND	9,200	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
4-Chloro-3-methylphenol	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
4-Chloroaniline	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
4-Chlorophenyl phenyl ether	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
4-Methylphenol	4,000	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
4-Nitroaniline	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
4-Nitrophenol	ND	3,800	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Acenaphthene	22,000	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Acenaphthylene	ND	370	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Anthracene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Benzidine	ND	58,000	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Benzo(a)anthracene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Benzo(a)pyrene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Benzo(b)fluoranthene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Benzo(g,h,i)perylene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Benzo(k)fluoranthene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Bis(2-chloroethoxy)methane	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Bis(2-chloroethyl)ether	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Bis(2-chloroisopropyl)ether	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Bis(2-ethylhexyl)phthalate	ND	19,000	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Butyl benzyl phthalate	ND	9,200	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Carbazole	ND	9,200	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Chrysene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Di-n-butyl phthalate	ND	19,000	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Di-n-octyl phthalate	ND	9,200	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Dibenzo(a,h)anthracene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Dibenzofuran	8,100	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Diethyl phthalate	ND	1,900	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
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H - Analyzed outside of Hold Time

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Dimethyl phthalate	ND	1,900	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Fluoranthene	6,800	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Fluorene	5,000	370	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Hexachlorobenzene	ND	9,200	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Hexachlorobutadiene	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Hexachlorocyclopentadiene	ND	1,900	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Hexachloroethane	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Indeno(1,2,3-cd)pyrene	ND	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Isophorone	2,800	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
N-Nitrosodi-n-propylamine	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
N-Nitrosodimethylamine	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
N-Nitrosodiphenylamine	ND	9,200	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Naphthalene	4,900	370	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Nitrobenzene	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Pentachlorophenol	ND	19,000	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Phenanthrene	11,000	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM
Phenol	ND	920	µg/Kg-dry	1	5/12/2003	5/15/2003 12:13:00 PM
Pyrene	5,800	3,700	µg/Kg-dry	10	5/12/2003	5/16/2003 8:22:00 PM

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-02C
Client Sample ID: Duplicate
Collection Date: 4/29/2003 11:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
MERCURY BY CVAA			**EPA 7471**				Analyst: **JDA**
Mercury	1.8	0.28		mg/Kg-dry	1		5/16/2003 2:00:00 PM
METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Antimony	ND	15		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Arsenic	17	6.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Barium	410	3.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Beryllium	ND	1.2		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Cadmium	25	3.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Chromium	840	3.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Copper	390	6.7		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Lead	630	6.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Nickel	71	6.1		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Selenium	ND	15		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Silver	17	12		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Thallium	ND	15		mg/Kg-dry	10	5/12/2003	5/21/2003 2:32:00 PM
Zinc	3,500	15		mg/Kg-dry	25	5/12/2003	5/23/2003 3:57:00 PM
ALKALINITY, TOTAL			**EPA 310.1**				Analyst: **JJG**
Alkalinity, Total (As CaCO3)	850			mg/Kg-dry	1		5/13/2003
BIOCHEMICAL OXYGEN DEMAND			**EPA 405.1**				Analyst: **JJG**
Biochemical Oxygen Demand	0.21		H	mg/Kg-dry	1		5/16/2003
BROMIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Bromide	ND	17		mg/Kg-dry	10	5/15/2003	5/19/2003
CALORIFIC VALUE (BTUS)			**ASTM D240**				Analyst: **AH**
Calorific Value (BTU)	1,100	100		BTU/lb as recd.	1		5/27/2003
CHLORIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Chloride	490	170		mg/Kg-dry	10	5/15/2003	5/15/2003
CYANIDE, TOTAL			**EPA 9014**				Analyst: **KAE**
Cyanide, Total	4.7	2.8		mg/Kg-dry	1	5/13/2003	5/15/2003
CHEMICAL OXYGEN DEMAND			**EPA 410.4**				Analyst: **JJG**
Chemical Oxygen Demand	1,400	28		mg/Kg-dry	1	5/15/2003	5/12/2003
DENSITY - BULK			**ASTM D5057-90**				Analyst: **AH**
Density - Bulk	68		H	lbs/ft3	1		5/15/2003
FLUORIDE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Fluoride	52	17		mg/Kg-dry	10	5/15/2003	5/15/2003

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e-Lab, Inc **Date:** *June 03, 2003*

CLIENT: Earth Tech, Inc. **Work Order:** 0305081
Project: GSD - Ralston St. Lagoon

PERCENT MOISTURE			**EPA 160.3**				Analyst: **JJG**
Percent Moisture	82	0.010	% of sample	1		5/6/2003	
NITROGEN, TOTAL			**CALCULATION**				Analyst: **KAE**
Nitrogen, Total	5,100		mg/Kg-dry	1		5/28/2003	
NITRITE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Nitrogen, Nitrite	ND	1.7	mg/Kg-dry	10	5/15/2003	5/15/2003	
NITRATE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Nitrogen, Nitrate	ND	1.7	mg/Kg-dry	10	5/15/2003	5/15/2003	
OIL AND GREASE			**EPA 1664M**				Analyst: **KAE**
Oil and Grease	81,000	280	mg/Kg-dry	1	5/23/2003	5/20/2003	
PHOSPHORUS, TOTAL			**EPA 365.2**				Analyst: **JJG**
Phosphorus, Total	29,000	5.6	mg/Kg-dry	1		5/13/2003	
PH			**EPA 9045**				Analyst: **JJG**
pH	7.5		s.u.	1		5/19/2003	
PHENOLICS, TOTAL			**EPA 9065**				Analyst: **KAE**
Phenolics, Total	1.9	1.4	mg/Kg-dry	1.25		5/19/2003	
SULFIDE			**EPA 9030**				Analyst: **KAE**
Sulfide	610	5.6	H mg/Kg-dry	1		5/23/2003	
SULFATE BY ION CHROMATOGRAPHY			**EPA 9056**				Analyst: **AH**
Sulfate	1,300	170	mg/Kg-dry	10	5/15/2003	5/15/2003	
NITROGEN, TOTAL KJELDAHL			**SM 4500-N B**				Analyst: **KAE**
Nitrogen, Total Kjeldahl	5,000	280	mg/Kg-dry	1		5/7/2003	
TOTAL ORGANIC CARBON - WALKLEY-BLACK			**TITRAMETRIC**				Analyst: **KAE**
Total Organic Carbon - W-B	20	0.13	% by wt-dry	1		5/13/2003	
TOTAL SOLIDS			**EPA 160.3**				Analyst: **JJG**
Total Solids	18		% of sample	1		5/6/2003	

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon

Work Order: 0305081

Lab ID: 0305081-02D
Client Sample ID: Duplicate

Collection Date: 4/29/2003 11:00:00 AM
Matrix: SPLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
MERCURY BY CVAA			**EPA 7470**				Analyst: **JDA**
Mercury	0.00035	0.00020		mg/L	1		5/16/2003 1:00:00 PM
METALS ANALYSIS BY ICP			**EPA 6010**				Analyst: **JDA**
Arsenic	ND	0.010		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Barium	0.38	0.0050		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Cadmium	ND	0.010		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Chromium	0.034	0.0050		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Copper	ND	0.020		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Lead	ND	0.040		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Nickel	0.014	0.0020		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Selenium	ND	0.050		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Silver	ND	0.020		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM
Zinc	0.17	0.010		mg/L	1	5/12/2003	5/16/2003 8:38:00 PM

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e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon

Work Order: 0305081

Lab ID: 0305081-02E
Client Sample ID: Duplicate

Collection Date: 4/29/2003 11:00:00 AM
Matrix: TCLP EXTRACT

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
ORGANIC COMPOUNDS BY GC-FID			**EPA 8015M**				Analyst: **RM**
1,1,2-Trichlorotrifluoroethane	ND	25		mg/L	1	5/13/2003	5/23/2003
2-Ethoxyethanol	ND	25		mg/L	1	5/13/2003	5/23/2003
2-Nitropropane	ND	25		mg/L	1	5/13/2003	5/23/2003
Cyclohexanone	ND	25		mg/L	1	5/13/2003	5/23/2003
Ethyl acetate	ND	25		mg/L	1	5/13/2003	5/23/2003
Ethyl ether	ND	25		mg/L	1	5/13/2003	5/23/2003
Isobutanol	ND	25		mg/L	1	5/13/2003	5/23/2003
Methanol	ND	25		mg/L	1	5/13/2003	5/23/2003
n-Butyl alcohol	ND	25		mg/L	1	5/13/2003	5/23/2003
SEMI-VOLATILE ORGANIC COMPOUNDS			**EPA 8270**				Analyst: **HL**
m-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
Nitrobenzene	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
o-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
p-Cresol	ND	25		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
Pyridine	ND	100		µg/L	1	5/16/2003	5/19/2003 6:56:00 PM
VOLATILE ORGANIC COMPOUNDS			**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	20		µg/L	20	5/13/2003	5/14/2003
1,1,2-Trichloroethane	ND	20		µg/L	20	5/13/2003	5/14/2003
1,2-Dichlorobenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
2-Butanone	ND	100		µg/L	20	5/13/2003	5/14/2003
4-Methyl-2-pentanone	ND	100		µg/L	20	5/13/2003	5/14/2003
Acetone	ND	400		µg/L	20	5/13/2003	5/14/2003
Benzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Carbon disulfide	ND	50		µg/L	20	5/13/2003	5/14/2003
Carbon tetrachloride	ND	20		µg/L	20	5/13/2003	5/14/2003
Chlorobenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Dichlorodifluoromethane	ND	20		µg/L	20	5/13/2003	5/14/2003
Ethylbenzene	ND	20		µg/L	20	5/13/2003	5/14/2003
Methyl methacrylate	ND	200		µg/L	20	5/13/2003	5/14/2003
Methylene chloride	ND	100		µg/L	20	5/13/2003	5/14/2003
Tetrachloroethene	ND	20		µg/L	20	5/13/2003	5/14/2003
Toluene	ND	20		µg/L	20	5/13/2003	5/14/2003
Trichloroethene	ND	20		µg/L	20	5/13/2003	5/14/2003
Trichlorofluoromethane	ND	20		µg/L	20	5/13/2003	5/14/2003
Xylenes, Total	ND	60		µg/L	20	5/13/2003	5/14/2003

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

Date: *June 03, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: 0305081

Lab ID: 0305081-02F
Client Sample ID: Duplicate
Collection Date: 4/29/2003 11:00:00 AM
Matrix: SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**EPA 8260**				Analyst: **DAH**
1,1,1-Trichloroethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
1,1,2,2-Tetrachloroethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
1,1,2-Trichloroethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
1,1-Dichloroethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
1,1-Dichloroethene	ND	25,000		µg/Kg-dry	4500		5/13/2003
1,2-Dichloroethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
1,2-Dichloropropane	ND	25,000		µg/Kg-dry	4500		5/13/2003
2-Butanone	ND	130,000		µg/Kg-dry	4500		5/13/2003
2-Chloroethyl vinyl ether	ND	250,000		µg/Kg-dry	4500		5/13/2003
2-Hexanone	ND	130,000		µg/Kg-dry	4500		5/13/2003
4-Methyl-2-pentanone	ND	130,000		µg/Kg-dry	4500		5/13/2003
Acetone	ND	630,000		µg/Kg-dry	4500		5/13/2003
Acrolein	ND	130,000		µg/Kg-dry	4500		5/13/2003
Acrylonitrile	ND	25,000		µg/Kg-dry	4500		5/13/2003
Benzene	ND	25,000		µg/Kg-dry	4500		5/13/2003
Bromodichloromethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
Bromoform	ND	25,000		µg/Kg-dry	4500		5/13/2003
Bromomethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
Carbon disulfide	ND	130,000		µg/Kg-dry	4500		5/13/2003
Carbon tetrachloride	ND	25,000		µg/Kg-dry	4500		5/13/2003
Chlorobenzene	ND	25,000		µg/Kg-dry	4500		5/13/2003
Chloroethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
Chloroform	ND	25,000		µg/Kg-dry	4500		5/13/2003
Chloromethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
cis-1,2-Dichloroethene	ND	25,000		µg/Kg-dry	4500		5/13/2003
cis-1,3-Dichloropropene	ND	25,000		µg/Kg-dry	4500		5/13/2003
Dibromochloromethane	ND	25,000		µg/Kg-dry	4500		5/13/2003
Ethylbenzene	ND	25,000		µg/Kg-dry	4500		5/13/2003
m,p-Xylene	ND	51,000		µg/Kg-dry	4500		5/13/2003
Methylene chloride	ND	130,000		µg/Kg-dry	4500		5/13/2003
o-Xylene	ND	25,000		µg/Kg-dry	4500		5/13/2003
Styrene	ND	25,000		µg/Kg-dry	4500		5/13/2003
Tetrachloroethene	ND	25,000		µg/Kg-dry	4500		5/13/2003
Toluene	ND	25,000		µg/Kg-dry	4500		5/13/2003
trans-1,2-Dichloroethene	ND	25,000		µg/Kg-dry	4500		5/13/2003
trans-1,3-Dichloropropene	ND	25,000		µg/Kg-dry	4500		5/13/2003
Trichloroethene	ND	25,000		µg/Kg-dry	4500		5/13/2003
Vinyl chloride	ND	25,000		µg/Kg-dry	4500		5/13/2003

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

1,2-Dichloroethene, Total	ND	51,000	µg/Kg-dry	4500		5/13/2003
1,3-Dichloropropene, Total	ND	51,000	µg/Kg-dry	4500		5/13/2003
Xylenes, Total	ND	76,000	µg/Kg-dry	4500		5/13/2003

Lab ID: 0305081-02G **Collection Date:** 4/29/2003 11:00:00 AM
Client Sample ID: Duplicate **Matrix:** SLUDGE

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Prep	Date Analyzed
SUBCONTRACTED ANALYSES			**SUBCONTRACT**				Analyst: **LA**
Subcontracted Analyses	Complete			as noted	1		5/30/2003

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

RADIONUCLIIDES

Pace Analytical
www.pacelabs.com

Pace Analytical Services, Inc.
Waltz Mill Laboratory - MB62
P.O. Box 158
Madison, PA 15663
Phone: 724.722.5407
Fax: 724.722.5208

June 27, 2003

Mr. Les Arnold
E-Lab, Inc
3352 128th Avenue
Holland, MI 49424

Sludge Characterization
Pace Project No. 03-0233

Dear Mr. Arnold:

Enclosed are analytical results for samples submitted by E-Lab, Inc. Samples were received and logged in for analysis on May 13, 2003.

Methods used are indicated on the attached data table. Appropriate quality assurance/quality control analyses were performed in accordance with Pace, Waltz Mill Site Quality Assurance Plan. The results reported in this project meet the requirements as specified in Chapter 5 of the NELAC Standards. Any deviations or discrepancies from the NELAC standards are documented in the case narrative(s) of this report. If you have any questions, please call me at 724-722-5219.

Sincerely,

Richard M. Kinney
Radiochemistry Laboratory Supervisor

RMK:rks

Enclosures

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

PACE ANALYTICAL SERVICES, INC.
CASE NARRATIVE

I. PROJECT LOGIN INFORMATION:

A: PROJECT NUMBERS:

PACE: 03-0233
CLIENT:

B: SAMPLE IDENTIFICATIONS:

Pace ID	Client ID	Pace ID	Client ID
0305-0070	0305081-1	0305-0071	0305081-2
0305-0072	0305081-3		

C: SHIPPING/RECEIVING COMMENTS:

Final report: 06/27/03

II. PREPARATION/ANALYSIS COMMENTS:

A: RADIOLOGICAL:

Samples were dried prior to analysis and results are reported as pCi/g dry weight. The wet and dried weights for each sample are as follows:

Wet weight	Dry Weight
0305-0070 405.6mg	72.3mg
0305-0071 402.5mg	77.7mg
0305-0072 580.3mg	88.7mg

III. GENERAL COMMENTS:

Trailing zeroes and decimal places appearing on the data should not be interpreted as precision of the analytical procedure, but rather as a result of reporting format. Radiochemical results are reported in scientific notation.

2

Table 1
General Data Table
E-Lab, Inc.
Pace Project No. 03-0233
Sludge Characterization

Parameter	Analytical Method	Units	Sample Identification 0305-0070 0305081-1 (4/29/03) Act ± Unc (MDC)	
Gross Alpha	PGH-R-001-A	pCi/g	7.04E0 ± 5.2E0	(3.0E0)
Gross Beta	PGH-R-001-A	pCi/g	1.49E1 ± 4.7E0	(1.5E0)

Act=Activity, Unc=2 sigma Uncertainty and (MDC)=the associated Minimum Detectable Concentration.

Table 1
(Continued)

Parameter	Analytical Method	Units	Sample Identification 0305-0071 0305081-2 (4/29/03) Act ± Unc (MDC)	
Gross Alpha	PGH-R-001-A	pCi/g	1.21E1 ± 6.2E0	(3.1E0)
Gross Beta	PGH-R-001-A	pCi/g	1.42E1 ± 4.6E0	(1.5E0)

Act=Activity, Unc=2 sigma Uncertainty and (MDC)=the associated Minimum Detectable Concentration.

4

Table 1
(Continued)

Parameter	Analytical Method	Units	Sample Identification 0305-0072 0305081-3 (5/7/03) Act ± Unc (MDC)	
Gross Alpha	PGH-R-001-A	pCi/g	1.03E1 ± 5.6E0	(3.0E0)
Gross Beta	PGH-R-001-A	pCi/g	1.52E1 ± 4.2E0	(1.5E0)

Act=Activity, Unc=2 sigma Uncertainty and (MDC)=the associated Minimum Detectable Concentration.

5

Table 1
(Continued)

Parameter	Analytical Method	Units	Sample Identification 0305-0073 Method Blank Act ± Unc (MDC)	
Gross Alpha	PGH-R-001-A	pCi/g	3.03E-1 ± 3.0E0	(3.10)
Gross Beta	PGH-R-001-A	pCi/g	-8.64E-1 ± 5.1E0	(4.4E0)

Act=Activity, Unc=2 sigma Uncertainty and (MDC)=the associated Minimum Detectable Concentration.

6

☐ e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

03-0233

☐ e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

SUB TO PACE - WATERMILL

e-Lab Project Manager: | e-Lab Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name		A	GROSS ALPHA/BETA
Work Order		Project Number		B	
Company Name	e-Lab, Inc.	Bill To Company		C	
Send Report To	Les Arnold	Invoice Attn.		D	
Address	3352 128th Ave.	Address		E	
				F	
City/State/Zip	HOLLAND, MI 49424	City/State/Zip		G	
Phone	616-738-7307	Phone		H	
Fax	616-399-6185	Fax		I	
e-Mail Address	larnold@elabi.com			J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	0305081-1	4/29/2003	1100	SL	-	1	✓				0305-			0070			
2	0305081-2	4/29/2003	1400	SL	-	1	✓							0071			
3	0305081-3	5/7/2003	0900	SL	-	1	✓							0072			
4	Unspiked Blank													0073			
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign: e-Lab, Inc. Les Arnold

Shipment Method:

Required Turnaround Time: ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☒ Other STD.

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Les Arnold	5/8/2003	1000	Alan C 5/13/03 13:49	SHIP to: PACE ANALYTICAL, WALTZ MILL LAB, EXIT 54, US Rte. 70, MANSON, PA 15663 ☎ 724-722-5214
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler Temp:
[illegible]	[illegible]	[illegible]	[illegible]	

QC Package: (Check Box Below)
- Level II: Standard QC
- Level III: Standard QC + Raw Data
- Level IV: SW846 Methods/CLP
- Other: _____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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MILLS CONSULTING MEMORANDUM

INTEROFFICE MEMORANDUM

TO: PHIL DELAHUNT

FROM: DR. WILLIAM MILLS, MILLS CONSULTING INC.

SUBJECT: REVIEW OF LABORATORY ANALYTICAL RESULTS GARY SANITARY DISTRICT , RALSTON ST. LAGOON

DATE: 7/2/2003

CC: TERRI BLACKMAR

I have reviewed the analytical data from e-Labs and Alta Analytical for the Ralston St. Lagoon samples submitted in April and May 2003. In general the results all met acceptable quality assurance/quality control (QA/QC). No specific issues were identified that would require resampling or reanalysis.

1. The PCB analyses performed by Alta were reviewed for C-13 and/or Cl-37 surrogate recovery, method blank and method spike parameters. The surrogate recoveries were quite good with many of them >90%. One note regarding the reports is that where a 0 is indicated in the results column the reporting limit column should be used as the result.

2. The PCB results from e-Lab compare favorably with the Alta results despite the differences in analytical methods. I would attribute the differences observed to sample heterogeneity and/or differences in methods.

3. The PCDD/DF analyses indicate good recoveries. The pattern seen with a significant fraction of the PCDD/DF being OCDD is typical of urban environments. The amount of PCDFs is very small and is not indicative of any thermal or oxidative coupling of the PCBs found in the sediments.

4. recoveries of tetra-chloro-m-xylene were consistently low. However the decachlorobiphenyl surrogate in the same sample was adequate.

5. Zn recovery was low for one MS (0305081-01A) but all other metals were fine.

6. 8270 surrogate recoveries while on the low end, were still acceptable for the method (Batch 2673). Recoveries for the LCS were in the same range. In contrast the terphenyl-d14 gave consistently good recoveries.

7. MS/MSD recoveries for TOC were low, however the observed value of approximately 200,000 ppm for the sample indicates this is not a major issue.

8. I recommend that laboratory analytical results be accepted as submitted.

From a treatability point of view the PCB and PCDD/DF concentrations do not pose any unusual problems. However this statement excludes consideration of biodegradation as I am not aware of any successful demonstration of biodegradation from these types of concentrations to < 50 ppm of PCB.

The major issues I would identify from the results that would affect future treatment options are

a. High Total Organic Carbon (>20%)

b. High moisture (>80%)

c. High sulfur

d. High phosphorus

e. High nitrogen

f. Low density

g. Low dewatering ability

h. Fine particle size

Thank you for the opportunity to assist you on this project. Please contact me if there are any further questions regarding the contents of this memo..

APPENDIX G

Final Report on Limited Waste Treatability Study

Ralston Street Lagoon

Gary, Indiana

July 27, 2004

Quality Environmental Inc. and
Gary Sanitary District

EARTH TECH

A tyco INTERNATIONAL LTD. COMPANY

3121 Butterfield Road, Oak Brook, Illinois 60523

Telephone
630.574.2006
Facsimile
630.574.2007

July 27, 2004

Mr. Charles G. "Spike" Peller, Jr., P.E.
Director
Gary Sanitary District
3600 W. 3rd Avenue
Gary, Indiana 46406

RE: Final Report on
Limited Waste Treatability Study
Ralston Street Lagoon
Gary Sanitary District
Gary, Indiana

Dear Mr. Peller:

Enclosed please find two copies of the referenced Final Report on the Limited Waste Treatability Study performed for the Ralston Street Lagoon in Gary, Indiana. This work was performed in accordance with Earth Tech's proposal dated March 25, 2003. The scope of work for this project included sludge sampling, a preliminary screening of remediation technologies, and limited treatability studies on the waste. The enclosed report presents our findings and recommendations for a focused feasibility study.

Please review this report and contact me at (630) 574-2188 if you have any questions. Earth Tech appreciates the opportunity to assist the Gary Sanitary District with this very important project.

Very truly yours,

Earth Tech, Inc.

Terri L. Blackmar

Terri L. Blackmar, P.E., R.P.G.
Vice President, Sr. Section Manager

Enc. As stated

C: Ms. Donna Urbikas, Quality Environmental, Inc.
Mr. Don Smales, Greely & Hanson
Mr. Jim Urek, Earth Tech

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Appendix A - Report on Limited Treatability Studies
Appendix B - Analytical Results for Solidified Sludge

1.0 Introduction

Earth Tech, Inc. (Earth Tech) has completed this Waste Characterization and Limited Treatability Study in accordance with our proposal dated March 25, 2003. The scope of work for this project included the sampling and analysis of sludge for characterization purposes, performance of limited treatability tests, and screening of the various alternatives for remediation of the Ralston Street Lagoon (RSL) sludge. The alternatives likely to be the most cost effective, gravity dewatering and solidification, were laboratory-tested to evaluate their effectiveness prior to conducting a feasibility study. This approach was recommended by Earth Tech to reduce costs by eliminating technologies that were ineffective or estimated to be very costly.

The RSL is located in Gary, Indiana and is managed by the Gary Sanitary District (GSD). During previous investigations, the sludge was determined to contain polychlorinated biphenyls (PCBs) in concentrations exceeding the Toxic Substance Control Act (TSCA) limit of 50 parts per million (ppm). The RSL is to be managed in accordance with the Third Modified Consent Decree agreed to by the Gary Sanitary District (GSD) and the U.S. Environmental Protection Agency (USEPA), Region V.

2.0 Background Information

The Ralston Street Lagoon is located approximately one mile west of the Gary Wastewater Treatment Plant and one-half mile south of the Gary Municipal Airport. The RSL is bounded on the north and west by the Grand Calumet River and its associated wetlands, on the south by the Indiana East-West Tollway, and on the east by Ralston Street. The area to the east of Ralston Street is a residential area. A Site Location Map is presented on Figure 1.

The RSL occupies approximately 18.5 acres of a 22-acre site, which was acquired by the City of Gary in 1962. It is situated in an old sand borrow pit that was excavated during Tollway construction. According to drawings of the borrow pit (dated October 1962), the maximum depth of the pit was 27 feet below the water table.

The City of Gary modified the RSL in 1962 for use as a sewage sludge storage area. The modifications included construction of an earthen berm along the perimeter of the RSL, an access road, and three piers for access to piping for influent and effluent of sewage sludge to the RSL. The pipes were subsequently sealed to isolate the RSL from the wastewater treatment plant and from the Grand Calumet River.

The GSD deposited sludge containing PCBs in the Lagoon until 1988. The estimated volume of sludge pumped into the Lagoon is 600,000 cubic yards. The presence of PCBs in the sludge was first determined in the early 1980s. Although operation of the RSL ceased in 1988, no official notification to the USEPA has ever been made regarding the "inactive" status of the facility and, therefore, the USEPA considers it to be an active site.

The RSL currently has approximately five feet of water on the surface, with underlying sludge that thickens with depth. The sludge thickness varies with the pond depth, with an estimated maximum thickness of 20 to 25 feet. The PCB concentration varies from 100 to 1,300 parts per million (ppm) in the sludge.

2.1 Previous Investigations

Investigations have been conducted at the site in 1983, 1986, 1992, and 1997. In 1983, sludge samples were obtained at six locations along the RSL piers (located along the south side of the RSL) and analyzed for PCBs. The samples were obtained at five-foot intervals near each end of each pier, to a maximum depth of 25 feet. The PCB concentration from these samples was reported to range from less than 10 to over 1,000 ppm on a dry weight basis. Higher concentrations were observed in samples from depths exceeding 10 feet in the central and western portions of the RSL.

In June 1986, 25 randomly-selected locations were sampled within the RSL and analyzed for PCBs. Sampling was again performed at five-foot intervals at each location, to various depths, and the samples composited into one sample. The resulting PCB concentration ranged from 70 to 790 ppm on a dry weight basis in the composite samples. The average concentration of PCBs was determined to be 200 ppm, and the specific Aroclor types were identified as Aroclor 1242 and 1248.

Soil samples were obtained from four boreholes drilled for installation of monitoring wells during the 1986 investigation and analyzed for PCBs. Three soil samples obtained had PCB levels above the method detection limit of 0.02 ppm. Two samples from depths of 5.5 to 6.0 feet had PCB levels of 0.31 and 0.10 ppm (on a dry weight basis) and the third sample, from a

depth of 20.5 to 21 feet, had a PCB level of 0.21 ppm. At a depth of 30 feet, the PCB level in the soil samples from each of the four wells was approximately 4 to 5 ppm.

In June 1992, 20 sludge and two river sediment samples were collected and analyzed for PCBs. The analytical results indicated that Aroclor 1248 was present in concentrations ranging from less than 10 to over 300 ppm, which an average of less than 50 ppm. Although the samples were taken at discreet depths at locations intended to duplicate previous findings, the overall comparison showed no obvious similarities between the sampling event findings. The 1992 data suggested that the PCB concentrations throughout the RSL could be significantly lower than previously described.

In January 1997, Fluor Daniel GTI completed a report on an investigation of the location and extent of PCBs in the sludge of the active RSL. Surface water sampling was also performed at 15 locations during this investigation. The investigation determined that the concentration of PCBs in the sludge exceeded the Toxic Substance Control Act (TSCA) limit of 50 ppm, thereby requiring remediation under TSCA. The PCB sampling data published in the January 1997 Fluor Daniel GTI Report – *Sludge and Surface Water PCB Sampling, Ralston Street Lagoon, Gary Sanitary District* (the Report) can be summarized as follows:

PCB Concentration	Average Solids	% Total Volume
< 200 ppm	10.8%	74%
200 – 600 ppm	12.8%	21%
> 600 ppm	19.8%	5%

PCB concentrations appeared to be greatest (1,300 ppm) near the center of the lagoon in the deepest layer, and generally decreased with distance upward.

The PCB concentrations measured in the surface water samples were below the method detection limit. The final disposition of the sewage sludge is therefore regulated under 40 CFR 761.60(a)(5), which limits the disposal of PCB contaminated sewage sludge to permitted incinerators, hazardous waste landfills, and "alternate disposal methods approved by the Agency's Regional Administrator."

In the January 1997 report on the Fluor Daniel GTI investigation, the total volume of sludge in the RSL is estimated to be 107,686,020 gallons. The volume of sludge exceeding the regulatory threshold of 50 ppm PCB is estimated to be 104,039,551 gallons. Approximately 10.4% of the sludge, or 11,206,260 gallons, was determined to contain PCB (Araclor 1248) above the 500-ppm level. A significant conclusion from the report on this investigation is that areas with PCB contamination either below the 50 ppm threshold or above the 500 ppm threshold were very small, essentially isolated samples, and that separation of these areas from the remaining TSCA-regulated PCB waste falling in the 50 to 500 ppm range is not physically practical.

3.0 RSL Sampling and Analysis

Prior to field sampling, Earth Tech personnel performed a site visit and prepared a project-specific Health and Safety Plan for the sampling activities according to the previously USEPA-approved QAPP. This plan identified potential safety hazards that may be present in the work area at the site, emergency procedures to be followed, and OSHA requirements pertaining to the work. The Earth Tech team included a Certified Industrial Hygienist (CIH), whose Ph.D. is in PCB Site Remediation, including Health and Safety aspects.

A site visit was performed to determine if a good boat launch location existed given the rather narrow access that exists around the Lagoon, or if the piers that exist in the Lagoon would be sound enough to provide access for sampling. Based on the field reconnaissance, our discussion with the bioremediation contractor regarding their sample needs, and our review of figures in a previous report showing PCB concentration in the Lagoon, Earth Tech concluded that samples with the desired concentration could be obtained safely by sampling from the piers.

The objective of the sampling and analysis was to determine the composition of the sludge, the concentration of contaminants in the sludge, and the presence of constituents that may interfere with, or otherwise affect, the treatment technologies. Although previous characterization has been conducted to assess PCB distribution in the sludge, there was insufficient data regarding the potential distribution of PCB (congener-specific) and non-PCB analytes. This information is required to evaluate treatment technologies and costs associated with various treatment and disposal options.

3.1 Sludge Sampling

Earth Tech field personnel performed sampling on April 29th and May 7th, 2003 to obtain samples with the desired concentration of PCBs. Discreet samples were obtained from along the western side of Pier 2 at three locations utilizing a specially fabricated sludge-sampling device similar to the 1996/1997 sampling event. The samples were labeled as Pier 2 Northwest (approx. 110 feet out onto the pier, 13-foot depth), Pier 2 Middlewest (approx. 70 feet out onto the pier), and Pier 2 Southwest (approximately 15 feet out onto the pier, 5-6 foot depth). Only the Pier 2 NW and Pier 2 SW samples were analyzed. A duplicate sample was also obtained at the Pier 2 NW location. All samples were properly labeled and packaged in laboratory-provided clean containers and transported under chain-of-custody protocol to the analytical laboratory (eLab).

Earth Tech decontaminated the sampling equipment prior to obtaining samples and between samples. Samples were preserved and handled in accordance with the previously approved Sampling Plan (Fluor Daniel GTI, Inc., June 1996) of the approved Quality Assurance Project Plan to ensure data quality.

Bulk sludge samples were also obtained at the same locations as the discreet samples, for the evaluation of the potential treatment technologies. Bulk samples of sludge with a concentration of approximately 200 ppm PCB and approximately 800 ppm PCB were obtained from locations previously found to have sludge at these concentrations, and transported in five-gallon buckets, encased in plastic bags and then shipped in sealed coolers.

The bulk sludge samples collected for the bioremediation treatability studies were shipped to the biological treatability contractor. Bulk sludge samples were also shipped to Kemron for treatability studies utilizing solidification and dewatering technologies.

3.2 Quality Control Sample Procedures

Quality control sample procedures were performed as described in the 1996 Work Plan. Earth Tech collected one replicate sample, and one matrix spike duplicate sample was analyzed as well.

3.3 Laboratory Analyses

The two discreet sludge samples and duplicate sample obtained from the RSL were transported on ice under chain-of-custody protocol to e-Lab for analysis of the constituents and physical properties listed in Table 1.

Kemron performed testing of some chemical and physical properties that were not performed by e-Lab. Physical and chemical testing of the sludge material was performed to characterize the waste prior to treatment.

Sludge drying procedures, as described in the Southwest Laboratory of Oklahoma, Inc. document Standard Operating Procedure for the Determination of PCBs as Aroclors by GC Capillary Column Technique for Gary Sanitary District, dated April 4, 1996, were utilized to prepare the sludge samples for PCB analysis.

4.0 Analytical Results

Sludge samples obtained by Earth Tech from the RSL investigation were tested for numerous chemical and physical parameters including, but not limited to, VOCs, SVOCs, metals, cyanides, PCBs (both Aroclor and congener specific), dioxins/furans, organic carbon, humic acid, BOD, COD, asbestos and radionucliides. Most of these tests were performed by eLab using SW-846 Standard Test Methods, though a portion was subcontracted to specialty laboratories. A summary of the PCB concentrations is provided in the table below:

SAMPLE	AROCLOR CONC. (ppm)	AROCLOR CONC. (ppm)	CONGENER CONC. (ppm)	AVG. CONC. (ppm)
P2 Northwest	910	430	708	683
P2 Southwest	NA	220	305	263

These results are consistent with those found by others in previous investigations and are considered acceptable and useable when considering matrix interferences, the effects of testing bulk samples and inter-laboratory differences. Relatively minor concentrations of VOCs, SVOCs, metals and other constituents were detected in the sludge. All test results were included with the Final Waste Characterization Report dated July 9, 2004.

4.1 Physical Properties of the RSL Sludge

Kemron performed testing of physical properties of the untreated RSL sludge to provide a baseline characterization of the material. The testing performed and the results for the two samples are presented on Table 1 of Kemron's report in Appendix A. As is evident from the results for grain size testing, both samples contained sand, silt, and clay in varying percentages, and a trace of gravel was present in the Southwest sample. Both samples contained approximately 15% solids, but the Northwest sample contained a much higher percent of silt and was 20% higher than the Southwest sample for Loss on Ignition. The pH measured for the samples ranged from 6.75 to 6.98, based on an average of three measurements in each sample. The bulk density of the samples ranged from 67 to 68 pounds per cubic foot (pcf), which is expected given the high water content of the sludge. The permeability of the untreated waste was very low, ranging from 1.2×10^{-8} cm/sec to 3.0×10^{-9} cm/sec.

5.0 Review of Treatment/Disposal Alternatives

The objective of the review and preliminary screening of treatment/disposal alternatives and limited treatability study is to identify which technologies are likely to be the most effective in terms of both performance and cost. To be effective, a treatment technology has to be able to achieve one or more of the following objectives:

- significant dewatering of the waste to allow economical solidification and disposal;
- remediation of the waste to meet the cleanup goals for the site;
- remediation with minimal emissions and disruption to the surrounding area.

Earth Tech reviewed information on the technologies that have been utilized on other PCB remediation projects with regard to effectiveness and cost, in an effort to identify those technologies that would be the most cost-effective and achieve the remediation/closure goals for the site.

5.1 Description of Treatment/Disposal Alternatives

The alternative technologies that were considered for remediation/closure of the RSL may be used alone or in combination with other treatment and disposal methods to achieve the desired end result. For some technologies, dewatering of the sludge may be required as an initial step to reduce the water content of the sludge prior to treatment. In some cases, treatment of the aqueous phase may also be required.

The following treatment alternatives were first screened to determine cost feasibility: 1) dewatering; 2) solidification/stabilization; 3) dechlorination/dehalogenation; 4) in-site bioremediation; and 5) vitrification.

The treatment technologies that generally accomplish dewatering or solidification of the waste do not destroy PCBs but simply allow for on-site or off site disposal. In-situ bioremediation, thermal treatment, and dechlorination/dehalogenation are processes that destroy PCBs and can result in a hazardous or non-hazardous waste of less volume and with different waste disposal requirements.

A bioremediation study was conducted by Howard University concurrent with this limited treatability study, and therefore it was not evaluated by Earth Tech. A summary of the treatment technologies that were evaluated during the preliminary screening of alternatives is presented below.

5.1.1 Dewatering Technologies

Earth Tech evaluated various dewatering technologies for the sludge, including belt filter press, centrifugation, and gravity drainage. Bench-scale testing was performed to determine the effectiveness of these technologies for the sludge. Dewatering would be utilized in combination with solidification/stabilization, or other in-situ treatment prior to disposal, unless the material were placed in a Contained Dewatering and Disposal Facility (CDDF) and allowed to gravity drain. A dewatering technology may be capable of removing sufficient moisture to allow off-site disposal, provided the dewatered sludge could pass the paint filter test. However, without further treatment the sludge would still be considered a TSCA-regulated waste.

Construction of a CDDF on site to act as a dewatering facility for the sludge, then as a permanent disposal unit, was evaluated. The CDDF would be designed to meet the requirements of 40 CFR, Part 264, and would include a double liner containment system, leak detection system, and leachate collection system. The CDDF could be constructed on property located nearby. Constructing it at the site of the RSL would present significant construction challenges. For this option, Earth Tech performed bench scale testing to determine the passive dewatering capability of the sludge and what, if any, surcharge loading would be needed to enhance dewatering.

5.1.2 Solidification/Stabilization

Solidification/stabilization (S/S) is a technology where hazardous substances are physically bound or enclosed in a stabilized mass (solidification) or reacted with chemicals/reagents to reduce their mobility (stabilization). The S/S process reduces the mobility of hazardous substances or contaminants into the environment. The stabilization process immobilizes contaminants through chemical means trapping the contaminants in the soil or sludge. S/S can be used alone or in conjunction with other treatment technologies to yield a material suitable for capping in place, or which could be transported off-site for disposal.

Following removal and treatment of the upper five-foot layer of water on the surface of the lagoon, in-situ solidification of the sludge would be performed. Installation of a slurry wall around the RSL may be needed to minimize groundwater inflow during solidification. The sludge S/S process includes the addition of reagents or pozzalonic material to transform the sludge so that the hazardous constituents are in their least mobile state. The water removed from the surface would be treated (if needed) and discharged in accordance with GSD treatment requirements. The treated sludge must pass the paint filter test and have sufficient strength to support a cap.

Earth Tech investigated the possibility of S/S by utilizing fly ash and/or limekiln dust that may be locally available, and/or pozzolans, in various mix ratios. Loss due to volatilization would have to be further evaluated for this option. The waste management objective for this treatment is to either: 1) delist the waste so that it would no longer be considered TSCA waste, as determined through PCB testing. As a delisted waste, the treated material could be closed in place with a landfill cover; 2) solidify the waste and contain it utilizing a slurry wall keyed into an underlying clay layer, then cap the waste; or 3) solidify the waste and remove it for off-site disposal.

5.1.3 Chemical Dechlorination/Dehalogenation

A mobile treatment system could be utilized to perform in-situ treatment of the PCB waste at the site. There are a number of systems approved by the USEPA. Some systems chemically destroy the PCBs by attacking the carbon-chlorine bonds in the PCB molecules, resulting in a mild reaction that strips the chlorine from the biphenyl molecules. The biphenyls then polymerize to form an insoluble sludge. The dechlorination reagents used by different companies are typically proprietary, but generally utilize metallic sodium and solvents to form an organosodium complex. This reagent reacts with the PCBs to form sodium chloride and polyphenylene polymer. The amount of waste generated from the dechlorination process is typically much less than the original volume. The final waste product may be a RCRA waste or a non-hazardous waste, depending on the levels of other contaminants in the sludge.

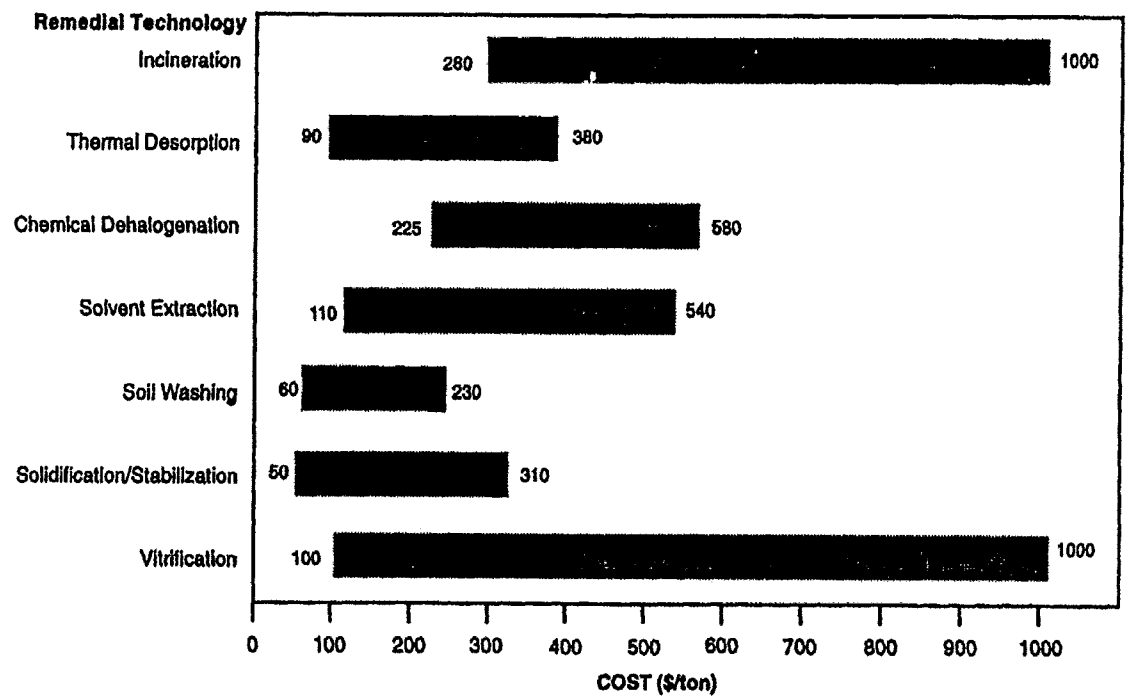
Dehalogenation is the process of removing halogen (usually chlorine) molecules from a contaminant, rendering it less hazardous. The two most common types of dehalogenation testing, including 1) base-catalyzed decomposition, and 2) glycolate dehalogenation.

5.1.4 Vitrification

Based on information obtained and reviewed regarding vitrification, it is not a viable option due to the amount of water in the waste (steam explosions could be a real problem). In addition, vitrification requires a certain mineralogical content that is unlikely to be present in the sludge. Earth Tech therefore did not undertake evaluations of vitrification; however some cost information on this treatment technology is included for comparison purposes.

6.0 Cost Screening of Alternatives

Earth Tech reviewed information on other PCB remediation projects performed utilizing the technologies described in Section 5.0 of this report, as well as information available from U.S. EPA published documents summarizing PCB remediation technologies based on their prior experience. Since the technologies under evaluation have been successfully used to remediate PCB-contaminated soils and sediment, Earth Tech first screened these technologies based on cost. Information on cost of various technologies was obtained from the U.S. EPA, Office of Research and Development, Office of Solid Waste and Emergency Response, document titled *Technology Alternatives for the Remediation of PCB-Contaminated Soil and Sediment, EPA/540/S-93/506, October 1993(Ref. 1)*. The graph shown below summarizes the cost/ton for these technologies, as reported by the U.S. EPA, and is based on their research of hundreds of completed PCB remediation projects.



Note: Current cost information on bioremediation is very limited and not included in this chart.
Source: Derived from EPA RPMs, technology experts, and vendor databases.

Figure 1. Estimated Cost Ranges of PCB Remediation Technologies.

It is important to note that the above costs may not include many site-specific factors, including disposal costs for those technologies that concentrate and/or separate PCBs (such as soil washing, solvent extraction, etc.). These costs were estimated for the process itself, and therefore may not include the total cost to implement and complete remediation.

Critical factors affecting the cost vary by technology, but some factors, such as site preparation and treatment capacity, are critical to all of the technologies.

Additional information on PCB remediation costs was obtained from the Federal Remediation Technologies Roundtable - Technology Cost and Performance Web Site, which is summarized on Table 2 by technology. This information includes many of the cost items that are not included on the graph prepared by EPA, such as mobilization/demobilization and other ancillary costs, and in some cases, provides costs for specific projects that have been completed. In comparing the cost information presented on the graph with the costs shown in Table 2, some general conclusion can be drawn regarding the technologies that would be prohibitively expensive to utilize.

Vitrification would likely cost in the range of $500/ton to $1,000/ton, given the high water content of the waste, making this a prohibitively expensive alternative. Due to the likely expense and the previously-stated concerns regarding high water content and inadequate mineralogy, this alternative has been eliminated from further consideration as a remedial alternative.

Chemical dechlorination/dehalogenation are relatively expensive as well, ranging from approximately $225/ton to nearly $600/ton. Due to this prohibitive cost, and the potential for this technology to be less effective because of the high water content of the waste, this technology has also been eliminated from further consideration.

S/S performed in-situ is one of the most cost effective technologies that may be utilized for the sludge in the RSL, with cost estimated to range from approximately $30/ton to $150/ton. This technology was further evaluated in bench-scale treatability studies to determine optimum mix ratios using available reagents.

Based on Earth Tech's experience on similar projects and information provided by the USEPA, dewatering and disposal in a Confined Dewatering and Disposal Facility (CDDF) is another cost-effective technology that warrants additional evaluation. Costs for two projects that included dredging and dewatering/disposal in a CDDF and another project that involved dredging, dewatering, solidification, and disposal in a landfill, are presented in Table 2. The range of cost for dredging/dewatering/disposal was approximately $30/ton for disposal on site in a CDDF and $100/ton for disposal at an off-site facility. For the third project, which included solidification and water treatment, the cost was $148/ton. Therefore, the range of cost for this type of remediation is at the low end of the alternative technologies, along with in-situ S/S and capping. It is important to note, however, that this technology can be applied to waste that will freely drain, and additional treatment may be required for some wastes.

According to the January 1997 report on the Fluor Daniel GTI investigation, the RSL contains approximately 107,686,020 gallons of sludge. This is equivalent to approximately 533,000 cubic yards, or about 500,000 tons of sludge (based on the measured bulk density of 68 pcf).

7.0 Limited Treatability Studies

Bulk sludge samples ranging in concentration from approximately 200 ppm to 900 ppm PCB were obtained from the RSL and shipped to Kemron Environmental Services for bench scale treatability studies. The treatability studies were limited to dewatering and solidification/stabilization because these technologies are the most cost-effective alternatives that could be used to successfully treat the sludge.

7.1 Dewatering Test Results

Dewatering testing performed on samples of the RSL sludge included gravity drainage, belt filter press dewatering, and centrifugation dewatering. Dewatering testing was performed to evaluate the sludge material's ability to drain freely, and the effect that loading would have on the dewatering process.

Dewatering could be utilized on the RSL as a form of pretreatment to reduce the amount of waste that would require solidification/stabilization or other treatment; or it could be utilized as a stand-alone treatment in a CDDF. However, for dewatering to serve as a stand-alone treatment it has to remove sufficient water to achieve a percent solids content of at least 70% and a soil strength capable of supporting a cover and the heavy equipment used to install it. The tests performed are described below, along with the results obtained.

Gravity Drainage Testing

Gravity drainage testing was performed by placing untreated sludge in a large funnel with filters ranging from five to 24 microns and observing the amount of liquid that drained from the sludge. A sand filter was also utilized to determine if it would be effective. The results of the testing are summarized on Table 2 of Kemron's report in Appendix A. After a period of seven days, no effluent was collected from the sample tested with the filter sand bed, although effluent was retained in the sand and the sludge experienced a 15 percent to 23 percent loss of weight due to water loss.

The samples tested using filters (5 to 24 microns) varied between the Northwest and Southwest samples. The Northwest sample, which contains more silt and clay and less sand than the Southwest sample, exhibited only six to eight percent weight loss from gravity drainage, with approximately 16 to 17 grams of supernatant resulting. The Southwest sample produced three times more supernatant, and lost approximately 21 percent of its weight due to water loss.

For either method of gravity drainage, the resulting dewatered sludge contained only 14 to 29 percent solids. This dewatering would not be sufficient to produce a sediment mass with the strength needed to support cover construction, unless further treatment were performed.

Filter Press Dewatering Testing

Filter press dewatering testing was performed on untreated sludge material at pressures of 10, 25, and 50 pounds per square inch (psi). This testing was performed to evaluate how surcharge loading or other loads placed on the sludge would enhance the material's ability to drain. The results obtained for the sludge from the Northwest and Southwest sample locations are presented on Table 3 of Kemron's report in Appendix A. The solids content of the

sludge did increase under loading. However, the maximum percent solids achieved was 30.9%, which is not high enough to provide sufficient strength for cover installation.

These results indicate that the sludge is not readily free-draining and is basically a suspension of organic and inorganic material with a strong affinity to the water. Introduction of a water treatment chemical may be needed to break the electrical charge that exists between the water and the organic solids.

Centrifugation

Centrifugation dewatering was performed to evaluate the potential for removal of water using a full-scale centrifuge. The centrifuge speed was set at 1000 revolutions per minute (rpm). The results for centrifugation are summarized on Table 4 of Kemron's report in Appendix A. Following the treatment, the solids content of the resulting sludge cake was determined to range from approximately 14 to 18 percent. This is not a significant increase in the percent solids content, and therefore, centrifugation is not considered a potential alternative for dewatering.

7.2 Solidification/Stabilization Test Results

Samples of the RSL sludge were mixed with various potential S/S reagents at various mix ratios to evaluate the effectiveness of solidifying additives at increasing solids content and strength of the resulting mixture. Nineteen different mixtures were developed for each of the untreated bulk samples of sludge, as summarized on Table 5 of Kemron's report (Appendix A). All of the reagents tested are typical reagents utilized for S/S projects. The limekiln dust and coke flue dust tested were available locally (with no material cost) from the Ispat Inland Mill, and samples from the Mill were sent to Kemron for testing.

The resulting mixtures were then allowed to cure. The estimated 28-day cohesive strength of the solidified sludge, based on penetrometer testing, is indicated on Table 5 of Kemron's report. Selected mixtures were also tested for unconfined compressive strength following curing periods of 28 days and 44 days, and the results are summarized on Table 7 of Kemron's report. Both methods of strength testing are considered to be very conservative, since the samples tested were not confined. The cohesive strength equivalencies, as compared to the consistency of clay, are approximately as follows:

Material Strength	Equivalent Strength (psf)	Equiv. Soil Consistency
0.05 tsf	100	Very soft
0.10 tsf	200	Very soft
0.30 tsf	600	Medium
4.0 psi	576	Medium
7.0 psi	1,008	Stiff
9.0 psi	1,296	Stiff

To determine the material strength sufficient to support a closure cover without added reinforcement, stability analyses will have to be performed. Treated waste with at least a stiff consistency, or a minimum 1,000 psf cohesive strength, plus some frictional strength, may have sufficient strength. As is evident from the treated waste strength data presented on Tables 5 and 7 of Kemron's report, this cohesive strength was only achieved with a minimum of 25 percent (by weight) Type I Portland Cement added. In addition, no measurable strength benefit was evident from the addition of various amounts of the lime kiln dust, coke flue ash, hydrated lime, or organo clay. This is likely due to the presence of organic and/or oily material in the sludge, which acts as an inhibitor by coating the surface of the pozzolan materials.

Kemron also calculated bulking factors for selected mix ratios, the results of which are summarized on Table 6 of their report. For the two best-performing mix ratios of 20 and 25 percent cement, the resultant bulking was 18 percent and 27 percent, respectively. However, it should be noted that the mix ratios are based on weight rather than volume, thereby requiring a calculation for volume comparisons. Assuming a density of 190 pounds per cubic foot (pcf) for the dry cement and an average density of 68 pcf for the sludge, the volume ratio of hydrated cement additive would be as follows:

$$.25/(190 \text{ pcf}/68 \text{ pcf}) = 0.089, \text{ or approximately 9 percent cement by volume}$$

Similarly, the volume of water added would be as follows:

$$0.10/(62.4 \text{ pcf}/68 \text{ pcf}) = 0.108, \text{ or approximately 11 percent water by volume}$$

Therefore, on a volume basis, the best performing mixture tested was approximately 80 percent sludge mixed with 11 percent water and 9 percent dry cement. The bulking factor for this mixture was determined to be 27 percent.

Earth Tech tested samples of the treated waste for PCBs (Method 8082) and TCLP (Method 8151M/8081/7470/6010/8270/8260) to characterize the treated sludge. The results of these analyses are presented in Appendix B, and indicate the solidified sludge is non-hazardous and is a TSCA-regulated waste. Based on these results, the waste is acceptable for off-site or on-site disposal provided the disposal facility meets EPA requirements for TSCA waste disposal.

7.3 Conclusions Regarding Waste Treatability

Based on the dewatering treatability testing performed, dewatering is not recommended unless it is shown to be successful with the addition of a water treatment chemical. Since the sludge is an anionic suspension with high organic content, it may be possible to successfully treat the sludge with a cationic water treatment chemical. Testing with water treatment chemicals was not included in the scope of work for this project.

The S/S testing revealed that the sludge can be solidified with the addition of at least 9 percent cement (by volume) to yield a cohesive strength of approximately 1,300 psf. This strength may be lower than desired to support heavy equipment during cap construction. Greater strength may be obtained by adding a granular material as a binder or by adding a higher percentage of cement. The addition of slag (available locally at a very low cost) may also be considered as a binder. Slag would add frictional strength to the treated waste, as well as possibly increasing the cohesive strength.

8.0 Alternatives for Further Evaluation

Various technologies have been employed on other PCB-impacted sludge remediation projects performed in the United States. Most of these technologies, including incineration, vitrification, dehalogenation/dechlorination, soil washing, and thermal desorption would be either prohibitively expensive or could not be utilized with this type of media (i.e. organic sludge) due to the high water content of the sludge. Another treatment method, gravity dewatering, is typically very cost effective but does not work well with this sludge, due to its anionic suspension properties. However, treatment with appropriate water treatment chemicals may break the anionic bonds between the suspended solids and the water, allowing the solids to form a floc that would release more free water. This type of water treatment evaluation was beyond the scope of work for this project. The other most cost effective sludge treatment method is solidification utilizing Type I Portland Cement as an additive. Based on these findings, the GSD has two potential sludge treatment technologies that should be evaluated as part of a more focused study: chemical treatment and sludge solidification.

8.1 Potential Closure Alternatives

Cost-effective closure alternatives for the RSL include the scenarios described below.

Dewatering and Disposal on Site in a CDDF. This would require construction of a CDDF for use as a dewatering facility, which would then be converted to a permanent disposal unit. The CDDF could be constructed on adjacent property, if purchased by the GSD. To evaluate this alternative, conceptual design drawings would have to be completed indicating the necessary size and configuration of the CDDF at each potential location. The drawings are needed to determine earthwork quantities for cost estimates. Constructability and availability of materials that could significantly affect the cost of construction should also be evaluated. Based on Earth Tech's experience with designing the Corrective Action Management Unit (CAMU) located on nearby US Steel property, the upper sandy soils in the vicinity present significant construction challenges that may have to be addressed through soil reinforcement, amendment, or by import of soils from off site.

Since dewatering by gravity, belt filter press, and centrifugation was not successful during the treatability studies, a different dewatering method would have to be employed for this to remain an option. It may be possible to dewater the sludge by injecting water treatment chemicals while dredging and piping the sludge to a nearby CDDF, with the treated sludge pumped into geotextile socks within the CDDF . The geotextile filters the floc while releasing water, and the socks can be stacked within the CDDF. Although this method is currently being utilized on sediments, it must be evaluated further before being selected for the RSL closure.

If this closure method was utilized, the RSL would be dredged and treated water would be returned to the RSL. At the completion of dredging, the RSL could potentially be put back in service, if desired. The CDDF would have to be closed by installing a closure cover over the entire facility, which would require placement of fill over the filled geotextile socks to create a smooth slope prior to installation of the closure cover.

Solidification and Containment In Place. This scenario would include installation of a slurry wall around the entire 18-acre RSL, to an estimated depth of approximately 45 feet below ground surface (assuming the presence of a clay confining layer at that depth). After slurry wall installation, the upper four to five feet of water would be pumped from the surface of the RSL, piped through a sand filter, and discharged to the Grand Calumet River under a

permit issued through the GSD. The remaining sludge would then be solidified in place utilizing large-diameter augers or similar equipment and mixing with cement (and possibly other additives). The solidified waste would bulk with the addition of the additives, to replace the volume previously occupied by the surficial water. Fill material may be required to form a minimum four percent cover slope prior to capping. The cap installed over the waste would likely consist of a soil barrier layer (or a geosnythetic clay liner), overlaid by a 60-mil geomembrane liner, a sand drainage layer, and vegetative cover layer.

8.2 Recommendations for the Feasibility Study

Earth Tech recommends the focused evaluation of the two treatment and disposal alternatives described in Section 8.1 during the feasibility study. For dewatering and disposal in a CDDF to be considered further, the items listed below are recommended.

- The potential to dewater the sludge using water treatment chemicals must be established, along with the possibility of discharging the treated sludge into a geotextile sock within the CDDF. The sock would filter the floc and also provide reinforcement (added strength) for the dewatered sludge within the CDDF. The effluent from the treated sludge should also be evaluated to establish treatment requirements (if any) prior to discharge;
- Possible locations for a CDDF must be identified by the GSD, and information regarding the locations must be obtained to ensure constructability;
- A conceptual design (approximately 20% complete) should be developed to use as a basis for preparing a preliminary cost estimate; and
- Potential vendors should be contacted to verify engineering assumptions and to identify potential problems based on the vendor's experience with similar projects.

For further evaluation of the feasibility of in-situ S/S with capping in place, the items listed below are recommended.

- Evaluation of increasing the percent cement added to the sludge for solidification, to determine if significant added strength would be achieved. The optimal percentage of cement must be determined, with strength and cost included in the evaluation;
- The potential for utilizing dry cement rather than hydrated cement, with consideration of the potential for dust and emissions. If mixing with dry cement is a possibility given the depth and size of the RSL, then the optimal cement addition should be determined for dry cement;
- A conceptual design (approximately 20% complete) should be developed to use as a basis for preparing a preliminary cost estimate. This design would provide a basis for quantity estimates for construction material;
- The presence of a clay layer under the RSL must be confirmed, and the depth, thickness, and permeability of the layer must be determined. To accomplish this, Earth Tech recommends drilling borings to a maximum depth of approximately 70 feet on 100-foot centers around the perimeter of the RSL. If present, this clay layer and the proposed slurry wall would form a containment system for the solidified sludge; and

- Potential vendors for slurry wall installation and sludge solidification should be contacted to identify construction challenges and to verify assumptions and costs developed for the project.

Earth Tech understands that the GSD's goal is to complete the most cost-effective closure possible for the RSL. Based on the costs presented herein for other PCB remediation projects, this is most likely to be achieved through one of the closure scenarios described in Section 8.1. A focused feasibility study of these two alternatives is recommended for the next phase of this project.

TABLE 1
ANALYTICAL TESTS AND METHODS

RALSTON STREET LAGOON

WASTE CHARACTERIZATION/TREATABILITY STUDY

TEST PARAMETER	TEST METHOD *	UNIT RATE
Moisture Content - eLab/Kemron	ASTM D 2216/160.3	No charge/$10.00
Loss on Ignition (% Ash) - Kemron	ASTM D 2974	$50.00
Bulk Density - Kemron	ASTM D 2937	$35.00
Temperature - Kemron	Direct Read Instrument	$5.00
Material pH - eLab/Kemron	EPA Method 9045/9045C	$10.00 / $25
Density / Specific Gravity - eLab/Kemron	ASTM D 5057 / D 854	$40 / $45
Particle Size Distribution (With Hydrometer) - Kemron	ASTM D 422	$115.00
Hydraulic Conductivity - Kemron	ASTM D 5084	$315.00
Unconfined Compressive Strength - Kemron	ASTM D 2166	$115.00
Dissolved Oxygen - Kemron	EPA Method 360.1	$25.00
Total PCBs - eLab / Kemron	EPA Method 8082	$65 / $190
(4) PCBs (Congener Specific)	EPA Method 1248	$1,200.00
Alkalinity - eLab / Kemron	EPA Method 310.1	$10 / $25
Total Organic Carbon - Kemron	EPA Method 415.1	$50.00
Humic Acid		$50.00
Redox Potential - Kemron	Direct Read Instrument	$35.00
C:N:P Ratio - eLab	Walkey-Black 353, 365	$75.00
TCLP Metals (RCRA + Cu, Ni, Zn) - eLab / Kemron	EPA Methods 1311/6010/7470	$100.00/ $295.00
SPLP Metals (RCRA + Cu, Ni, Zn) - Kemron	EPA Methods 1312/6010/7470	$295.00
Chlorides/Inorganic Salts - eLab	EPA Method 300.0	$65.00
Chemical Oxygen Demand - eLab	EPA Method 410.1	$25.00
Biological Oxygen Demand - eLab	EPA Method 405.1	$20.00
Dioxins/Furans - Kemron	EPA Method 8290	$1,250.00
Radionuclides (gross Alpha and Beta) - Kemron	EPA Method 9310	$125.00
Asbestos - Kemron	TEM	$115.00
Nitrates	EPA Method 9056	$20.00
Fluorides	EPA Method 340.2	$25.00
Halogenated Organics (PAHs) - eLab	EPA Method 8270 or 8310	$95.00
Total Solids - Kemron	EPA Method 160.3	$25.00
Total Suspended Solids - eLab	EPA Method 160.2	$75.00
Oil and Grease - eLab	EPA Method 1664	$35.00
Combustible Content (BTU and Bomb)	ASTM D 2382-76	$125.00
(1) TCLP Organics (D list) - eLab / Kemron	EPA Methods 1311/8260/8270/8081/8151	$545.00 / $825.00
(2) TCLP Solvents (F list) - eLab / Kemron	EPA Methods 8015 / 1311/8260	$200.00/ $450.00
(3) Priority Pollutants	EPA Methods 200.7/335.2/420.1/624/625/608	$975.00
Total Waste Analyses		
Total Metals (RCRA + Cu, Ni, Zn) - eLab	EPA Methods 6010/7470	$85.00
Total Cyanides - eLab	EPA Method 9014	$25.00
Total Sulfides - eLab	EPA Method 9030	$20.00
Total Phenolics - eLab	EPA Method 9065	$25.00
Total Volatiles - Kemron	EPA Method 8260B	$205.00
Total Semivolatiles - Kemron	EPA Method 8270C	$325.00

Note that all prices are on a per unit basis and quoted for standard turn around time.

(1) eLab's analses includes D-List (excludes extraction); Kemron's analyses includes Volatiles, Semivolatiles, Pesticides and Herbicides.

(2) Analyses includes Volatiles and F00 list.

(3) eLab's analyses includes VOCs and SVOCs. Kemron's analyses includes metals, CN, phenolics, volatiles, semivolatiles, pesticides, herbicides.

(4) Cost for PCB congeners will depend on the congener list provided by GSD. This test may be performed by a subcontracted laboratory.

* All testing will be performed in general accordance with the referenced test method and in direct accordance with eLab's and/or KEMRON's Standard Operating Procedures (SOPs) or those of our subcontract laboratories.

The cost presented was developed in accordance with the information presented to Earth Tech by the GSD.
The costs are based on the availability of laboratory equipment and personnel and are valid for a period of 90 days.

TABLE 2
COST SUMMARY FOR PCB REMEDIATION PROJECTS UTILIZING VARIOUS TECHNOLOGIES

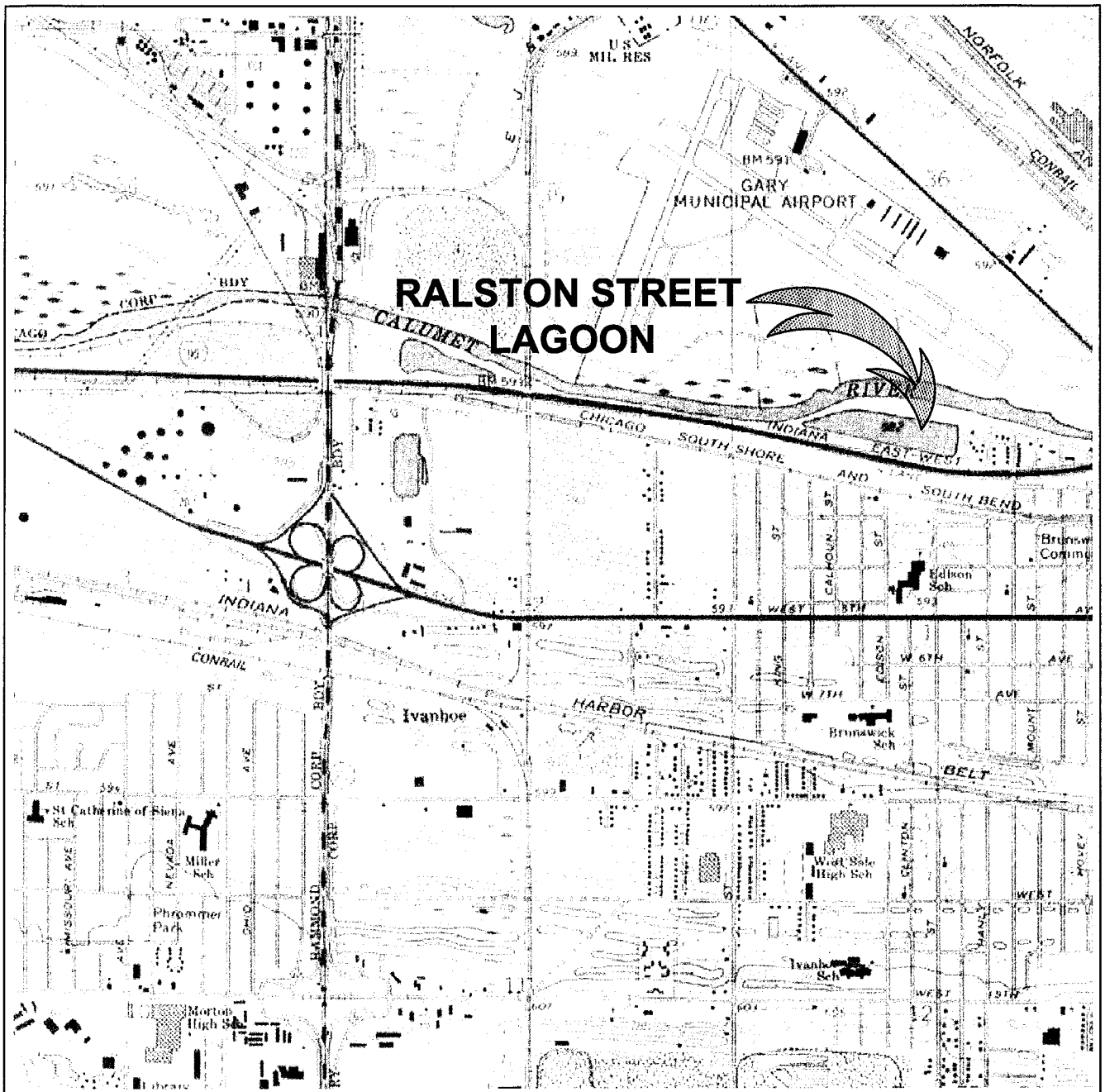
Remediation Technology	Site Name Location	Description of Remediation	Comments	Approximate Cost
In-Situ Vitrification	Hanford Site, Others Richland, WA Oak Ridge, Tennessee	Remediation of sludges, soil & debris with pesticides, metals, dioxin/furans pentachlorophenol, VOC, SVOC, PCB.	Total quantity treated at the three sites was about 13,500 tons	$375 - 425/ton + $350,000 - 550,000 in ancillary costs
Vitrification by Batch Process	New Bedford Harbor Superfund Site, New Bedford, Massachusetts	Batch field demonstration for remediation of PCBs in wastewater sediment at 200,000 ppm concentration. Sediment was fine sandy silt, moisture content > 50% by weight.	First batch had operational difficulty due to high moisture content and nature of fine-grained material. Second batch successful. Treated 18,000 tons.	Approx. $1,249/ton
Incineration	Bridgeport Refinery and Oil Services Superfund Site, Logan Township, New Jersey	Incineration using direct-fired rotary kiln. Remediation of PCBs, VOCs, and metals in Lagoon sediments and sludges, debris, levee material, lagoon oil, and soil.	Treated 172,000 tons.	Approx. $1,087/ton.
Incineration	Rose Township Dump Superfund Site, Holly, Michigan	On-site infrared incineration, material excavated, screened and blended with fuel oil prior to incineration. Treated PCBs, metals, VOCs, and SVOCs from solvents, paint sludges, lead battery sludges, and waste oil.	Treated 34,000 tons of material.	Approx. $353/ton
Thermal Desorption/ Dehalogenation	Wide Beach Development Superfund Site, Brant, New York	Rotary kiln desorber, alkaline polyethylene glycol sprayed onto contaminated soil to dechlorinate PCBs.	Treated 42,000 tons of soil, moisture content 18.3%	Approx. $276/ton
Thermal Desorption	Outboard Marine Corp. Superfund Site, Waukegan, Illinois	Rotary kiln desorber, treated soil and sediment with PCBs at 2,400 to 23,000 ppm conc.	Treated 12,755 tons, moisture content 12.9%	Approx. $194/ton

Notes: 1) A density of 100 pcf was assumed for waste material to convert from cubic yards to tons.

TABLE 2
COST SUMMARY FOR PCB REMEDIATION PROJECTS UTILIZING VARIOUS TECHNOLOGIES

Slurry-Phase Bioremediation	The French Limited Superfund Site, Crosby, Texas	Treatment cells designed, aeration system utilized to treat soil and sludges containing PAHs and chlorinated aliphatics, and PCBs	Treated 300,000 tons of soils and tar-like sludges	Approx. $163/ton
In-Situ Solidification/ Stabilization	General Site Info	Auger/caisson systems and injector head systems apply S/S agents.	Costs vary widely based on reagents or material utilized.	$30 - $45/ton for shallow mixing, $111 - $185/ton for deep mixing
In-Situ Solidification/ Stabilization	Geo-Con Demonstration GE Service Shop, Hialeah, Florida	Deep soil mixing (DSM) system that involves mechanical mixing and injection of additives.		$30 - $111/ton
Dredging & CDDF	Ford Monroe River Raisin Monroe, Michigan	Dredged, decanted, and solidified contaminated river sediment. Constructed contained sediment solid/ww treatment pad, 3-acre landfill.	Treated 40,500 tons of sediment and more than 1,000,000 gallons of water	$148/ton, including wastewater treatment
Dredging & Off-Site Disposal	Manistique River	Dredged approx. 162,000 tons of PCB-impacted sediment and disposed off site.	Total project cost estimated at $16,000,000.	$100/ton
Dredging & On-Site CDDF	Grand Calumet Sediment Remediation, U.S. Steel Gary Works, Gary, Indiana	Hydraulically dredged PCB-impacted sediments from the river and pumped to CDDF for passive dewatering and disposal, designed/built wastewater treatment plant.	Dredged about 1,350,000 tons of sediment.	$30/ton

Notes: 1) A density of 100 pcf was assumed for waste material to convert from cubic yards to tons.



SOURCE:
UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY (U.S.G.S.)
HIGHLAND QUADRANGLE / 7.5 MINUTE SERIES (TOPOGRAPHIC)
HIGHLAND, INDIANA: 1968
PHOTOREVISED: 1986

SCALE: 1" = 2000'

E A R T H T E C H
A tyco INTERNATIONAL LTD. COMPANY
3121 BUTTERFIELD ROAD, OAK BROOK, ILLINOIS 60523
PHONE: 630-574-2006 FAX: 630-574-2007

FIGURE 1
SITE LOCATION MAP

RALSTON STREET LAGOON
GARY, INDIANA

FEBRUARY 2003

Appendix A

Report on Limited Treatability Studies

KEMRON Environmental Services, Inc.

19 September 2003

Mr. Phil Delahunt
Earth Tech
3121 Butterfield Road
Oak Brook, Illinois 60523

Subject: Ralston Street Lagoon
Final Letter Report

Dear Mr. Delahunt:

KEMRON Environmental Services, Inc. (KEMRON) is pleased to present the results of the bench-scale treatability study conducted for Earth Tech. The dewatering and solidification studies were performed on sludge materials sampled from the Ralston Street Lagoon site. Testing was performed by KEMRON's Applied Technologies Group located in Norcross, Georgia. All testing was conducted in general accordance with the Scope of Work (SOW) developed by KEMRON and dated 13 February 2003.

The primary goals for this treatability study were 1) to increase the solids content of the untreated sludge materials to a more soil-like consistency using typical dewatering technologies, and 2) evaluate solidification parameters capable of increasing overall strength of the sludge samples, as determined by Unconfined Compressive Strength (UCS) testing, in order to support a soil cap.

UNTREATED WASTE CHARACTERIZATION

On 2 May 2003, KEMRON's Applied Technologies Group received two 5-gallon containers of sludge material, labeled Pier 2-Northwest and Pier 2-Middlewest, from the site. Based on the results of analytical testing performed by Earth Tech's subcontract laboratory, it was determined that these materials were very similar in chemical make-up. In order to evaluate treatment options on site materials which exhibited a range of contaminant concentrations and different physical characteristics, Earth Tech selected to perform treatment on the Northwest sample only, and to provide KEMRON an additional sample for the study. On 13 May 2003, KEMRON received an additional site material labeled Pier 2-Southwest. All subsequent testing was performed on the Northwest and Southwest materials.

All materials were delivered to KEMRON's facility by Federal Express. Copies of the chain of custody are included as Attachment A. Upon receipt, the sludge materials were homogenized to

better ensure a uniform material for testing. Homogenization was performed by placing each waste material into a large blending chamber and gently mixing with stainless steel utensils. For treatability testing, KEMRON typically removes all particles or debris larger than 0.5 inches in diameter. For this project, no debris or over-sized particles were observed in the as-received materials. Upon completion of homogenization, the contents were returned to their original containers and stored at a temperature maintained at four degrees Celsius (^{0}C) to reduce potential biological activity and volatilization of any organic constituents.

Immediately upon completion of homogenization, KEMRON performed untreated characterization testing on the as-received materials. Untreated characterization analyses were performed to ensure that the material exhibited similar properties to those expected at the site. The following analyses were performed on aliquots of the as-received sediment in accordance with the referenced test methods:

Material pH	EPA Method 9045
Solids/Moisture Content	ASTM D 2216
Loss on Ignition (% ash)	ASTM D 2974
Bulk Density/Specific Gravity	ASTM D 5057
Particle Size Distribution	ASTM D 422
Solid Specific Gravity	ASTM D 854
Hydraulic Conductivity	ASTM D 5084
Asbestos	TEM

Table 1 summarizes the results of characterization testing performed by KEMRON on the as-received materials.

TABLE 1

TESTING PARAMETER	Units	Northwest	Southwest
Solids Content	%	15.69	14.32
Loss on Ignition (% ash)	%	45.11	25.44
Bulk Density	lbs/ft^3	67.4	67.9
Bulk Specific Gravity	-	1.1	1.1
Material pH	s.u.	6.98	6.75
Solid Specific Gravity		1.68	2.05
Permeability	cm/sec	3.0×10^{-9}	1.2×10^{-8}
Grain Size			
Gravel	%	0.0	0.6
Sand	%	6.8	38.3
Silt	%	66.0	39.6
Clay	%	27.2	21.5
Asbestos	%	ND	ND

A review of Table 1 indicates that the Northwest material contained more organic material than the Southwest material and was comprised of more fine-grained particles. Complete data reports for all untreated characterization analyses are included as Attachment B. Additionally, Earth Tech provided KEMRON with analytical testing results performed on each untreated material. Note that all analytical testing was performed by a subcontract laboratory selected by Earth Tech. Review of the analytical results indicated the presence of several constituents, primarily semivolatile organics, polychlorinated biphenyls (PCBs), and oil and grease.

DEWATERING EVALUATIONS

Dewatering testing was performed to determine the potential effectiveness of dewatering methods for the sludge materials. KEMRON evaluated gravity drainage, filter press and centrifugation testing for the site-materials. Each treatment process was designed to provide an initial screening of the treatment effectiveness while mimicking potential full-scale dewatering procedures to the extent possible in the laboratory. Complete descriptions of each testing procedure and the results obtained by KEMRON are presented herein.

Gravity Drainage Testing

Gravity drainage testing was performed to evaluate the increase in solids content that can be achieved by allowing the material to gravity drain while stockpiled during field operations. The primary advantages of the gravity drainage dewatering method include low operating cost and ease of operation. In order to simulate the process on the laboratory scale, the laboratory testing was performed by allowing a known quantity of material to drain through a filter medium. Evaluations of the quantity of water removed, relative to the initial weight of the material, allowed for determination of the relative effectiveness of gravity drainage at dewatering the sludge materials. KEMRON performed three gravity drainage tests for each untreated sample for a total of 6 tests labeled GD-001 through GD-006 utilizing different filter media.

Gravity drainage testing was performed by placing a pre-weighed aliquot of sample on a filter media supported by a Buchner funnel set over a 600 milliliter (mL) graduated beaker. KEMRON used filter media including 1) filter sand, 2) 5-10 micron filter paper, and 3) 24 micron filter paper. Upon completion of 7 days of treatment, testing was terminated. The weight of the filter cake and the volume of the filtrate were recorded. The filter cake was then sampled for solids content testing.

Table 2 presents the results of gravity drainage testing. Complete data sheets are presented in Attachment C. The following is a summary of the data found in Table 2:

TABLE 2

SAMPLE ID	MATERIAL TYPE	FILTER MEDIA	INITIAL SOIL WEIGHT (g)	FINAL SOIL WEIGHT (g)	WEIGHT LOSS (g)	CAKE SOLIDS CONTENT
Untreated	Northwest	-	-	-	-	15.68
GD-001	Northwest	Filter Sand	250.17	211.90	38.27	28.93
GD-002	Northwest	5-10 micron	250.01	234.38	15.63	16.96
GD-003	Northwest	24 micron	250.24	231.32	18.92	16.88
Untreated	Southwest	-	-	-	-	14.32
GD-004	Southwest	Filter Sand	250.20	191.01	59.19	23.59
GD-005	Southwest	5-10 micron	250.18	195.38	54.80	18.64
GD-006	Southwest	24 micron	250.27	197.79	52.48	18.70

Note that no effluent was collected on testing using filter sand as the filter media. When disassembling the test KEMRON observed that all liquid removed from the test samples were retained in the filter sand.

Filter Press Testing

Filter press testing was performed to evaluate the increase in solids content achieved by the application of a positive pressure to the sediment sludge. Bench-scale testing was performed at several different positive pressures using a Baroid filter press apparatus. The Baroid filter press apparatus consists of a material reservoir mounted in a frame, a filtering medium, a means of capturing the filtrate, and attachments for a compressed air-supply line. The filter media had a pore size of approximately 1.1 μm. KEMRON performed a total of 6 filter press tests, labeled FP-001 through FP-06.

Filter press testing was performed by placing pre-weighed aliquots of sediment into the reservoir and then introducing pressurized air into the system. Testing was continued under these conditions until pressure breakthrough occurred. Breakthrough was identified as the point at which pressure was released from the apparatus through cracking of the filter cake. Upon release of pressure, testing was terminated and the apparatus was dismantled. The weight of the filter cake and the volume of filtrate were recorded. Aliquots of each filter cake were then sampled for moisture content testing.

The results of filter press testing are summarized in Table 3. This table includes the untreated sample type, quantity of material tested, the length of testing, the pressure used for treatment, the weight of the filter cake, the percent moisture/solids of the filter cake, and calculated solids content increase. Complete data sheets for filter press testing are included in Attachment C.

KEMRON performed testing at positive pressures of 10, 25 and 50 pounds per square inch (psi) on the Northwest and Southwest as-received materials. Review of Table 3 indicates that testing

on the Northwest material resulted in treated solids contents ranging from 24 to 25%. KEMRON observed that while the cake solids content of each treated material was very similar, treatment times varied from 304 minutes with a 10 psi test parameter to 96 minutes with a 50 psi treatment pressure.

Testing performed on the Southwest sample resulted in solids contents ranging from 26 to 31%. Unlike the Northwest material, treatment durations on this material ranged from 52 to 77 minutes. Table 3 summarizes the results of filter press testing.

Centrifugation

Table 4 summarizes the results of centrifuge testing performed on the as-received materials. Centrifugation testing was performed to evaluate the potential for full-scale centrifuge treatment to significantly increase the solids content of the site materials. Following centrifuge treatment the supernatant was removed from the treated material and aliquots of the remaining solids were subjected to solids content testing. Review of Table 4 indicates that no significant increase in the solids content of the treated materials was observed.

SOLIDIFICATION EVALUATIONS

Additional testing was performed on the as-received samples to determine the effectiveness of solidifying additives at increasing solids content in the untreated sediments, and improving material strength as determined by Unconfined Compressive Strength testing. Reagents used during this phase of treatment included Type I Portland cement, hydrated lime, and organophillic clay. Additionally coke flue ash and lime kiln dust (LKD), which were provided to KEMRON by Earth Tech, were evaluated. Note that all reagents were added as pumpable slurry to facilitate potential in-situ treatment techniques expected at the site, and were added on a by-weight basis. That is, for a mixture with 20% cement and 10% water addition, 20 grams of cement was mixed with 10 grams of water and then added to 100 grams of the untreated material and blended. KEMRON developed 19 mixtures for each of the untreated site materials for a total of 38 mixtures.

All mixtures were developed over a period of 17 days. Each successive series of mixtures were developed based on observations and penetrometer results of the previous mixtures. Each mixture was developed by placing an aliquot of untreated material into a blending chamber. Reagent was added to the untreated soil as a reagent / water slurry to accommodate in-situ treatment techniques. The soil and reagent slurry was then blended at a rate of approximately 30 to 40 rotations per minute (rpm) until visually homogeneous, approximately 60 to 90 seconds. Immediately following mixture development, the mixtures were placed into cylindrical molds for

curing. Each mixture was allowed to cure for a period of at least 28 days in a humid environment maintained at a temperature of 18 to 24°C.

Throughout the curing process, KEMRON monitored each treated material for potential strength via pocket penetrometer testing. In addition to standard penetrometer evaluations, using a Humboldt Manufacturing penetrometer with a 0.25 inch diameter piston, KEMRON evaluated each treated material using a foot adaptor with a diameter of 1 inch. To calculate the penetrometer value using the foot adaptor, the penetrometer reading was divided by 16. By using the penetrometer adaptor, values of less than 0.25 tons per square foot (tsf) are obtainable.

Table 5 summarizes the results of penetrometer evaluations performed on the treated mixtures and includes the sample number, the untreated material type tested, reagent and reagent addition rates used, date of mixture development, and the results of 28 day penetrometer testing. Additionally, Table 5 includes maximum penetrometer results which were performed at cure times in excess of 28 days. The following is a summary of the data provided in Table 5:

TABLE 5

Sample ID	Material Type	Reagent Type	Reagent Addition (%)	Date Prepared	28 Day Penetrometer		Maximum Penetrometer	
					Standard (TSF)	1" Foot (TSF)	Standard (TSF)	1" Foot (TSF)
3233-001	Northwest	Cement	10	6/9/2003	0	0.02	0 (1)	0.03 (1)
3233-002	Northwest	Cement	20	6/9/2003	0	0.22	0 (1)	0.28 (1)
3233-003	Northwest	Cement/Hydrated lime	10/5	6/9/2003	0	0.03	0 (1)	0.06 (1)
3233-004	Northwest	Cement/Hydrated lime	10/10	6/9/2003	0	0.03	0 (1)	0.08 (1)
3233-005	Northwest	Cement/Coke Flue	10/10	6/9/2003	0	0.02	0 (1)	0.03 (1)
3233-006	Northwest	Cement/Coke Flue	10/20	6/9/2003	0	0.02	0 (1)	0.06 (1)
3233-007	Northwest	Cement/Site LKD	10/10	6/9/2003	0	0.03	0 (1)	0.06 (1)
3233-008	Northwest	Cement/Site LKD	10/20	6/9/2003	0	0.05	0 (1)	0.05 (1)
3233-009	Northwest	Cement/Organo Clay	10/3	6/9/2003	0	0.05	0 (1)	0.06 (1)
3233-010	Northwest	Cement/Organo Clay	20/3	6/9/2003	0	0.20	0 (1)	0.28 (1)
3233-021	Northwest	Cement/Hydrated lime	15/15	6/19/200	0	0.13	0 (2)	0.17 (2)
3233-022	Northwest	Cement/Coke Flue	10/40	6/19/200	0	0.05	0 (2)	0.08 (2)
3233-023	Northwest	Cement/Coke Flue	10/50	6/19/200	0	0.05	0 (2)	0.05 (2)
3233-024	Northwest	Cement/Coke Flue	10/60	6/19/200	0	0.03	0 (2)	0.05 (2)
3233-025	Northwest	Cement/Site LKD	10/40	6/19/200	0	0.06	0 (2)	0.06 (2)
3233-026	Northwest	Cement/Site LKD	10/50	6/19/200	0	0.09	0 (2)	0.09 (2)
3233-027	Northwest	Cement/Site LKD	10/60	6/19/200	0	0.11	0 (2)	0.11 (2)
3233-035	Northwest	Cement/Site LKD	20/60	6/26/200	0	0.19	0 (3)	0.19 (3)
3233-036	Northwest	Cement/LKD/Clay	20/60/3	6/26/200	0	0.16	0 (3)	0.16 (3)

TABLE 5 Continued

Sample ID	Material Type	Reagent Type	Reagent Addition (%)	Date Prepared	28 Day Penetrometer		Maximum Penetrometer	
					Standard (TSF)	1" Foot (TSF)	Standard (TSF)	1" Foot (TSF)
3233-011	Southwest	Cement	15	6/9/2003	0	0.11	0 (1)	0.22 (1)
3233-012	Southwest	Cement	25	6/9/2003	0	0.28	0.25 (1)	0.28 (1)
3233-013	Southwest	Cement/Hydrated lime	10/10	6/9/2003	0	0.05	0 (1)	0.09 (1)
3233-014	Southwest	Cement/Hydrated lime	15/10	6/9/2003	0	0.08	0 (1)	0.17 (1)
3233-015	Southwest	Cement/Coke Flue	10/20	6/9/2003	0	0.02	0 (1)	0.05 (1)
3233-016	Southwest	Cement/Coke Flue	15/20	6/9/2003	0	0.09	0 (1)	0.19 (1)
3233-017	Southwest	Cement/Site LKD	10/20	6/9/2003	0	< 0.02	0 (1)	0.02 (1)
3233-018	Southwest	Cement/Site LKD	15/20	6/9/2003	0	0.03	0 (1)	0.08 (1)
3233-019	Southwest	Cement/Organo Clay	10/3	6/9/2003	0	< 0.02	0 (1)	0.03 (1)
3233-020	Southwest	Cement/Organo Clay	20/3	6/9/2003	0	0.05	0 (1)	0.08 (1)
3233-028	Southwest	Cement/Hydrated lime	15/15	6/19/200	0	0.09	0 (2)	0.06 (2)
3233-029	Southwest	Cement/Coke Flue	10/40	6/19/200	0	0.05	0 (2)	0.03 (2)
3233-030	Southwest	Cement/Coke Flue	10/50	6/19/200	0	< 0.02	0 (2)	< 0.02 (2)
3233-031	Southwest	Cement/Coke Flue	10/60	6/19/200	0	< 0.02	0 (2)	< 0.02 (2)
3233-032	Southwest	Cement/Site LKD	10/40	6/19/200	0	< 0.02	0 (2)	0.03 (2)
3233-033	Southwest	Cement/Site LKD	10/50	6/19/200	0	< 0.02	0 (2)	0.05 (2)
3233-034	Southwest	Cement/Site LKD	10/60	6/19/200	0	< 0.02	0 (2)	0.05 (2)
3233-037	Southwest	Cement/Site LKD	20/60	6/26/200	0	0.28	0 (3)	0.28 (3)
3233-038	Southwest	Cement/LKD/Clay	20/60/3	6/26/200	0	0.28	0 (3)	0.28 (3)

(1) Maximum Penetrometer testing was performed after 44 days of curing.
(2) Maximum Penetrometer testing was performed after 34 days of curing.
(3) Maximum Penetrometer testing was performed after 28 days of curing.

In addition to penetrometer testing, KEMRON performed volumetric expansion evaluations to estimate the increase or decrease in volume of the test materials due to each treatment process. Volumetric expansion is calculated by comparing the volume of known quantity of untreated material to the volume of the same quantity of treated material plus reagent and water. Specifically, for a mixture with a 20% cement addition and 10% water addition, you would compare the volume of 100 grams of untreated material with 130 grams of the treated material. The results of volumetric expansion evaluations are presented in Table 6. Review of this data indicates that treatment of the Northwest material resulted in volume increases ranging from 3 to 41%. Volume increases resulting from the treatment of the Southwest material ranged from 6 to 45% depending on the type and quantity of reagent utilized.

Based on the results of penetrometer evaluations, KEMRON selected candidate mixtures for UCS testing in accordance with ASTM D1633. Specifically, KEMRON selected those mixtures with the highest penetrometer results for additional testing. Table 7 presents the results of UCS

testing performed on the selected candidate mixtures. The following is a summary of the data presented in Table 7.

TABLE 7

Sample ID	Material Type	Reagent Type	Reagent Addition (%)	Date Prepared	28 Day UCS (lbs/in^2)	44 Day UCS (lbs/in^2)
3233-002	Northwest	Cement	20	6/9/2003	3.9	4.3
3233-010	Northwest	Cement/Organo Clay	20/3	6/9/2003	3.2	3.2
3233-035	Northwest	Cement/Site LKD	20/60	6/26/200	3.0	-
3233-036	Northwest	Cement/LKD/Clay	20/60/3	6/26/200	2.7	-
3233-012	Southwest	Cement	25	6/9/2003	7.5	8.9
3233-037	Southwest	Cement/Site LKD	20/60	6/26/200	3.5	-
3233-038	Southwest	Cement/LKD/Clay	20/60/3	6/26/200	2.9	-

- Testing not performed

Review of the mixtures evaluated for UCS in Table 7 indicated that after 44 days of curing the maximum UCS value for the Northwest material was 4.2 lbs/in^2 which was performed on the mixture with a 20% cement addition. The maximum UCS value obtained after 44 days of curing on the Southwest material treated with a 25% addition of cement was 8.9 lbs/in^2.

DISCUSSION OF RESULTS

Dewatering Evaluations

A review of the data collected during dewatering evaluations indicates that dewatering using both natural (gravity drainage), and mechanical (filter press, and centrifugation) techniques were insufficient in increasing total solids content of the untreated materials to an acceptable level as defined by Earth Tech. Information provided to KEMRON by Earth Tech indicated that the untreated materials contain organic constituents including semivolatiles, oil and grease and PCBs. Additionally, both untreated materials are comprised of relatively high percentages of fine grained materials as determined by grain size testing. KEMRON believes that the presence of organics in combination with the fine grained composition of the untreated materials may inhibit significant dewatering.

Solidification Evaluations

Review of the data from solidification evaluations indicate that the mixtures with the highest UCS value included cement alone at addition rates of 20% for the Northwest material and 25% for the Southwest material, on a by-weight basis. Note that Type I Portland Cement has a density of approximately 190 pounds per cubic foot. In an effort to reduce the effects of organics present in the untreated materials, KEMRON evaluated common bulking reagents including LKD, coke flue ash, organophillic clay, and hydrated lime. However, even with high addition rates of these

bulking reagents in combination with cement, testing indicated that treatment effectiveness was not increased. It is KEMRON's opinion that high concentrations of organic constituents present in the untreated materials may be inhibiting the setting properties of the binding reagents.

KEMRON recommends additional testing to evaluate potential alternative binding and bulking agents. It is KEMRON's experience with treating materials with high concentrations of organic contaminants that it is often necessary to include a coarse grained material into the treatment mixtures to provide sites for pozzolonic reactions to occur. Additionally, other chemical additives may improve the ability of various reagents to set in the presence of high organic concentrations.

CLOSURE

KEMRON Environmental Services, Inc. appreciates the opportunity to provide Earth Tech with treatability testing services. If you have any questions, or require additional information, please call either of the undersigned at (770) 242-4090.

Sincerely,

KEMRON ENVIRONMENTAL SERVICES, INC.

Mark Clark
Applied Technologies Group
Project Manager
mclark@kemron.com

Robert Semenak
Applied Technologies Group
Department Manager
rsemenak@kemron.com

Attachments

TABLES

KEMRON ENVIRONMENTAL SERVICES, INC.
EARTH TECH
RALSTON STREET LAGOON STUDY

TABLE 1
Untreated Material
Summary of Baseline Characterization

TESTING PARAMETER	UNIT	NORTHWEST	SOUTHWEST
Solids Content	%	15.69	14.32
Loss on Ignition	%	45.11	25.44
Bulk Density (1)	lb/ft^3	67.4	67.9
Bulk Specific Gravity (1)	-	1.1	1.1
Material pH (1)	s.u.	6.98	6.75
Solid Specific Gravity		1.68	2.05
Permeability	cm/sec	3.0×10^{-9}	1.2×10^{-8}
Grain Size			
Gravel	%	0.0	0.6
Sand	%	6.8	38.3
Silt	%	66.0	39.6
Clay	%	27.2	21.5
Asbestos	%	ND	ND

(1) Results are an average of three determinations.

KEMRON ENVIRONMENTAL SERVICES, INC.
EARTH TECH
RALSTON STREET LAGOON STUDY

TABLE 2
Summary of Gravity Drainage Testing

SAMPLE ID	MATERIAL TYPE	FILTER MEDIA	RUN TIME (Days)	INITIAL SOIL WEIGHT (g)	FINAL SOIL WEIGHT (g)	WEIGHT LOSS (g)	EFFLUENT COLLECTED (g)	CAKE SOLIDS CONTENT (%)
Untreated	Northwest	-	-	-	-		-	15.68
GD-001	Northwest	Filter Sand	7	250.17	211.90	38.27	0.00 (1)	28.93
GD-002	Northwest	5-10 Micron	7	250.01	234.38	15.63	15.86	16.96
GD-003	Northwest	24 Micron	7	250.24	231.32	18.92	17.38	16.88
Untreated	Southwest	-	-	-	-		-	14.32
GD-004	Southwest	Filter Sand	7	250.20	191.01	59.19	0.00 (1)	23.59
GD-005	Southwest	5-10 Micron	7	250.18	195.38	54.80	54.63	18.64
GD-006	Southwest	24 Micron	7	250.27	197.79	52.48	50.39	18.70

(1) All liquid from the gravity drainage test was retained in the sand filter bed.

KEMRON ENVIRONMENTAL SERVICES, INC.
EARTH TECH
RALSTON STREET LAGOON STUDY

TABLE 3
Summary of Filter Press Dewatering Testing

SAMPLE ID.	MATERIAL TYPE	TREATMENT PRESSURE (psi)	RUN TIME (min)	INITIAL SAMPLE WEIGHT (g)	FINAL SAMPLE WEIGHT (g)	SAMPLE WEIGHT LOSS (g)	SOLIDS CONTENT (%)	SOLIDS CONTENT INCREASE (%)
Untreated	Northwest	-	-	-	-	-	15.69	-
FP-001	Northwest	10	304	120.0	75.5	44.5	24.42	55.64
FP-002	Northwest	25	196	120.0	73.6	46.4	25.06	59.72
FP-003	Northwest	50	96	120.0	80.0	40.0	23.92	52.45
Untreated	Southwest	-	-	-	-	-	14.32	-
FP-004	Southwest	10	59	120.0	72.0	48.0	25.96	81.28
FP-005	Southwest	25	77	120.0	59.0	61.0	30.86	115.50
FP-006	Southwest	50	52	120.0	57.6	62.4	29.93	109.01

KEMRON ENVIRONMENTAL SERVICES, INC.
EARTH TECH
RALSTON STREET LAGOON STUDY

TABLE 4
Summary of Centrifugation Testing

SAMPLE ID	MATERIAL TYPE	CENTRIFUGE SPEED (rpm)	RUN TIME (Min)	INITIAL SOIL WEIGHT (g)	FINAL SOIL WEIGHT (g)	WEIGHT LOSS (g)	EFFLUENT COLLECTED (g)	CAKE SOLIDS CONTENT (%)
Untreated	Northwest	-	-	-	-		-	15.68
CEN-001	Northwest	1000	15	499.95	491.78	8.17	7.97	15.16
CEN-001 DUP	Northwest	1000	15	500.23	491.48	8.75	7.97	15.20
Untreated	Southwest	-	-	-	-		-	14.32
CEN-002	Southwest	1000	15	500.11	383.74	116.37	115.15	17.04
CEN-002 DUP	Southwest	1000	15	500.04	389.57	110.47	109.32	18.17

KEMRON ENVIRONMENTAL SERVICES, INC.
EARTH TECH
RALSTON STREET LAGOON STUDY

TABLE 5
Summary of Mixture Design and Penetrometer Evaluations

SAMPLE ID	MATERIAL TYPE	REAGENT TYPE	REAGENT ADDITION (%)	DATE PREPARED	28 DAY PENETROMETER Standard TSF	28 DAY PENETROMETER 1" Foot (1) TSF	MAXIMUM PENETROMETER Standard TSF	MAXIMUM PENETROMETER 1" Foot (1) TSF
3233-001	Northwest	Type I Portland Cement	10	6/9/2003	0	0.02	0 (2)	0.03 (2)
3233-002	Northwest	Cement	20	6/9/2003	0	0.22	0 (2)	0.28 (2)
3233-003	Northwest	Cement / Hydrated Lime	10 / 5	6/9/2003	0	0.03	0 (2)	0.06 (2)
3233-004	Northwest	Cement / Hydrated Lime	10 / 10	6/9/2003	0	0.03	0 (2)	0.08 (2)
3233-005	Northwest	Cement / Coke Flue Ash	10 / 10	6/9/2003	0	0.02	0 (2)	0.03 (2)
3233-006	Northwest	Cement / Coke Flue Ash	10 / 20	6/9/2003	0	0.02	0 (2)	0.06 (2)
3233-007	Northwest	Cement / Site LKD	10 / 10	6/9/2003	0	0.03	0 (2)	0.06 (2)
3233-008	Northwest	Cement / Site LKD	10 / 20	6/9/2003	0	0.05	0 (2)	0.05 (2)
3233-009	Northwest	Cement / Organo Clay	10 / 3	6/9/2003	0	0.05	0 (2)	0.06 (2)
3233-010	Northwest	Cement / Organo Clay	20 / 3	6/9/2003	0	0.20	0 (2)	0.28 (2)
3233-021	Northwest	Cement / Hydrated Lime	15 / 15	6/19/2003	0	0.13	0 (3)	0.17 (3)
3233-022	Northwest	Cement / Coke Flue Ash	10 / 40	6/19/2003	0	0.05	0 (3)	0.08 (3)
3233-023	Northwest	Cement / Coke Flue Ash	10 / 50	6/19/2003	0	0.05	0 (3)	0.05 (3)
3233-024	Northwest	Cement / Coke Flue Ash	10 / 60	6/19/2003	0	0.03	0 (3)	0.05 (3)
3233-025	Northwest	Cement / Site LKD	10 / 40	6/19/2003	0	0.06	0 (3)	0.06 (3)
3233-026	Northwest	Cement / Site LKD	10 / 50	6/19/2003	0	0.09	0 (3)	0.09 (3)
3233-027	Northwest	Cement / Site LKD	10 / 60	6/19/2003	0	0.11	0 (3)	0.11 (3)
3233-035	Northwest	Cement / Site LKD	20 / 60	6/26/2003	0	0.19	0 (4)	0.19 (4)
3233-036	Northwest	Cement / Site LKD / Organo Clay	20 / 60 / 3	6/26/2003	0	0.16	0 (4)	0.16 (4)
3233-011	Southwest	Type I Portland Cement	15	6/9/2003	0	0.11	0 (2)	0.22 (2)
3233-012	Southwest	Cement	25	6/9/2003	0	0.28	0.25 (2)	0.28 (2)
3233-013	Southwest	Cement / Hydrated Lime	10 / 10	6/9/2003	0	0.05	0 (2)	0.09 (2)
3233-014	Southwest	Cement / Hydrated Lime	15 / 10	6/9/2003	0	0.08	0 (2)	0.17 (2)
3233-015	Southwest	Cement / Coke Flue Ash	10 / 20	6/9/2003	0	0.02	0 (2)	0.05 (2)
3233-016	Southwest	Cement / Coke Flue Ash	15 / 20	6/9/2003	0	0.09	0 (2)	0.19 (2)
3233-017	Southwest	Cement / Site LKD	10 / 20	6/9/2003	0	< 0.02	0 (2)	0.02 (2)
3233-018	Southwest	Cement / Site LKD	15 / 20	6/9/2003	0	0.03	0 (2)	0.08 (2)
3233-019	Southwest	Cement / Organo Clay	10 / 3	6/9/2003	0	< 0.02	0 (2)	0.03 (2)
3233-020	Southwest	Cement / Organo Clay	20 / 3	6/9/2003	0	0.05	0 (2)	0.08 (2)
3233-028	Southwest	Cement / Hydrated Lime	15 / 15	6/19/2003	0	0.09	0 (3)	0.06 (3)
3233-029	Southwest	Cement / Coke Flue Ash	10 / 40	6/19/2003	0	0.05	0 (3)	0.03 (3)
3233-030	Southwest	Cement / Coke Flue Ash	10 / 50	6/19/2003	0	< 0.02	0 (3)	< 0.02 (3)
3233-031	Southwest	Cement / Coke Flue Ash	10 / 60	6/19/2003	0	< 0.02	0 (3)	< 0.02 (3)
3233-032	Southwest	Cement / Site LKD	10 / 40	6/19/2003	0	< 0.02	0 (3)	0.03 (3)
3233-033	Southwest	Cement / Site LKD	10 / 50	6/19/2003	0	< 0.02	0 (3)	0.05 (3)
3233-034	Southwest	Cement / Site LKD	10 / 60	6/19/2003	0	< 0.02	0 (3)	0.05 (3)
3233-037	Southwest	Cement / Site LKD	20 / 60	6/26/2003	0	0.28	0 (4)	0.28 (4)
3233-038	Southwest	Cement / Site LKD / Organo Clay	20 / 60 / 3	6/26/2003	0	0.28	0 (4)	0.28 (4)

(1) The 1 inch foot adaptor increases the surface area of the standard penetrometer by a factor of 16. Results are calculated by dividing the reading with the adaptor by 16.
(2) The maximum penetrometer value was determined following 44 days of curing.
(3) The maximum penetrometer value was determined following 34 days of curing.
(4) The maximum penetrometer value was determined following 28 days of curing.

KEMRON ENVIRONMENTAL SERVICES, INC.
EARTH TECH
RALSTON STREET LAGOON STUDY

TABLE 6
Summary of Volumetric Expansion

SAMPLE ID	MATERIAL TYPE	REAGENT TYPE	REAGENT ADDITION (%)	VOLUMETRIC EXPANSION (%)
3233-001	Northwest	Type I Portland Cement	10	3
3233-002	Northwest	Cement	20	18 ✓
3233-003	Northwest	Cement / Hydrated Lime	10 / 5	14
3233-004	Northwest	Cement / Hydrated Lime	10 / 10	16
3233-005	Northwest	Cement / Coke Flue Ash	10 / 10	18
3233-006	Northwest	Cement / Coke Flue Ash	10 / 20	41
3233-007	Northwest	Cement / Site LKD	10 / 10	12
3233-008	Northwest	Cement / Site LKD	10 / 20	22
3233-009	Northwest	Cement / Organo Clay	10 / 3	9
3233-010	Northwest	Cement / Organo Clay	20 / 3	18
3233-021	Northwest	Cement / Hydrated Lime	15 / 15	NA
3233-022	Northwest	Cement / Coke Flue Ash	10 / 40	NA
3233-023	Northwest	Cement / Coke Flue Ash	10 / 50	NA
3233-024	Northwest	Cement / Coke Flue Ash	10 / 60	NA
3233-025	Northwest	Cement / Site LKD	10 / 40	NA
3233-026	Northwest	Cement / Site LKD	10 / 50	NA
3233-027	Northwest	Cement / Site LKD	10 / 60	NA
3233-035	Northwest	Cement / Site LKD	20 / 60	NA
3233-036	Northwest	Cement / Site LKD / Organo Clay	20 / 60 / 3	NA
3233-011	Southwest	Type I Portland Cement	15	8
3233-012	Southwest	Cement	25	27
3233-013	Southwest	Cement / Hydrated Lime	10 / 10	18
3233-014	Southwest	Cement / Hydrated Lime	15 / 10	35
3233-015	Southwest	Cement / Coke Flue Ash	10 / 20	45
3233-016	Southwest	Cement / Coke Flue Ash	15 / 20	37
3233-017	Southwest	Cement / Site LKD	10 / 20	19
3233-018	Southwest	Cement / Site LKD	15 / 20	25
3233-019	Southwest	Cement / Organo Clay	10 / 3	6
3233-020	Southwest	Cement / Organo Clay	20 / 3	19
3233-028	Southwest	Cement / Hydrated Lime	15 / 15	NA
3233-029	Southwest	Cement / Coke Flue Ash	10 / 40	NA
3233-030	Southwest	Cement / Coke Flue Ash	10 / 50	NA
3233-031	Southwest	Cement / Coke Flue Ash	10 / 60	NA
3233-032	Southwest	Cement / Site LKD	10 / 40	NA
3233-033	Southwest	Cement / Site LKD	10 / 50	NA
3233-034	Southwest	Cement / Site LKD	10 / 60	NA
3233-037	Southwest	Cement / Site LKD	20 / 60	NA
3233-038	Southwest	Cement / Site LKD / Organo Clay	20 / 60 / 3	NA

- Not Applicable or Not Tested

KEMRON ENVIRONMENTAL SERVICES, INC.
EARTH TECH
RALSTON STREET LAGOON STUDY

TABLE 7
Summary of UCS Testing

SAMPLE ID	MATERIAL TYPE	REAGENT TYPE	REAGENT ADDITION (%)	DATE PREPARED	28 DAY UCS (lbs/ft^2)	44 DAY UCS (lbs/ft^2)
3233-001	Northwest	Type I Portland Cement	10	6/9/2003	-	-
3233-002	Northwest	Cement	20	6/9/2003	3.9	4.3
3233-003	Northwest	Cement / Hydrated Lime	10 / 5	6/9/2003	-	-
3233-004	Northwest	Cement / Hydrated Lime	10 / 10	6/9/2003	-	-
3233-005	Northwest	Cement / Coke Flue Ash	10 / 10	6/9/2003	-	-
3233-006	Northwest	Cement / Coke Flue Ash	10 / 20	6/9/2003	-	-
3233-007	Northwest	Cement / Site LKD	10 / 10	6/9/2003	-	-
3233-008	Northwest	Cement / Site LKD	10 / 20	6/9/2003	-	-
3233-009	Northwest	Cement / Organo Clay	10 / 3	6/9/2003	-	-
3233-010	Northwest	Cement / Organo Clay	20 / 3	6/9/2003	3.2	3.2
3233-021	Northwest	Cement / Hydrated Lime	15 / 15	6/19/2003	-	-
3233-022	Northwest	Cement / Coke Flue Ash	10 / 40	6/19/2003	-	-
3233-023	Northwest	Cement / Coke Flue Ash	10 / 50	6/19/2003	-	-
3233-024	Northwest	Cement / Coke Flue Ash	10 / 60	6/19/2003	-	-
3233-025	Northwest	Cement / Site LKD	10 / 40	6/19/2003	-	-
3233-026	Northwest	Cement / Site LKD	10 / 50	6/19/2003	-	-
3233-027	Northwest	Cement / Site LKD	10 / 60	6/19/2003	-	-
3233-035	Northwest	Cement / Site LKD	20 / 60	6/26/2003	3.0	-
3233-036	Northwest	Cement / Site LKD / Organo Clay	20 / 60 / 3	6/26/2003	2.7	-
3233-011	Southwest	Type I Portland Cement	15	6/9/2003	-	-
3233-012	Southwest	Cement	25	6/9/2003	7.5	8.9
3233-013	Southwest	Cement / Hydrated Lime	10 / 10	6/9/2003	-	-
3233-014	Southwest	Cement / Hydrated Lime	15 / 10	6/9/2003	-	-
3233-015	Southwest	Cement / Coke Flue Ash	10 / 20	6/9/2003	-	-
3233-016	Southwest	Cement / Coke Flue Ash	15 / 20	6/9/2003	-	-
3233-017	Southwest	Cement / Site LKD	10 / 20	6/9/2003	-	-
3233-018	Southwest	Cement / Site LKD	15 / 20	6/9/2003	-	-
3233-019	Southwest	Cement / Organo Clay	10 / 3	6/9/2003	-	-
3233-020	Southwest	Cement / Organo Clay	20 / 3	6/9/2003	-	-
3233-028	Southwest	Cement / Hydrated Lime	15 / 15	6/19/2003	-	-
3233-029	Southwest	Cement / Coke Flue Ash	10 / 40	6/19/2003	-	-
3233-030	Southwest	Cement / Coke Flue Ash	10 / 50	6/19/2003	-	-
3233-031	Southwest	Cement / Coke Flue Ash	10 / 60	6/19/2003	-	-
3233-032	Southwest	Cement / Site LKD	10 / 40	6/19/2003	-	-
3233-033	Southwest	Cement / Site LKD	10 / 50	6/19/2003	-	-
3233-034	Southwest	Cement / Site LKD	10 / 60	6/19/2003	-	-
3233-037	Southwest	Cement / Site LKD	20 / 60	6/26/2003	3.5	-
3233-038	Southwest	Cement / Site LKD / Organo Clay	20 / 60 / 3	6/26/2003	2.9	-

ATTACHMENT A

CHAIN OF CUSTODY

EARTH TECH

5555 Glenwood Hills Pkwy SE • PO Box 874 • Grand Rapids, MI 49588-0874

Chain of Custody Record

Analytical Services

COC No. № 19591

Project Manager	Phil Oelehut
Project Name	G501 Ralston Street Lagoon
Project No.	66939.01
Sampler (Print)	ERIC SLUSSER
Sampler Signature	Eric D. Slusser

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type	Analysis Required/Comments	Sample No.	Filtered Date/Time
4/29/03	1200	Sludge	X	X	PIER 2 MIDDLE & NORTHWEST 4/30/03	1 bucket		As per Scope of Work for Ralston Street Lagoon project		

No's Correspond to Bottle Packing List

For Lab Use Only: Rack/Tray No.: Lab Project #:

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
Eric D. Slusser	4/30/03 1200		[illegible]	5/2/03	MARK CLARK	5/2/03 1500

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

0025-CoC

EARTH TECH

5555 Glenwood Hills Pkwy SE • PO Box 874 • Grand Rapids, MI 49588-0874

Chain of Custody Record

Analytical Services

COC No. № 19591

Project Manager: Phil Delehant

Project Name: GSD / Ralston Street Lagoon

Project No.: 66939.01

Sampler (Print): ERIC SLUSSER

Sampler Signature: [signature]

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type (No's Correspond to Bottle Packing List)	Analysis Required/Comments	Sample No.	Filtered Date/Time
4/29/03	1500	Sludge	X	X	PIER 2 MIDDLE WEST	1 bucket		As per Scope of Work for Ralston Street Lagoon Project		

For Lab Use Only

Rack/Tray No:

Lab Project #:

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
[signature]	1500 4/30/03		[signature]	5/2/03	Mark Clark	5/2/03 1100

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

0025-CofC

e-Lab, Inc.
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page ____ of ____

e-Lab, Inc.
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

e-Lab Project Manager: LES ARNOLD | e-Lab Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name		A	TRIBUTYL TIN
Work Order		Project Number		B	
Company Name	EARTH TECH, INC	Bill To Company	SAME	C	
Send Report To	PHILIP DELAHUNT	Invoice Attn.		D	
Address	3121 BUTTERFIELD RD.	Address		E	
				F	
City/State/Zip	OAK BROOK, IL 60523	City/State/Zip		G	
Phone	(630) 574-2006	Phone		H	
Fax	(630) 574-2007	Fax		I	
e-Mail Address				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	PIER 2 - SOUTHWEST	5/7/2003	1060	SL	—	1											
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign

Shipment Method: UPS

Required Turnaround Time: ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour ☐ Other ____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
[signature]	5/12/03	1310	UPS	SEND TO: KEMRON (ATTN: MARK CLARK)
Relinquished by: UPS	~~Date:~~ TIME 1000	~~Time:~~ DATE 5/13/03	Received by (Laboratory): [signature] (KEMRON)	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check Box Below)
- Level II: Standard QC
- Level III: Standard QC + Raw Data
- Level IV: SW846 Methods/CLP
- Other: ____

Note: Any changes must be made in writing once samples and COC Form have been submitted to e-Lab, Inc.

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ATTACHMENT B

DATA REPORTS

UNTREATED MATERIAL CHARACTERIZATION

MOISTURE CONTENT DETERMINATION

REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	NORTHWEST, PIER 2
TESTING DATE:	13 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2412_MC

MOISTURE CONTENT (Dry & Wet Basis)						
1. MOISTURE TIN NO.	A		B		C	
2. WT MOISTURE TIN (tare weight)	1.30	g	1.31	g	1.30	g
3. WT WET SOIL + TARE	20.09	g	26.47	g	23.94	g
4. WT DRY SOIL + TARE	4.26	g	5.23	g	4.86	g
5. WT WATER, Ww	15.83	g	21.24	g	19.08	g
6. WT DRY SOIL, Ws	2.96	g	3.92	g	3.56	g
7. ASTM MOISTURE CONTENT	534.80	%	541.84	%	535.96	%
8. PERCENT SOLIDS	15.75	%	15.58	%	15.72	%
9. AVERAGE ASTM MOISTURE CONTENT	537.53	%				
10. AVERAGE PERCENT SOLIDS	15.69	%				

LOSS ON IGNITION
(ORGANIC CONTENT)
ASTM D2974

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	NORTHWEST, PIER 2
TESTING DATE:	19 MAY 2003
TESTED BY:	MAC
TRACKING CODE:	2412_LI

MOISTURE CONTENT / LOSS ON IGNITION							
1. MOISTURE TIN NO.	A		B		C		
2. WT MOISTURE TIN (tare weight)	54.559	g	48.506	g	56.144	g	
3. WT WET SOIL + TARE	102.380	g	87.622	g	95.813	g	
4. WT DRY SOIL + TARE	62.060	g	54.642	g	62.366	g	
5. WT WATER, Ww	40.320	g	32.981	g	33.447	g	
6. WT DRY SOIL, Ws	7.501	g	6.136	g	6.222	g	
7. WT FINAL SOIL + TARE	57.987	g	52.266	g	59.733	g	
8. WT FINAL SOIL, Wf	3.429	g	3.760	g	3.589	g	
9. WT ORGANICS, Wo	4.073	g	2.376	g	2.633	g	
10. MOISTURE CONTENT(ASTM)	537.53	%	537.53	%	537.53	%	
11. LOSS ON IGNITION	54.29	%	38.72	%	42.32	%	
12. AVERAGE MOISTURE CONTENT	537.53	%					
13. AVERAGE LOSS ON IGNITION	45.11	%					

UNIT WEIGHT DETERMINATION

DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	NORTHWEST, PIER 2
TESTING DATE:	13 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2412_UW

UNIT WEIGHT (DENSITY)			
1. SAMPLE NO.	A	B	C
2. WT OF MOLD (tare weight)	21.62 g	21.62	21.62 g
3. WT OF MOLD + SOIL	243.83 g	244.12 g	244.22 g
4. WT OF WET SOIL, W	222.21 g	222.50 g	222.60 g
5. DIAMETER OF SPECIMEN, D	2.00 in	2.00 in	2.00 in
6. HEIGHT OF SPECIMEN, H	4.00 in	4.00 in	4.00 in
7. VOLUME OF SPECIMEN	12.57 in^3	12.57 in^3	12.57 in^3
8. BULK UNIT WEIGHT	67.4 pcf	67.5 pcf	67.5 pcf
9. BULK SPECIFIC GRAVITY	1.1	1.1	1.1
10. AVERAGE BULK UNIT WEIGHT	67.4 pcf		
11. AVERAGE BULK SPECIFIC GRAVITY	1.1		

MATERIAL pH

EPA METHOD 9045
DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
TESTING DATE:	13 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2412_pH

KEMRON SAMPLE No.	MATERIAL pH
1. PIER 2 NORTHWEST- A	7.00
2. PIER 2 NORTHWEST- B	6.98
3. PIER 2 NORTHWEST- C	6.97
4.	
5.	
6.	
7.	
8.	
9.	
10.	
AVERAGE:	6.98

SOLID SPECIFIC GRAVITY

ASTM D 854
DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
TESTING DATE:	21 MAY 2003
TESTED BY:	CLG
TRACKING CODE:	2412_GS2

SOLID SPECIFIC GRAVITY	
1. SAMPLE NUMBER	Northwest
2. FLASK NUMBER	2
3. TEMPERATURE	20.4 °C
4. WT. FLASK & WATER	202.76 g
5. WT. WATER, FLASK & SOIL	237.77 g
6. WT OF SOIL	35.01 g
7. CALIBRATION WATER & FLASK	353.39 g
8. DEAIRED SAMPLE	367.51 g
9. SPECIFIC GRAVITY	1.68
10. CORRECTION FACTOR K	1.0000
11. Gs @ 20 °C	1.68

PERMEABILITY ASTM D5084

SUMMARY OF RESULTS

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2412_PM
SAMPLE No.:	NORTHWEST UNTREATED	EQUIPMENT No.:	4
TEST DATE:	20 MAY 2003		

TESTING PARAMETER	INITIAL	FINAL
BULK UNIT WEIGHT	67.7 lb/ft³	91.0 lb/ft³
DRY UNIT WEIGHT	10.0 lb/ft³	39.2 lb/ft³
MOISTURE CONTENT	573.7 %	132.5 %
PERMEABILITY @ 20°C	3.0E-09 cm/sec	

PERMEABILITY ASTM D5084

SPECIMEN CONDITIONS

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2412_PM
SAMPLE No.:	NORTHWEST UNTREATED	EQUIPMENT No.:	4
TEST DATE:	20 MAY 2003		

MOISTURE CONTENT (Dry Basis)	INITIAL	FINAL
1. MOISTURE TIN NO.	Northwest	Northwest
2. WT MOISTURE TIN (tare weight)	0.00 g	186.29 g
3. WT WET SOIL + TARE	336.43 g	302.40 g
4. WT DRY SOIL + TARE	49.94 g	236.23 g
5. WT WATER, Ww	286.49 g	66.17 g
6. WT DRY SOIL, Ws	49.94 g	49.94 g
7. MOISTURE CONTENT, W	573.67 %	132.50 %

SOIL SPECIMEN DIMENSIONS				
TRIPLICATE	DIAMETER		HEIGHT	
ANALYSES	INITIAL	FINAL	INITIAL	FINAL
No. 1	2.73 in.	1.60 in.	3.25 in.	2.25 in.
No. 2	2.71 in.	1.67 in.	3.25 in.	2.27 in.
No. 3	2.73 in.	1.69 in.	3.25 in.	2.27 in.
Average	2.72 in.	1.65 in.	3.25 in.	2.26 in.

SPECIMEN CONDITIONS	INITIAL	FINAL
Specimen WT, Wo	336.43 g	116.11 g
Area, Ao	5.82 in^2	2.15 in^2
Volume, Vo	18.93 in^3	4.86 in^3
Bulk Unit Weight	67.7 lb/ft^3	91.0 lb/ft^3
Dry Unit Weight	10.0 lb/ft^3	39.2 lb/ft^3

PERMEABILITY ASTM D5084

BACK-PRESSURE SATURATION

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2412_PM
SAMPLE No.:	NORTHWEST UNTREATED	EQUIPMENT No.:	4
TEST DATE:	20 MAY 2003		

TEST DATE	TIME (military)	TESTED BY	TEST PRESSURES (psi)						
			APPLIED		PORE		PRESSURE CHANGE		
			CELL	BACK	SAT.	TEST	CELL	PORE	B-Value
05/20/03	15 : 30	MC	7.0	5.0	5.0				
05/20/03	16 : 5	MC	17.0	15.0	15.1	12.2	10.0	7.2	0.72
05/20/03	16 : 45	MC	27.0	25.0	25.2	23.3	10.0	8.2	0.82
05/20/03	17 : 30	MC	37.0	35.0	35.4	34.8	10.0	9.6	0.96
05/21/03	8 : 13	MC	47.0	45.0	*	45.2	10.0	9.8	0.98
05/21/03	8 : 14	MC	37.0	35.0	*	*	*	*	*

* Saturation check - no data available.

PERMEABILITY ASTM D5084

SPECIMEN CONSOLIDATION

PROJECT:	RALSTON STREET LAGOON	MC
PROJECT No.:	3233	2412_PM
SAMPLE No.:	NORTHWEST UNTREATED	4
TEST DATE:	20 MAY 2003	

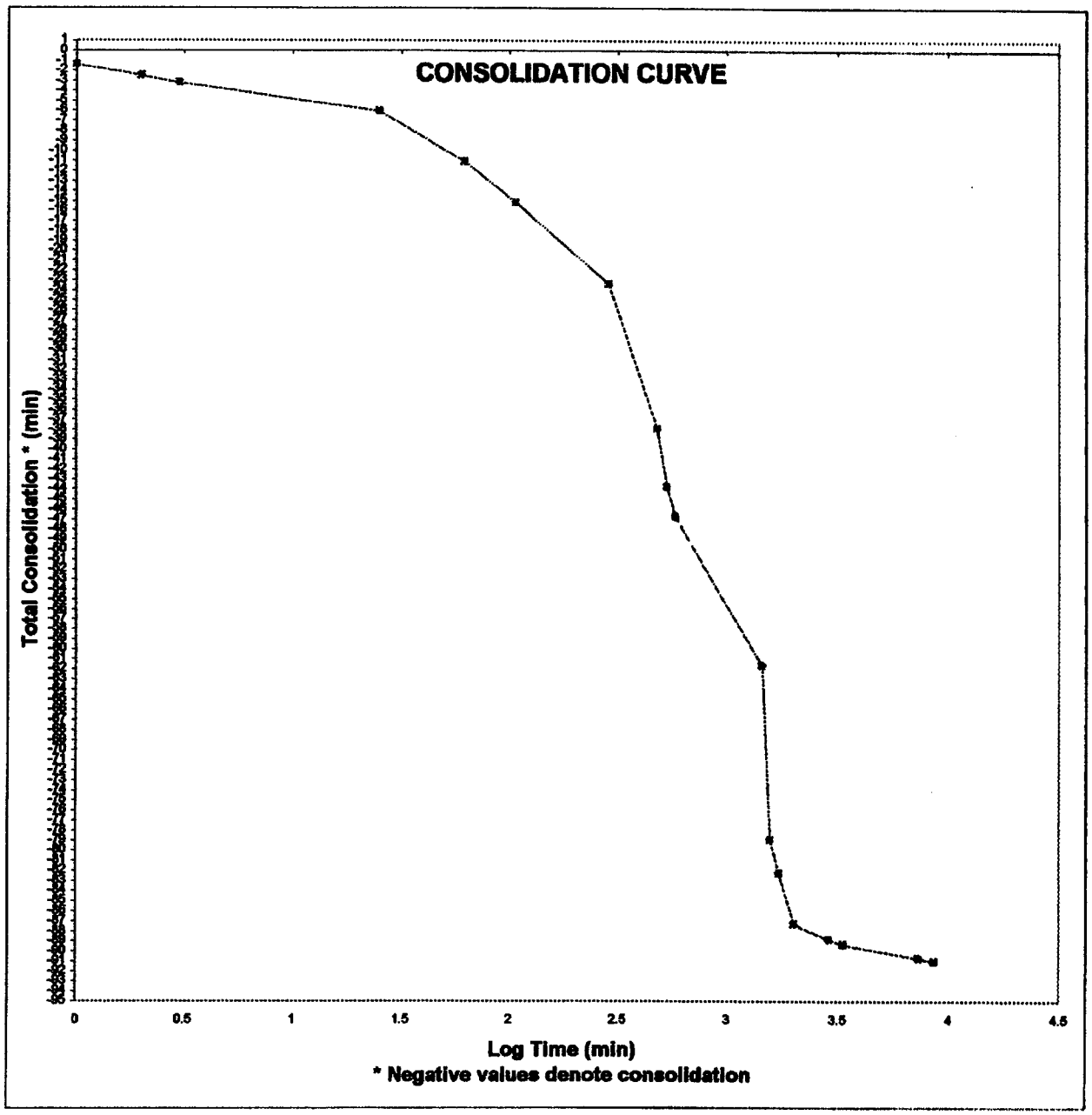
CELL PRESSURE: 35 psi BACK PRESSURE: 25 psi EFFECTIVE STRESS: 10 psi

TEST DATE	TESTED BY	TIME (Military)	ELAPSED TIME (minutes)	TOTAL TIME (minutes)	TOTAL TIME (Log)	SPECIMEN CONSOLIDATION (ML) READING BOTTOM	READING TOP	ACTUAL TOTAL (Ct)
5 / 21 / 3	MC	8 : 18				68.0	70.3	0.0
5 / 21 / 3	MC	8 : 19	1	1	0.00	67.0	69.9	1.4
5 / 21 / 3	MC	8 : 20	1	2	0.30	66.8	69.0	2.5
5 / 21 / 3	MC	8 : 21	1	3	0.48	66.4	68.7	3.2
5 / 21 / 3	MC	8 : 43	22	25	1.40	64.0	68.2	6.1
5 / 21 / 3	MC	9 : 20	37	62	1.79	61.3	65.9	11.1
5 / 21 / 3	MC	10 : 5	45	107	2.03	59.3	63.8	15.2
5 / 21 / 3	MC	13 : 4	179	286	2.46	52.0	62.9	23.4
5 / 21 / 3	MC	16 : 18	194	480	2.68	48.0	52.4	37.9
5 / 21 / 3	MC	17 : 9	51	531	2.73	46.8	47.8	43.7
5 / 21 / 3	MC	18 : 0	51	582	2.76	45.2	46.4	46.7
5 / 22 / 3	MC	8 : 20	860	1442	3.16	32.1	44.6	61.6
5 / 22 / 3	MC	10 : 28	128	1570	3.20	30.8	28.6	78.9
5 / 22 / 3	MC	12 : 50	142	1712	3.23	29.0	27.0	82.3
5 / 22 / 3	MC	17 : 43	293	2005	3.30	26.0	25.0	87.3
5 / 23 / 3	MC	8 : 12	869	2874	3.46	24.8	24.7	88.8
5 / 23 / 3	MC	16 : 15	483	3357	3.53	24.5	24.5	89.3
5 / 26 / 3	MC	10 : 19	3964	7321	3.86	23.7	23.9	90.7
5 / 27 / 3	MC	8 : 3	1304	8625	3.94	23.5	23.8	91.0

PERMEABILITY ASTM D5084

CONSOLIDATION CURVE

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2412_PM
SAMPLE No.:	NORTHWEST UNTREATED	EQUIPMENT No.:	4
TEST DATE:	20 MAY 2003		



PERMEABILITY ASTM D5084

TEST DATA

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2412_PM
SAMPLE No.:	NORTHWEST UNTREATED	EQUIPMENT No.:	4
TEST DATE:	20 MAY 2003		

DATE	TESTED BY	TIME (military)	ELAPSED TIME (minutes)	HYDRAULIC HEAD (cm)		TEMP. C°	GAUGE PRESSURE (psi)		
				INFLUENT	EFFLUENT		CELL	INFLUENT	EFFLUENT
5 / 27 / 3	MC	8 : 24		0.0	25.0	21.0	45.0	35.0	35.0
5 / 27 / 3	MC	13 : 28	RESET	0.0	25.0	21.0	45.0	35.0	35.0
5 / 27 / 3	MC	13 : 29	RESET	0.0	25.0	21.0	45.0	36.0	34.0
5 / 28 / 3	MC	8 : 25	RESET	0.7	24.2	20.5	45.0	36.0	34.0
5 / 28 / 3	MC	8 : 27	RESET	0.0	25.0	20.5	45.0	37.0	33.0
5 / 30 / 3	MC	13 : 13	3166	1.0	24.0	20.5	45.0	37.0	33.0
6 / 2 / 3	MC	8 : 30	4037	1.9	23.1	20.0	45.0	37.0	33.0
6 / 3 / 3	MC	17 : 19	1969	2.4	22.6	20.5	45.0	37.0	33.0
6 / 5 / 3	MC	8 : 16	2337	2.9	22.1	21.0	45.0	37.0	33.0

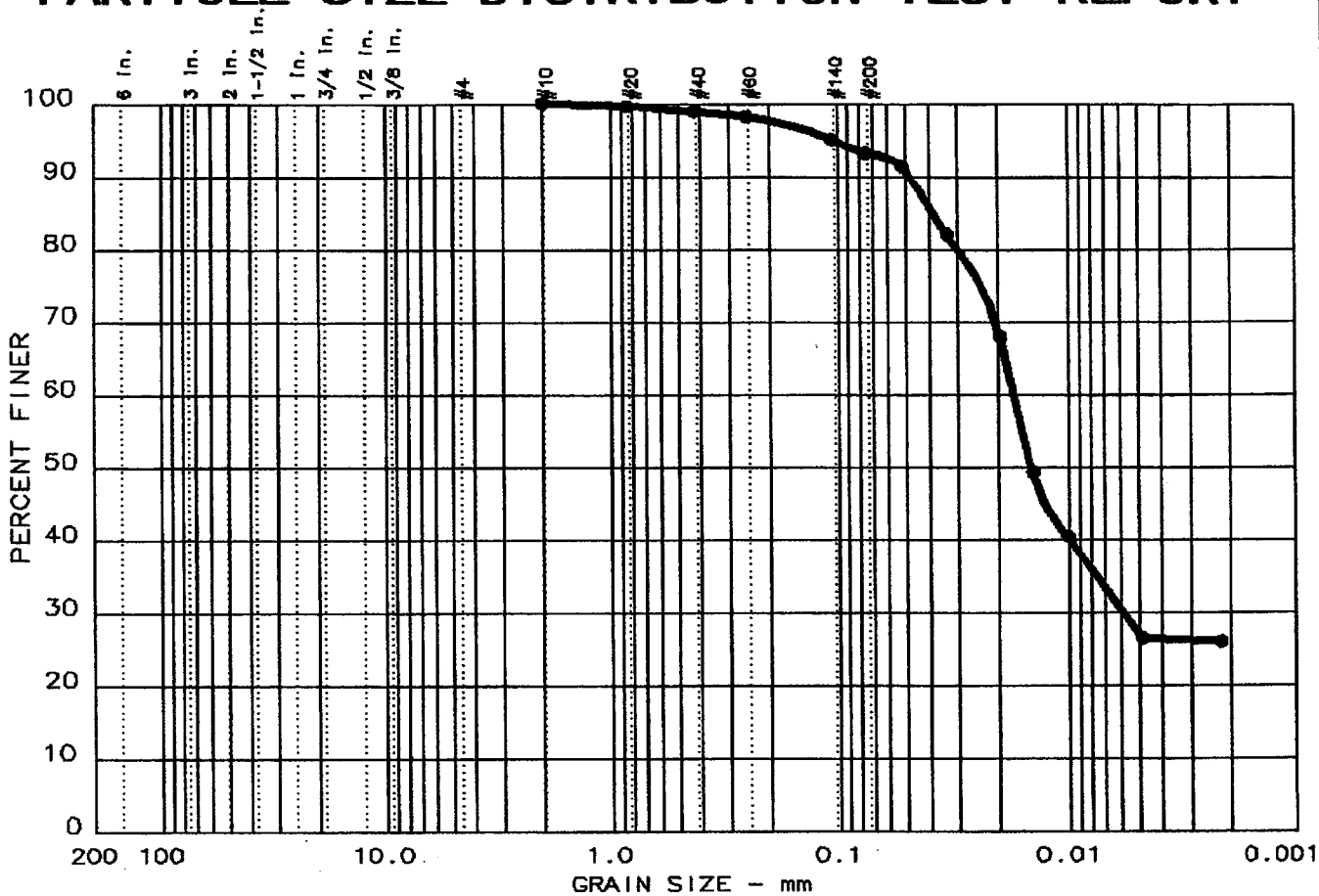
PERMEABILITY ASTM D5084

TEST DATA (continued)

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2412_PM
SAMPLE No.:	NORTHWEST UNTREATED	EQUIPMENT No.:	4
TEST DATE:	20 MAY 2003		

ELAPSED TIME (minutes)	HYDRAULIC HEAD DIFFERENCE (cm)		EFFLUENT - INFLUENT RATIO	HYDRAULIC GRADIENT (cm/cm)	HYDRAULIC CONDUCTIVITY (cm/sec)	
	INFLUENT	EFFLUENT			@ Temp.	@ 20° C
RESET				3.028		
RESET				3.028		
RESET				20.070		
RESET				19.889		
RESET				37.112		
3166	1.0	1.0	1.00	36.870	3.79E-09	3.74E-09
4037	0.9	0.9	1.00	36.652	2.69E-09	2.69E-09
1969	0.5	0.5	1.00	36.531	3.08E-09	3.04E-09
2337	0.5	0.5	1.00	36.409	2.60E-09	2.54E-09

PARTICLE SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	16	0.0	0.0	6.8	66.0	27.2

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●					0.0144	0.0058				

MATERIAL DESCRIPTION	USCS	AASHTO
● Black Silty Clay		

Project No.: 3233
Project: Ralston Street Lagoon
● Location: Northwest Untreated

Date: 5/19/2003

KIBER ENVIRONMENTAL SERVICES, INC.

Remarks:

Figure No. _____

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 16

Date: 5/19/2003
Project No.: 3233
Project: Ralston Street Lagoon

Sample Data

Location of Sample: Northwest Untreated
Sample Description: Black Silty Clay
USCS Class: Liquid limit:
AASHTO Class: Plasticity index:

Notes

Remarks:

Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	227.28
Tare =	194.33
Dry sample weight =	32.95

Tare for cumulative weight retained= 0

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.12	99.6
# 40	0.34	99.0
# 60	0.60	98.2
# 140	1.64	95.0
# 200	2.25	93.2

Hydrometer Analysis Data

Separation sieve is number 200
Percent -#200 based on complete sample= 93.2
Weight of hydrometer sample: 30.7
Calculated biased weight= 32.95
Automatic temperature correction
Composite correction at 20 deg C =-5.5

Meniscus correction only= 0
Specific gravity of solids= 1.68
Specific gravity correction factor= 1.538
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.0	20.5	25.0	19.6	0.0211	25.0	12.2	0.0521	91.3
5.0	20.5	23.0	17.6	0.0211	23.0	12.5	0.0334	82.0
15.0	20.5	20.0	14.6	0.0211	20.0	13.0	0.0197	68.0
30.0	20.5	16.0	10.6	0.0211	16.0	13.7	0.0142	49.3
60.0	21.0	14.0	8.7	0.0210	14.0	14.0	0.0101	40.5
273.0	21.0	11.0	5.7	0.0210	11.0	14.5	0.0048	26.5
1322.0	20.5	11.0	5.6	0.0211	11.0	14.5	0.0022	26.0

Fractional Components

Gravel/Sand based on #4 sieve
Sand/Fines based on #200 sieve
% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 6.8
% SILT = 66.0 % CLAY = 27.2

D85= 0.04 D60= 0.017 D50= 0.014
D30= 0.0058

MOISTURE CONTENT DETERMINATION

REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	SOUTHWEST, PIER 2
TESTING DATE:	13 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2413_MC

MOISTURE CONTENT (Dry & Wet Basis)							
1. MOISTURE TIN NO.	A		B		C		
2. WT MOISTURE TIN (tare weight)	1.29	g	1.31	g	1.28	g	
3. WT WET SOIL + TARE	26.61	g	26.62	g	28.09	g	
4. WT DRY SOIL + TARE	4.67	g	5.21	g	5.09	g	
5. WT WATER, Ww	21.94	g	21.41	g	23.00	g	
6. WT DRY SOIL, Ws	3.38	g	3.90	g	3.81	g	
7. ASTM MOISTURE CONTENT	649.11	%	548.97	%	603.67	%	
8. PERCENT SOLIDS	13.35	%	15.41	%	14.21	%	
9. AVERAGE ASTM MOISTURE CONTENT	600.59	%					
10. AVERAGE PERCENT SOLIDS	14.32	%					

LOSS ON IGNITION
(ORGANIC CONTENT)
ASTM D2974

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	SOUTHWEST, PIER 2
TESTING DATE:	19 MAY 2003
TESTED BY:	MAC
TRACKING CODE:	2413_LI

MOISTURE CONTENT / LOSS ON IGNITION			
1. MOISTURE TIN NO.	A	B	C
2. WT MOISTURE TIN (tare weight)	49.685 g	46.877 g	56.985 g
3. WT WET SOIL + TARE	112.978 g	98.109 g	109.875 g
4. WT DRY SOIL + TARE	58.720 g	54.190 g	64.534 g
5. WT WATER, Ww	54.259 g	43.919 g	45.341 g
6. WT DRY SOIL, Ws	9.034 g	7.313 g	7.549 g
7. WT FINAL SOIL + TARE	56.348 g	52.553 g	62.444 g
8. WT FINAL SOIL, Wf	6.662 g	5.676 g	5.459 g
9. WT ORGANICS, Wo	2.372 g	1.637 g	2.090 g
10. MOISTURE CONTENT(ASTM)	600.59 %	600.59 %	600.59 %
11. LOSS ON IGNITION	26.26 %	22.38 %	27.69 %
12. AVERAGE MOISTURE CONTENT	600.59 %		
13. AVERAGE LOSS ON IGNITION	25.44 %		

UNIT WEIGHT DETERMINATION

DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	SOUTHWEST, PIER 2
TESTING DATE:	13 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2413_UW

UNIT WEIGHT (DENSITY)			
1. SAMPLE NO.	A	B	C
2. WT OF MOLD (tare weight)	20.96 g	20.96	20.96 g
3. WT OF MOLD + SOIL	244.79 g	243.99 g	245.68 g
4. WT OF WET SOIL, W	223.83 g	223.03 g	224.72 g
5. DIAMETER OF SPECIMEN, D	2.00 in	2.00 in	2.00 in
6. HEIGHT OF SPECIMEN, H	4.00 in	4.00 in	4.00 in
7. VOLUME OF SPECIMEN	12.57 in^3	12.57 in^3	12.57 in^3
8. BULK UNIT WEIGHT	67.9 pcf	67.6 pcf	68.1 pcf
9. BULK SPECIFIC GRAVITY	1.1	1.1	1.1
10. AVERAGE BULK UNIT WEIGHT	67.9 pcf		
11. AVERAGE BULK SPECIFIC GRAVITY	1.1		

MATERIAL pH

EPA METHOD 9045
DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
TESTING DATE:	13 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2413_pH

KEMRON SAMPLE No.	MATERIAL pH
1. PIER 2 SOUTHWEST- A	6.77
2. PIER 2 SOUTHWEST- B	6.75
3. PIER 2 SOUTHWEST- C	6.73
4.	
5.	
6.	
7.	
8.	
9.	
10.	
AVERAGE:	6.75

SOLID SPECIFIC GRAVITY

ASTM D 854
DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
TESTING DATE:	21 MAY 2003
TESTED BY:	CLG
TRACKING CODE:	2413_GS2

SOLID SPECIFIC GRAVITY	
1. SAMPLE NUMBER	Southwest
2. FLASK NUMBER	2
3. TEMPERATURE	22.8 °C
4. WT. FLASK & WATER	184.86 g
5. WT. WATER, FLASK & SOIL	212.71 g
6. WT OF SOIL	27.85 g
7. CALIBRATION WATER & FLASK	353.26 g
8. DEAIRED SAMPLE	367.52 g
9. SPECIFIC GRAVITY	2.05
10. CORRECTION FACTOR K	0.9993
11. Gs @ 20 °C	2.05

PERMEABILITY ASTM D5084

SUMMARY OF RESULTS

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2413_PM
SAMPLE No.:	SOUTHWEST UNTREATED	EQUIPMENT No.:	5
TEST DATE:	20 MAY 2003		

TESTING PARAMETER	INITIAL	FINAL
BULK UNIT WEIGHT	67.7 lb/ft³	67.8 lb/ft³
DRY UNIT WEIGHT	9.7 lb/ft³	30.1 lb/ft³
MOISTURE CONTENT	594.5 %	125.2 %
PERMEABILITY @ 20°C	1.2E-08 cm/sec	

PERMEABILITY ASTM D5084

SPECIMEN CONDITIONS

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2413_PM
SAMPLE No.:	SOUTHWEST UNTREATED	EQUIPMENT No.:	5
TEST DATE:	20 MAY 2003		

MOISTURE CONTENT (Dry Basis)	INITIAL	FINAL
1. MOISTURE TIN NO.	Southwest	Southwest
2. WT MOISTURE TIN (tare weight)	0.00 g	207.89 g
3. WT WET SOIL + TARE	259.73 g	292.13 g
4. WT DRY SOIL + TARE	37.40 g	245.29 g
5. WT WATER, Ww	222.33 g	46.84 g
6. WT DRY SOIL, Ws	37.40 g	37.40 g
7. MOISTURE CONTENT, W	594.47 %	125.24 %

SOIL SPECIMEN DIMENSIONS				
TRIPLICATE	DIAMETER		HEIGHT	
ANALYSES	INITIAL	FINAL	INITIAL	FINAL
No. 1	2.64 in.	2.00 in.	2.67 in.	1.52 in.
No. 2	2.65 in.	2.00 in.	2.67 in.	1.50 in.
No. 3	2.63 in.	2.00 in.	2.67 in.	1.50 in.
Average	2.64 in.	2.00 in.	2.67 in.	1.51 in.

SPECIMEN CONDITIONS	INITIAL	FINAL
Specimen WT, Wo	259.73 g	84.24 g
Area, Ao	5.47 in^2	3.14 in^2
Volume, Vo	14.62 in^3	4.73 in^3
Bulk Unit Weight	67.7 lb/ft^3	67.8 lb/ft^3
Dry Unit Weight	9.7 lb/ft^3	30.1 lb/ft^3

PERMEABILITY ASTM D5084

BACK-PRESSURE SATURATION

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2413_PM
SAMPLE No.:	SOUTHWEST UNTREATED	EQUIPMENT No.:	5
TEST DATE:	20 MAY 2003		

TEST DATE	TIME (military)	TESTED BY	TEST PRESSURES (psi)						
			APPLIED		PORE		PRESSURE CHANGE		
			CELL	BACK	SAT.	TEST	CELL	PORE	B-Value
05/20/03	15 : 30	MC	7.0	5.0	5.9				
05/20/03	16 : 5	MC	17.0	15.0	15.8	15.3	10.0	9.4	0.94
05/20/03	16 : 43	MC	27.0	25.0	*	25.5	10.0	9.7	0.97

* Saturation check - no data available.

PERMEABILITY ASTM D5084

SPECIMEN CONSOLIDATION

PROJECT:	RALSTON STREET LAGOON	MC
PROJECT No.:	3233	2413_PM
SAMPLE No.:	SOUTHWEST UNTREATED	5
TEST DATE:	20 MAY 2003	

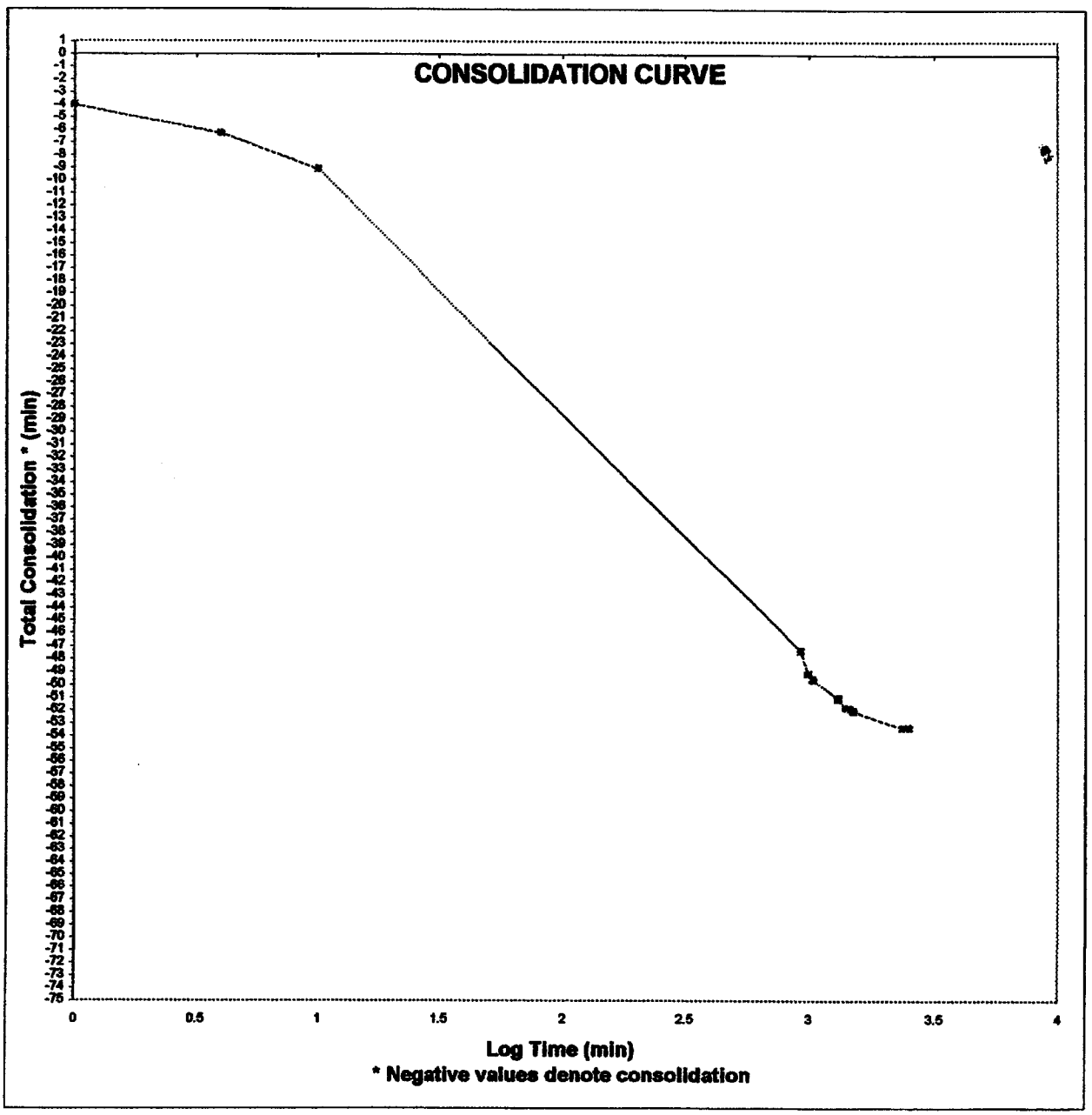
CELL PRESSURE: 35 psi BACK PRESSURE: 25 psi EFFECTIVE STRESS: 10 psi

TEST DATE	TESTED BY	TIME (Military)	ELAPSED TIME (minutes)	TOTAL TIME (minutes)	TOTAL TIME (Log)	SPECIMEN CONSOLIDATION (ML) READING BOTTOM	READING TOP	ACTUAL TOTAL (Ct)
5 / 20 / 3	MC	16 : 50				49.0	48.4	0.0
5 / 20 / 3	MC	16 : 51	1	1	0.00	47.2	46.2	4.0
5 / 20 / 3	MC	16 : 54	3	4	0.60	46.0	45.1	6.3
5 / 20 / 3	MC	17 : 0	6	10	1.00	44.8	43.5	9.1
5 / 21 / 3	MC	8 : 12	912	922	2.96	25.0	25.0	47.4
5 / 21 / 3	MC	9 : 20	68	990	3.00	24.0	24.3	49.1
5 / 21 / 3	MC	10 : 5	45	1035	3.01	23.8	24.0	49.6
5 / 21 / 3	MC	14 : 40	275	1310	3.12	23.0	23.3	51.1
5 / 21 / 3	MC	16 : 18	98	1408	3.15	22.6	23.0	51.8
5 / 21 / 3	MC	17 : 8	50	1458	3.16	22.5	23.0	51.9
5 / 21 / 3	MC	18 : 0	52	1510	3.18	22.5	22.8	52.1
5 / 22 / 3	MC	8 : 20	860	2370	3.37	21.8	22.2	53.4
5 / 22 / 3	MC	10 : 28	128	2498	3.40	21.8	22.2	53.4

PERMEABILITY ASTM D5084

CONSOLIDATION CURVE

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2413_PM
SAMPLE No.:	SOUTHWEST UNTREATED	EQUIPMENT No.:	5
TEST DATE:	20 MAY 2003		



PERMEABILITY ASTM D5084

TEST DATA

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2413_PM
SAMPLE No.:	SOUTHWEST UNTREATED	EQUIPMENT No.:	5
TEST DATE:	20 MAY 2003		

DATE	TESTED BY	TIME (military)	ELAPSED TIME (minutes)	HYDRAULIC HEAD (cm)		TEMP. C°	GAUGE PRESSURE (psi)		
				INFLUENT	EFFLUENT		CELL	INFLUENT	EFFLUENT
5 / 22 / 3	MC	10 : 31		0.0	25.0	21.0	35.0	25.0	25.0
5 / 22 / 3	MC	12 : 50	RESET	0.0	25.0	21.0	35.0	25.0	25.0
5 / 22 / 3	MC	12 : 52	RESET	0.0	25.0	21.0	35.0	26.0	24.0
5 / 23 / 3	MC	8 : 8	1156	0.7	24.2	20.5	35.0	26.0	24.0
5 / 23 / 3	MC	8 : 11	RESET	0.0	25.0	20.5	35.0	27.0	23.0
5 / 23 / 3	MC	14 : 26	375	0.7	24.3	21.0	35.0	27.0	23.0
5 / 27 / 3	MC	8 : 21	5395	7.0	18.0	20.0	35.0	27.0	23.0
5 / 27 / 3	MC	18 : 22	601	7.6	17.4	20.5	35.0	27.0	23.0
5 / 28 / 3	MC	8 : 23	841	8.5	16.5	21.0	35.0	27.0	23.0

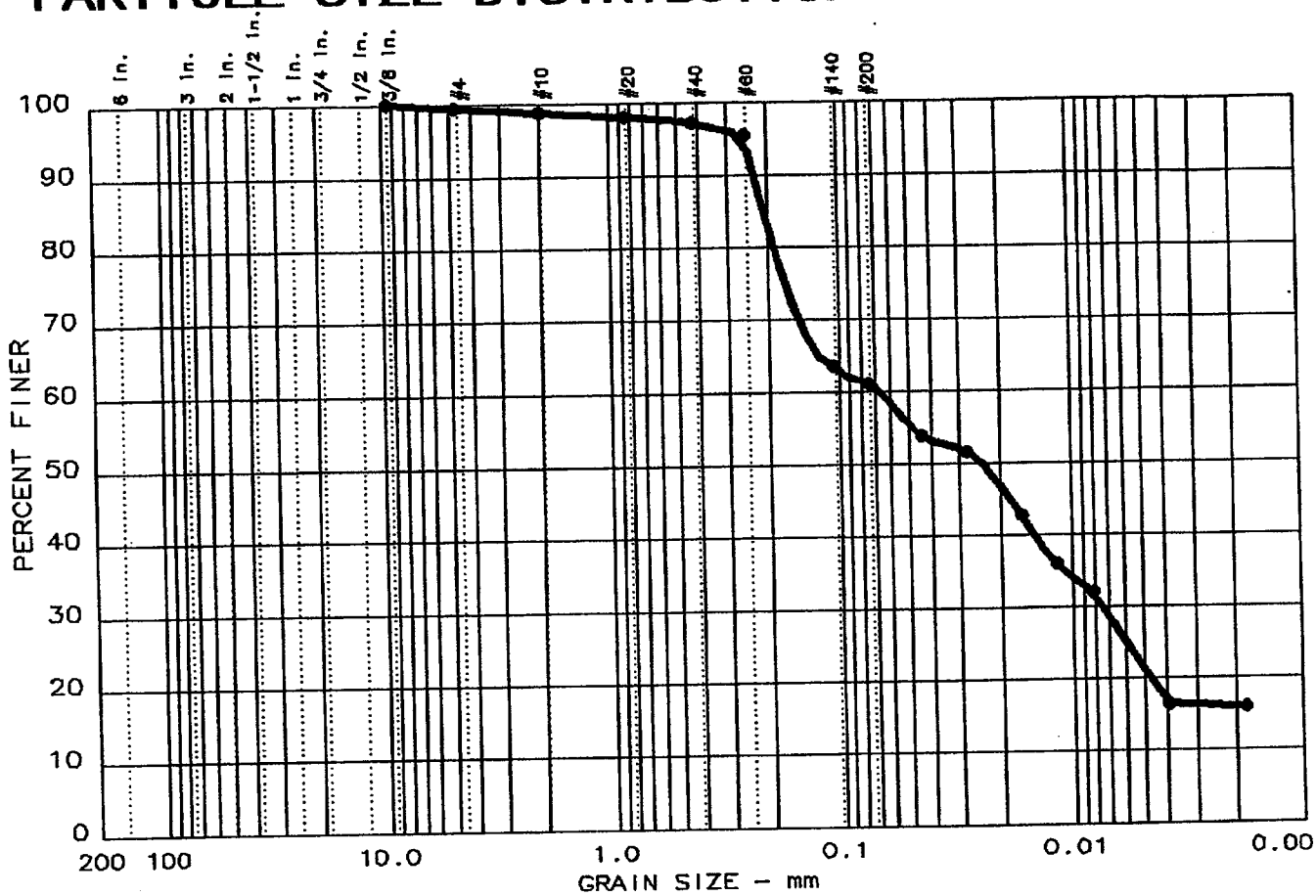
PERMEABILITY ASTM D5084

TEST DATA (continued)

PROJECT:	RALSTON STREET LAGOON	TESTED BY:	MC
PROJECT No.:	3233	TRACKING CODE:	2413_PM
SAMPLE No.:	SOUTHWEST UNTREATED	EQUIPMENT No.:	5
TEST DATE:	20 MAY 2003		

ELAPSED TIME (minutes)	HYDRAULIC HEAD DIFFERENCE (cm)		EFFLUENT - INFLUENT RATIO	HYDRAULIC GRADIENT (cm/cm)	HYDRAULIC CONDUCTIVITY (cm/sec)	
	INFLUENT	EFFLUENT			@ Temp.	@ 20° C
RESET				3.686		
RESET				3.686		
RESET				24.430		
1156	0.7	0.8	1.14	24.209	1.26E-08	1.24E-08
RESET				45.174		
375	0.7	0.7	1.00	44.967	1.95E-08	1.91E-08
5395	6.3	6.3	1.00	43.109	1.25E-08	1.25E-08
601	0.6	0.6	1.00	42.933	1.10E-08	1.08E-08
841	0.9	0.9	1.00	42.667	1.18E-08	1.15E-08

PARTICLE SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	17	0.0	0.6	38.3	39.6	21.5

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●			0.206		0.0240	0.0074				

MATERIAL DESCRIPTION	USCS	AASHTO
● Black Silty Clayey Sand		

Project No.: 3233
Project: Ralston Street Lagoon
● Location: Southwest Untreated

Date: 5/19/2003

KIBER ENVIRONMENTAL SERVICES, INC.

Remarks:

Figure No. _____

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 17

Date: 5/19/2003
Project No.: 3233
Project: Ralston Street Lagoon

Sample Data

Location of Sample: Southwest Untreated
Sample Description: Black Silty Clayey Sand
USCS Class: Liquid limit:
AASHTO Class: Plasticity index:

Notes

Remarks:

Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	263.88
Tare =	236.65
Dry sample weight =	27.23

Tare for cumulative weight retained= 0

Sieve	Cumul. Wt. retained	Percent finer
0.375 inches	0.00	100.0
# 4	0.17	99.4
# 10	0.36	98.7
# 20	0.55	98.0
# 40	0.78	97.1
# 60	1.27	95.3
# 140	9.93	63.5
# 200	10.59	61.1

Hydrometer Analysis Data

Separation sieve is number 200
Percent -#200 based on complete sample= 61.1
Weight of hydrometer sample: 16.64
Calculated biased weight= 27.23
Automatic temperature correction
Composite correction at 20 deg C =-5.5

Meniscus correction only= 0
Specific gravity of solids= 2.05
Specific gravity correction factor= 1.216
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.0	20.5	17.5	12.1	0.0170	17.5	13.4	0.0440	53.9
5.0	20.5	17.0	11.6	0.0170	17.0	13.5	0.0279	51.6
15.0	20.5	15.0	9.6	0.0170	15.0	13.8	0.0163	42.7
30.0	20.5	13.5	8.1	0.0170	13.5	14.1	0.0116	36.0
60.0	21.0	12.5	7.2	0.0169	12.5	14.2	0.0082	32.0
273.0	21.0	9.0	3.7	0.0169	9.0	14.8	0.0039	16.4
1322.0	20.5	9.0	3.6	0.0170	9.0	14.8	0.0018	15.9

Fractional Components

Gravel/Sand based on #4 sieve
Sand/Fines based on #200 sieve
% + 3 in. = 0.0 % GRAVEL = 0.6 % SAND = 38.3
% SILT = 39.6 % CLAY = 21.5

D85= 0.21 D60= 0.067 D50= 0.024
D30= 0.0074

ANALYTICAL ENVIRONMENTAL SERVICES, INC.
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FAX: (770) 451-3151

AES

NVLAP

AES Project ID: S14411

TRANSMISSION ELECTRON MICROSCOPY SEMI-QUANTITATIVE ANALYSIS REPORT

Project Name:	Ralston Street Lagoon		
Client Name:	Kemron Environmental Services		
GAS TEM ID:	7563	Date Received:	5/22/03
Client Sample ID:	Southwest	Date Analyzed:	5/23/03
Sample Location:	Black sludge		

ANALYTICAL INFORMATION

Magnification:	15960X	No. of openings read:	10
Dilution Factor:	1:1	Openings/Grid:	310
Original Volume:	10 cc	Sample Weight Used:	0.02g
Volume Used:	0.005 cc		

STRUCTURE DATA

Chrysotile:	Amosite:	Crocidolite:	Other:	Total:
ND	ND	ND	ND	0

ANALYTICAL RESULTS (WEIGHT %)

No Asbestos Detected

* Due to the high structure loading, the exact number of structures could not be provided.

Since there is no federal, state, or local definitive method for the analysis of bulk samples by TEM, Analytical Environmental Services, Inc. uses a modified Chatfield method. Our standard method for the analysis of bulk samples by TEM involves weighing out a portion of the sample, grinding in a known amount of acetone, ultrasonicating the solution, and placing a small amount (generally 0.005cc) on a pre-prepared carbon coated grid. The grid is then examined under the TEM and the number of structures counted. For ease of calculation, all structures are assumed to be 1.0x0.05 micron (This will lower the actual mass of structures on the grid). Due to surface tension, a portion of the solution will flow over the edges of the carbon coated grid, therefore not all of the 0.005cc of solution is deposited on the grid. These assumptions make the weight percentage given a conservative estimate.

These test results apply only to those samples actually tested, as submitted by the client. This sample has been analyzed using a JEOL 100SX transmission electron microscope with a Kevex Microanalyst 7500 energy dispersive X-ray spectrometer. It is certified by the signature below that Analytical Environmental Services, Inc. is accredited by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program, Lab No. 102082-0

Microanalyst

Mortesa Soltani

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AES

NVLAP

AES Project ID: S14411

TRANSMISSION ELECTRON MICROSCOPY SEMI-QUANTITATIVE ANALYSIS REPORT

Project Name:	Ralston Street Lagoon		
Client Name:	Kemron Environmental Services		
GAS TEM ID:	7562	Date Received:	5/22/03
Client Sample ID:	Northwest	Date Analyzed:	5/23/03
Sample Location:	Black sludge		

ANALYTICAL INFORMATION

Magnification:	15960X	No. of openings read:	10
Dilution Factor:	1:1	Openings/Grid:	310
Original Volume:	10 cc	Sample Weight Used:	0.02g
Volume Used:	0.005 cc		

STRUCTURE DATA

Chrysotile:	Amosite:	Crocidolite:	Other:	Total:
ND	ND	ND	ND	0

ANALYTICAL RESULTS (WEIGHT %)

No Asbestos Detected

* Due to the high structure loading, the exact number of structures could not be provided.

Since there is no federal, state, or local definitive method for the analysis of bulk samples by TEM, Analytical Environmental Services, Inc. uses a modified Chatfield method. Our standard method for the analysis of bulk samples by TEM involves weighing out a portion of the sample, grinding in a known amount of acetone, ultrasonicating the solution, and placing a small amount (generally 0.005cc) on a pre-prepared carbon coated grid. The grid is then examined under the TEM and the number of structures counted. For ease of calculation, all structures are assumed to be 1.0x0.05 micron (This will lower the actual mass of structures on the grid) Due to surface tension, a portion of the solution will flow over the edges of the carbon coated grid, therefore not all of the 0.005cc of solution is deposited on the grid. These assumptions make the weight percentage given a conservative estimate.

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Microanalyst

Mortesa Soltani

DEWATERING EVALUATIONS

GRAVITY DRAINAGE TESTING

DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	GD-001
MATERIAL TYPE:	NORTHWEST - SAND
TESTING DATE:	14 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2414_GD

SET-UP INFORMATION GRAVITY DRAINAGE TESTING	
1. FUNNEL	139.19 g
2. FUNNEL + SOIL (INITIAL)	389.36 g
3. FUNNEL + SOIL (FINAL)	351.09 g
4. BEAKER	404.32 g
5. BEAKER + EFFLUENT	404.32 g
6. SOIL (INITIAL)	250.17 g
7. SOIL (FINAL)	211.90 g
8. EFFLUENT	0.00 g

MONITORING INFORMATION		
TIME (HR)	EFFLUENT (g)	VISUAL OBSERVATIONS
0.25	0.00	
0.5	0.00	
1	0.00	
2	0.00	
4	0.00	
7	0.00	
24	0.00	
48	0.00	
120	0.00	
144	0.00	
168	0.00	

MOISTURE CONTENT (Dry & Wet Basis)		
1. MOISTURE TIN NO.	Untreated	Cake
2. WT MOISTURE TIN (tare weight)	1.30 g	1.30 g
3. WT WET SOIL + TARE	23.50 g	23.80 g
4. WT DRY SOIL + TARE	4.78 g	7.81 g
5. WT WATER, Ww	18.72 g	15.99 g
6. WT DRY SOIL, Ws	3.48 g	6.51 g
7. ASTM MOISTURE CONTENT, W	537.84 %	245.62 %
8. SOLIDS CONTENT, W	15.68 %	28.93 %

GRAVITY DRAINAGE TESTING

DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	GD-002
MATERIAL TYPE:	NORTHWEST - 5-10 MICRONS
TESTING DATE:	14 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2415_GD

SET-UP INFORMATION GRAVITY DRAINAGE TESTING	
1. FUNNEL	142.67 g
2. FUNNEL + SOIL (INITIAL)	392.68 g
3. FUNNEL + SOIL (FINAL)	377.05 g
4. BEAKER	401.65 g
5. BEAKER + EFFLUENT	417.51 g
6. SOIL (INITIAL)	250.01 g
7. SOIL (FINAL)	234.38 g
8. EFFLUENT	15.86 g

MONITORING INFORMATION		
TIME (HR)	EFFLUENT (g)	VISUAL OBSERVATIONS
0.25	0.00	
0.5	0.00	
1	0.34	
2	0.86	
4	2.85	
7	3.91	
24	8.44	
48	11.24	
120	13.17	
144	14.32	
168	15.63	

MOISTURE CONTENT (Dry & Wet Basis)		
1. MOISTURE TIN NO.	Untreated	Cake
2. WT MOISTURE TIN (tare weight)	1.30 g	1.30 g
3. WT WET SOIL + TARE	23.50 g	19.52 g
4. WT DRY SOIL + TARE	4.78 g	4.39 g
5. WT WATER, Ww	18.72 g	15.13 g
6. WT DRY SOIL, Ws	3.48 g	3.09 g
7. ASTM MOISTURE CONTENT, W	537.84 %	489.64 %
8. EPA MOISTURE CONTENT, W	15.68 %	16.96 %

GRAVITY DRAINAGE TESTING

DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	GD-003
MATERIAL TYPE:	NORTHWEST - 24 MICRONS
TESTING DATE:	14 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2416_GD

SET-UP INFORMATION GRAVITY DRAINAGE TESTING	
1. FUNNEL	139.41 g
2. FUNNEL + SOIL (INITIAL)	389.65 g
3. FUNNEL + SOIL (FINAL)	370.73 g
4. BEAKER	391.22 g
5. BEAKER + EFFLUENT	408.60 g
6. SOIL (INITIAL)	250.24 g
7. SOIL (FINAL)	231.32 g
8. EFFLUENT	17.38 g

MONITORING INFORMATION		
TIME (HR)	EFFLUENT (g)	VISUAL OBSERVATIONS
0.25	0.00	
0.5	0.00	
1	0.00	
2	0.00	
4	2.30	
7	3.65	
24	8.97	
48	13.79	
120	17.27	
144	17.40	
168	17.40	

MOISTURE CONTENT (Dry & Wet Basis)		
1. MOISTURE TIN NO.	Untreated	Cake
2. WT MOISTURE TIN (tare weight)	1.30 g	1.30 g
3. WT WET SOIL + TARE	23.50 g	23.64 g
4. WT DRY SOIL + TARE	4.78 g	5.07 g
5. WT WATER, Ww	18.72 g	18.57 g
6. WT DRY SOIL, Ws	3.48 g	3.77 g
7. ASTM MOISTURE CONTENT, W	537.84 %	492.57 %
8. EPA MOISTURE CONTENT, W	15.68 %	16.88 %

GRAVITY DRAINAGE TESTING

DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	GD-004
MATERIAL TYPE:	SOUTHWEST - SAND
TESTING DATE:	14 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2417_GD

SET-UP INFORMATION GRAVITY DRAINAGE TESTING	
1. FUNNEL	140.34 g
2. FUNNEL + SOIL (INITIAL)	390.54 g
3. FUNNEL + SOIL (FINAL)	331.35 g
4. BEAKER	386.64 g
5. BEAKER + EFFLUENT	386.64 g
6. SOIL (INITIAL)	250.20 g
7. SOIL (FINAL)	191.01 g
8. EFFLUENT	0.00 g

MONITORING INFORMATION		
TIME (HR)	EFFLUENT (g)	VISUAL OBSERVATIONS
0.25	0.00	
0.5	0.00	
1	0.00	
2	0.00	
4	0.00	
7	0.00	
24	0.00	
48	0.00	
120	0.00	
144	0.00	
168	0.00	

MOISTURE CONTENT (Dry & Wet Basis)		
1. MOISTURE TIN NO.	Untreated	Cake
2. WT MOISTURE TIN (tare weight)	1.29 g	1.30 g
3. WT WET SOIL + TARE	27.11 g	21.82 g
4. WT DRY SOIL + TARE	4.99 g	6.14 g
5. WT WATER, Ww	22.12 g	15.68 g
6. WT DRY SOIL, Ws	3.70 g	4.84 g
7. ASTM MOISTURE CONTENT, W	598.29 %	323.97 %
8. EPA MOISTURE CONTENT, W	14.32 %	23.59 %

GRAVITY DRAINAGE TESTING

DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	GD-005
MATERIAL TYPE:	SOUTHWEST - 5-10 MICRONS
TESTING DATE:	14 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2418_GD

SET-UP INFORMATION GRAVITY DRAINAGE TESTING	
1. FUNNEL	141.53 g
2. FUNNEL + SOIL (INITIAL)	391.71 g
3. FUNNEL + SOIL (FINAL)	336.91 g
4. BEAKER	378.40 g
5. BEAKER + EFFLUENT	433.03 g
6. SOIL (INITIAL)	250.18 g
7. SOIL (FINAL)	195.38 g
8. EFFLUENT	54.63 g

MONITORING INFORMATION		
TIME (HR)	EFFLUENT (g)	VISUAL OBSERVATIONS
0.25	5.44	
0.5	14.69	
1	22.58	
2	27.10	
4	41.57	
7	48.51	
24	53.45	
48	54.63	
120	54.63	
144	54.63	
168	54.63	

MOISTURE CONTENT (Dry & Wet Basis)		
1. MOISTURE TIN NO.	Untreated	Cake
2. WT MOISTURE TIN (tare weight)	1.29 g	1.30 g
3. WT WET SOIL + TARE	27.11 g	16.91 g
4. WT DRY SOIL + TARE	4.99 g	4.21 g
5. WT WATER, Ww	22.12 g	12.70 g
6. WT DRY SOIL, Ws	3.70 g	2.91 g
7. ASTM MOISTURE CONTENT, W	598.29 %	436.43 %
8. EPA MOISTURE CONTENT, W	14.32 %	18.64 %

GRAVITY DRAINAGE TESTING

DATA SHEET

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	GD-006
MATERIAL TYPE:	SOUTHWEST - 24 MICRONS
TESTING DATE:	14 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2419_GD

SET-UP INFORMATION GRAVITY DRAINAGE TESTING	
1. FUNNEL	142.50 g
2. FUNNEL + SOIL (INITIAL)	392.77 g
3. FUNNEL + SOIL (FINAL)	340.29 g
4. BEAKER	403.27 g
5. BEAKER + EFFLUENT	453.66 g
6. SOIL (INITIAL)	250.27 g
7. SOIL (FINAL)	197.79 g
8. EFFLUENT	50.39 g

MONITORING INFORMATION		
TIME (HR)	EFFLUENT (g)	VISUAL OBSERVATIONS
0.25	5.27	
0.5	13.65	
1	21.08	
2	24.74	
4	38.42	
7	45.85	
24	51.26	
48	52.48	
120	52.48	
144	52.48	
168	52.48	

MOISTURE CONTENT (Dry & Wet Basis)		
1. MOISTURE TIN NO.	Untreated	Cake
2. WT MOISTURE TIN (tare weight)	1.29 g	1.30 g
3. WT WET SOIL + TARE	27.11 g	22.42 g
4. WT DRY SOIL + TARE	4.99 g	5.25 g
5. WT WATER, Ww	22.12 g	17.17 g
6. WT DRY SOIL, Ws	3.70 g	3.95 g
7. ASTM MOISTURE CONTENT, W	598.29 %	434.68 %
8. EPA MOISTURE CONTENT, W	14.32 %	18.70 %

FILTER PRESS TEST
REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	FP-001
MATERIAL TYPE:	PIER 2 - NORTHWEST
TESTING DATE:	19 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2420_FP

TESTING CONDITIONS	
1. CONDITIONER	None
2. RUN TIME (min)	304
3. INITIAL MATERIAL WEIGHT (g)	120
4. GAGE PRESSURE (psi)	10
5. FILTRATE VOLUME (ml)	10.83
6. CAKE WEIGHT (g)	75.5

FEED PERCENT SOLIDS						
1. MOISTURE TIN NO.	A		B		C	
2. WT MOISTURE TIN (tare weight)	1.30	g	1.31	g	1.30	g
3. WT WET SOIL + TARE	20.09	g	26.47	g	23.94	g
4. WT DRY SOIL + TARE	4.26	g	5.23	g	4.86	g
5. WT WATER, Ww	15.83	g	21.24	g	19.08	g
6. WT DRY SOIL, Ws	2.96	g	3.92	g	3.56	g
7. ASTM MOISTURE CONTENT	534.80	%	541.84	%	535.96	%
8. PERCENT SOLIDS	15.75	%	15.58	%	15.72	%

CAKE PERCENT SOLIDS						
1. SAMPLE No.	A		B		C	
2. TARE, WT	1.30	g	1.30	g	1.30	g
3. TOTAL SAMPLE + TARE, WT	17.41	g	20.56	g	21.89	g
4. DRY SOLIDS + TARE, WT	5.25	g	5.99	g	6.32	g
5. WT WATER, Ww	12.16	g	14.57	g	15.57	g
6. WT DRY SOIL, Ws	3.95	g	4.69	g	5.02	g
7. ASTM MOISTURE CONTENT	307.85	%	310.66	%	310.16	%
8. PERCENT SOLIDS	24.52	%	24.35	%	24.38	%

FILTER PRESS TEST
REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	FP-002
MATERIAL TYPE:	PIER 2 - NORTHWEST
TESTING DATE:	19 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2421_FP

TESTING CONDITIONS	
1. CONDITIONER	None
2. RUN TIME (min)	196
3. INITIAL MATERIAL WEIGHT (g)	120
4. GAGE PRESSURE (psi)	25
5. FILTRATE VOLUME (ml)	24.4
6. CAKE WEIGHT (g)	73.6

FEED PERCENT SOLIDS			
1. MOISTURE TIN NO.	A	B	C
2. WT MOISTURE TIN (tare weight)	1.30 g	1.31 g	1.30 g
3. WT WET SOIL + TARE	20.09 g	26.47 g	23.94 g
4. WT DRY SOIL + TARE	4.26 g	5.23 g	4.86 g
5. WT WATER, Ww	15.83 g	21.24 g	19.08 g
6. WT DRY SOIL, Ws	2.96 g	3.92 g	3.56 g
7. ASTM MOISTURE CONTENT	534.80 %	541.84 %	535.96 %
8. PERCENT SOLIDS	15.75 %	15.58 %	15.72 %

CAKE PERCENT SOLIDS			
1. SAMPLE No.	A	B	C
2. TARE, WT	1.26 g	1.29 g	1.28 g
3. TOTAL SAMPLE + TARE, WT	12.55 g	18.19 g	12.19 g
4. DRY SOLIDS + TARE, WT	4.10 g	5.50 g	4.02 g
5. WT WATER, Ww	8.45 g	12.69 g	8.17 g
6. WT DRY SOIL, Ws	2.84 g	4.21 g	2.74 g
7. ASTM MOISTURE CONTENT	297.54 %	301.43 %	298.18 %
8. PERCENT SOLIDS	25.16 %	24.91 %	25.11 %

FILTER PRESS TEST
REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	FP-003
MATERIAL TYPE:	PIER 2 - NORTHWEST
TESTING DATE:	19 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2422_FP

TESTING CONDITIONS	
1. CONDITIONER	None
2. RUN TIME (min)	96
3. INITIAL MATERIAL WEIGHT (g)	120
4. GAGE PRESSURE (psi)	50
5. FILTRATE VOLUME (ml)	39.86
6. CAKE WEIGHT (g)	79.95

FEED PERCENT SOLIDS						
1. MOISTURE TIN NO.	A		B		C	
2. WT MOISTURE TIN (tare weight)	1.30	g	1.31	g	1.30	g
3. WT WET SOIL + TARE	20.09	g	26.47	g	23.94	g
4. WT DRY SOIL + TARE	4.26	g	5.23	g	4.86	g
5. WT WATER, Ww	15.83	g	21.24	g	19.08	g
6. WT DRY SOIL, Ws	2.96	g	3.92	g	3.56	g
7. ASTM MOISTURE CONTENT	534.80	%	541.84	%	535.96	%
8. PERCENT SOLIDS	15.75	%	15.58	%	15.72	%

CAKE PERCENT SOLIDS						
1. SAMPLE No.	A		B		C	
2. TARE, WT	1.30	g	1.30	g	1.30	g
3. TOTAL SAMPLE + TARE, WT	28.46	g	13.55	g	29.30	g
4. DRY SOLIDS + TARE, WT	7.97	g	4.16	g	7.98	g
5. WT WATER, Ww	20.49	g	9.39	g	21.32	g
6. WT DRY SOIL, Ws	6.67	g	2.86	g	6.68	g
7. ASTM MOISTURE CONTENT	307.20	%	328.32	%	319.16	%
8. PERCENT SOLIDS	24.56	%	23.35	%	23.86	%

FILTER PRESS TEST
REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	FP-004
MATERIAL TYPE:	PIER 2 - SOUTHWEST
TESTING DATE:	19 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2423_FP

TESTING CONDITIONS	
1. CONDITIONER	None
2. RUN TIME (min)	59
3. INITIAL MATERIAL WEIGHT (g)	120
4. GAGE PRESSURE (psi)	10
5. FILTRATE VOLUME (ml)	47.81
6. CAKE WEIGHT (g)	72

FEED PERCENT SOLIDS						
1. MOISTURE TIN NO.	A		B		C	
2. WT MOISTURE TIN (tare weight)	1.29	g	1.31	g	1.28	g
3. WT WET SOIL + TARE	26.61	g	26.62	g	28.09	g
4. WT DRY SOIL + TARE	4.67	g	5.21	g	5.09	g
5. WT WATER, Ww	21.94	g	21.41	g	23.00	g
6. WT DRY SOIL, Ws	3.38	g	3.90	g	3.81	g
7. ASTM MOISTURE CONTENT	649.11	%	548.97	%	603.67	%
8. PERCENT SOLIDS	13.35	%	15.41	%	14.21	%

CAKE PERCENT SOLIDS						
1. SAMPLE No.	A		B		C	
2. TARE, WT	1.30	g	1.30	g	1.30	g
3. TOTAL SAMPLE + TARE, WT	14.87	g	16.37	g	18.12	g
4. DRY SOLIDS + TARE, WT	4.85	g	5.18	g	5.67	g
5. WT WATER, Ww	10.02	g	11.19	g	12.45	g
6. WT DRY SOIL, Ws	3.55	g	3.88	g	4.37	g
7. ASTM MOISTURE CONTENT	282.25	%	288.40	%	284.90	%
8. PERCENT SOLIDS	26.16	%	25.75	%	25.98	%

FILTER PRESS TEST
REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	FP-005
MATERIAL TYPE:	PIER 2 - SOUTHWEST
TESTING DATE:	19 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2424_FP

TESTING CONDITIONS	
1. CONDITIONER	None
2. RUN TIME (min)	77
3. INITIAL MATERIAL WEIGHT (g)	120
4. GAGE PRESSURE (psi)	25
5. FILTRATE VOLUME (ml)	60.35
6. CAKE WEIGHT (g)	59

FEED PERCENT SOLIDS						
1. MOISTURE TIN NO.	A		B		C	
2. WT MOISTURE TIN (tare weight)	1.29	g	1.31	g	1.28	g
3. WT WET SOIL + TARE	26.61	g	26.62	g	28.09	g
4. WT DRY SOIL + TARE	4.67	g	5.21	g	5.09	g
5. WT WATER, Ww	21.94	g	21.41	g	23.00	g
6. WT DRY SOIL, Ws	3.38	g	3.90	g	3.81	g
7. ASTM MOISTURE CONTENT	649.11	%	548.97	%	603.67	%
8. PERCENT SOLIDS	13.35	%	15.41	%	14.21	%

CAKE PERCENT SOLIDS						
1. SAMPLE No.	A		B		C	
2. TARE, WT	1.30	g	1.30	g	1.30	g
3. TOTAL SAMPLE + TARE, WT	11.04	g	12.43	g	12.28	g
4. DRY SOLIDS + TARE, WT	4.29	g	4.70	g	4.74	g
5. WT WATER, Ww	6.75	g	7.73	g	7.54	g
6. WT DRY SOIL, Ws	2.99	g	3.40	g	3.44	g
7. ASTM MOISTURE CONTENT	225.75	%	227.35	%	219.19	%
8. PERCENT SOLIDS	30.70	%	30.55	%	31.33	%

FILTER PRESS TEST
REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	FP-006
MATERIAL TYPE:	PIER 2 - SOUTHWEST
TESTING DATE:	19 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2425_FP

TESTING CONDITIONS	
1. CONDITIONER	None
2. RUN TIME (min)	52
3. INITIAL MATERIAL WEIGHT (g)	120
4. GAGE PRESSURE (psi)	50
5. FILTRATE VOLUME (ml)	60.7
6. CAKE WEIGHT (g)	57.6

FEED PERCENT SOLIDS			
1. MOISTURE TIN NO.	A	B	C
2. WT MOISTURE TIN (tare weight)	1.29 g	1.31 g	1.28 g
3. WT WET SOIL + TARE	26.61 g	26.62 g	28.09 g
4. WT DRY SOIL + TARE	4.67 g	5.21 g	5.09 g
5. WT WATER, Ww	21.94 g	21.41 g	23.00 g
6. WT DRY SOIL, Ws	3.38 g	3.90 g	3.81 g
7. ASTM MOISTURE CONTENT	649.11 %	548.97 %	603.67 %
8. PERCENT SOLIDS	13.35 %	15.41 %	14.21 %

CAKE PERCENT SOLIDS			
1. MOISTURE TIN NO.	A	B	C
2. WT MOISTURE TIN (tare weight)	1.30 g	1.29 g	1.30 g
3. WT WET SOIL + TARE	12.64 g	14.29 g	18.58 g
4. WT DRY SOIL + TARE	4.81 g	5.17 g	6.31 g
5. WT WATER, Ww	7.83 g	9.12 g	12.27 g
6. WT DRY SOIL, Ws	3.51 g	3.88 g	5.01 g
7. ASTM MOISTURE CONTENT	223.08 %	235.05 %	244.91 %
8. PERCENT SOLIDS	30.95 %	29.85 %	28.99 %

CENTRIFUGATION TESTING
REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	CEN-001
MATERIAL TYPE:	PIER 2 NORTHWEST
TESTING DATE:	27 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2412_CEN

TESTING CONDITIONS		
1. SAMPLE	CEN-001	CEN-001 DUP
2. RUN TIME (min)	15	15
3. INITIAL MATERIAL WEIGHT (g)	499.95	500.23
4. CENTRIFUGE SPEED (rpm)	1000	1000
5. SUPERNATANT VOLUME (ml)	7.97	7.97
6. CAKE WEIGHT (g)	491.78	491.48

FEED PERCENT SOLIDS			
1. SAMPLE No.	A	B	C
2. TARE, WT	1.30 g	1.31 g	1.30 g
3. TOTAL SAMPLE + TARE, WT	20.09 g	26.47 g	23.94 g
4. DRY SOLIDS + TARE, WT	4.26 g	5.23 g	4.86 g
5. PERCENT SOLIDS	15.75 %	15.58 %	15.72 %

CAKE PERCENT SOLIDS		
1. SAMPLE No.	CEN-001	CEN-001 Dup
2. TARE, WT	62.31 g	69.20 g
3. TOTAL SAMPLE + TARE, WT	111.71 g	130.97 g
4. DRY SOLIDS + TARE, WT	69.80 g	78.59 g
5. PERCENT SOLIDS	15.16 %	15.20 %

CENTRIFUGATION TESTING
REPORT FORM

PROJECT:	RALSTON STREET LAGOON
PROJECT No.:	3233
SAMPLE No.:	CEN-002
MATERIAL TYPE:	PIER 2 SOUTHWEST
TESTING DATE:	27 MAY 2003
TESTED BY:	LM
TRACKING CODE:	2413_CEN

TESTING CONDITIONS		
1. SAMPLE	CEN-002	CEN-002 DUP
2. RUN TIME (min)	15	15
3. INITIAL MATERIAL WEIGHT (g)	500.11	500.04
4. CENTRIFUGE SPEED (rpm)	1000	1000
5. SUPERNATANT VOLUME (ml)	115.15	109.32
6. CAKE WEIGHT (g)	383.74	389.57

FEED PERCENT SOLIDS			
1. SAMPLE No.	A	B	C
2. TARE, WT	1.29 g	1.31 g	1.28 g
3. TOTAL SAMPLE + TARE, WT	26.61 g	26.62 g	28.09 g
4. DRY SOLIDS + TARE, WT	4.67 g	5.21 g	5.09 g
5. PERCENT SOLIDS	13.35 %	15.41 %	14.21 %

CAKE PERCENT SOLIDS		
1. SAMPLE No.	CEN-002	CEN-002 Dup
2. TARE, WT	69.51 g	70.87 g
3. TOTAL SAMPLE + TARE, WT	125.04 g	134.89 g
4. DRY SOLIDS + TARE, WT	78.97 g	82.50 g
5. PERCENT SOLIDS	17.04 %	18.17 %

SOLIDIFICATION EVALUATIONS

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-002 28 DAY	DIAL GAGE:	LDT
TESTING DATE:	8 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2471_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	1.98 in.
2. HEIGHT	3.90 in.
3. WEIGHT	240.19 g
4. MAXIMUM LOAD	12 lb.
5. CROSS SECTIONAL AREA	3.08 in^2
6. SPECIMEN VOLUME	12.01 in^3
7. BULK DENSITY	76.2 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	3.9 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-010 28 DAY	DIAL GAGE:	LDT
TESTING DATE:	8 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2472_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	1.98 in.
2. HEIGHT	3.94 in.
3. WEIGHT	243.08 g
4. MAXIMUM LOAD	10 lb.
5. CROSS SECTIONAL AREA	3.08 in^2
6. SPECIMEN VOLUME	12.13 in^3
7. BULK DENSITY	76.3 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	3.2 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-012 28 DAY	DIAL GAGE:	LDT
TESTING DATE:	8 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2473_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	1.98 in.
2. HEIGHT	3.91 in.
3. WEIGHT	246.59 g
4. MAXIMUM LOAD	23 lb.
5. CROSS SECTIONAL AREA	3.08 in^2
6. SPECIMEN VOLUME	12.04 in^3
7. BULK DENSITY	78.0 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	7.5 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-035 (28 DAY)	DIAL GAGE:	LDT
TESTING DATE:	23 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2520_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	1.96 in.
2. HEIGHT	3.95 in.
3. WEIGHT	285.39 g
4. MAXIMUM LOAD	9 lb.
5. CROSS SECTIONAL AREA	3.02 in^2
6. SPECIMEN VOLUME	11.92 in^3
7. BULK DENSITY	91.2 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	3.0 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-036 (28 DAY)	DIAL GAGE:	LDT
TESTING DATE:	23 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2521_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	1.95 in.
2. HEIGHT	3.98 in.
3. WEIGHT	287.61 g
4. MAXIMUM LOAD	8 lb.
5. CROSS SECTIONAL AREA	2.99 in^2
6. SPECIMEN VOLUME	11.89 in^3
7. BULK DENSITY	92.1 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	2.7 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-037 (28 DAY)	DIAL GAGE:	LDT
TESTING DATE:	23 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2522_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	2.00 in.
2. HEIGHT	3.94 in.
3. WEIGHT	283.96 g
4. MAXIMUM LOAD	11 lb.
5. CROSS SECTIONAL AREA	3.14 in^2
6. SPECIMEN VOLUME	12.38 in^3
7. BULK DENSITY	87.4 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	3.5 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-038 (28 DAY)	DIAL GAGE:	LDT
TESTING DATE:	23 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2523_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	1.98 in.
2. HEIGHT	3.85 in.
3. WEIGHT	278.47 g
4. MAXIMUM LOAD	9 lb.
5. CROSS SECTIONAL AREA	3.08 in^2
6. SPECIMEN VOLUME	11.85 in^3
7. BULK DENSITY	89.4 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	2.9 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-002 (44 DAY)	DIAL GAGE:	LDT
TESTING DATE:	23 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2524_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	1.97 in.
2. HEIGHT	3.70 in.
3. WEIGHT	229.19 g
4. MAXIMUM LOAD	13 lb.
5. CROSS SECTIONAL AREA	3.05 in^2
6. SPECIMEN VOLUME	11.28 in^3
7. BULK DENSITY	77.4 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	4.3 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-010 (44 DAY)	DIAL GAGE:	LDT
TESTING DATE:	23 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2525_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	1.98 in.
2. HEIGHT	3.75 in.
3. WEIGHT	235.12 g
4. MAXIMUM LOAD	10 lb.
5. CROSS SECTIONAL AREA	3.08 in^2
6. SPECIMEN VOLUME	11.55 in^3
7. BULK DENSITY	77.5 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	3.2 psi

UNCONFINED COMPRESSION TEST

ASTM D1633

PROJECT:	RALSTON STREET LAGOON	LOAD CELL:	2,000
PROJECT No.:	3233	DATE CALIBRATED:	23 MAY 2003
SAMPLE No.:	3233-012 (44 DAY)	DIAL GAGE:	LDT
TESTING DATE:	23 JULY 2003	LOADING RATE:	0.04 in/min
TESTED BY:	MC	TRACKING CODE:	2526_US

SPECIMEN CONDITIONS / TEST RESULTS	
1. DIAMETER	2.00 in.
2. HEIGHT	3.72 in.
3. WEIGHT	238.19 g
4. MAXIMUM LOAD	28 lb.
5. CROSS SECTIONAL AREA	3.14 in^2
6. SPECIMEN VOLUME	11.69 in^3
7. BULK DENSITY	77.6 pcf
8. UNCONFINED COMPRESSIVE STRENGTH	8.9 psi

Appendix B
Analytical Results for Solidified Sludge

e-Lab, Inc

Date: *August 12, 2003*

CLIENT: Earth Tech, Inc.
Project: GSD - Ralston St. Lagoon
Work Order: **0307398**

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
0307398-01	Northwest / 20% Cement	Solid		7/28/2003	7/29/2003 10:15	
0307398-02	Southwest / 25% Cement	Solid		7/28/2003	7/29/2003 10:15	

e-Lab, Inc

Date: *August 12, 2003*

CLIENT: Earth Tech, Inc.
Work Order: 0307398
Project: GSD - Ralston St. Lagoon
Lab ID: 0307398-01

Client Sample ID: Northwest / 20% Cement
Collection Date: 7/28/2003
Matrix: SOLID

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **7/30/2003**	Analyst: **RM**
Aroclor 1016	ND	130		µg/Kg-dry	1	7/30/2003
Aroclor 1221	ND	130		µg/Kg-dry	1	7/30/2003
Aroclor 1232	ND	130		µg/Kg-dry	1	7/30/2003
Aroclor 1242	ND	130		µg/Kg-dry	1	7/30/2003
Aroclor 1248	200,000	13,000		µg/Kg-dry	100	7/31/2003
Aroclor 1254	ND	130		µg/Kg-dry	1	7/30/2003
Aroclor 1260	ND	130		µg/Kg-dry	1	7/30/2003
TCLP HERBICIDES			**EPA 8151M**		Prep Date: **8/4/2003**	Analyst: **RM**
2,4,5-TP (Silvex)	ND	1.0		µg/L	1	8/8/2003
2,4-D	ND	1.0		µg/L	1	8/8/2003
TCLP PESTICIDES			**EPA 8081**		Prep Date: **8/4/2003**	Analyst: **RM**
Chlordane, Technical	ND	10		µg/L	1	8/6/2003
Endrin	ND	1.0		µg/L	1	8/6/2003
gamma-BHC (Lindane)	ND	0.50		µg/L	1	8/6/2003
Heptachlor	ND	0.50		µg/L	1	8/6/2003
Methoxychlor	ND	5.0		µg/L	1	8/6/2003
Toxaphene	ND	40		µg/L	1	8/6/2003
TCLP MERCURY BY CVAA			**EPA 7470**		Prep Date: **8/1/2003**	Analyst: **JDA**
Mercury	ND	0.00020		mg/L	1	8/2/2003 7:00:17 PM
TCLP METALS ANALYSIS BY ICP			**EPA 6010**		Prep Date: **8/2/2003**	Analyst: **JDA**
Arsenic	ND	0.010		mg/L	1	8/2/2003 7:25:00 PM
Barium	0.33	0.0050		mg/L	1	8/2/2003 7:25:00 PM
Cadmium	ND	0.010		mg/L	1	8/2/2003 7:25:00 PM
Chromium	0.014	0.0050		mg/L	1	8/2/2003 7:25:00 PM
Copper	0.074	0.020		mg/L	1	8/2/2003 7:25:00 PM
Lead	ND	0.040		mg/L	1	8/2/2003 7:25:00 PM
Nickel	0.16	0.0020		mg/L	1	8/2/2003 7:25:00 PM
Selenium	ND	0.050		mg/L	1	8/2/2003 7:25:00 PM
Silver	ND	0.020		mg/L	1	8/2/2003 7:25:00 PM
Zinc	0.027	0.010		mg/L	1	8/3/2003
TCLP SEMI-VOLATILE ORGANICS			**EPA 8270**		Prep Date: **8/8/2003**	Analyst: **DAH**
1,4-Dichlorobenzene	ND	250		µg/L	1	8/11/2003 2:25:00 PM
2,4,5-Trichlorophenol	ND	250		µg/L	1	8/11/2003 2:25:00 PM
2,4,6-Trichlorophenol	ND	250		µg/L	1	8/11/2003 2:25:00 PM
2,4-Dinitrotoluene	ND	250		µg/L	1	8/11/2003 2:25:00 PM
Hexachloro-1,3-butadiene	ND	250		µg/L	1	8/11/2003 2:25:00 PM
Hexachlorobenzene	ND	250		µg/L	1	8/11/2003 2:25:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc

Date: *August 12, 2003*

CLIENT: Earth Tech, Inc.
Work Order: 0307398
Project: GSD - Ralston St. Lagoon
Lab ID: 0307398-01

Client Sample ID: Northwest / 20% Cement
Collection Date: 7/28/2003
Matrix: SOLID

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Hexachloroethane	ND	250		µg/L	1	8/11/2003 2:25:00 PM
m-Cresol	ND	250		µg/L	1	8/11/2003 2:25:00 PM
Nitrobenzene	ND	250		µg/L	1	8/11/2003 2:25:00 PM
o-Cresol	ND	250		µg/L	1	8/11/2003 2:25:00 PM
p-Cresol	ND	250		µg/L	1	8/11/2003 2:25:00 PM
Pentachlorophenol	ND	1,000		µg/L	1	8/11/2003 2:25:00 PM
Pyridine	ND	1,000		µg/L	1	8/11/2003 2:25:00 PM
TCLP VOLATILE ORGANICS		**EPA 8260**			Prep Date: **8/1/2003**	Analyst: **BAT**
1,1-Dichloroethene	ND	20		µg/L	20	8/5/2003 5:19:00 AM
1,2-Dichloroethane	ND	20		µg/L	20	8/5/2003 5:19:00 AM
2-Butanone	ND	200		µg/L	20	8/5/2003 5:19:00 AM
Benzene	ND	20		µg/L	20	8/5/2003 5:19:00 AM
Carbon tetrachloride	ND	20		µg/L	20	8/5/2003 5:19:00 AM
Chlorobenzene	ND	20		µg/L	20	8/5/2003 5:19:00 AM
Chloroform	ND	20		µg/L	20	8/5/2003 5:19:00 AM
Tetrachloroethene	ND	20		µg/L	20	8/5/2003 5:19:00 AM
Trichloroethene	ND	20		µg/L	20	8/5/2003 5:19:00 AM
Vinyl chloride	ND	20		µg/L	20	8/5/2003 5:19:00 AM
PERCENT MOISTURE		**EPA 160.3**				Analyst: **JJG**
Percent Moisture	67	0.010		% of sample	1	7/30/2003

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc **Date:** *August 12, 2003*

CLIENT: Earth Tech, Inc.
Work Order: 0307398
Project: GSD - Ralston St. Lagoon
Lab ID: 0307398-02

Client Sample ID: Southwest / 25% Cement
Collection Date: 7/28/2003
Matrix: SOLID

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
PCBS			**EPA 8082**		Prep Date: **7/30/2003**	Analyst: **RM**
Aroclor 1016	ND	42		µg/Kg	1	7/30/2003
Aroclor 1221	ND	42		µg/Kg	1	7/30/2003
Aroclor 1232	ND	42		µg/Kg	1	7/30/2003
Aroclor 1242	ND	42		µg/Kg	1	7/30/2003
Aroclor 1248	17,000	420		µg/Kg	10	7/31/2003
Aroclor 1254	ND	42		µg/Kg	1	7/30/2003
Aroclor 1260	ND	42		µg/Kg	1	7/30/2003
TCLP HERBICIDES			**EPA 8151M**		Prep Date: **8/4/2003**	Analyst: **RM**
2,4,5-TP (Silvex)	ND	1.0		µg/L	1	8/8/2003
2,4-D	ND	1.0		µg/L	1	8/8/2003
TCLP PESTICIDES			**EPA 8081**		Prep Date: **8/4/2003**	Analyst: **RM**
Chlordane, Technical	ND	10		µg/L	1	8/6/2003
Endrin	ND	1.0		µg/L	1	8/6/2003
gamma-BHC (Lindane)	ND	0.50		µg/L	1	8/6/2003
Heptachlor	ND	0.50		µg/L	1	8/6/2003
Methoxychlor	ND	5.0		µg/L	1	8/6/2003
Toxaphene	ND	40		µg/L	1	8/6/2003
TCLP MERCURY BY CVAA			**EPA 7470**		Prep Date: **8/1/2003**	Analyst: **JDA**
Mercury	ND	0.00020		mg/L	1	8/2/2003 7:01:53 PM
TCLP METALS ANALYSIS BY ICP			**EPA 6010**		Prep Date: **8/2/2003**	Analyst: **JDA**
Arsenic	ND	0.010		mg/L	1	8/2/2003 7:29:00 PM
Barium	0.49	0.0050		mg/L	1	8/2/2003 7:29:00 PM
Cadmium	ND	0.010		mg/L	1	8/2/2003 7:29:00 PM
Chromium	ND	0.0050		mg/L	1	8/2/2003 7:29:00 PM
Copper	0.088	0.020		mg/L	1	8/2/2003 7:29:00 PM
Lead	ND	0.040		mg/L	1	8/2/2003 7:29:00 PM
Nickel	0.059	0.0020		mg/L	1	8/2/2003 7:29:00 PM
Selenium	ND	0.050		mg/L	1	8/2/2003 7:29:00 PM
Silver	ND	0.020		mg/L	1	8/2/2003 7:29:00 PM
Zinc	0.041	0.010		mg/L	1	8/5/2003 12:13:00 PM
TCLP SEMI-VOLATILE ORGANICS			**EPA 8270**		Prep Date: **8/8/2003**	Analyst: **DAH**
1,4-Dichlorobenzene	ND	250		µg/L	1	8/11/2003 1:53:00 PM
2,4,5-Trichlorophenol	ND	250		µg/L	1	8/11/2003 1:53:00 PM
2,4,6-Trichlorophenol	ND	250		µg/L	1	8/11/2003 1:53:00 PM
2,4-Dinitrotoluene	ND	250		µg/L	1	8/11/2003 1:53:00 PM
Hexachloro-1,3-butadiene	ND	250		µg/L	1	8/11/2003 1:53:00 PM
Hexachlorobenzene	ND	250		µg/L	1	8/11/2003 1:53:00 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

e-Lab, Inc **Date:** *August 12, 2003*

CLIENT: Earth Tech, Inc. **Client Sample ID:** Southwest / 25% Cement
Work Order: 0307398 **Collection Date:** 7/28/2003
Project: GSD - Ralston St. Lagoon
Lab ID: 0307398-02 **Matrix:** SOLID

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
Hexachloroethane	ND	250		µg/L	1	8/11/2003 1:53:00 PM
m-Cresol	ND	250		µg/L	1	8/11/2003 1:53:00 PM
Nitrobenzene	ND	250		µg/L	1	8/11/2003 1:53:00 PM
o-Cresol	ND	250		µg/L	1	8/11/2003 1:53:00 PM
p-Cresol	ND	250		µg/L	1	8/11/2003 1:53:00 PM
Pentachlorophenol	ND	1,000		µg/L	1	8/11/2003 1:53:00 PM
Pyridine	ND	1,000		µg/L	1	8/11/2003 1:53:00 PM
TCLP VOLATILE ORGANICS		**EPA 8260**			Prep Date: **8/1/2003**	Analyst: **BAT**
1,1-Dichloroethene	ND	20		µg/L	20	8/5/2003 6:03:00 AM
1,2-Dichloroethane	ND	20		µg/L	20	8/5/2003 6:03:00 AM
2-Butanone	ND	200		µg/L	20	8/5/2003 6:03:00 AM
Benzene	ND	20		µg/L	20	8/5/2003 6:03:00 AM
Carbon tetrachloride	ND	20		µg/L	20	8/5/2003 6:03:00 AM
Chlorobenzene	ND	20		µg/L	20	8/5/2003 6:03:00 AM
Chloroform	ND	20		µg/L	20	8/5/2003 6:03:00 AM
Tetrachloroethene	ND	20		µg/L	20	8/5/2003 6:03:00 AM
Trichloroethene	ND	20		µg/L	20	8/5/2003 6:03:00 AM
Vinyl chloride	ND	20		µg/L	20	8/5/2003 6:03:00 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

APPENDIX H

DRAFT

HOWARD UNIVERSITY

Biotransformation of Polychlorinated Biphenyl's (PCBs) in Sludge from the Ralston Street Lagoon Using Microbes in Anaerobic/Aerobic Cycling Bioreactors

A Thesis
Submitted to the Faculty of the
Graduate School

of

HOWARD UNIVERSITY

in partial fulfillment of
the requirements for the
degree of

Master of Engineering

Department of Civil Engineering

by

Dave Reginald Orlondo Tomlinson

Washington, D.C.
December 13, 2004

HOWARD UNIVERSITY
GRADUATE SCHOOL
DEPARTMENT OF CIVIL ENGINEERING

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Thesis Advisor

Candidate: Dave Reginald Orlondo Tomlinson

Date of Defense: January 14, 2005

ABSTRACT

In this study, we investigated the biotransformation of PCB's in sludge and sediment from the Ralston Street Lagoon, a Toxic Substance Control Act (TSCA), site in Gary, IN. A biological tilled soil reactor (BTSR), designed and developed for cycling anaerobic-aerobic biotreatment of PCB contaminated solid-phase environmental media, was used to investigate the biotransformation of various congeners and components in the sludge. The bioprocess is a sequential anaerobic-aerobic cycling of micro-environmental conditions in the contaminated sludge loaded into the BTSR, and which has been amended, initially with PCB-dechlorinating anaerobic sediments, and then with aerobic PCB biodegrading microbes. At start-up anaerobic sediments with demonstrated PCB-dechlorinating activity were tilled into the sludge that was loaded in the BTSR, and then anaerobic conditions maintained with re-circulation of reduced anaerobic mineral media (RAMM). After six months, aerobic conditions were established and aerobic K1 minimal salt media (MSM) supplemented with cosubstrates and PCB biodegrading microorganisms were circulated through the BTSR. Appropriate positive (biotic) and negative (abiotic) controls were maintained to monitor, quantify, discriminate and measure the biological transformation of the PCB's in the BTSR. Samples from various BTSR locations were analyzed for PCB congener concentrations using gas chromatography with electron capture detection (ECD). Mass Spectroscopy Analysis was also conducted in an attempt to identify species present in the examined samples. Insert brief statement on results. These results demonstrate that with suitable amendments, biotransformation of PCB components in the RSL sludge may be a potentially viable option for on-site remediation of the Ralston Street Lagoon TSCA media.

CHAPTER 1. INTRODUCTION

Polychlorinated biphenyls (PCBs) are chlorinated aromatic organics that were extensively used in industry until they were banned in 1979 by the United States Congress's Toxic Substances Control Act (TSCA) legislation that was passed in 1976 (Watts, 1997). This limited their distribution and also banned future usage of PCB products due to their adverse impact on health and the environment (Chawla et al. 2000). PCBs used to be manufactured as Aroclors in the USA, Kanechlors in Japan, and Sovols in the former Soviet Union (Tharakan et al., 1999). The Aroclors vast range of utility as key ingredients in various adhesives, transformer and dielectric fluids, and machine oils was primarily due to its capacity for heat resistance led to its widespread use. This has resulted in a global distribution and contamination of multiple environmental matrices such as sediments, soils, and inland water-bodies (Tharakan et al., 1999). Lax PCB disposal practices have lead to almost ubiquitous PCB environmental distribution. Approved treatment technologies, such as incineration, are expensive and can generate harmful byproducts. Biotransformation of contaminants is a potential alternative method to develop viable processes for site cleanup. Pellizari et al. (1996) describes *Rhodococcus erythropolis* (NY05) as "one of the microbes he has tested that exhibits the most extensive PCB degradation," furthermore, he mentions, "it is placed in the category of greatest competency."

Brief GSD Lagoon Problem Statement

Objective

The objective is to find out how well cycling anaerobic and aerobic conditions may succeed in cleaning up the GSDs RSL.

Rationale

CHAPTER 2. PCBs & The RSL PCB Problem

2.1 PCBs

Background – Toxicity, extent of contamination (TO BE EXTENDED, Inserts missing)

Polychlorinated Biphenyls (PCBs) are man made compounds that consist of the biphenyl backbone as seen in Figure 2.1. The biphenyl molecule has ten sites available for chlorine atoms to bind and form a PCB molecule. With the possibility of 1 through 10 chlorine substitutions on the biphenyl ring, there are 209 PCB congeners that can be generated (Table 2.1)(Hansen, 1999; National Research Counsil, 2001; D'Itri and Kamrin, 1983).

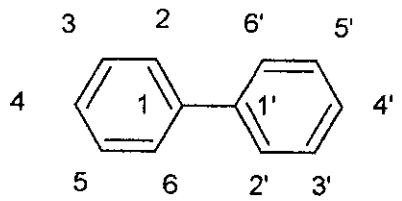


Figure 2.1 The biphenyl molecule showing ten positions available for chlorination

PCBs were made by the random and sometimes controlled chlorination of the biphenyl until the desired properties, primarily viscosity, were achieved (Table 2.2)(Hansen, 1999; D'Itri and Kamrin, 1983). The invention of the PCB molecule was first synthesized in1881 but never had any real industrial application until 1929 (D'Itri and Kamrin, 1983). PCBs were manufactured for industrial use because of their chemical and thermal stability in addition to their non-flammability and low production cost. Uses of these compounds include insulating fluids in electrical transformers and capacitors in the power industry, heat transfer substances, cutting oils, hydraulic fluids, lubricating oils, and plasticizers for making brittle plastic pliable. Application was also

found for these compounds in paints, printing inks, carbonless copy paper, sealants, adhesives, and the like. For these reasons the distribution of PCBs have become environmentally ubiquitous.

Regrettably, the identical characteristics that made the PCBs industrially desirable also made them persistent and accumulatible in the environment. PCB solubility is very low in water decreases with increasing chlorination. PCBs tend to bond tightly to particulate matter, notably soils and sediments. Thus, surface waters with low particulate loads may have barely detectable levels of PCB in the water mass, but high concentrations in the bottom sediments.

Since PCBs are poorly soluble in water and highly soluble in oils and fats, they tend to partition out of the aquatic ecosystem into biologic tissue. Because of their persistence and the fact that they are poorly metabolized, these substances bioaccumulate in the food chain, often increasing several orders of magnitude in concentration at each succeeding trophic level.

Toxicity

Table 2.1 Characteristics of PCB homolog groups (Hansen, 1999)

No. of Chlorines	Mean Molecular Weight	% Chlorine	No. of Isomers
0	154.2	0	1
1	188.7	10	3
2	223.1	32	12
3	257.6	41	24
4	292.0	49	42
5	326.4	54	46
6	360.9	59	42
7	395.3	63	24
8	429.8	66	12
9	464.2	69	3
10	498.7	71	1

The table above holds true with the exception of the chlorine percent reported for one chlorine substituent. The table suggests 10%, but this was later determined to be erroneous and corrected as 18%.

Table 2.2 Physical Properties of Aroclors

Aroclor	State	Density @ 20°C	Viscosity @ 99°C	Vapor Loss 6 hr @ 100°C	Water Solubility µg/L @ 25°C
1221	Oil	1.18	30-31	1-1.5 %	
1232	Oil	1.27	31-32	1-1.5 %	
1016	Oil	1.37			420
1242	Oil	1.38	34-35	0-0.4	240
1248	Oil	1.44	36-37	0-0.3	52
1254	Viscous	1.54	44-48	0-0.2	12
1260	Resin	1.62	72-78	0-0.1	3

Literature Survey – Problems and Solutions

Treatment Technologies

2.2 RSL Site & History

Site Location

The Ralston Street Lagoon is located in Gary, Indiana, approximately one mile west of the Gary Wastewater Treatment Plant and one-half mile south of the Gary Municipal Airport. The Grand Calumet River and its surrounding wetlands bound the lagoon on the north and west; the Indiana East-West toll road bound the lagoon on the south and Ralston Street forms the eastern boundary.

General Site Description

The lagoon is contained on an approximately 22 acre site which was acquired by the City of Gary in 1962. The Toll Road Commission in construction of the Indiana East-West toll road used the site previously as a burrow pit for fill. A service road has

been constructed on an earthen berm, which extends around the perimeter of the lagoon. The southern boundary is adjacent to the steep, grassy embankment of the toll road. The area to the east of the lagoon is residential. The areas to the north and west of the lagoon are swampy grasslands of the Grand Calumet River. ()

As part of the modifications made to the lagoon for sludge storage, influent and effluent pipes were installed. PCB contamination of the sludge in the lagoon has required that both of these pipes be sealed to isolate the lagoon from the wastewater treatment plant and the Grand Calumet River. The effluent pipe was sealed with bricks and mortar. The influent pipe was sealed with a sewer plug at a manhole immediately adjacent to the lagoon in the southeast corner. The manhole lid was bolted down after the pipe was sealed. Sludge pumping to the lagoon was stopped in early 1988. Hydraulic problems at the Gary Wastewater Treatment Plant required the interceptor from the lagoon to the treatment plant to be used as an emergency overflow pipe when influent hydraulic loads exceeded capacity. Thus, excess sewage was pumped to the lagoon via this interceptor. This practice was halted when the lagoon influent pipe, which was hydraulically connected to the interceptor, was sealed.

Results & Conclusions of Previous Studies

The lagoon itself has a surface area of approximately 18.5 acres. Approximately 600,000 yd^3 of sludge has been pumped to the lagoon to an average depth of approximately 20 ft. Investigations of the extent of PCB contamination have revealed an average PCB content of between 220 and 240 mg/L.

Several sampling wells have been installed around the perimeter of the lagoon. Liquid (aqueous) samples from those wells have been analyzed for PCBs on numerous

occasions. With minor exceptions, PCBs have not been found above their limit of detection. The highest concentration was found at well #6 immediately northeast of the lagoon. At this well, PCB levels of between 0.001ppm and 0.00277ppm have been measured. The most recent analysis (sampled in June 1989) indicated PCB levels of 0.0025ppm and 0.00027ppm for Aroclors 1248 and 1260, respectively.

CHAPTER 3. BIOREMEDIATION

3.1 Introduction & Background

Bioremediation utilizes the ability of some microorganisms, especially heterotrophic bacteria and fungi, to degrade hazardous organic materials into innocuous materials such as carbon dioxide, methane, water, inorganic salts and biomass (Dupont et al., 1997). Microorganisms may obtain their carbon and energy necessities for growth through biodegradation of organic contaminants or transform complex, synthetic chemicals through cometabolic biodegradative pathways (Dupont et al., 1997). A number of different types of bioremediation methods may be employed. Some of these methods are *in-situ* while some are applied *ex-situ*. These include bioventing, the use of electron acceptors other than oxygen, natural or intrinsic bioremediation, and bioaugmentation, which is the introduction of external organisms into the subsurface (Norris et al., 1994).

In-situ bioremediation is when the contaminant is being metabolized or cleaned up by microorganisms native to the matrix where the contaminant is situated. *Ex-Situ* bioremediation is the process of removing the constituents of the contaminated site and treating it externally in slurry reactors or by other biological treatments prior to returning the now cleaned constituents to the their original location.

Bioventing is the enhancement of *in-situ* biodegradation of hydrocarbons by supplying oxygen to aerobic microorganisms, generally in the form of pumped-in air. Bioaugmentation is the use of non-indigenous microorganisms that are already capable of metabolizing the target contaminant, by enriching this population by inoculation or manipulation of micro-environmental conditions to optimize growth. Intrinsic

bioremediation relies on the naturally developing biological activity to prevent the migration of the contaminants away from its source. Phytoremediation is another form of natural remediation but utilizes the ability of plants to remove and transform contaminants in wastes.

3.2 Anaerobic/Aerobic Cycling Processes

Anaerobic/Aerobic Cycling Processes have shown potential in treating hazardous chlorinated polyaromatics. In the case of PCBs, the higher chlorinated congeners that resist aerobic opportunistic cometabolism, experience reductive dechlorination through the action of anaerobic dechlorinating bacteria. (Fatherpure and Tiedje, 1999) As they have noted, in the presence of anaerobic conditions, reductive and hydrolytic dehalogenation are major contributors to chloroaromatic breakdown. "Heterocyclic compounds may also undergo anaerobic hydrolysis and haloaromatics usually undergo reductive degradation (Fatherpure and Tiedje, 1999). Various classes of haloaromatics, including halobiphenyls, undergo reductive dechlorination under denitrifying, iron-reducing, sulfate reducing, fermentative, and methanogenic conditions (Refs).

In the case of some isolated aerobes, PCBs are cometabolically biodegraded (ref). Cosubstrates, like biphenyl, may be supplemented to aerobic growth media, that enables the microbes to break it down into benzoic acid and an aliphatic acid. This proceeds to yield energy and carbon through the Tricarboxylic Acid Cycle. Some research has shown that the meta cleavage pathway is the metabolic route for bacterial biodegradation of biphenyl and many chlorinated biphenyls as well (Hickey, 1999). This is usually restricted to lower chlorinated congeners of the various PCBs.

The combination of the anaerobic and aerobic sequential treatments of PCBs have shown some promise in lab scale experiments and is being investigated for possible field application.

CHAPTER 4. MATERIALS & METHODS

The objective of this study was to investigate the potential for a cycling anaerobic/aerobic biotreatment of RSL sludge with amendment of anaerobic sediments and known PCB degrading aerobic microbes. In the following chapter, we describe the source of the target remediation media, the nature and requirements of the anaerobic sediments and aerobic microbes, the design of the bioreactor, the experimental protocol followed, and the sampling, extraction and PCB analysis methodology.

4.1 RSL Sludge

The sludge sampled throughout the lagoon appeared quite homogenous in nature. There was very little difference in the solids content amongst all samples. The color, texture, structure, and consistency of all the samples were quite similar. However, the percent solids reported in the sludge samples ranged from 2.0 to 73.0 percent and had an average value of 14.7 percent (Fluor Daniel,1997).

The color of the sludge samples was black to dark gray. The underlying sand was brown to tan, with a gray appearance near the contact to the sludge. At times, the sludge or associated water would have a sheen and odor similar to that created by petroleum products (Fluor Daniel,1997).

The samples obtained from the lagoon for investigation were from the region designated as Pier 2. The sludge from the Pier 2 region was received for investigation in three 5-gallon buckets. Each bucket contained sludge from a different sampling point within the Pier 2 region. The three samples were designated as Northwest, Mid-West, and Southwest. Of the three samples, two were chosen for investigation since the experimental set-up only had room to house two bioreactors. The Mid-West and

Southwest samples were chosen for investigation and were reported to the Gary Sanitary District by Fluor Daniel GTI, Inc. (Chicago, Illinois) as being contaminated with Aroclor 1248 in the concentrations of approximately 970-ppm and 280-ppm respectively and also had percent solids of 25 and 13 respectively.

4.2 Anaerobic Sediments and Maintenance

The anaerobic sediments used in this experiments were obtained from the microbiology group at Michigan State University. The sediments' source of origination is the Hudson River, NY and is referred to as the Hudson Sediments.

Mineral medium provides the bare essentials for sustenance and microbial growth. It is necessary that the medium be comprised of the elements or compounds that can be assimilated by organisms to synthesize their macromolecules. Macromolecules are the fundamental molecules for cell function such as proteins (amino acids), nucleic acids (nucleotides), lipids, and polysaccharides (sugars). Thus, structurally and nutritionally, microorganisms require water, sources of carbon and nitrogen; they also require mineral elements, and vitamins. Nutrients that are required in large quantities are classified as macronutrients. Other than carbon and nitrogen, examples include oxygen, hydrogen, phosphorus, sulfur, potassium, magnesium, calcium, sodium and iron. Similarly, micronutrients are metallic nutrients required in small quantities. Among these nutrients are chromium, molybdenum, selenium, tungsten, vanadium, copper, zinc, cobalt, manganese and nickel; these elements are part of the enzyme structure (Brock et al., 2000).

RAMM Formulation

The components of reduced anaerobic mineral medium (RAMM) are shown in Table 4.1. (Quensen and Tiedje, 1997) and comprise mixtures of solutions A, B, C, D, and E, as described below. To prepare the anaerobic mineral medium, sparge 977 mL of distilled water with O_2–free N_2 using a Hungate apparatus and air stone. Add 10 mL each of solutions A and B and 1 mL each of solutions C, D, E. Add 2.4 g Na_2HCO_3 and 0.24 g Na_2S, remove air stone, and quickly stopper and shake. If this procedure is properly performed and the solution is anaerobic, the medium should turn black; a pink tint from the resazurin indicates O_2 is present. The final product must be autoclaved at 121°C for 20 minutes. After cooling, the RAMM can be stored in a sealed flask in the refrigerator until it is ready for application but not for more than 24 hrs since it will become reoxygenated.

There was one modification made to the above formulation. The Hungate apparatus and air stone were not used to do the N_2 sparging of the distilled water. Nevertheless, simply bubbling N_2 through the water was sufficient. Inserting a tube connected to a nitrogen cylinder into the distilled water bottle did the sparging. Resazurin was indicative of anaerobic conditions upon completion of formulation when the sparging was done this way.

Table 4.1 Components of RAMM

Solution	Component	Amount
(a) Solution A (0.2M phosphate buffer)	KH_2PO_4	27.2 g/L
	K_2HPO_4	34.8 g/L
	(Adjust to pH 7.0 with NaOH)	
(b) Solution B	NH_4Cl	53.5 g/L
	$CaCl_2 . 2 H_2O$	7.85 g/L
	$MgCl_2 . 6 H_2O$	10.15 g/L
	$FeCl_2 . 4 H_2O$	2.0 g/L
(c) Solution C (Trace metals)	$MnCl_2. 4H_2O$	500mg/L
	H_3BO_3	50 mg/L
	$ZnCl_2$	50 mg/L
	$CuCl_2$	30 mg/L
	$Na_2MoO_4. 2H_2O$	10 mg/L
	$CoCl_2. 6H_2O$	500 mg/L
	$NiCl_2. 6H_2O$	50 mg/L
	Na_2SeO_3	50 mg/L
(d) Solution D	0.1% resazurin in deionized water.	
(e) Solution E	0.5M $NiCl_2$ in deionized water.	
(f) Solution F Vitamin solution	Biotin	20 mg/L
	Folic Acid	20 mg/L
	Lipoic Acid	60 mg/L
	Thiamin	50 mg/L
	Riboflavin	50 mg/L
	Nicotinic Acid	50 mg/L
	Pyridoxal HCl	100 mg/L
	Pantothenic Acid	50 mg/L
	Cyanocobalamin	50 mg/L
	p-Amino Benzoic Acid	50 mg/L

(Store refrigerated in a serum bottle purged of O_2 with O_2 – free N_2 and sealed with a butyl rubber stopper).

4.3 Aerobic Organism and Maintenance

The microbial isolate was used in previous Howard University investigations (Tharakan et al., 1999) and had been originally obtained from Dr. J. Tiedje at Michigan State University at the Center for Microbial Ecology. This organism is a gram positive, aerobic cocci isolated from the Hudson River (NY) sediments and is identified as *Rhodococcus erythropolis* (strain NY05). Pellizari et al. (1996) demonstrated that this strain could cometabolically biotransform several different PCB congeners when the media was supplemented with biphenyl. Additional research has also demonstrated an optimum concentration of biphenyl (Kizito, 1996) as well as the use of alternative cosubstrates (Reis et al., 1997).

Growth of Rhodococcus *erythropolis* (strain NY05)

The following section describes the medium preparation necessary for the growth of NY05 and the way that it was inoculated into the reaction matrix during the aerobic phase of this investigation. The inoculums were prepared in 250ml Erlenmeyer flasks and charged into the bioreactors two months after the commencement of the aerobic phase. This was done to ensure that there were no other factors other than the NY05 organism, such as indigenous encysted aerobes, responsible for the aerobic degradation of the bioavailable PCB congeners, which remained after the termination of the anaerobic phase. For the two months prior to inoculation the reactors were operated with the re-circulation of K1 medium. The inoculums of NY05 were each prepared from two 1ml stock vials of deep frozen (-70°C) microbes preserved in K1, which were thawed and then pipetted into Erlenmeyer flasks that already had the 250 ml culture medium (K1) present with the biphenyl cosubstrate. The two flasks were incubated in a shaker bath at

25°C until a thin film of microbe and co-substrate layer (that was formed on the top because of the hexane/biphenyl solution density) became visibly cloudy with the NY05 organism. This growth took approximately 1 week. Cell counts were done by plate counting method. This determined the concentration of the inoculums of the two reactors to be $4.0*10^8$ cfu/ml and $7.6*10^8$ cfu/ml for the Mid-West and Southwest bioreactors, respectively.

K1 Preparation

The K1 medium used in this experiment (Table 4.2) is basically comprised of four groups of elements. These groups are regarded as the salt base, vitamins, Hunters vitamin free mineral base, and metals 44. All mineral media components were obtained from Sigma Chemical Company (St. Louis, MO). The reagents forming the salt base are added individually into a flask containing 1000 ml of distilled water. After the completion of the salt base solution, the medium is autoclaved at 121 °C and 15 psig for 15 minutes.

Hunter's vitamin free mineral base was made in a similar manner to the salt base preparation. Each element was added into a flask containing 1000 ml of distilled water and later autoclaved under the same conditions as the salt base. 50-ml of the Metals-44 solution was finally added to the Hunter's vitamin-free mineral base.

Vitamin stock solutions (5 mg/ml, 0.2 mg/ml for biotin) were prepared and sterilized by filtration through a 0.45 μm Cameo 17GF Syringe Filter (Fisher Scientific, Pittsburgh, PA) and stored in 20 ml glass vials (Wheaton Scientific, Millville, NJ). One hundred microliters (100 μl) of each vitamin stock solution was added to 1 liter of autoclaved salt base, under sterile conditions. The Hunter's vitamin-free mineral base

was finally prepared and the solution pH adjusted to 6.6-6.8. If the solution was too basic, drops of 9N sulfuric acid were added; if the solution was acidic (pH< 6.0), sodium hydroxide in solid phase was added in small quantities and mixed in the K1 media until its complete disolution. After autoclaving the solution for 15 minutes, twenty milliliters of this solution was added to 1 liter of salt base under sterile conditions. The preparation of the Metals-44 solution was added to 1 liter of Hunter's mineral base under sterile conditions.

The preparation of Metals-44 solution is also similar to the other solutions described earlier. Metals-44 contains trace elements and a chelating agent, ethylene-diamine-tetra-acetic-acid (EDTA). This chelating agent forms a heterocyclic ring containing a metal ion attached to at least two non-metal ions in the same molecule. EDTA avoids precipitation of the trace elements in the Metals-44 solution.

Table 4.2 Components of mineral medium K1

Solution	Component	Amount
(a) Salt base	$K_2HPO_4 . 3H_2O$	4.0 g
	$NaH_2PO_4 . 2H_2O$	0.4 g
	$(NH_4)_2SO_4$	0.5 g
	$Ca(NO_3)_2 . 4H_2O$	4.3 mg
	Distilled H_2O	1000 ml
(b) Vitamins	Biotin	0.02 mg/l
	Thiamin	0.50 mg/l
	Riboflavin	0.50 mg/l
	Inositol	0.50 mg/l
(c) Hunters vitamin-free mineral base	$MgSO_4 . 7H_2O$	14.45 g
	$CaCl_2 . 2H_2O$	3.33 g
	$(NH_4)_6Mo_7O_{24} . 4H_2O$	9.25 mg
	$FeSO_4 . 7H_2O$	99.00 mg
	Metals-44	50.0 ml
	Distilled H_2O	1000 ml
(d) Metals 44	EDTA	2.50 g
	$ZnSO_4 . 7H_2O$	10.95 mg
	$MnSO_4 . 7H_2O$	1.54 g
	$FeSO_4 . 7H_2O$	5.00 g
	$CuSO_4 . 5H_2O$	0.392 g
	$Co(NO_3)_2 . 6H_2O$	0.248 g
	$NaB_4O_7 . 10H_2O$	0.177 g
	6N H_2SO_4	6 drops
	Distilled H_2O	1000 ml

Biphenyl Co-substrate

Biphenyl was used in these experiments solely to serve as a co-substrate (Aldrich Chemical Company, Milwaukee, WI). In addition to supporting cell growth by being the main source of carbon and energy, a co-substrate is a substance that allows microbes, that are already familiar with it, to generate enough of their naturally replicated genes and enzymes that could and will, inadvertently, also attack similar site specific areas of the targeted molecules (Somebody,). Such target molecules do not serve as the microbe's carbon or energy source. These target molecules are referred to as co-metabolites. Co-metabolism has been defined as the degradation of a compound that does not directly provide carbon or energy for microbial growth (Haider, 1999).

A stock solution of biphenyl was prepared at a concentration of 10^4 ppm in hexane. Hexane in this experiment is used as the solvent for the preparation of the co-substrate stock solution. Prior experiments have shown that hexane does not support cell growth and therefore is not used by the microorganisms as an extra carbon source (Kizito, 1996; Philpot, 1997). The biphenyl co-substrate stock solution was prepared by adding 200mg of biphenyl to 20ml of hexane in a scintillation vial to achieve a 10^4ppm concentration. The preparation was done within the confines of a sterile hood. 7.5 ml of the biphenyl stock solution was then added to a flask and brought up to 250 ml with K1 to achieve a mixture of essential nutrients with a co-substrate concentration of 300ppm. This level of biphenyl was chosen based on prior research demonstrating an optimum cosubstrate biphenyl concentration (Kizito, 1996).

4.4 Bioreactor Design and Schematic

4.4.1 Reactor Design

Reactor Components & Construction

The reactors are made from 'NALGENE®' polycarbonate desiccators (Model 5311-0250 (Nalge Nunc International, Rochester, NY) and modified so that the fluid contents can be pumped in from the top and out from the bottom of the vessel, providing for controlled circulation and perfusion of media. There are two tubes installed within each reactor, one for delivering and the other for draining the fluid constituents to and from the reactors. The tube in the top of the reactor is fed through the sampling port of the desiccator's lid. This tube is then hooked to the shaft of a motor mounted to the lid with a circulating tray at the end of the shaft, and this functions as the input distribution system. The distribution motor is conveniently mounted into a hollow space in the top of the lid that would normally be the handle of the lid; the motor is further secured with epoxy. The tube in the bottom of the reactor is fed through the lower sampling port of the desiccator and covered with fiberglass at the very end to prevent clogging by the sludge when the drainage pump is in operation. The tubing used in the drainage and distribution system is Teflon FEP tubing (Cole-Parmer Instrument Company, Vernon Hills, Illinois) having an internal diameter of 1/16 inch and a wall thickness of 1/32 inch. Viton Tubing inserts (Cole-Parmer) support the Teflon tubing at the points where the tubing lines the persistaltic pump cartridge (Cole-Parmer), as well as the portals to the reactors' walls for the feed and drainage systems.

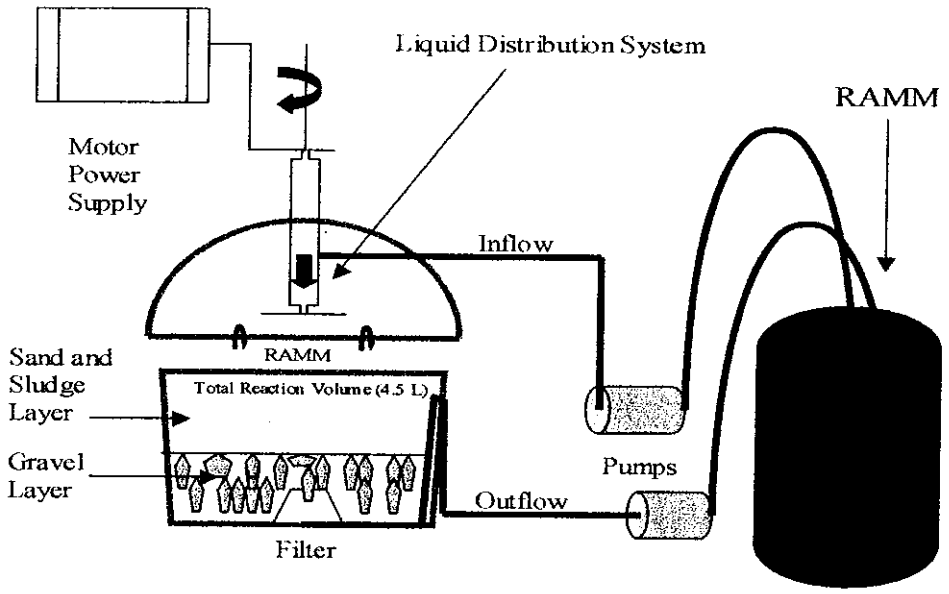


Figure 4.1 Schematic of Bioreactor and Experimental Set-up during anaerobic phase

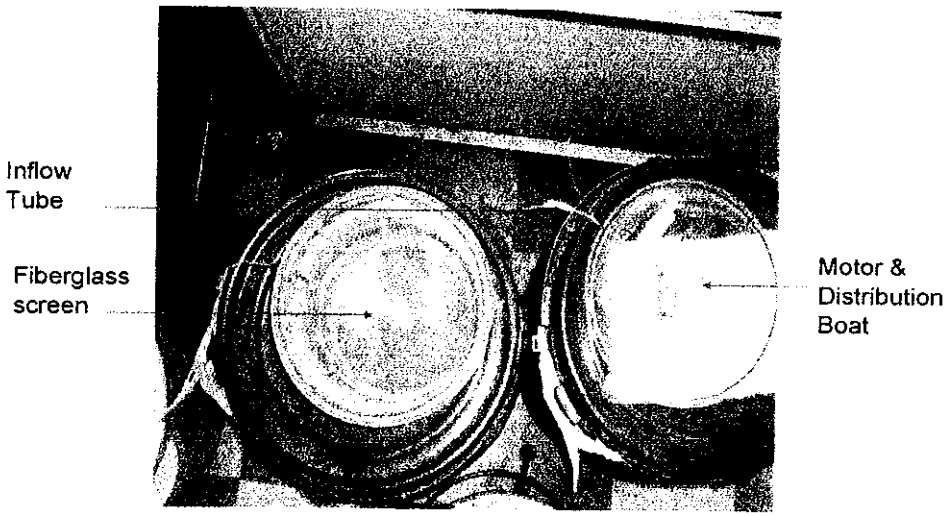


Figure 4.2 Photograph showing the inlet flow tube with mounted Motor and Distribution system and also the outlet tube covered with fiberglass

Reaction Volume Composition

The reaction volume in each bioreactor consists of a mixture of equal volumes of sand, and dried RSL sludge, layered over a bed of gravel. Each component occupies 1.5 L of reactor space, bringing the bulk total reaction bed volume to 4.5 L.

4.4.2 Reactor Operations

Anaerobic Operation

The anaerobic phase of the proposed process was the first phase of the bioreactor study. In this phase, anaerobic microbe-containing Hudson River sediments were added to the sludge-sand mixture in the bioreactors. Reduced Anaerobic Mineral Medium (RAMM) was then pumped into the reactors so that the top layer is covered by an inch of fluid. The medium is replenished every two weeks. A few days prior to replenishing the fluid, approximately 50 mL of the stagnant reactor fluid is drawn off into the fresh RAMM so that it could be seeded with the anaerobe. The entire bioreactor system was housed in a glove box that permitted control of the airspace composition. At the outset of the investigation, the anaerobic phase of the study was expected to proceed for four months. During this phase the reactors were monitored for Oxygen permeation, headspace CO_2 concentration, pH change and temperature change. Samples were also withdrawn at approximate monthly intervals from several bioreactor locations. At the conclusion of this phase of the investigation, the BTSRs were in the anaerobic phase for six months.

Aerobic Operation

The bioreactors were switched to aerobic condition after six months of operation. At the commencement of the aerobic phase, shutting off the N_2 flow to the glove-box and

opening the glovebox and reactor covers quickly reoxygenated the anaerobic conditions. Once the final anaerobic phase samples are withdrawn from the reactors, K1 mineral medium without the aerobic microbial inoculums was charged into the reactors. Fresh medium was supplied to the reactors for two months for observation of intrinsic degradation. After two months K1 mineral medium with the aerobic microbial inoculums was charged into the reactors. The aerobic phase was expected to proceed for one to two months. However, in this investigation, the aerobic phase was terminated with the BTSR study at the end of 5 months, of which only 2 months utilized the bioaugmentation of NY05. Similar to the anaerobic operation, when the fluid constituents are supplied to the reactors, the fluid is allowed to cover the sludge surface by one inch. Also, a few days prior to replenishing the reactors with K1 and biphenyl some of the reactor fluid is used to seed the new nutrient stock with NY05. This seeding retards the lag phase of microbial growth. Thus the setup is just as seen in figure 4.1 three days before changing the reactor fluids. At the time of fluid change in both aerobic and anaerobic phases the setup is exactly as seen in figure 4.3

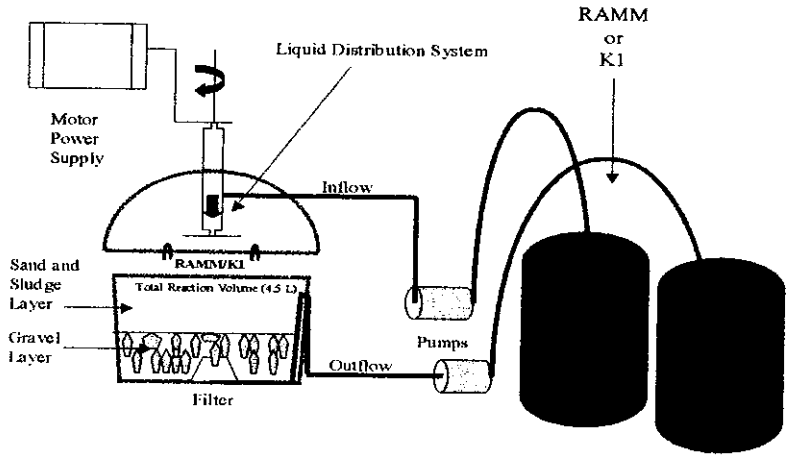


Figure 4.3 Schematic of Bioreactor and Experimental Set-up during fluid replacement

4.5 Experimental Setup

4.5.1 Glove Box Design

The glove box was constructed so that anaerobic conditions could be achieved for the first phase of the experiment to proceed. Figure 4.1 shows a general schematic of the experimental set-up that is required for conformity to the proposed experimental protocol. The glove box was constructed from two large transparent plastic bins (Home Depot, Washington, DC), two plastic drain covers (Home Depot) that were modified to serve as the structure where the gloves are clamped, large ring clamps (Home Depot), and a valve that only allows unidirectional flow (Swagelok, Solon, OH). The gloves for the glove box were obtained from Plas Labs, Inc. (Lansing, MI). When in operation the bins that seal the glove box are clamped together securely.

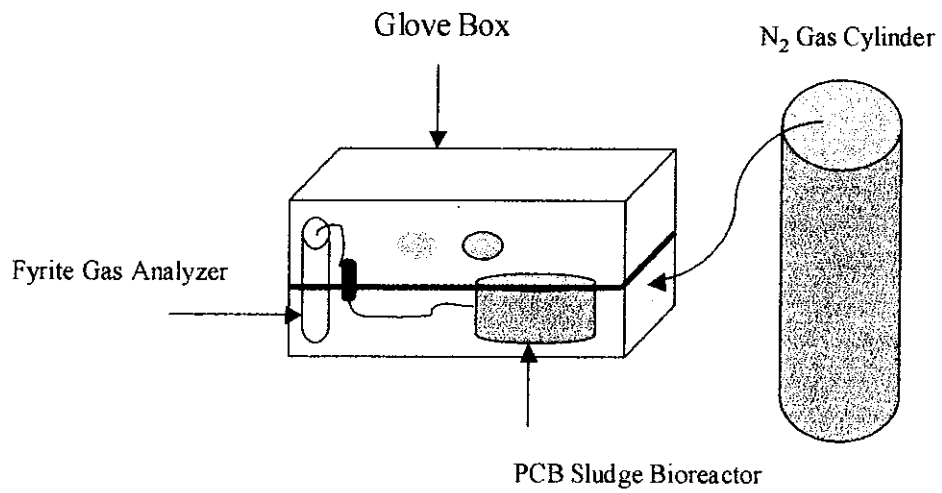


Figure 4.4 Schematic of glove box with Reactor and Gas Analyzer and N_2 Purge Cylinder

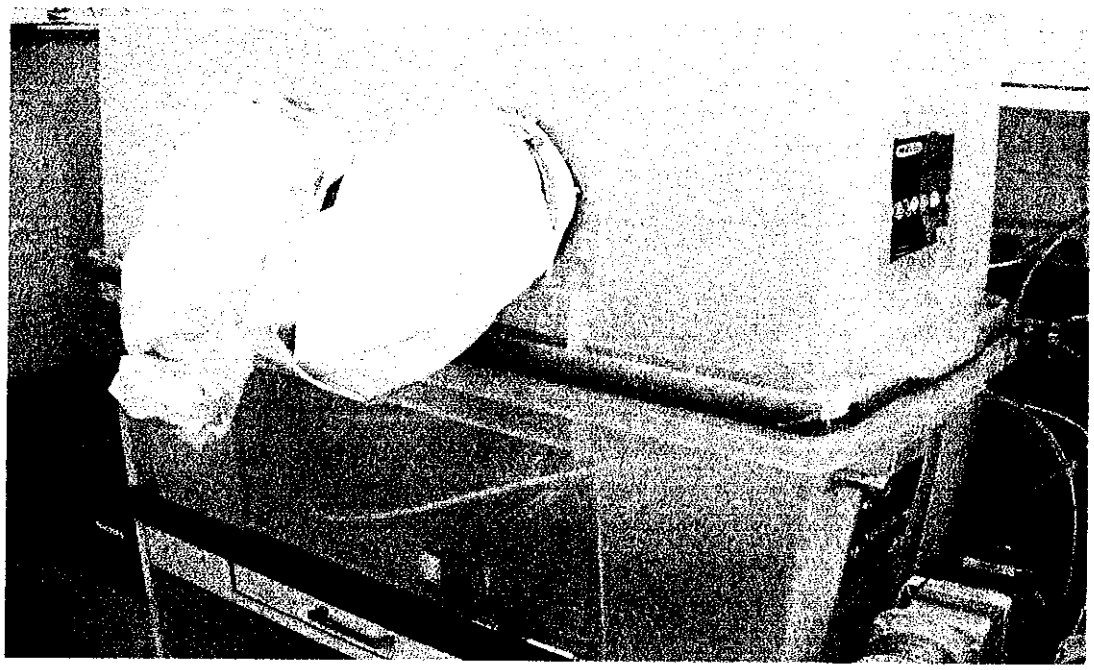


Figure 4.5 Photograph of the anaerobic/aerobic glove box used in this investigation

4.5.2 Glove Box Operation

Anaerobic Operation

During anaerobic operation the reactors are enclosed within the confines of the glove box. The box is then sealed with O_2 and CO_2 sensors enclosed. The sensor used in this investigation was the FYRITE® Gas Analyzer (Bacharach Inc., New Kensington, PA) with CO_2 and O_2 Indicators. The glove box is then purged with nitrogen gas before beginning to pump the Reduced Anaerobic Mineral Medium (RAMM) is pumped into the reactor. This marks the beginning of the anaerobic phase of the investigation. The duration of the purge time depends on the volume of the glove box and the input pressure of the nitrogen. In this experiment, our glove box only required 2 minutes of purge time at a N_2 pressure of 2 psig for anaerobic conditions to obtain.

Aerobic Operation

During aerobic operation, the reactors are allowed to operate without the glove-affixed lid seen in Figure 4.5 above. This phase begins immediately upon termination of the anaerobic phase. Termination of the anaerobic phase consists of draining the fluid content of the reactors and allowing 24 hours to pass so that all fluid can be pumped out and sampling done prior to pumping in Minimal Salt Medium (K1) and aerobic microbial inoculums. This would commence the aerobic phase of operation.

4.6 Experimental Procedures

The bioreactors were loaded with a mixture of sand and sludge layered over a gravel drainage bed. The sludge is prepared as described in the next section.

4.6.1 Sludge Preparation

Drying

The Ralston Street Lagoon Sludge is removed from its shipping container and placed on top of sheets of foil within a fume hood and allowed to air dry. The sludge was approximately 70-90% (70% for the Mid-West sample and 87.02% for the South-West sample) water by weight. Once the sludge is completely dry, it is removed from the fume hood and crushed until it is powdered and all debris (such as cigarette butts, twigs, and pebbles) is removed. The dried sludge is now ready to be loaded into the bioreactor, but it is first mixed with an equal volume of sand.

Mixing with Sand

1.5L of dried, powdered sludge is combined with 1.5L sand prior to loading the reactor. The sand was added in order to increase the permeability of the bioreactor bed

and to facilitate distribution and percolation of media through the bioreactor bed. The sand enables this matrix to have better hydrodynamics, since porosity is now increased.

4.6.2 Bioreactor Configuration

First a layer of gravel approximately 1½ inch (approximately 1.5L) thick was placed at the bottom of the bioreactor to facilitate drainage and prevent blockage of anaerobic or aerobic media circulation. The 3L Soil/Sand Mix was poured onto the gravel layer and spread evenly with a spatula. 200 ml of Hudson River anaerobic sediment was then added to the surface, all while under positive pressure of nitrogen gas. The sediment was tilled into the top layer as evenly as possible. This was extremely difficult, due to the clay and sludge-like nature of the anaerobic sediment, as well as the dry powdery state of the sludge/sand mix at that time. It is similar to adding beaten eggs to flour when one is preparing batter. There is no semblance of homogeneity in the batter prior to adding the major portions of fluids.

While still under nitrogen influence, RAMM is pumped into the bioreactors and allowed to equilibrate for 24hrs. Some of the RAMM is then drawn off, by pumping it

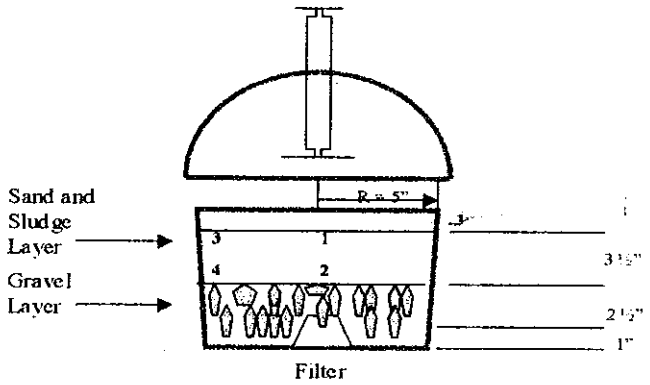


Figure 4.6 Schematic showing bioreactor dimensions and sampling points 1-4.

out, so that initial point data sampling can be done, after which it is replaced, by pumping in a fresh supply. The samples were removed and analyzed according to the Gary Sanitary District's Quality Assurance Procedures and Protocols.

4.7 Extracting and Preparing Samples: Standard Operating Procedure for the Determination of PCB's As Aroclors For Gary Sanitary District

4.7.1 Sample Collection Preservation and Handling:

Sample Extraction

Samples are extracted within 10 days of sample receipt or 14 days of collection. Extracts are stored in the refrigerator at 4°C (±2°C) and analyzed within 30 days of extraction

Sample Storage

The samples are protected from light and refrigerated at 4°C (±2°C). Samples were maintained until a complete reconciled data set was obtained from the analysis. Samples were then disposed of in a manner that complies with all applicable regulations. The samples are stored in a contamination free environment.

Sample Extract Storage

Sample extracts are protected from light and stored at 4°C (±2°C). Sample extracts are stored in a contamination free environment. Samples, sample extracts, and sample standards are stored separately.

4.7.2 Standards and Spiking Solutions preparations:

Stock Standard Solutions

Certified standards are obtained and stock standards are diluted directly from the concentrates. The surrogate used is tetrachloro-m-xylene (Supelco, Bellefonte, PA) and it is added to all standards, samples, and blank. Stock standard solutions are kept in the refrigerator at 4°C (±2°C) and changed every 3 months.

Calibration Standards

Solutions of calibration standards are prepared for each Aroclor at 5 concentration levels. Calibration standards are made every three months. In this experiment, Aroclor 1248 (ULTRA Scientific, N. Kingstown, RI) was used for quantitation and calibration.

Spiking solutions

The surrogate used is tetrachloro-m-xylene and is added to all standards, samples, matrix spikes, and blanks. A surrogate spiking solution of 2μg/mL, if the compound is in acetone, is prepared with tetrachloro-m-xylene. The spiking solution is equilibrated to room temperature before use.

Aroclor Laboratory Control and Matrix Spiking Solution

A solution containing Aroclors 1016 and 1260 is prepared in acetone in the concentrations specified below:

AR 1016.....6μ g/mL

AR 1260.....12μg/mL

All standard Solutions are stored in Amber glass bottles with Teflon-lined screw caps at 4°C (±2°C) and protected from light.

4.7.3 Sample Extraction protocol for GC analysis

Determine the sample type whether solid sample (samples which have >0.5% solids) or water sample (samples which have <0.5% solids). Table 4.3 shows the quantitation limits for the main sample types and Aroclor for the analytical procedures employed.

Table 4.3 Quantitation limits

Analyte	Water Sample	Solid Sample
Aroclor 1242	0.1ppm	0.1ppm
Aroclor 1248	0.1ppm	0.1ppm
Aroclor 1254	0.1ppm	0.1ppm
Aroclor 1260	0.2ppm	0.2ppm

4.7.4 Sample Preparation / Extraction Procedure

Solid samples are extracted by the Soxhlet Extraction method. Water samples are extracted by separatory Funnel extraction method.

Solid Sample Extraction

Sampling

Samples were removed from the bioreactors throughout the course of the investigation. During the anaerobic phase, which lasted six months, samples were removed on a monthly basis. All sampling was done under anaerobic condition in the glove box. A 20-gram weight of sludge was measured and air-dried in a laboratory fume hood at room temperature until a constant weight was attained. The moisture percent was then determined prior to submitting the sample for extraction and analysis.

Surrogate Spiking

One gram of air-dried sludge sample was weighed and placed into a cellulose extraction thimble (Whatman International Ltd., Maidstone, England) obtained through Fisher Scientific. 2 ml of surrogate was added to each sample for Quality Control (QC) and 1ml of matrix spike solution was also added to the sample.

Soxhlet Extraction

Soxhlet Extraction Apparatus

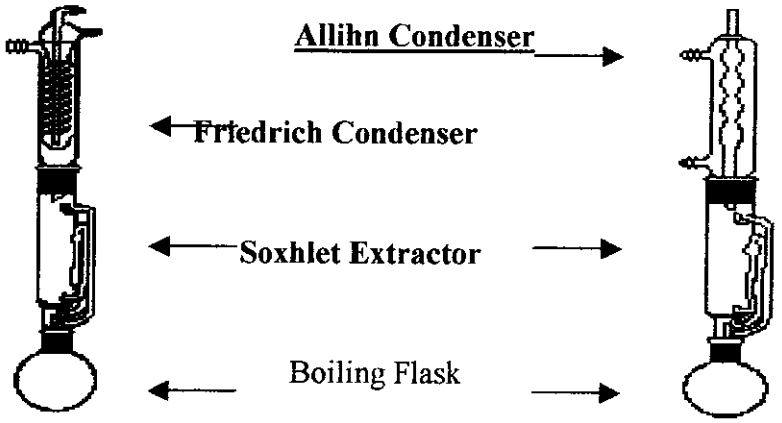


Figure 4.7 Soxhlet Extractors with both Frierich and Allihn Condensers

The samples are soxhlet extracted in methylene chloride for 18 hours. All soxhlet extraction apparati are set up in laboratory fume hoods. The cellulose thimble is placed into the soxhlet apparatus where it experiences continuous solvent washing for the duration of the extraction process. All of the yielded extract will be present in the boiling flask at the end of the extraction process. Boileezer chips may be added to the boiling flask prior to the extraction run.

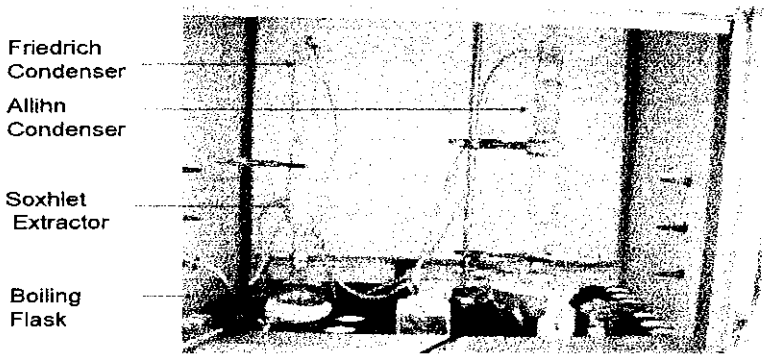


Figure 4.8 Photograph of Soxhlet Apparatus Setup in a Laboratory Fume Hood with extraction in progress

Extract Concentration

The extract was then placed in a Kuderna-Danish Concentrator and concentrated to about 2 ml.

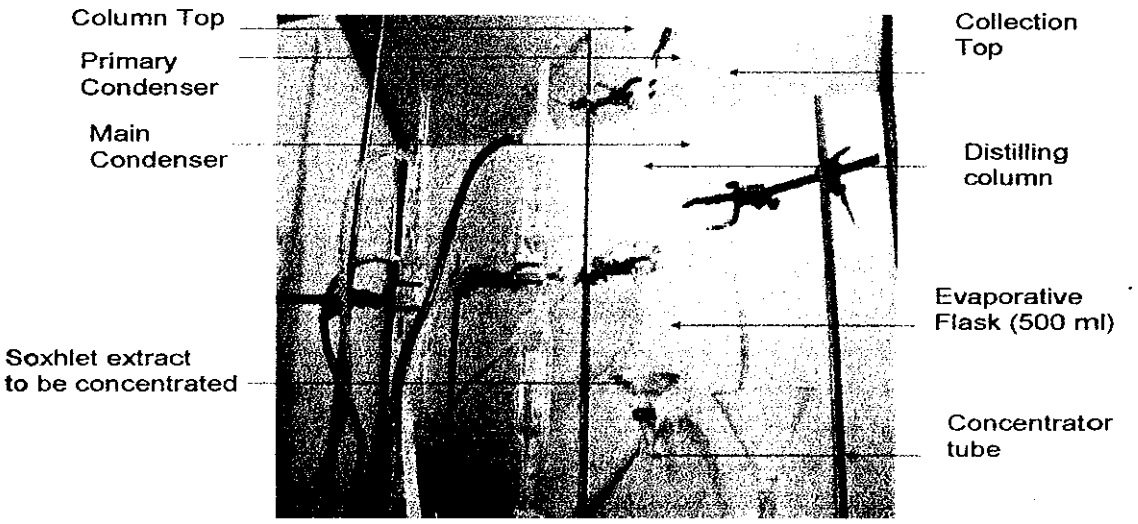


Figure 4.9 Kuderna Danish Evaporative Concentrator Setup with Soxhlet Extract in a Laboratory Fume Hood

Solvent Exchange

This extract was then exchanged to hexane by placing the 2ml of the extract into a 20ml scintillation vial and adding 15ml of hexane. The extract is nitrogen blown down to 2ml. This procedure is repeated by adding 15ml of hexane to 2ml and nitrogen blown down to 2ml. The extract is then brought to a 10 ml final volume by adding hexane.

Acid Wash

The final 10ml extract is then cleaned with a 1:1 sulfuric acid/water solution for several minutes. The phases are allowed to separate and the hexane layer (top layer) is removed. If the hexane layer is colored or has visible emulsion or cloudiness, the procedure is repeated until no color or cloudiness remains in the extract. The hexane layer is then drawn off.

Crimped samples for GC analysis

The cleaned extract is then submitted to the Gas Chromatography (GC) laboratory in a crimped-top 2-ml amber vial (Fisher Scientific, Pittsburgh, PA). A method blank is taken through this procedure to ensure that no contamination has been introduced.

4.8 Sample Analysis

All sample final extracts were analyzed using a HP 5890 Series II gas chromatography system (Hewlett-Packard Company, Avondale, PA) with detection by electron capture (ECD). The column in the GC was a 0.32 mm i.d., 30 m fused silica column with a 0.5μm film.

Gas Chromatography With Electron Capture Detector

Operations

The detector is set so that the oven temperature is isothermal at 230°C for every injected sample. The carrier gas is a mixture of Argon and Methane (5%) ECD-grade and the make-up gas is ultra-pure Nitrogen. The regulators on both the carrier and make-up gas cylinders are set to 40 psi. The injection amount is 0.2μl and the run-time is one hour. Each sample is injected at least three times so that average and standard deviation statistical parameters can be determined.

Calibration Curve of Aroclor 1248 and sample calculations are provided in appendix A.

CHAPTER 5. RESULTS AND DISCUSSION

Prior to the commencement of this experiment, an assessment of the hazardous waste-containing sludge was done to evaluate the extent of contamination, and the ability to proceed and adhere to the outlined protocol for a successful investigation. Our assessment of the sludge was in close agreement with the investigation performed by Fluor Daniel GTI, Inc. The extent of contamination with PCBs reported as Aroclor 1248 from the RSL Pier 2 samples, done in the Biochemical Engineering Lab at Howard University, were determined to be 912$\pm$108-ppm and 263$\pm$18-ppm for the Mid-West and South-West samples respectively, which also contained percent solids of 30 and 13 respectively.

5.1 Anaerobic Phase Results-Reactor Biotransformation and PCB Reduction

In this experiment there were several objectives that we wanted to achieve. The problem as previously mentioned is to address the issue of detoxifying a PCB-contaminated lagoon. Now, one of the objectives was to mimic the scenario of the lagoon so that the planned solution or approach to remedy the problem can be as realistic and practical as possible. Being a bench-top experiment and a precursor to a pilot scale and full-scale study, all the desired maneuverings of the bioreactors are not practically reproducible in the field in the exact same way. Therefore, some things were done and/or not done because field application would be difficult or very costly. For example, during the aerobic phase reactions the bioreactors were simply left open to air rather than becoming activated with air or oxygen being pumped in. The potential advantage here is that something that is difficult to do in the field was not done in the lab so that the results

are not overachieved or misleading with respect to field application expectations. The disadvantage is there is no way to know what the true capacity of microbial detoxification power is in this situation, if it is at all possible to aerate the lagoon in such a way that resembles, for example, the activated sludge process in wastewater treatment. BOD becomes an issue whenever air or oxygen is not fed into the bioreactors. Whenever aerobes run out of oxygen they stop metabolizing and eventually perish. A fresh supply of microbes and co-substrate material must be introduced into the system periodically to further degrade the targeted substrates. The overall reaction process must therefore operate as a semi-batch instead of being continuous and presumably more efficient in the case of the bench-top bioreactors. Air sparging within the bioreactors would undoubtedly sustain the life of the microbes during the exponential growth phase while they fixate on the PCBs and increase both the biotransformation and biomass generation rates. Another benefit of air sparging could have been a onetime aerobe inoculation instead of having to re-inoculate the reactors as is necessary in the semi-batch process. Besides the increase in biomass, there is the cogeneration of waste products to be considered as well; so the semi-batch process that includes draining the reactors is necessary in guaranteeing a fresh waste free environment for microbes to metabolize the organics more efficiently.

5.1.1 Initial Samples

Before the initial samples were analyzed, calibration curves were generated so that proper quantification analysis could be performed. As described in previous chapters, Aroclor 1248 standards were used to generate the calibration curves since the profiles of this standard was very similar to the profiles of the GSD sludge samples. Figures 5.1a-c shows a complete list of PCB congeners present in the Aroclor 1248 standards used and

was determined by mass spectroscopy. There were twenty-eight PCB congeners found in the Aroclor 1248 standard of which most of them were not found in any of the GSD sludge samples. PCB congeners that were present in the standards, the bioreactor samples, and bioreactor controls are listed in Tables' 5.1a-c; congeners found in the reactors and controls, but not the standards, are also listed in these tables.

Table 5.1a PCB Congeners Found in Aroclor 1248, Mid-West PCB Sludge Bioreactors and Reactor Controls

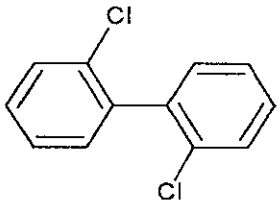
PCB Congener	Aroclor 1248	Mid-West Sludge Bioreactor (Initial)	Mid-West Sludge Bioreactor (12/4/03)	Mid-West Sludge Bioreactor (5/28/04)	Negative Control for MW Sludge Bioreactor (Initial)	Negative Control for MW Sludge Bioreactor (12/4/03)	Negative Control for MW Sludge Bioreactor (5/28/04)
1,1'-biphenyl		X			X	X	X
3-chloro-1,1'-biphenyl							X
4-chloro-1,1'-biphenyl			X		X	X	X
2,2'-dichloro-1,1'-biphenyl	X	X	X	X	X	X	X
2,3-dichloro-1,1'-biphenyl	X						
4,4'-dichloro-1,1'-biphenyl	X	X	X	X	X	X	X
2,2',5-trichloro-1,1'-biphenyl	X		X			X	X
2,3,3'-trichloro-1,1'-biphenyl	X						

Table 5.1b PCB Congeners Found in Aroclor 1248, Mid-West PCB Sludge Bioreactors and Reactor Controls

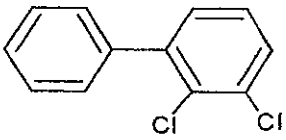
PCB Congener	Aroclor 1248	Mid-West Sludge Bioreactor (Initial)	Mid-West Sludge Bioreactor (12/4/03)	Mid-West Sludge Bioreactor (5/28/04)	Negative Control for MW Sludge Bioreactor (Initial)	Negative Control for MW Sludge Bioreactor (12/4/03)	Negative Control for MW Sludge Bioreactor (5/28/04)
2,3,6-trichloro-1,1'-biphenyl						X	
2,4,4'-trichloro-1,1'-biphenyl	X	X	X	X	X	X	X
2,4',5-trichloro-1,1'-biphenyl	X						
2,2',3,3'-tetrachloro-1,1'-biphenyl	X						
2,2',4,4'-tetrachloro-1,1'-biphenyl	X						
2,2',4,6-tetrachloro-1,1'-biphenyl		X			X	X	X
2,2',5,5'-tetrachloro-1,1'-biphenyl	X			X			

Table 5.1c PCB Congeners Found in Aroclor 1248, Mid-West PCB Sludge Bioreactors and Reactor Controls

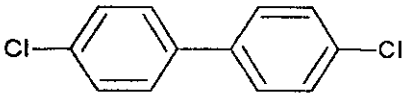
PCB Congener	Aroclor 1248	Mid-West Sludge Bioreactor (Initial)	Mid-West Sludge Bioreactor (12/4/03)	Mid-West Sludge Bioreactor (5/28/04)	Negative Control for MW Sludge Bioreactor (Initial)	Negative Control for MW Sludge Bioreactor (12/4/03)	Negative Control for MW Sludge Bioreactor (5/28/04)
2,2',5,6'-tetrachloro-1,1'-biphenyl		X	X	X	X	X	X
2,3',4,4'-tetrachloro-1,1'-biphenyl	X						
2,3,4,5-tetrachloro-1,1'-biphenyl	X	X			X		
2,3',4',5-tetrachloro-1,1'-biphenyl	X	X	X		X		X
2,3',5,5'-tetrachloro-1,1'-biphenyl	X	X	X	X	X	X	X
3,3',4,4'-tetrachloro-1,1'-biphenyl	X						



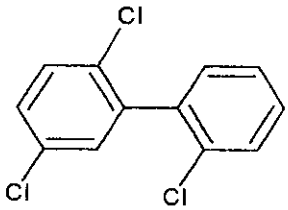
2,2'-dichloro-1,1'-biphenyl



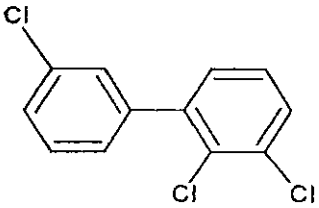
2,3-dichloro-1,1'-biphenyl



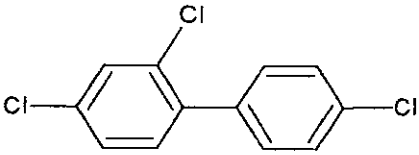
4,4'-dichloro-1,1'-biphenyl



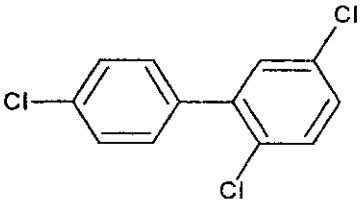
2,2',5-trichloro-1,1'-biphenyl



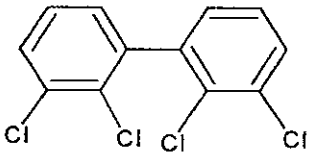
2,3,3'-trichloro-1,1'-biphenyl



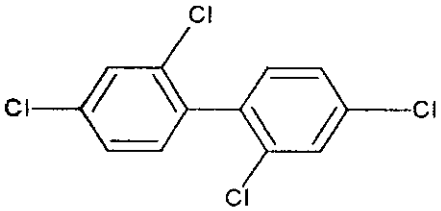
2,4,4'-trichloro-1,1'-biphenyl



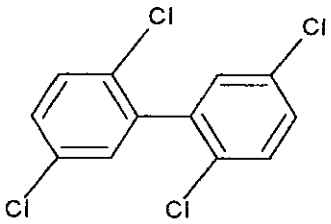
2,4',5-trichloro-1,1'-biphenyl



2,2',3,3'-tetrachloro-1,1'-biphenyl

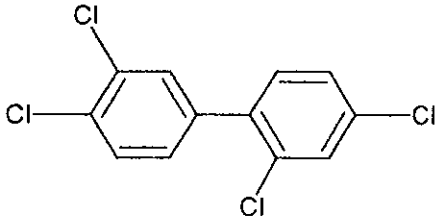


2,2',4,4'-tetrachloro-1,1'-biphenyl

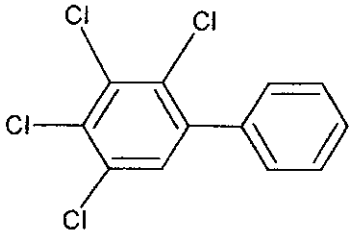


2,2',5,5'-tetrachloro-1,1'-biphenyl

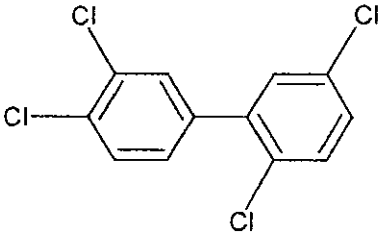
Figure 5.1a PCB Congeners Found in Aroclor 1248



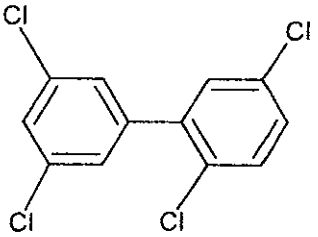
2,3',4,4'-tetrachloro-1,1'-biphenyl



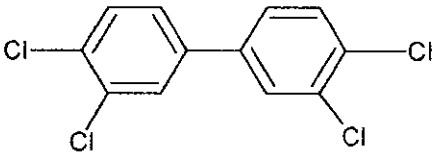
2,3,4,5-tetrachloro-1,1'-biphenyl



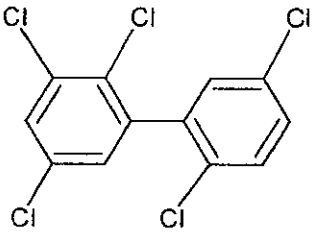
2,3',4',5-tetrachloro-1,1'-biphenyl



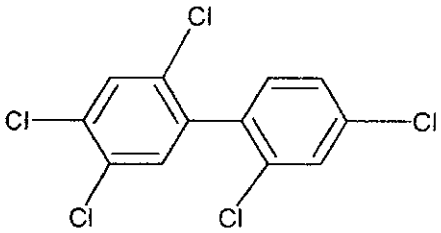
2,3',5,5'-tetrachloro-1,1'-biphenyl



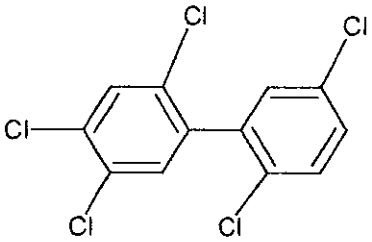
3,3',4,4'-tetrachloro-1,1'-biphenyl



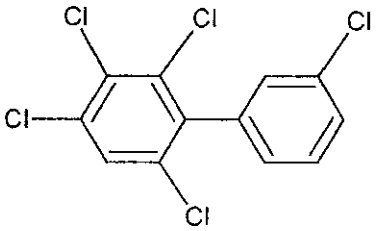
2,2',3,5,5'-pentachloro-1,1'-biphenyl



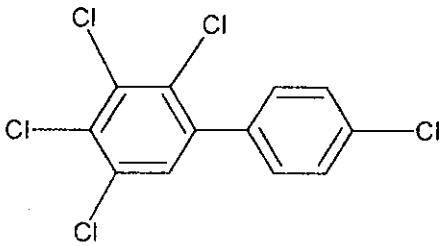
2,2',4,4',5-pentachloro-1,1'-biphenyl



2,2',4,5,5'-pentachloro-1,1'-biphenyl

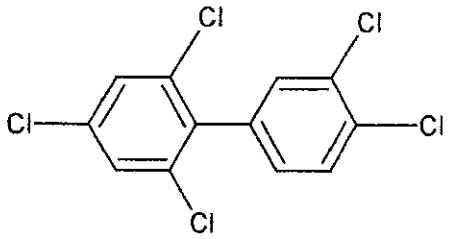


2,3,3',4,6-pentachloro-1,1'-biphenyl

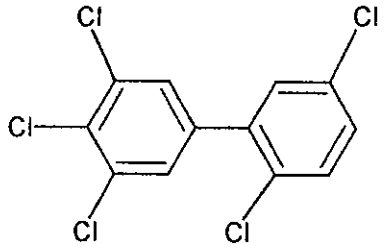


2,3,4,4',5-pentachloro-1,1'-biphenyl

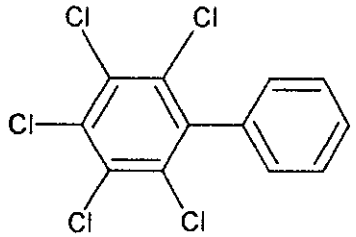
Figure 5.1b PCB Congeners Found in Aroclor 1248



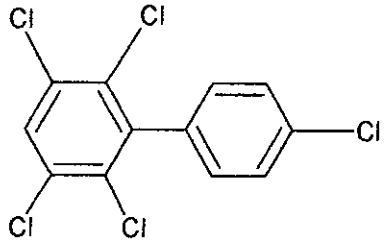
2,3',4,4',6-pentachloro-1,1'-biphenyl



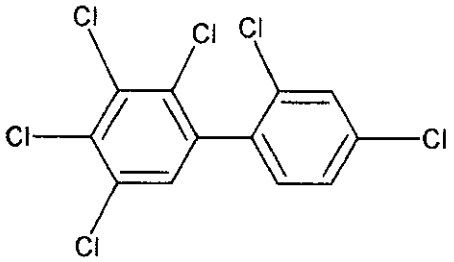
2,3',4',5,5'-pentachloro-1,1'-biphenyl



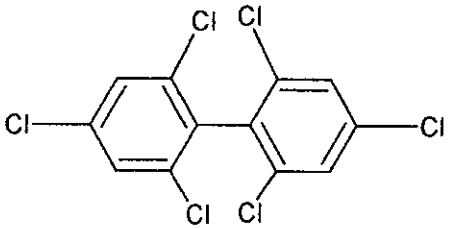
2,3,4,5,6-pentachloro-1,1'-biphenyl



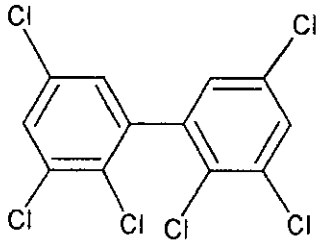
2,3,4',5,6-pentachloro-1,1'-biphenyl



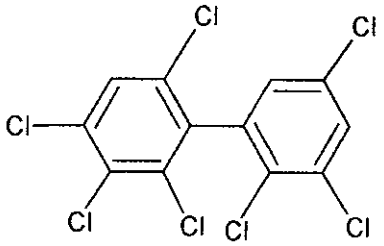
2,2',3,4,4',5-hexachloro-1,1'-biphenyl



2,2',4,4',6,6'-hexachloro-1,1'-biphenyl



2,2',3,3',5,5'-hexachloro-1,1'-biphenyl



2,2',3,3',4,5',6-heptachloro-1,1'-biphenyl

Figure 5.1c PCB Congeners Found in Aroclor 1248

Chromatograms

The chromatograms serve a dual purpose in this investigation. Firstly, the chromatograms serve as a means of quantifying the samples as total Aroclor 1248. For quantification, computations are done from the ECD chromatograms, where area counts are generated from the area under the peaks that are identified with a retention time. Secondly, mass spectroscopy is used to generate chromatograms that can be used to identify the exact compounds that are present in the samples. Both sets of chromatograms are necessary in this investigation. The ECD chromatograms only reflect the detected organic compounds that are chlorinated, while mass spectroscopy reflects all compounds that are detected in each sample.

ECD Chromatograms

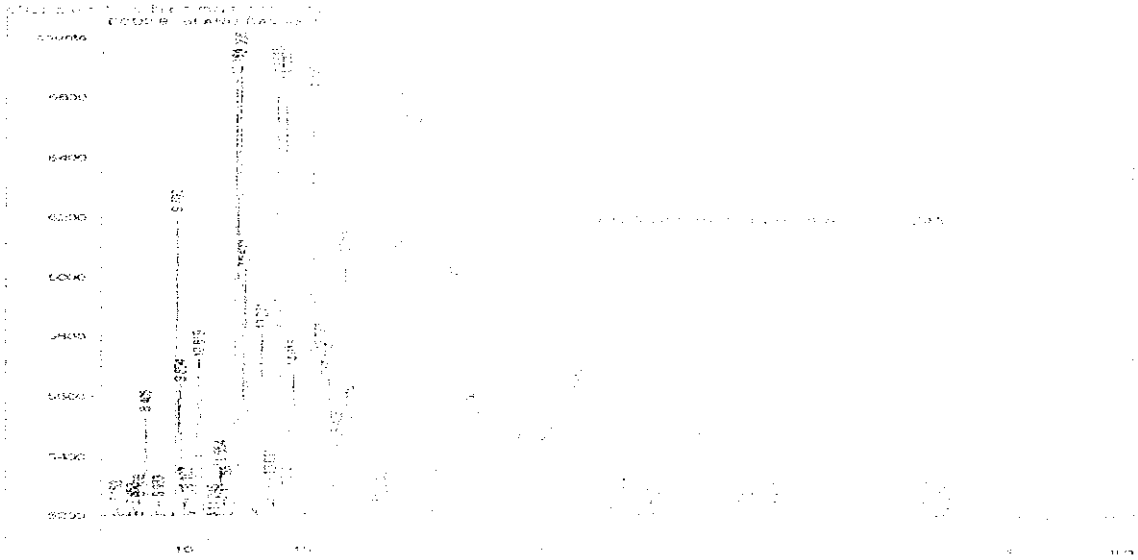


Figure 5.2 ECD Chromatogram Aroclor 1248

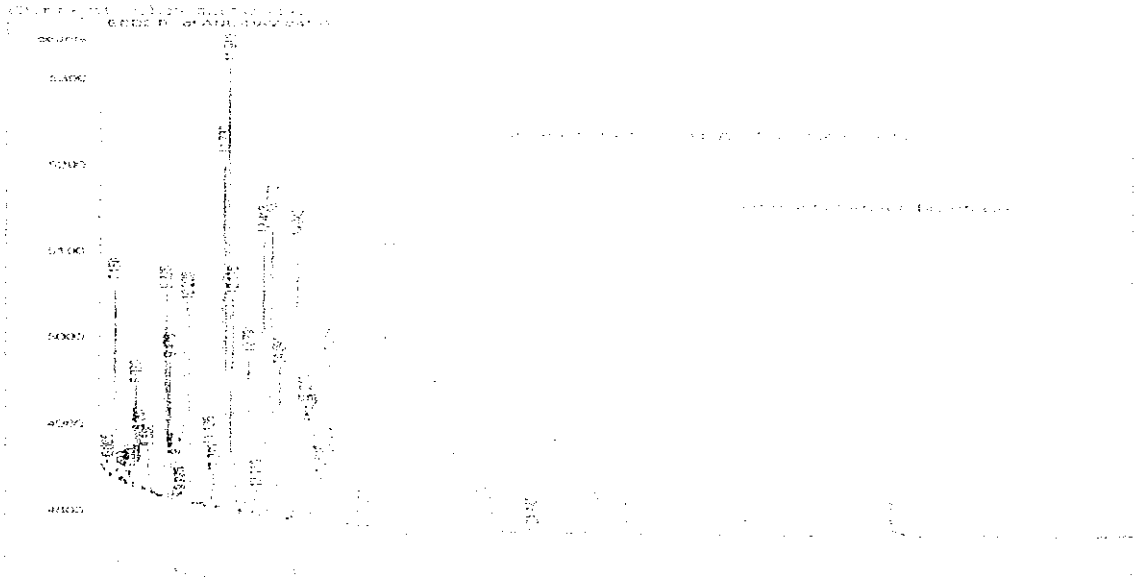


Figure 5.3 ECD Chromatogram of Initial Anaerobic Sample from Mid-West Bioreactor

Mass Spectroscopy Chromatograms

Figure 5.4 Mass Spectroscopy Chromatogram of Aroclor 1248

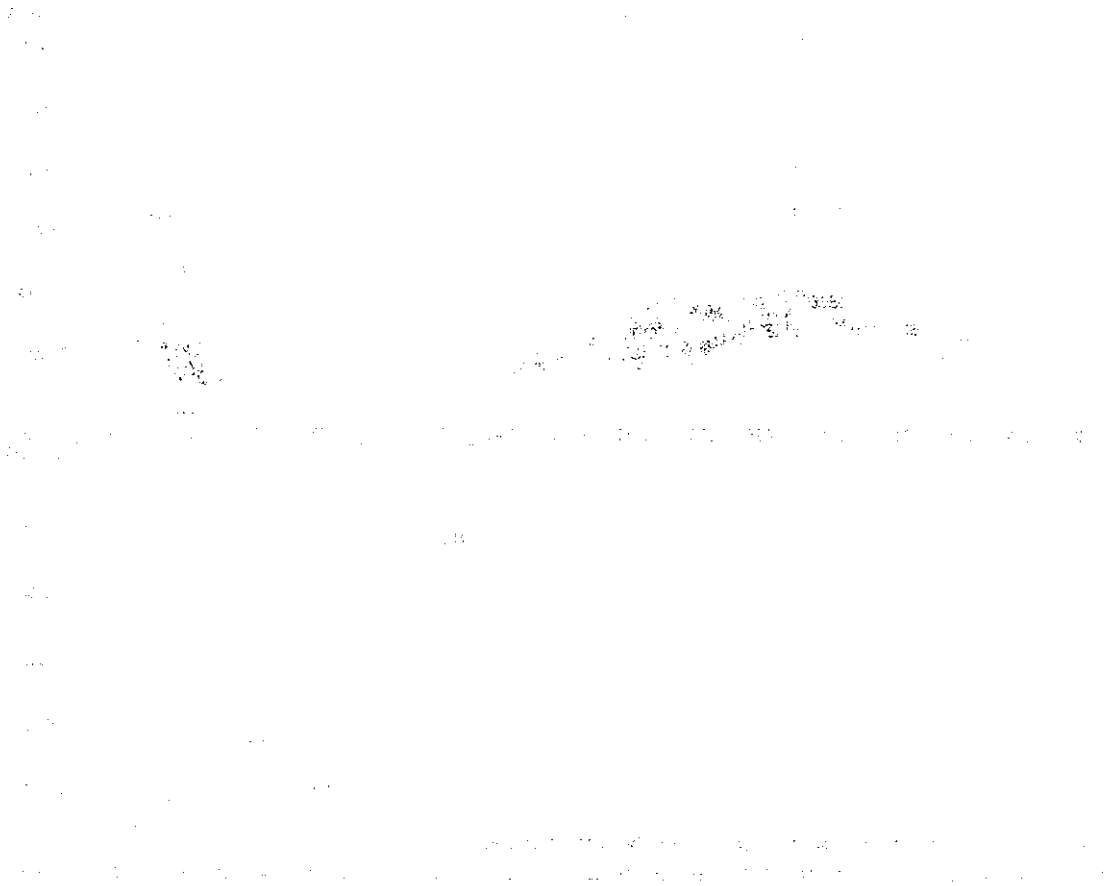
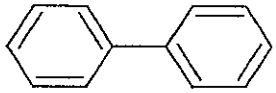


Figure 5.5 Mass Spectroscopy Chromatogram of Initial Anaerobic Sample from Mid-West Bioreactor

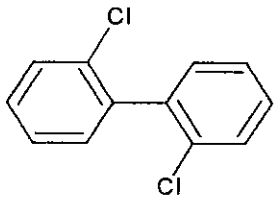
Notice that the bunch of peaks visible in the upper left corner of the figure above isn't visible in Figure 5.4. These are various molecules of polycyclic aromatic hydrocarbons that are not present in the Aroclor standard. However, the ECD chromatograms of Figures 5.2 and 5.3 show peaks with similar retention times indicating that some of the same chlorinated organics are present in both.

Congener Analysis

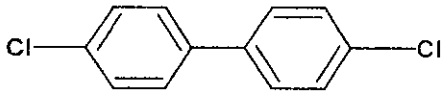
Identifiable Congeners Present



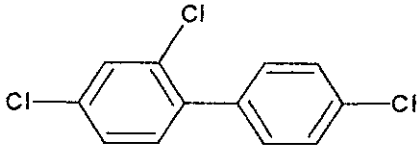
1,1'-biphenyl



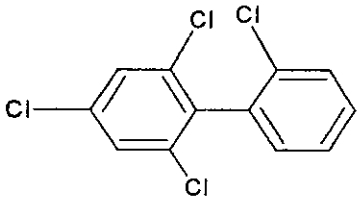
2,2'-dichloro-1,1'-biphenyl



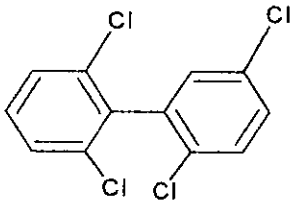
4,4'-dichloro-1,1'-biphenyl



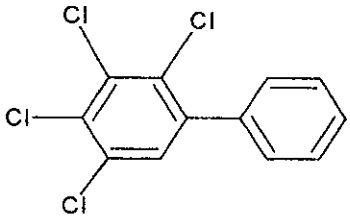
2,4,4'-trichloro-1,1'-biphenyl



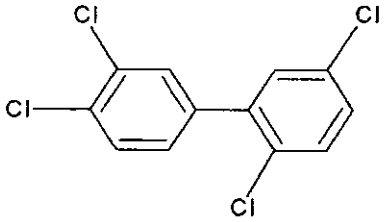
2,2',4,6-tetrachloro-1,1'-biphenyl



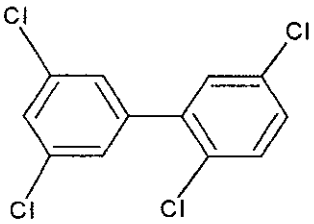
2,2',5,6'-tetrachloro-1,1'-biphenyl



2,3,4,5-tetrachloro-1,1'-biphenyl



2,3',4',5-tetrachloro-1,1'-biphenyl



2,3',5,5'-tetrachloro-1,1'-biphenyl

Figure 5.6 Mid-West Sludge Bioreactor Initial (Anaerobic) PCB Congeners

5.1.2 Final Samples (End of Anaerobic Phase)

Chromatograms

ECD Chromatogram

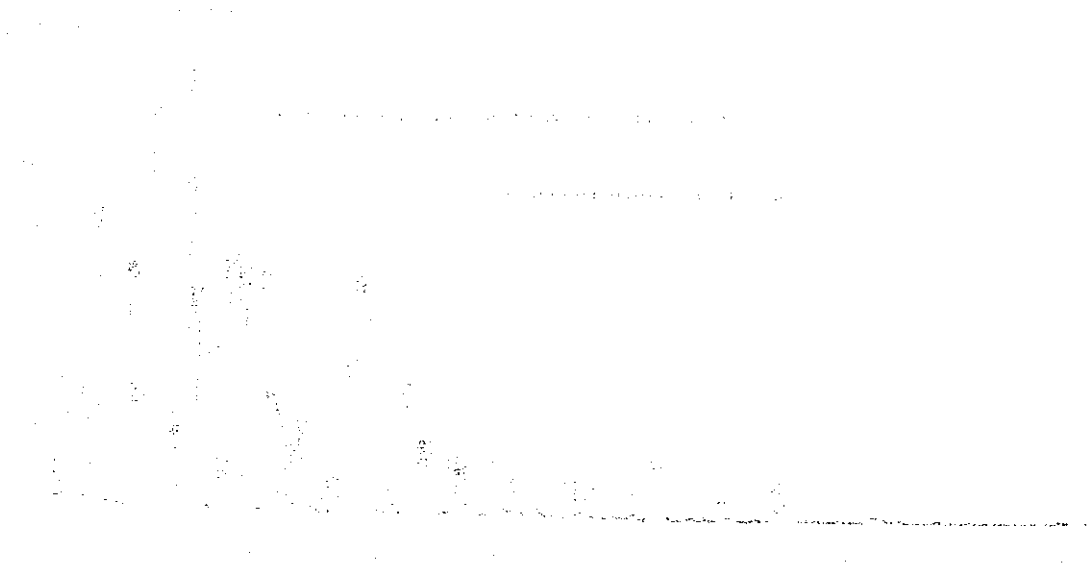


Figure 5.7 ECD Chromatogram of the End Point of the Anaerobic Phase in the Mid-West Bioreactor

As anticipated and seen in Figure 5.7, there is a huge increase in the peaks on the left side of the graph. This occurrence is consistent with anaerobic reductive dechlorination of higher chlorinated PCB congeners. The facts aren't necessarily suggesting that the increased peaks are lower congeners experiencing an increase in their production, but it is certainly suggesting the formation or evolution of lower molecular weight chlorinated organic species of which some are PCBs. This chromatogram should be compared with Figure 5.3, which shows the chromatogram of the same sample in the very beginning of the investigation. As you can see the peaks in the left corner of Fig 5.3 aren't proportionally as large as the ones seen in Figure 5.7.

Mass Spectroscopy Chromatogram

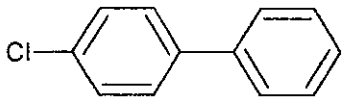
Figure 5.8 Mass Spectroscopy Chromatogram of the Final Anaerobic Sample from the Mid-West Bioreactor.

Figure 5.8 shows an aggregation of peaks in the left corner of the graph that was also present in Figure 5.5. These compounds persisted throughout the anaerobic phase of the investigation, but appear to be relatively larger than the peaks seen on the right side of the graph where the opposite was true for Figure 5.5. This occurrence is consistent with the comparison of the ECD chromatograms of the same samples that suggests relative reduction of higher chlorinated congeners to increase in lower congeners and other lower molecular weight chlorinated organics. The peak that showed the most relative increase

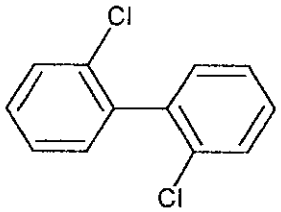
in the mass spectroscopy evaluation was 2,2'-dichloro-1,1'-biphenyl, which can be seen in the MS chromatograms at the retention time of 24.68 minutes. The quantity increase in this congener may have had contributions from the reductive dechlorination of 2,2',4,6-tetrachloro-1,1'-biphenyl which completely disappeared from the bioreactor.

Congener Analysis

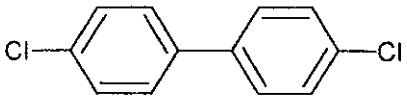
Identifiable Congeners Present



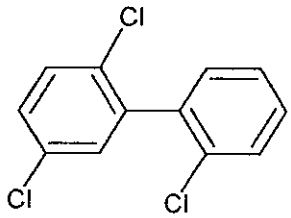
4-chloro-1,1'-biphenyl



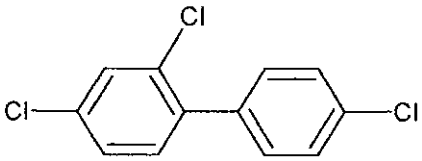
2,2'-dichloro-1,1'-biphenyl



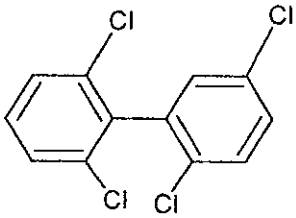
4,4'-dichloro-1,1'-biphenyl



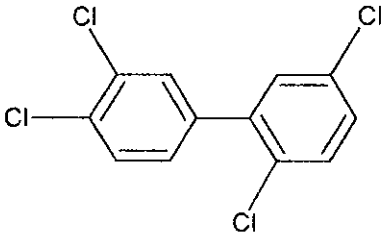
2,2',5-trichloro-1,1'-biphenyl



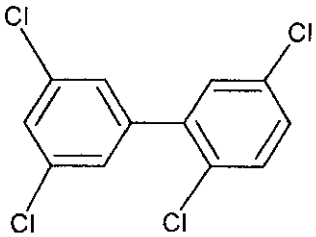
2,4,4'-trichloro-1,1'-biphenyl



2,2',5,6'-tetrachloro-1,1'-biphenyl



2,3',4',5-tetrachloro-1,1'-biphenyl



2,3',5,5'-tetrachloro-1,1'-biphenyl

Figure 5.9 Mid-West Sludge Bioreactor Phase Intermediate PCB Congeners

Congeners With Transformation Activity

Thorough inspection of Tables 5.1a-c, the ECD chromatograms and the mass spectroscopy chromatograms show that some of the PCB congeners present in the initial analysis have disappeared from the reactor or experienced some reduction while other congeners have been produced or shown some level of increase at the end of the anaerobic phase. For example, 2,2',4,6-tetrachloro-1,1'-biphenyl was present in both the initial bioreactor sample and the bioreactor control, but disappeared from the bioreactor and persisted in the control through the duration of the investigation. Also, 2,2',5-trichloro-1,1'-biphenyl, which was not present in the neither the bioreactor nor the control, was formed during the anaerobic phase in both, but, however, was only removed from the bioreactor during the aerobic cycling.

5.2 Aerobic Phase Results

Chromatograms

ECD Chromatogram

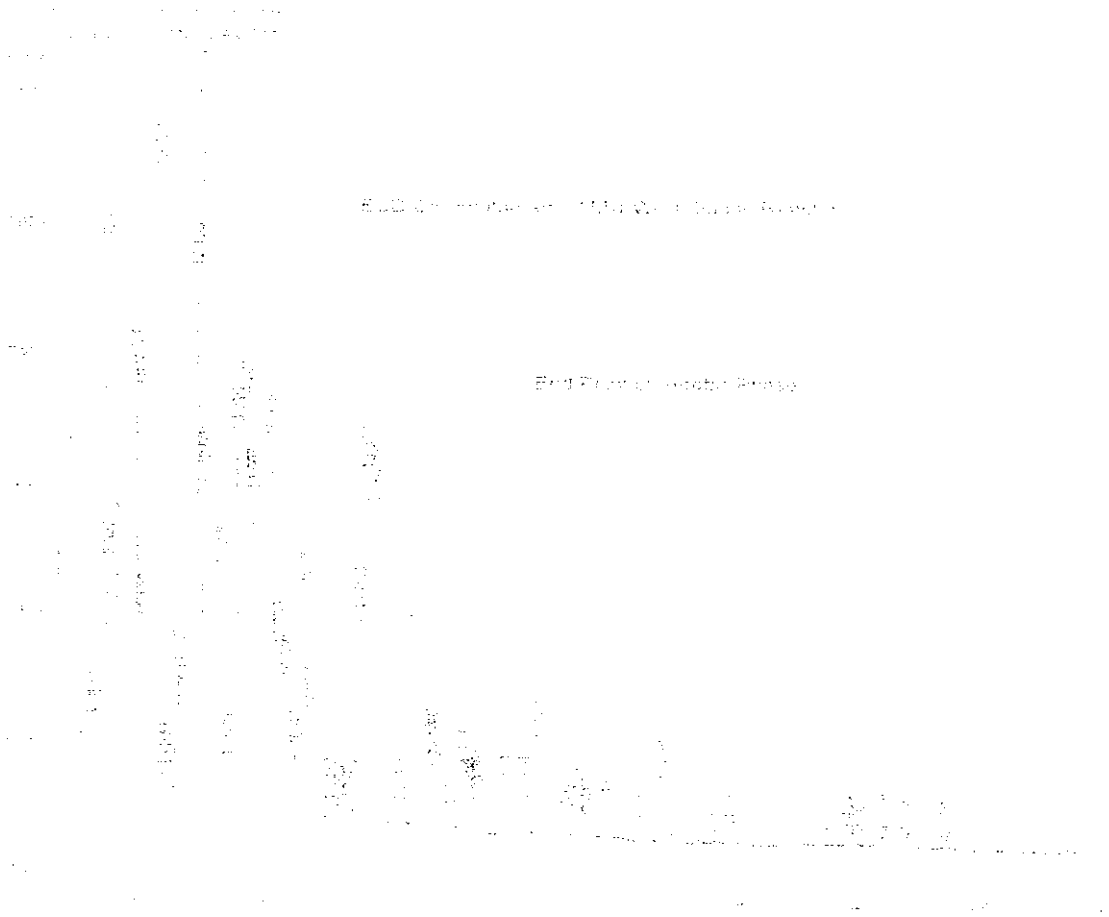


Figure 5.10 End Point ECD Chromatogram of Aerobic Phase for the Mid-West Bioreactor

When this is compared to the Figure 5.7 it tells the other half of the cyclic process' story. At the end of the anaerobic phase a lot of low molecular weight chlorinated organics were generated. Now those organics themselves are reduced or completely exhausted from the system. The peaks in left corner of the graph are no longer relatively higher than the other peaks in the sample. Similarly, in the beginning of the chapter in Table 5.1, careful inspection shows that the Table and the chromatograms are coherent. Mass Spectroscopy determined that some molecules were newly formed within the confines of the bioreactor during the anaerobic phase and consequently

metabolized or biotransformed within the confines of the bioreactor during the aerobic phase of the investigation.

Mass Spectroscopy Chromatogram

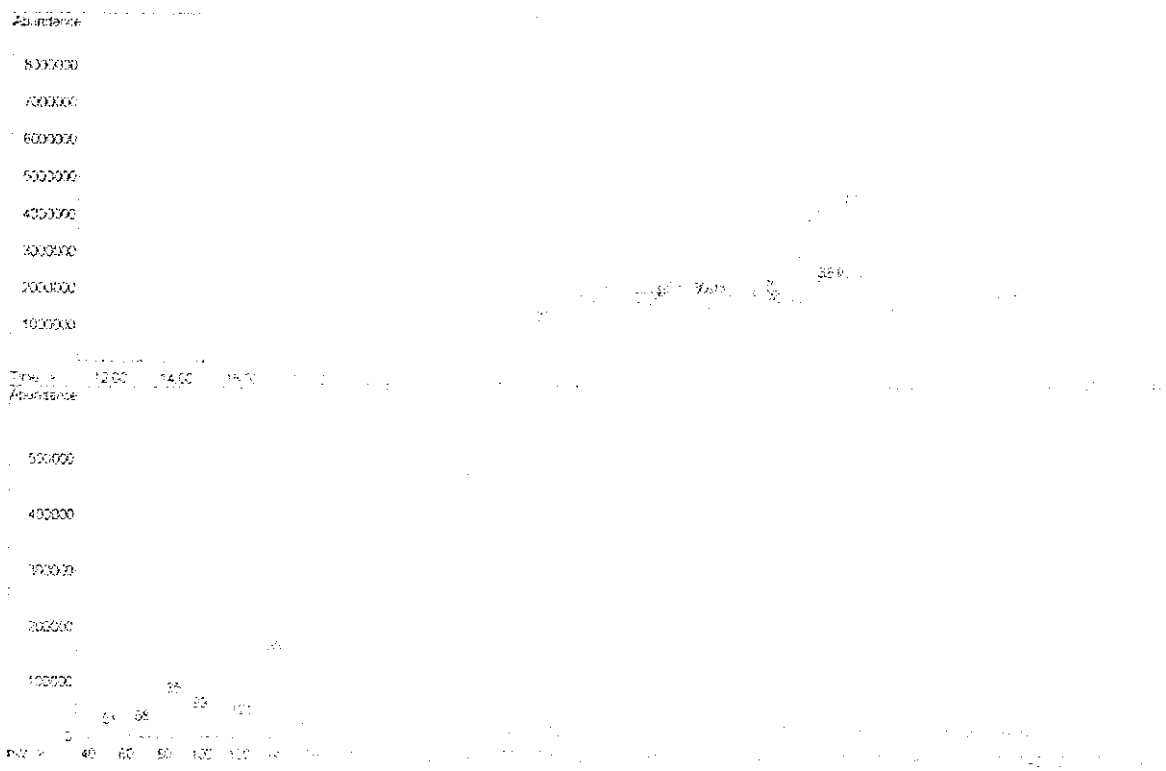
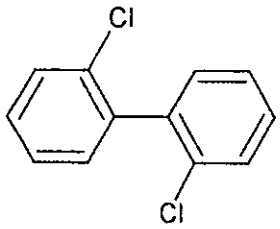


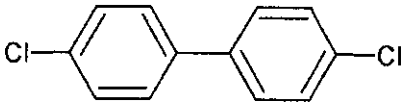
Figure 5.11 Mass Spectroscopy Chromatogram of the Final Aerobic Phase Sample from the Mid-West Bioreactor

Congener Analysis

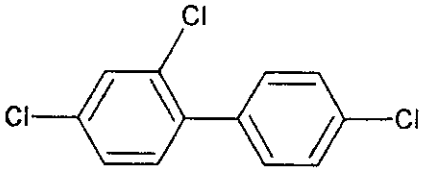
Identifiable Congeners Present



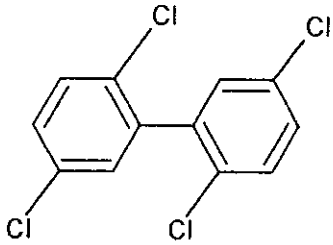
2,2'-dichloro-1,1'-biphenyl



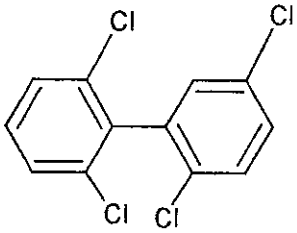
4,4'-dichloro-1,1'-biphenyl



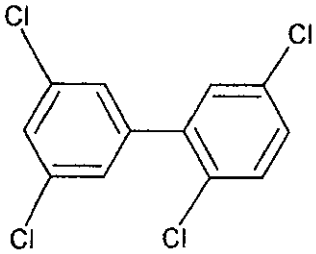
2,4,4'-trichloro-1,1'-biphenyl



2,2',5,5'-tetrachloro-1,1'-biphenyl



2,2',5,6'-tetrachloro-1,1'-biphenyl



2,3',5,5'-tetrachloro-1,1'-biphenyl

Figure 5.12 Mid-West Sludge Bioreactor Final (Aerobic) PCB Congeners

5.3 Net/Overall Results

Upon inspection of the graphs of progressive months there is evidence of some ambiguity. Some of the ambiguity hinges on the performance of the detector. In some instances, there seems to be an increase in the total PCB count, which could be a result of scavenging by chlorine radicals of biphenyl molecules that are present and available. For instance, if a chlorine atom is removed from a pentachlorobiphenyl molecule and that atom, being an unstable radical, recombines with an available biphenyl molecule, then the result is an increase in total PCB quantity (see figure 5.13). There would be a reduction in the pentachlorobiphenyl quantity, but there is also an increase in both the monochlorobiphenyl production and also the number of tetrachlorobiphenyl molecules. Hence, total PCB amount, measured as Aroclor 1248 and calculated from total area under the chromatogram, would potentially increase.

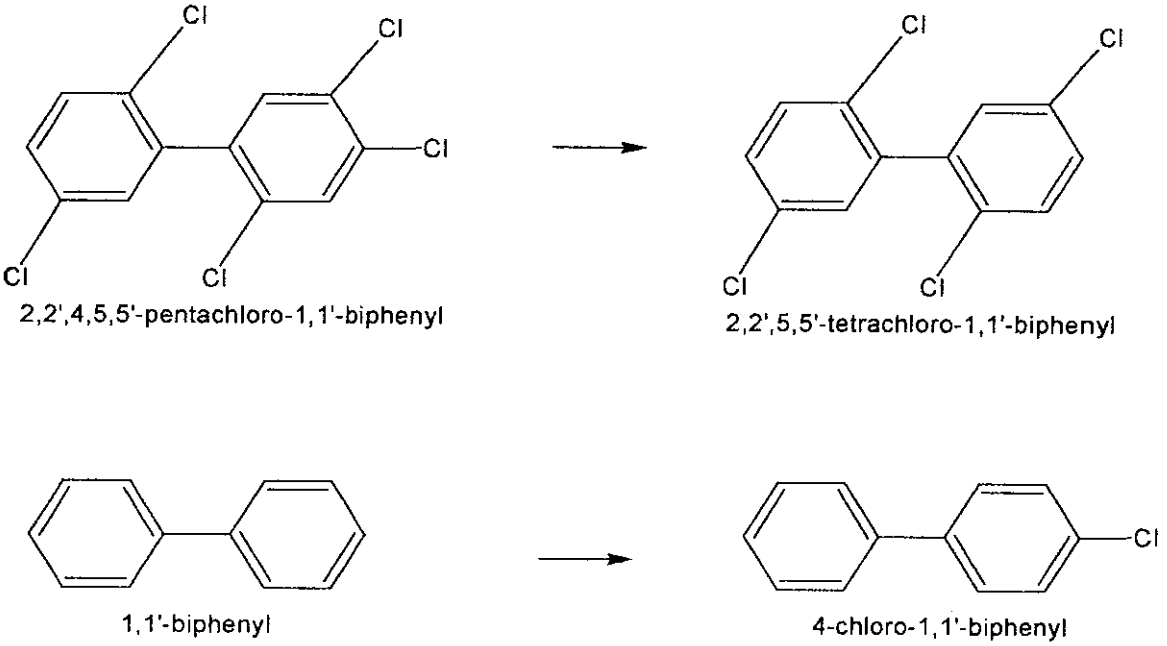


Figure 5.13 reduction of pentachlorobiphenyl coupled by the increase of both monochlorobiphenyl and tetrachlorobiphenyl

Another reason for the increase or apparent increase is the local migration within the bioreactor. From month to month it seems as if the concentration in any one location may increase or decrease. However, when all the locations within a particular reactor are averaged for that sampling time, the change is not as vast from month to month. For instance, Figures (5.2a through 5.2d) shows the concentration profile over a twelve-month period, with significant changes for each of the four locations within the Mid-West Sludge reactor. And Figure 5.2e shows the same twelve-month profile when the four bioreactor-locations are averaged, having no significant concentration change over the duration of the experiment.

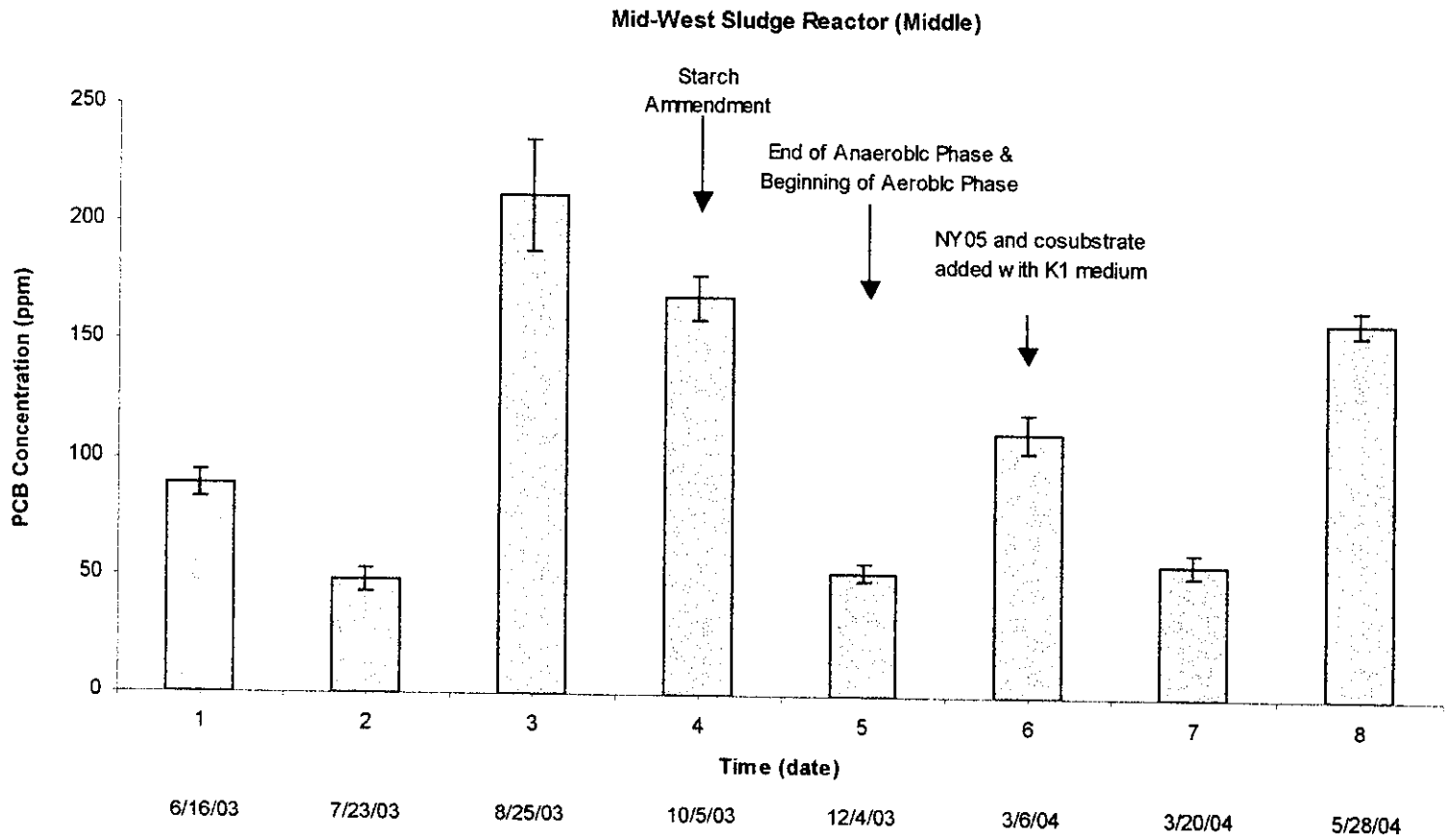


Figure 5.14a Twelve month profile of location 1 in the Mid-West Sludge Bioreactor

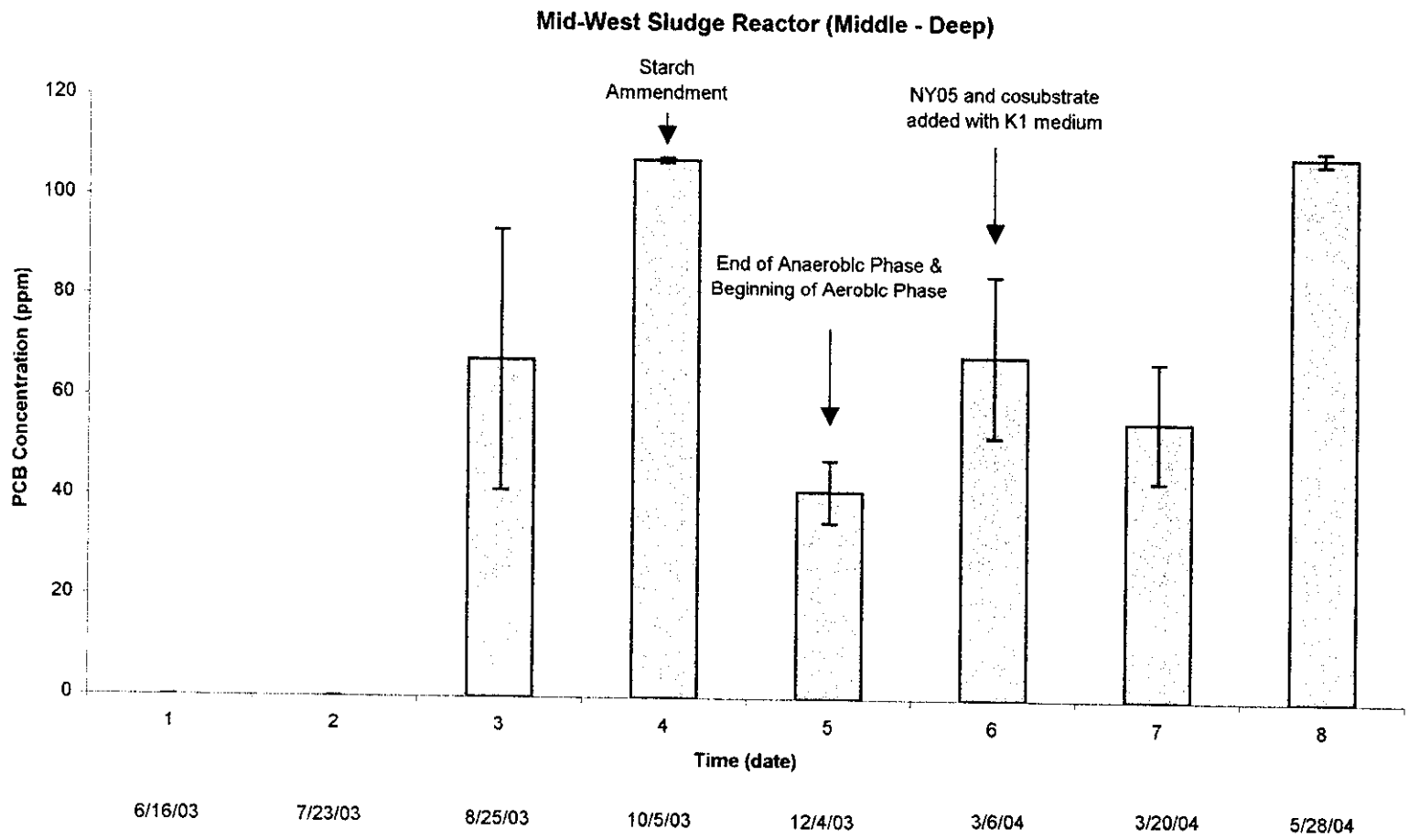


Figure 5.14b Twelve month profile of location 2 in the Mid-West Sludge Bioreactor

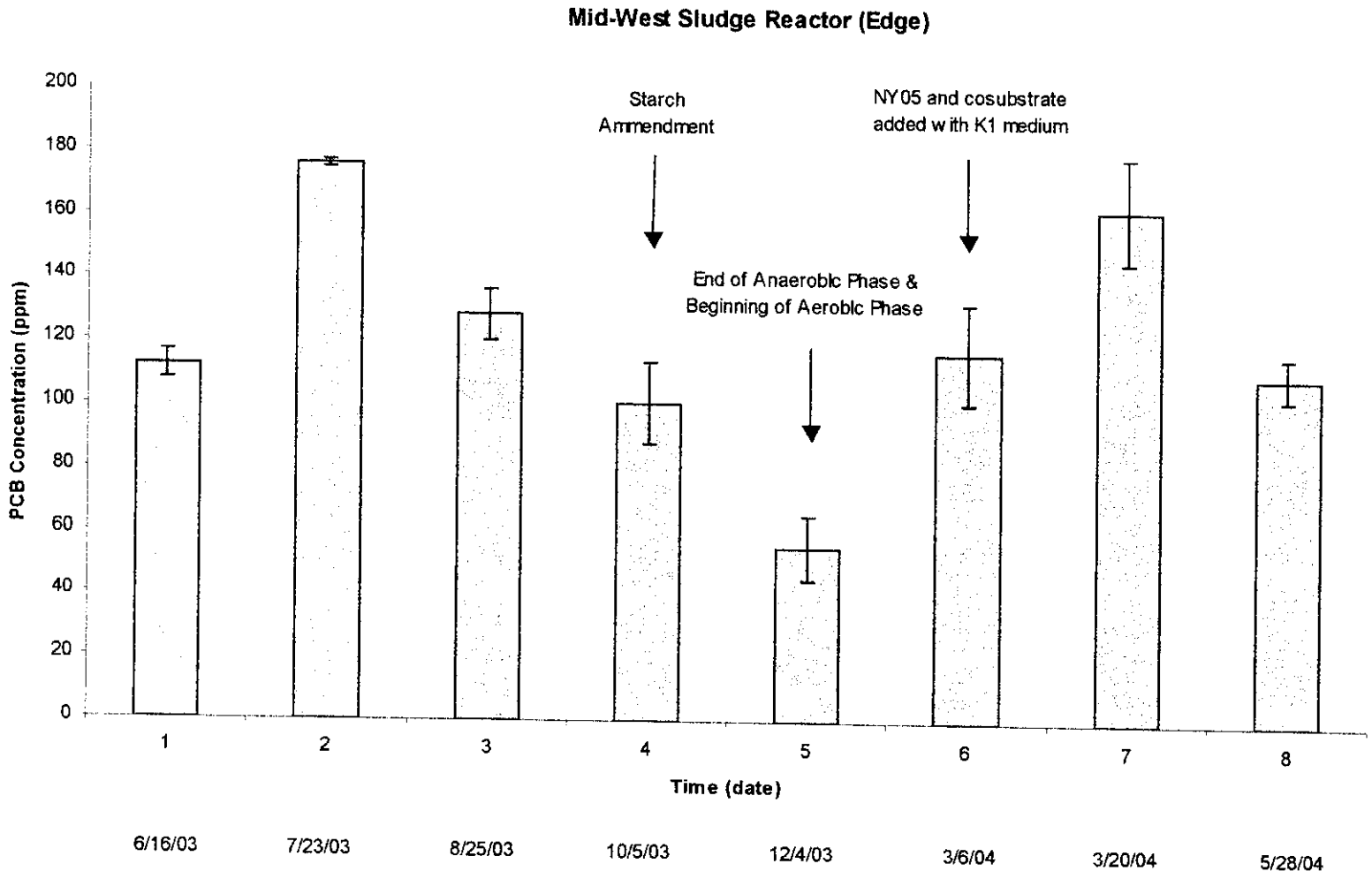


Figure 5.14c Twelve month profile of location 3 in the Mid-West Sludge Bioreactor

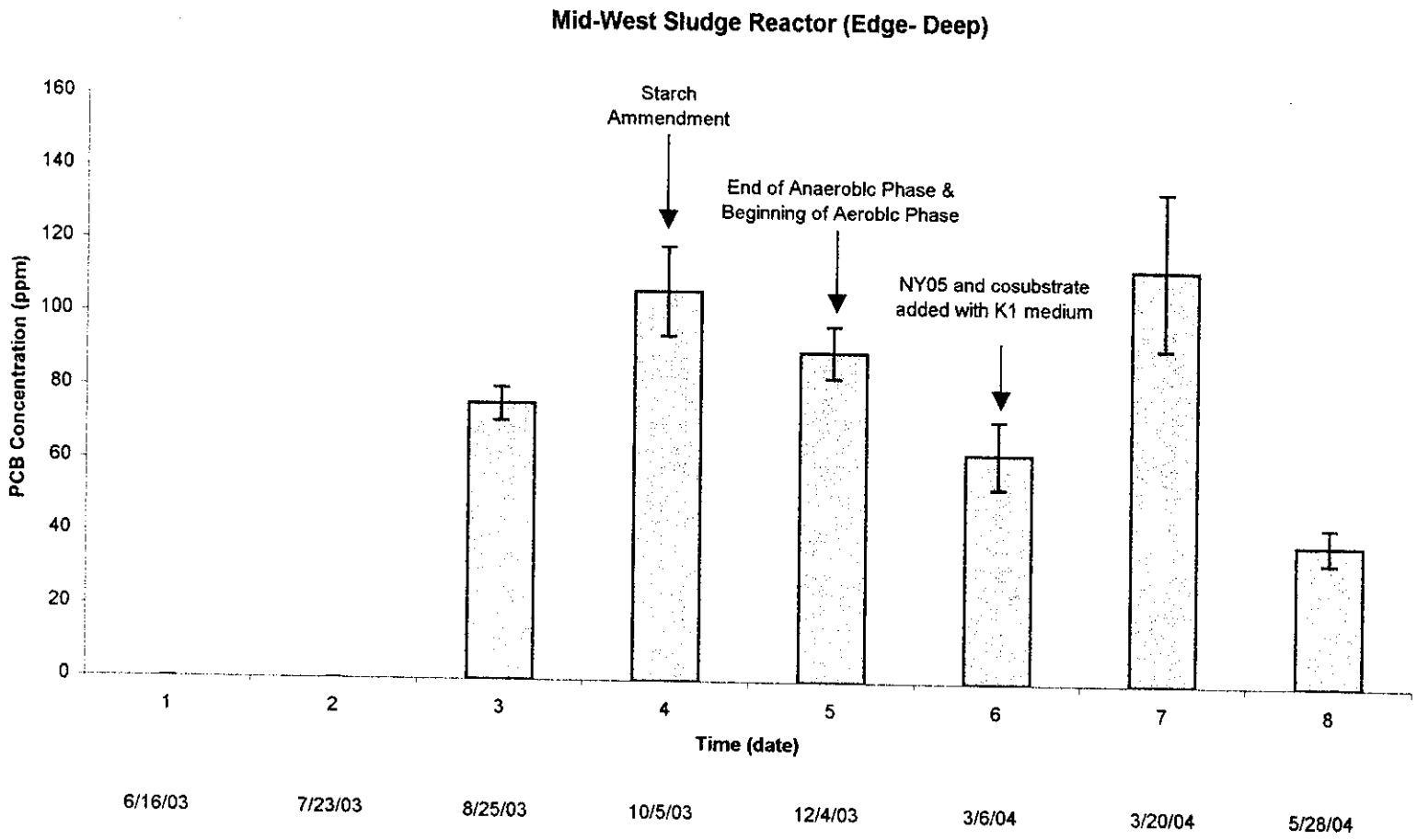


Figure 5.14d Twelve month profile of location 3 in the Mid-West Sludge Bioreactor

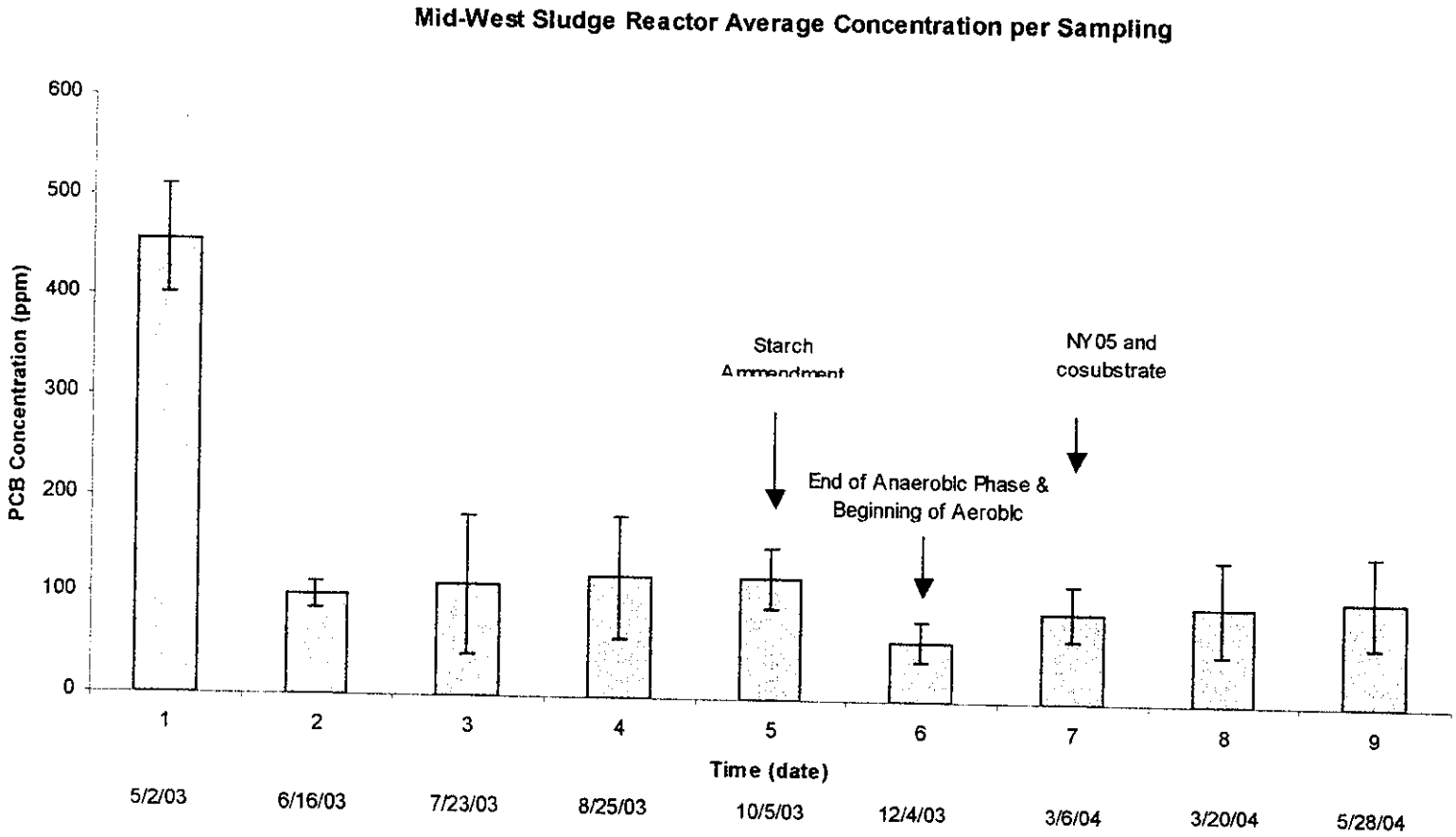


Figure 5.14e Twelve month profile of the average of all 4 locations in the Mid-West Sludge Bioreactor

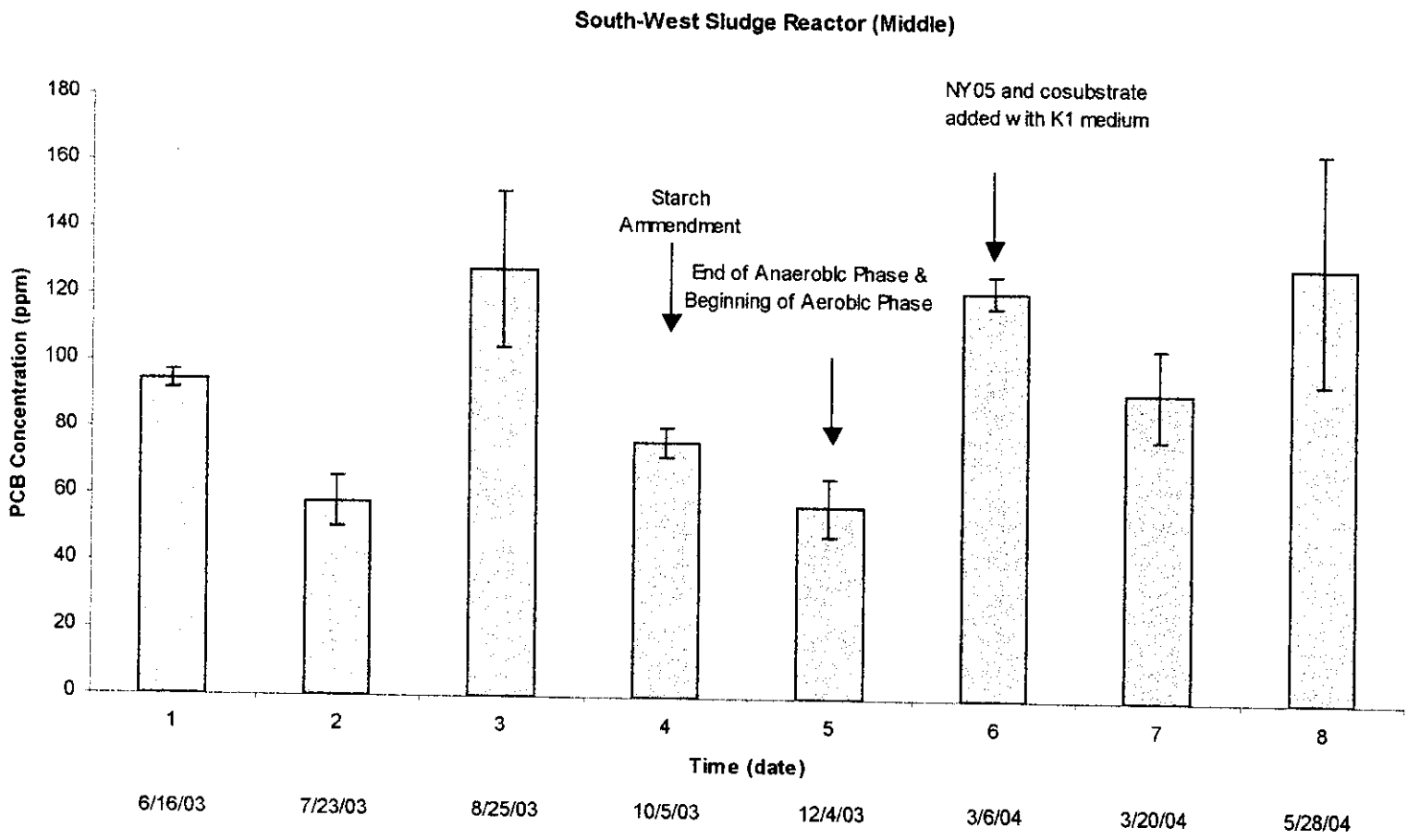


Figure 5.14f Twelve month profile of the location 1 in the South-West Sludge Bioreactor

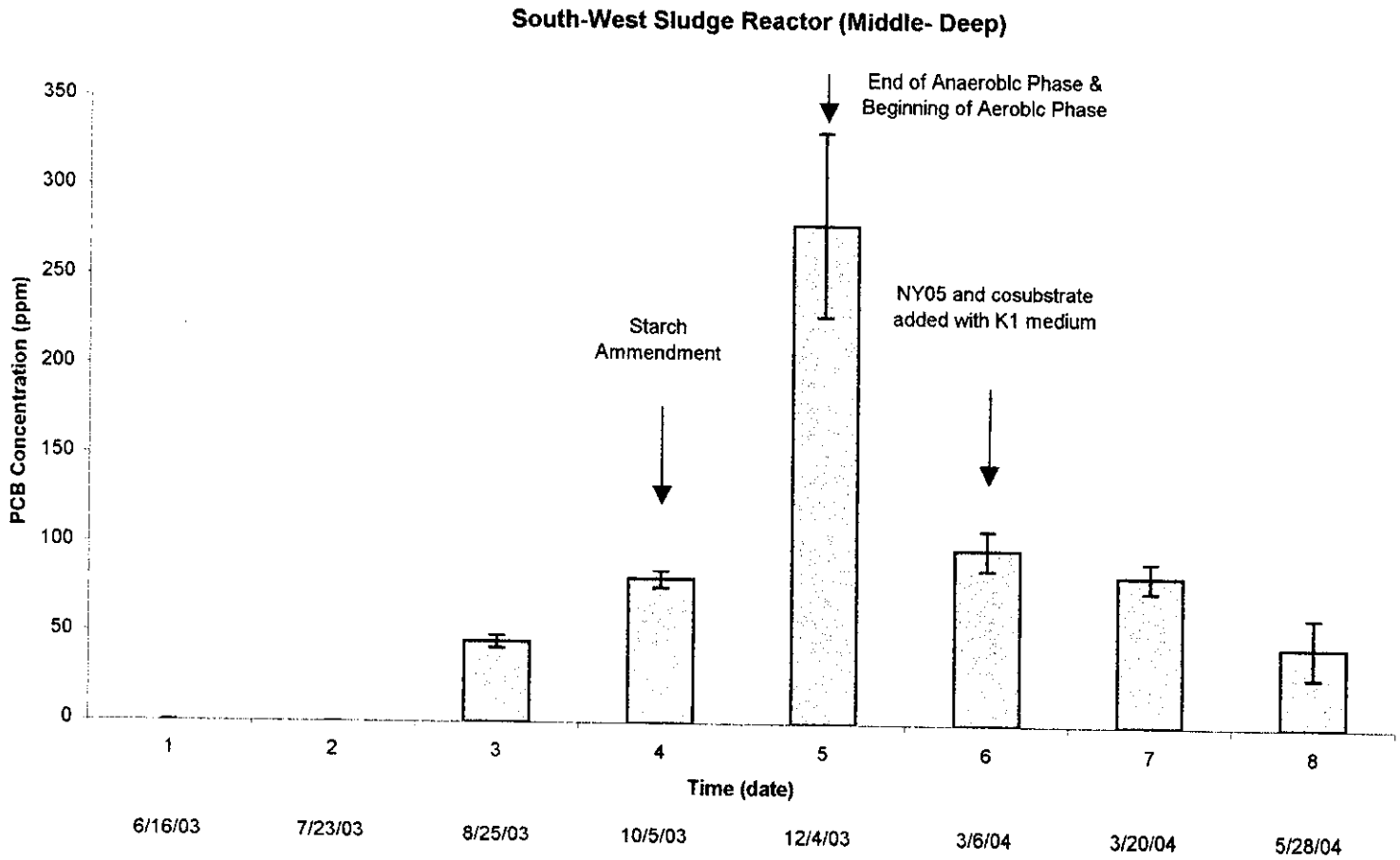


Figure 5.14g Twelve month profile of the location 2 in the South-West Sludge Bioreactor

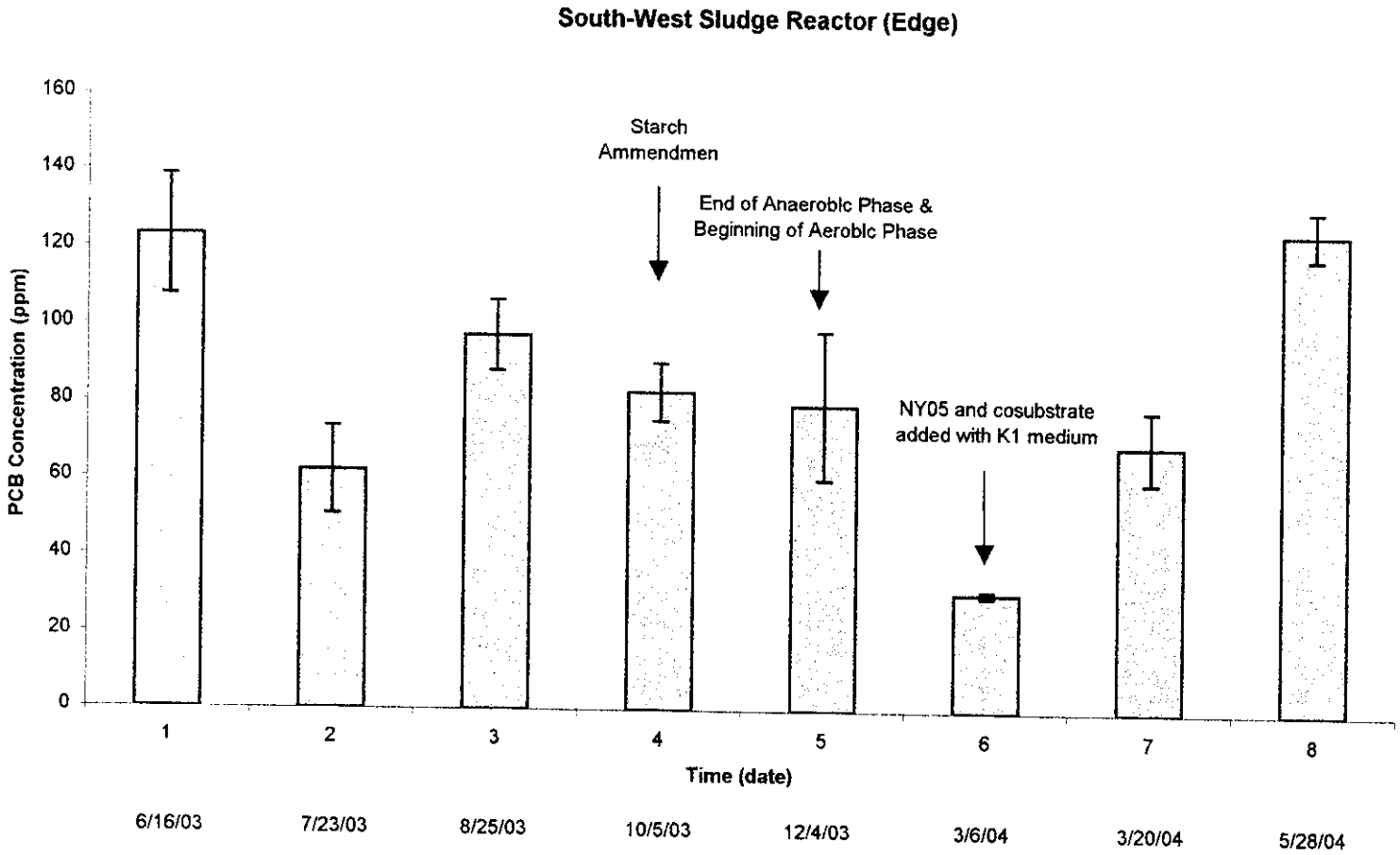


Figure 5.14h Twelve month profile of the location 3 in the South-West Sludge Bioreactor

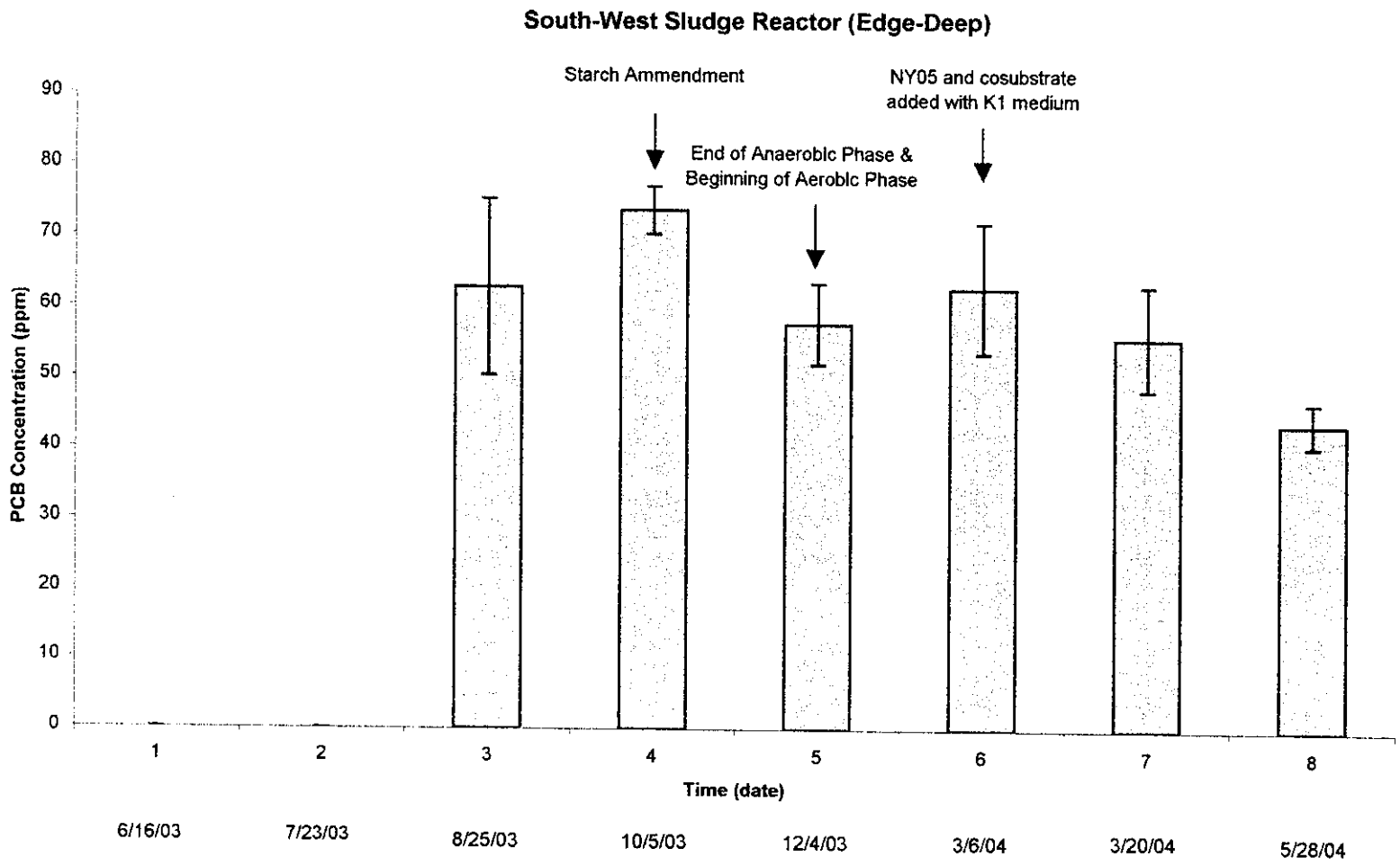


Figure 5.14i Twelve month profile of the location 4 in the South-West Sludge Bioreactor

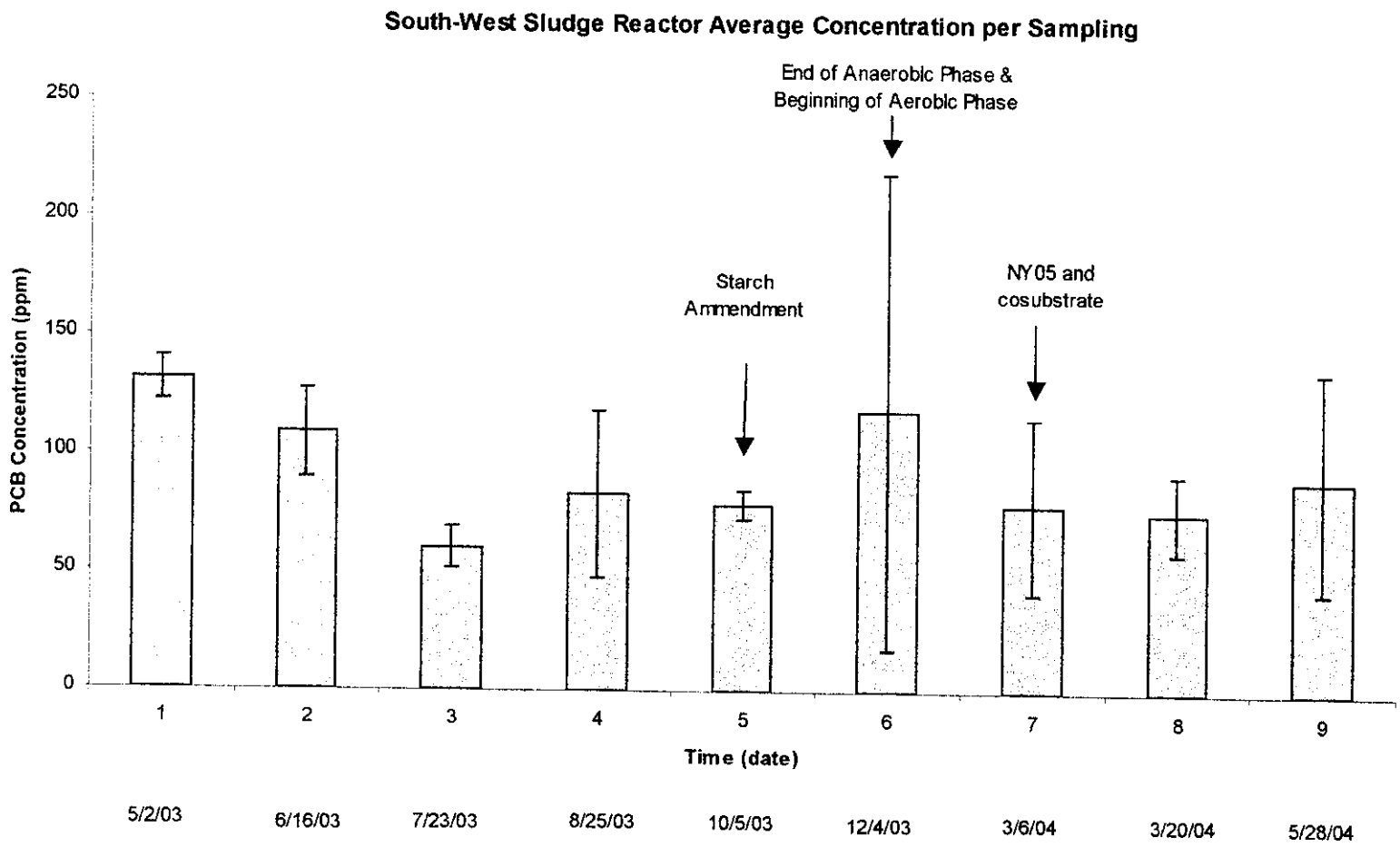
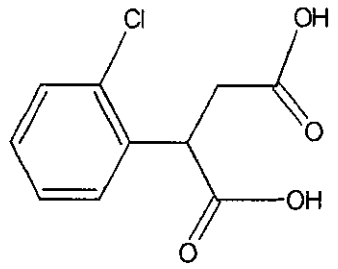


Figure 5.14j Twelve month profile of the average of all 4 locations in the South-West Sludge Bioreactor

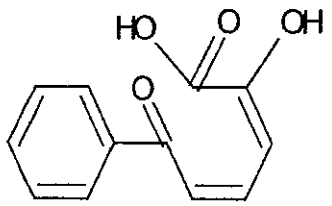
Actually, it can be argued that there is almost no or very little change at all in the total PCB Concentration of the two sludge reactors. On the other hand some of the negative controls seem to have a more promising story than the reactors themselves. For example, the negative controls for both the Mid-West and South-West reactors that sat in the glove box both experienced gradual reduction in total PCB concentration; this is seen in Figures 5.11 and 5.15 respectively. Although the reactors don't show promising results with respect to concentration profile, the chromatograms seem to tell a different story. The chromatograms suggest that there is a lot of transformation amongst the dichloro, trichloro, and tetrachlorobiphenyl species. The relative percentage of the individual congeners vary from month to month, which in the anaerobic phase suggests reduction and production of the various congeners due to reductive dechlorination; while the more recalcitrant higher PCB-congeners and non-PCB halo-organics appear to remain shiftless and unaffected. The transformation can be attributed to non-other than the anaerobic bugs from the tilled in Hudson Sediments. Also, some of the lower congeners generated in the anaerobic phase disappeared and or were drastically reduced during the aerobic phase (see ECD chromatograms). Here, the contributions of the aerobe NY05 cannot be ignored. There is some evidence in the reactor that suggests aerobic metabolic activity. The typical aerobic microbial degradation of biphenyl follows a pathway that ends with the production of benzoic acid and C5 aliphatic acid (see Figure 5.8 Metabolic Pathway). This aliphatic acid progresses further through the TCA metabolic cycle. A molecule resembling HPDA, a precursor to the benzoic acid product, was found in some samples that beg the conclusion of aerobic microbial metabolic activity. The molecule in question is 2-(2-chlorophenyl) succinic acid. This molecule differs from HPDA by a

mere chlorine atom and positioning of the carboxylic acid substituent rendering it as a diacid.

Diacid found in aerobic phase bioreactor samples



2-(2-chlorophenyl)succinic acid



HPDA

(2*E*,4*Z*)-2-hydroxy-6-oxo-6-phenylhexa-2,4-dienoic acid

Figure 5.15 product in reactor samples suggesting aerobic degradation of PCBs.

The diacid was formed because the ring cleavage occurred in the para position as opposed to the usual ortho position in the proposed aerobic metabolic pathway.

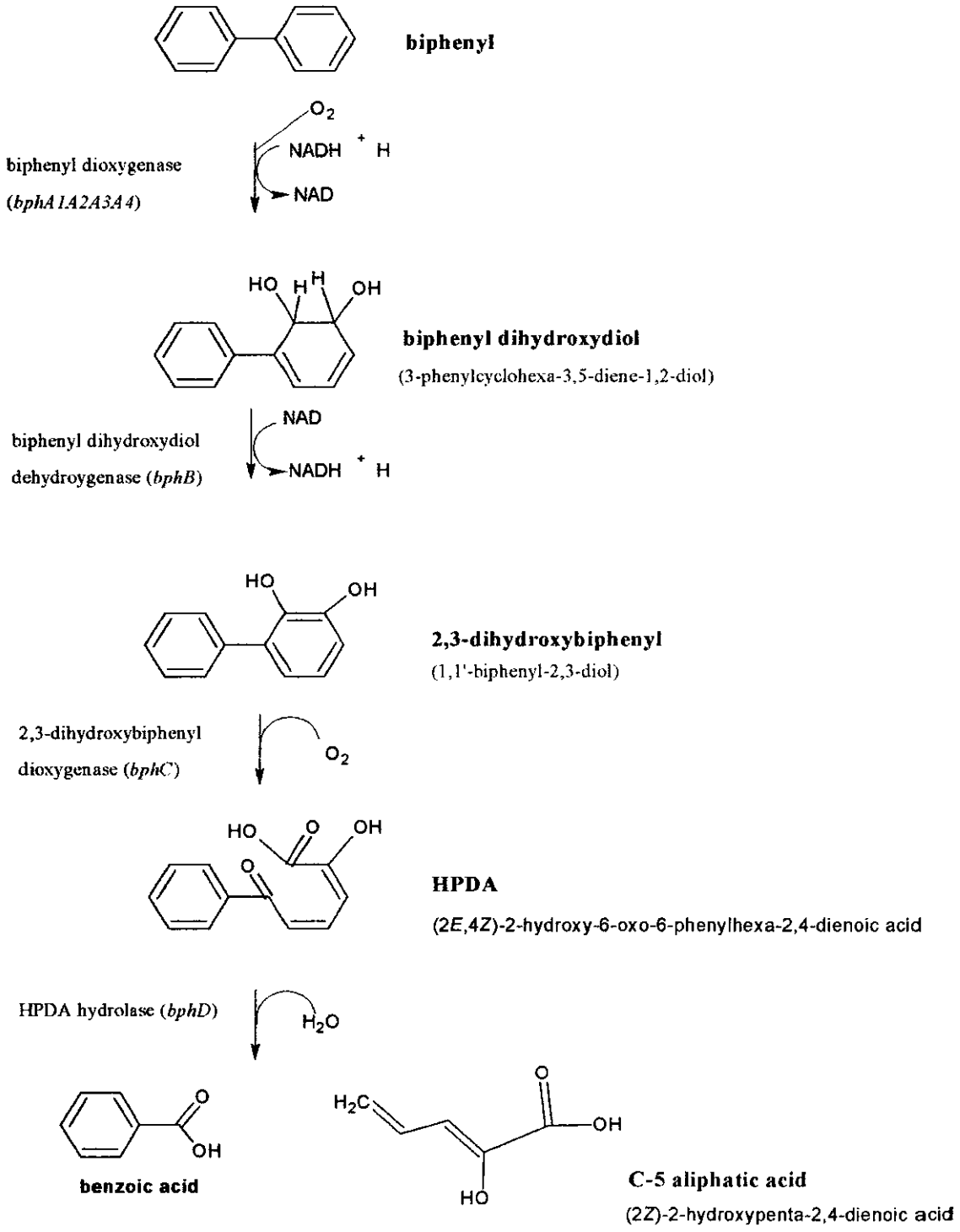


Figure 5.16 Aerobic Biphenyl degradation pathway, (Furukawa, 1982)

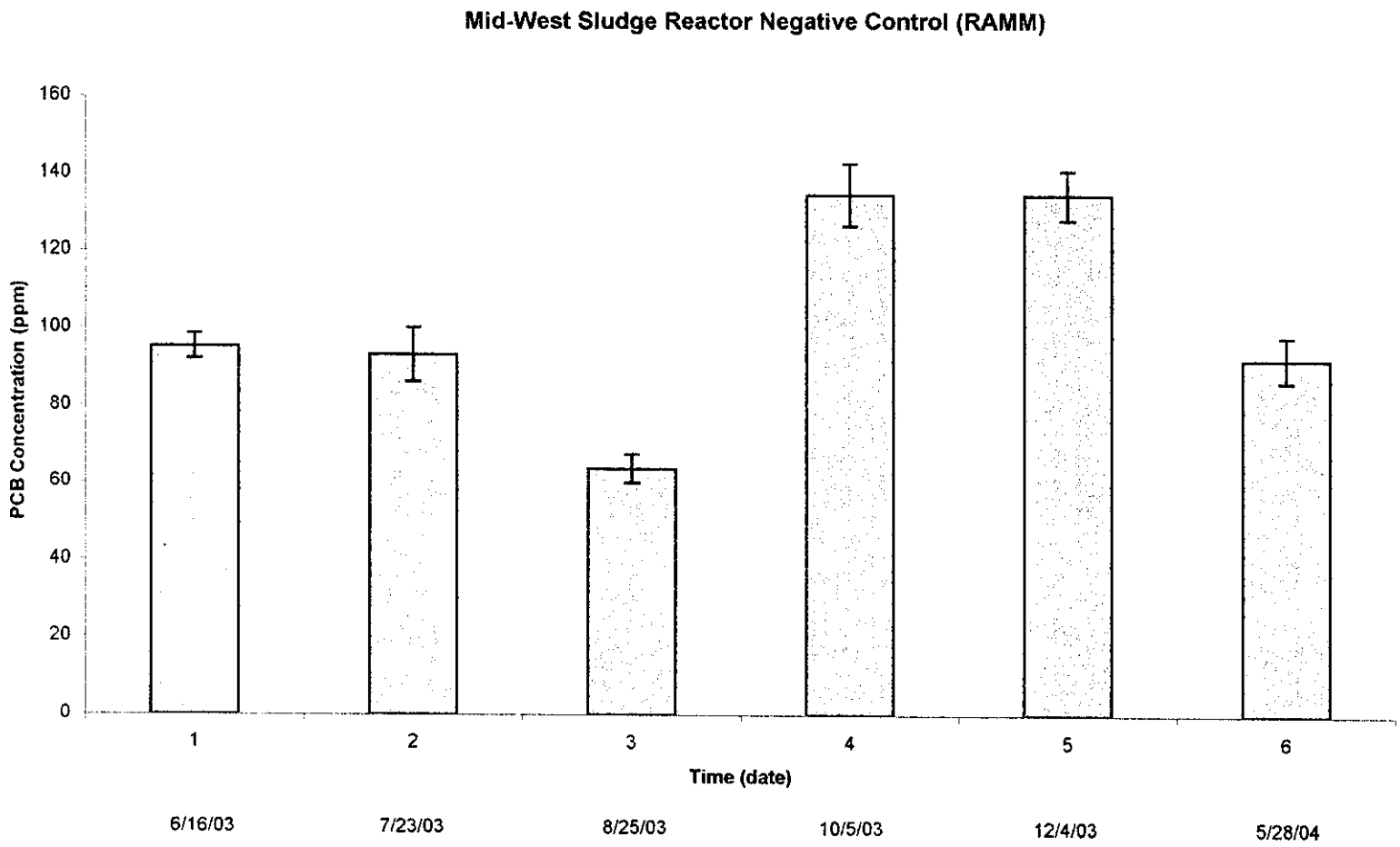


Figure 5.17 Mid-West Sludge Bioreactor Control Showing No Net Change in PCB Concentration

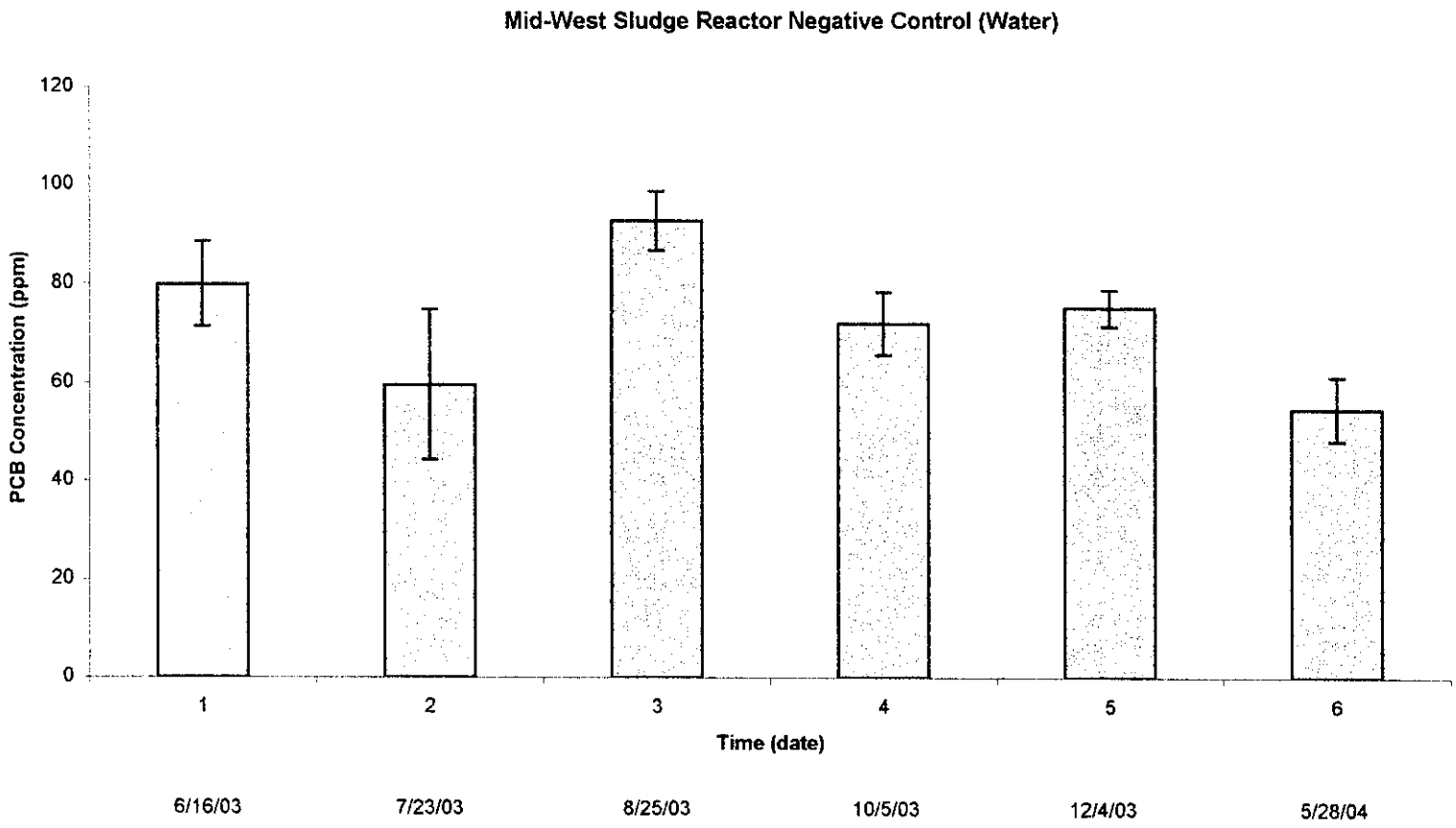


Figure 5.18 Mid-West Sludge Bioreactor Control Showing Very Little Change in PCB Concentration

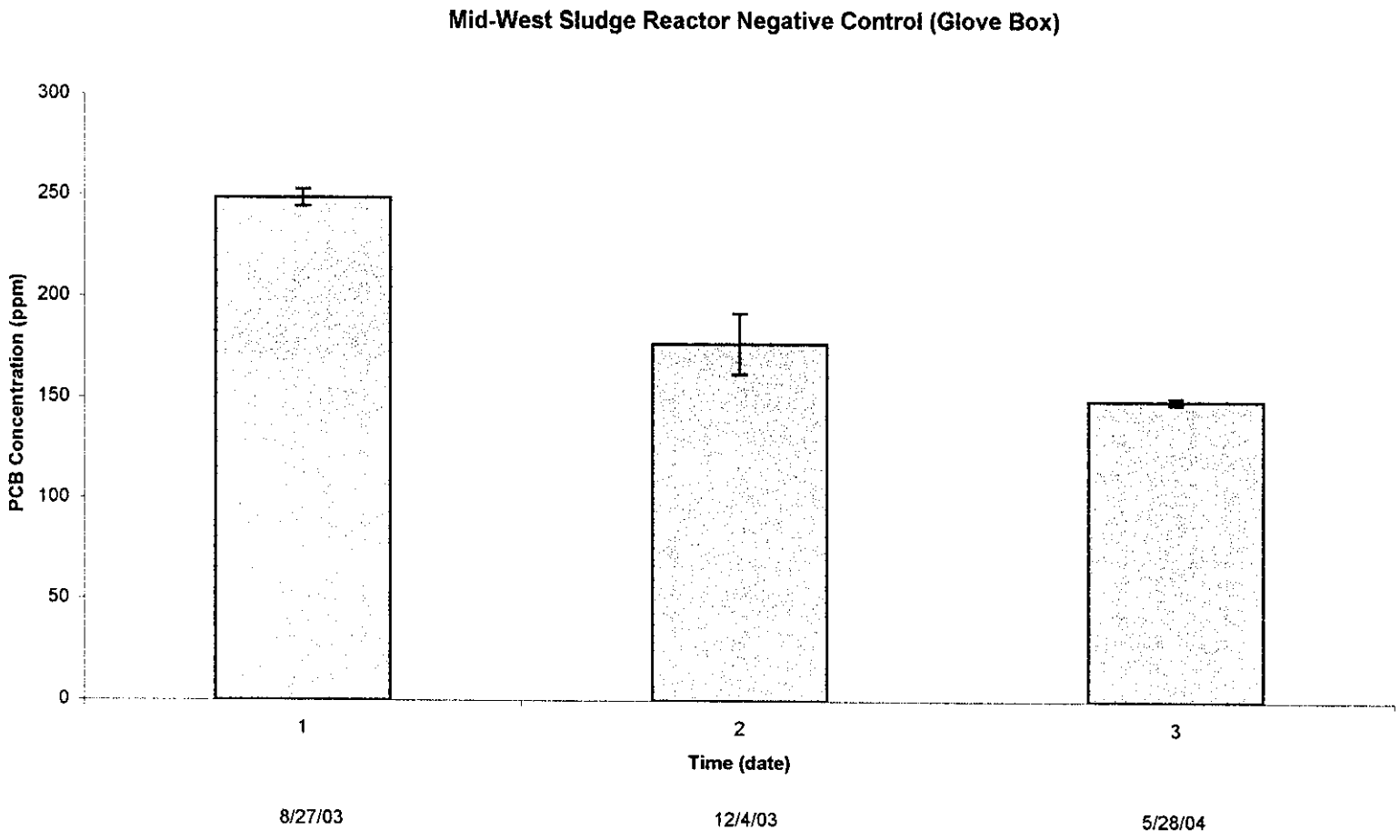


Figure 5.19 Mid-West Sludge Bioreactor Control Showing Gradual Decrease in PCB Concentration

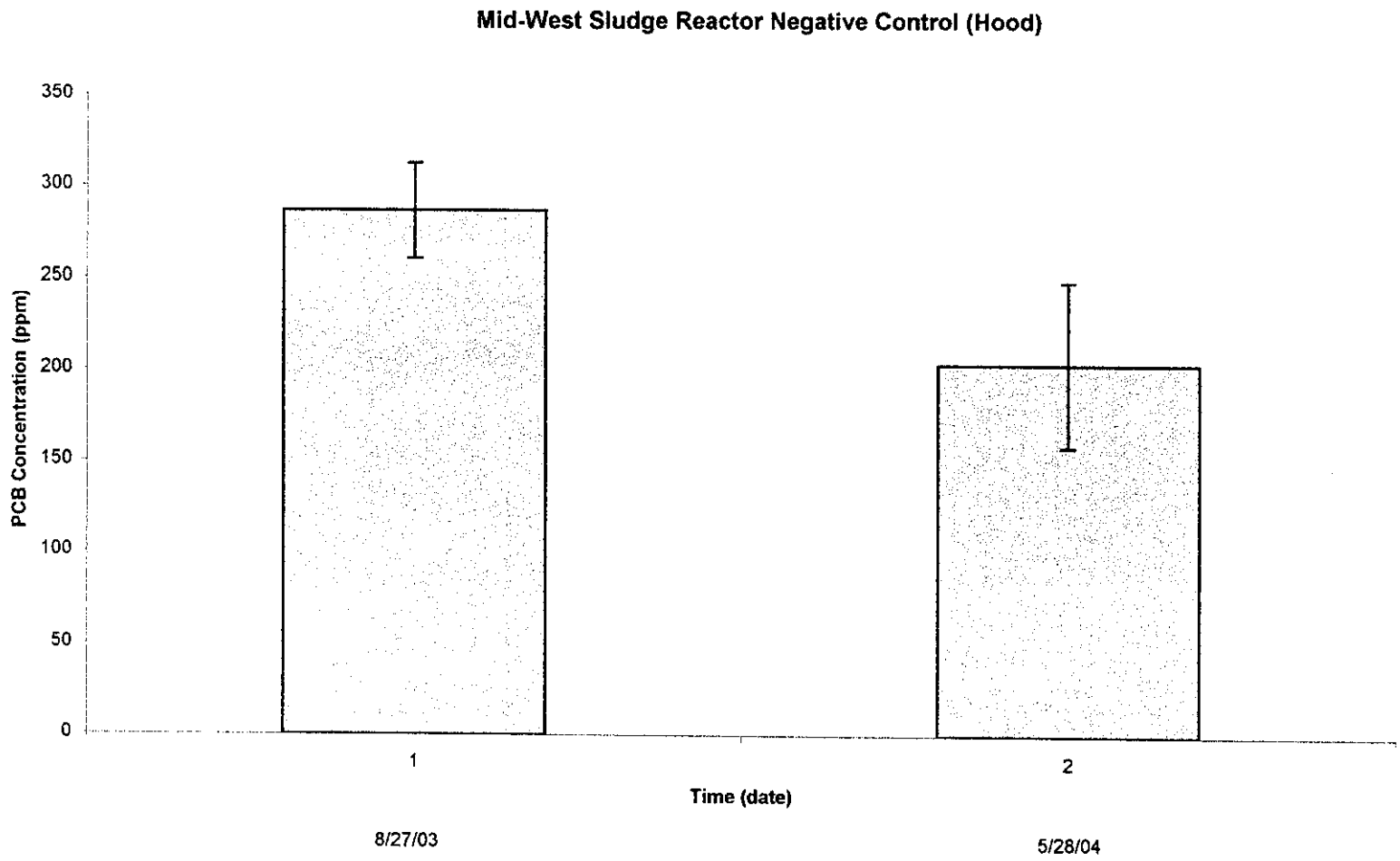


Figure 5.20 Mid-West Sludge Bioreactor Control Showing Reasonable Decline in PCB Concentration

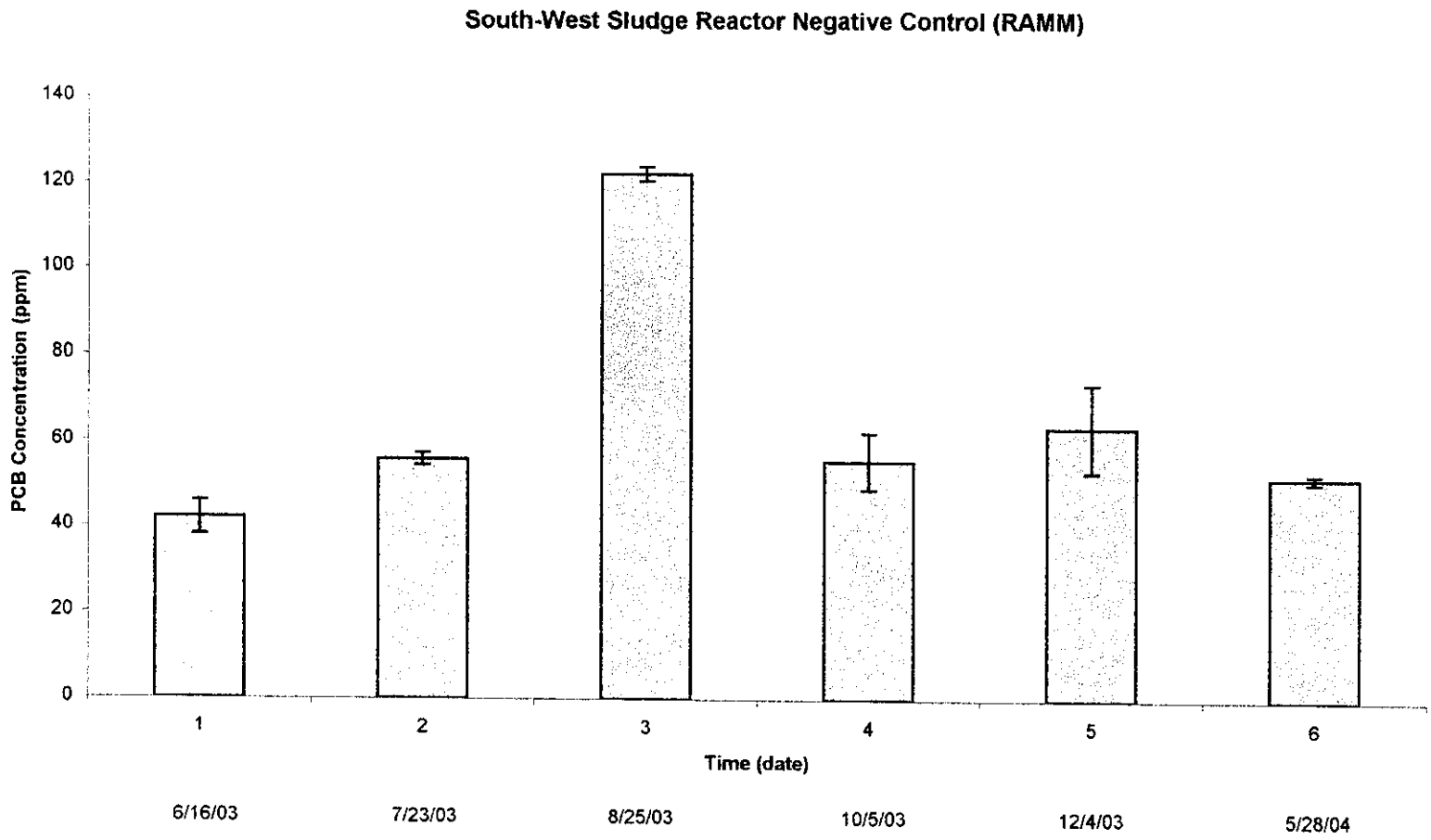


Figure 5.21 South-West Sludge Bioreactor Control Showing Very Little Change in PCB Concentration

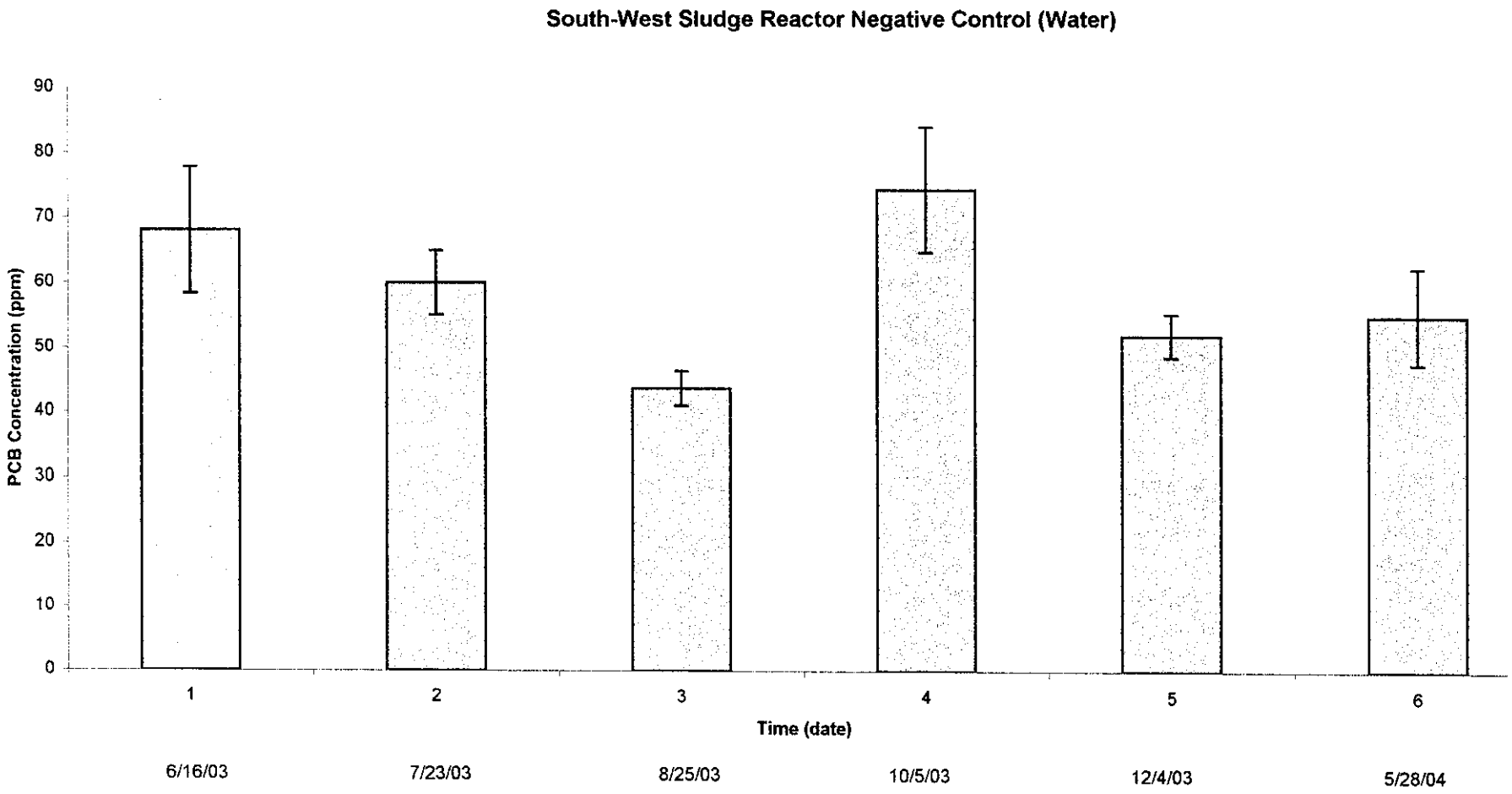


Figure 5.22 South-West Sludge Bioreactor Control Showing Very Little Change in PCB Concentration

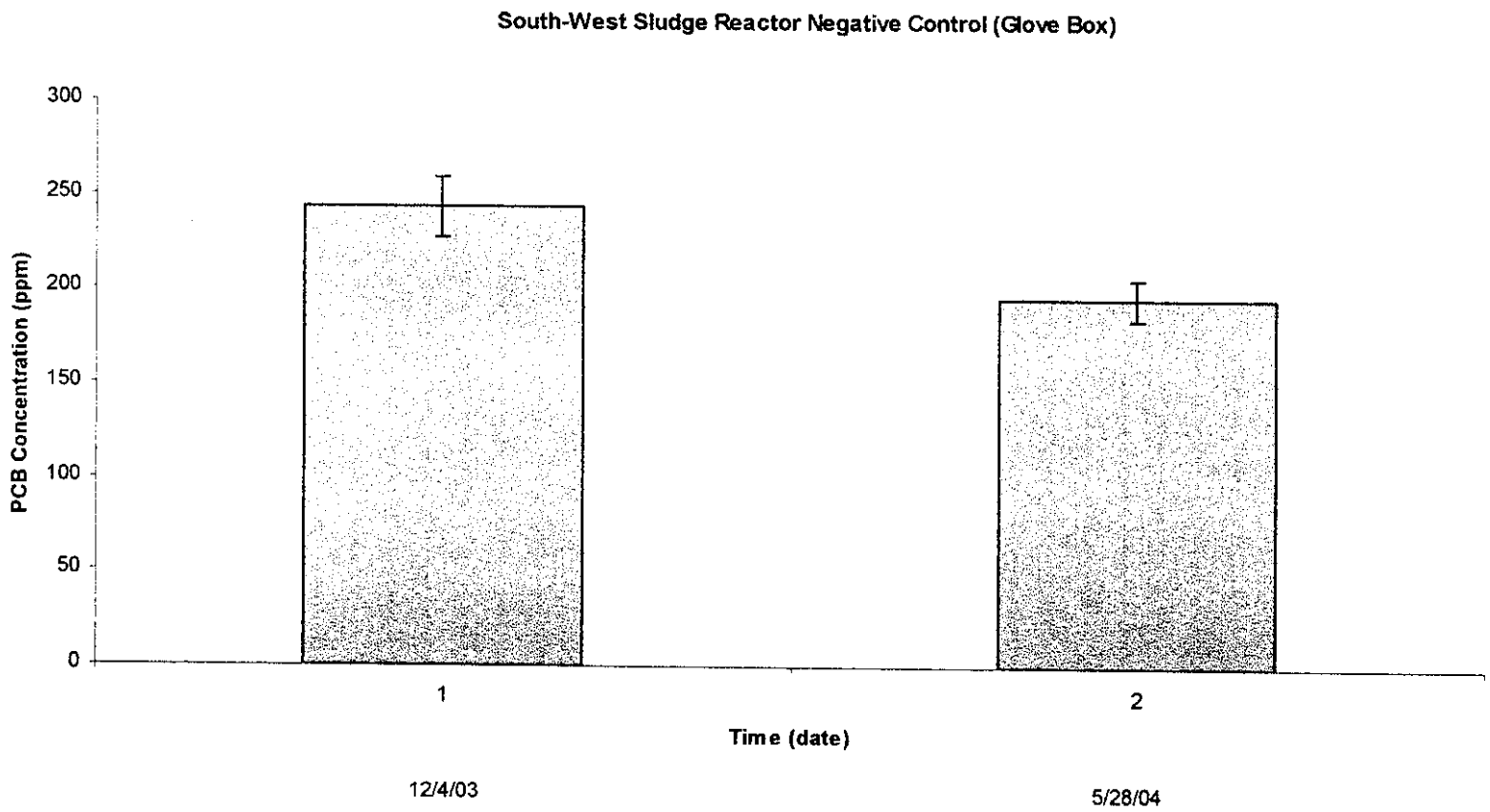


Figure 5.23 South-West Sludge Bioreactor Control Showing Decline in PCB Concentration

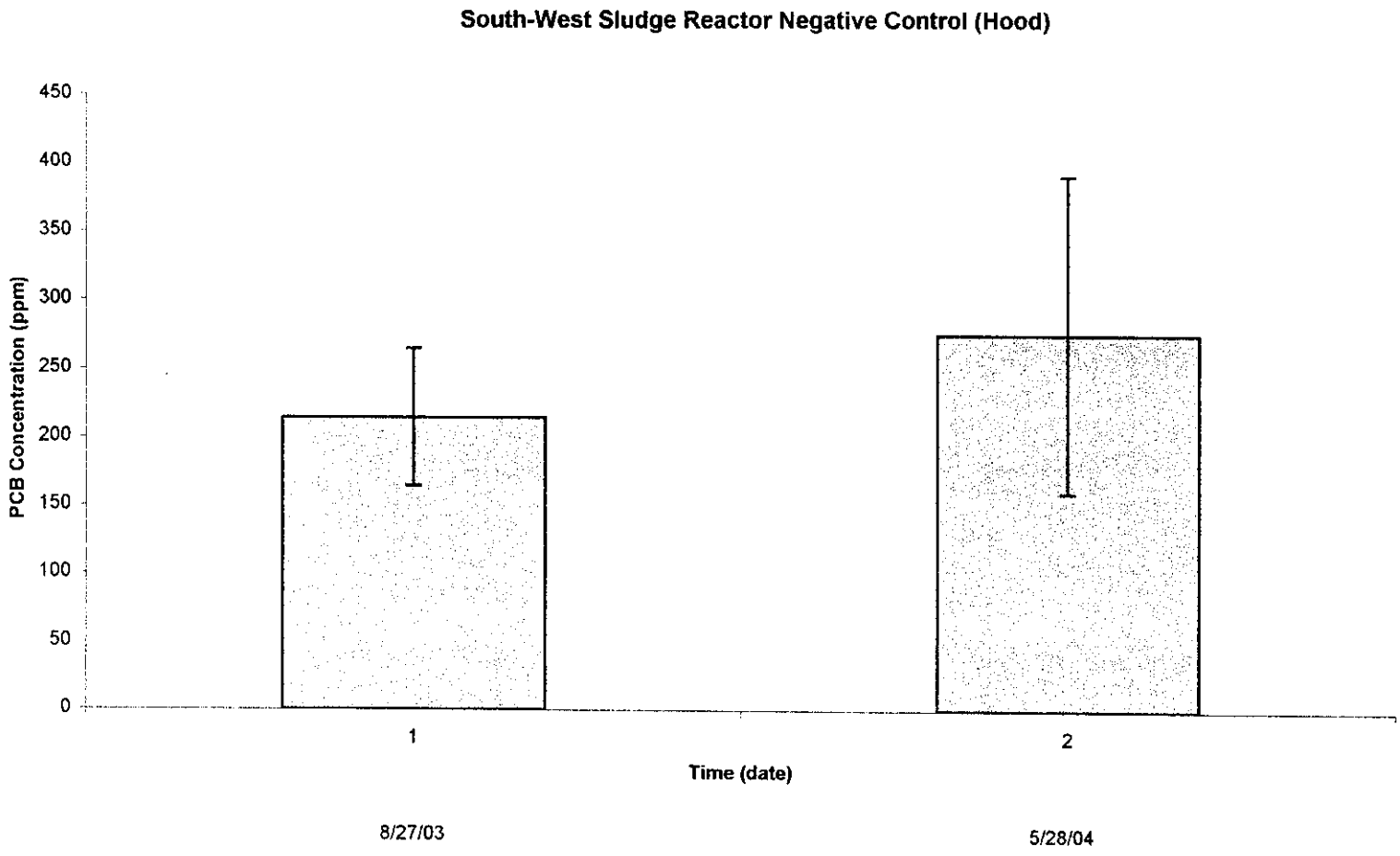


Figure 5.24 South-West Sludge Bioreactor Control Showing Decline in PCB Concentration

CHAPTER 6. CONCLUSION & RECOMMENDATIONS

In the investigation of using microbial assistance to detoxify PCB-contaminated sludge, there was strong evidence of anaerobic reductive dechlorination and subsequent aerobic biotransformation. The overall research process called for initiating anaerobic conditions within bioreactors containing sludge and supplementing within anaerobic microbe–containing sediments so that observations of the dechlorination of higher chlorinated PCB congeners could be made. The investigation would then move to the aerobic phase where decomposition by inoculated aerobes, supplemented with cosubstrates, of the resulting lower chlorinated congeners could be observed.

In the anaerobic phase of the experiment there were noticeable increases in the peaks of the lower molecular weight chlorinated organics as expected. Subsequently, some of the same peaks that increased anaerobically, were once again reduced at the end of the aerobic phase.

Overall, the PCB content was altered but the concentration levels were relatively static throughout the entire investigation. It was expected that reductive dechlorination would be the mode of dechlorination in the anaerobic environment, but if this is true, then it is also true that chlorine free radicals must have been bubbling through the reaction volume. These free radicals may have recombined to form molecular chlorine (Cl_2) or some of them could have scavenged some of the PCB molecules or biphenyl itself to form lower chlorinated congeners. Hence, it is possible that an increase in PCB content can be observed from time to time. Biphenyl, unlike chlorinated biphenyl, would not show in an ECD analysis of the injected sample. Quantification of the end products

from the anaerobic phase may reflect increases if free chlorine radicals are indeed scavenging the biphenyl molecules present in the sludge.

Devices that can trap headspace gases could be used in future experiments to better establish mass balance studies for this experiment. Also, a continuous flow system with air sparging from below the reaction volume could be examined to see what differences or advantages could be achieved. The draw back with this setup is the generation of possibly unrealistic results since this is now a form of bioventing which may not be possible or cost efficient in the case of a lagoon that is just over twenty five ft deep and spreads out approximately 20 acres. It would still be beneficial to know since this method may possibly be applied to some local pockets of the lagoon that grossly exceeds the contamination limit of 50 ppm on a dry weight basis.

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Note: Controls are undiluted

HOWARD UNIVERSITY

Bioremediation of Polychlorinated Biphenyl's (PCBs), in sludge from The Ralston Street Lagoon using Earthworms

A Thesis
Submitted to the Faculty of
The Graduate School

of

HOWARD UNIVERSITY

in partial fulfillment of
the requirements for the
degree of

MASTER OF SCIENCE

Department of Chemical Engineering

By

Anuradha Addagada

Washington, DC
December 2004

HOWARD UNIVERSITY
GRADUATE SCHOOL
DEPARTMENT OF CHEMICAL ENGINEERING

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Thesis Committee Chairperson

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Thesis Committee Member & Advisor

Dr. J. Tharakan, Ph.D.
Thesis Advisor

Candidate: Anuradha Addagada

Date of Defense: November 29th, 2004

Dedications

Dedicated to

My Grandfather

Late Addagada Veeraiah Chowdhary

My father Koteswara Rao and my mother Padmavathi

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Abstract

This study focuses on the investigation of the potential of using vermicomposting with *E.Foetida* earthworms for the biotransformation of polychlorinated biphenyls (PCBs) in sludge and sediment from the Ralston Street Lagoon superfund site in Gary, IN. Vermicomposting Bioreactors (VBs) were established with varying volume fractions of contaminated sludge ranging from 10% to 75% (v/v). The VBs comprised of a drainage layer overlaid with a mesh screen on top of which potting soil mixed with contaminated sludge was placed. They were then inoculated with an equal biomass of earthworms. Suitable negative controls were also established to monitor reproduction and biomass increase without contaminated sludge. The VBs were kept moist by water spray and the earthworms were periodically fed with cornmeal. At given time intervals VBs were emptied onto aluminum foil under bright light to separate the worms from the media, the media was mixed, and samples were taken for analysis by gas chromatography (GC) with electron capture detection (ECD) to monitor for the presence of the PCBs. Earthworm biomass and number were also measured. Results demonstrated that earthworm's biomass increase decreased rapidly with increasing mass fraction of sludge. Total earthworm biomass ranged from an increase of 103% in the negative control to a reduction of 54% in the 75% sludge VB. Gas chromatography results demonstrate an 80% reduction in PCB level in all VBs; however, the time required for this level of reduction increased with increasing concentrated sludge mass fraction. Analysis of earthworms showed elevated PCB levels in the worm. Mass balances on the total PCBs in the system

demonstrated transformation ranging from 75% to 90%. These results suggest vermicomposting may be a viable option for on-site bioremediation for site clean up.

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Section 1: Introduction

Chapter 1: Project Rationale and Objectives

Since the presence of polychlorinated biphenyls (PCBs) in the environment was revealed, its contamination has been noted in many parts of the world (Yagi et al., 1980). PCBs were extensively used in fields such as dielectrics and as additives to heat transfer fluids, as fluids in hydraulic and vacuum systems, plasticizers, and as flame-retardants, due to their physical and chemical stability. Their widespread use and stable molecular structures, and the high toxicity of a few of these molecules, have made PCBs a persistent environmental problem. The manufacture and use of PCBs was banned in 1972 after great concern over their possible carcinogenic roles and their magnification in the food chain.

PCBs are a family of compounds produced commercially by the direct chlorination of biphenyl. Theoretically, there are 209 different possible PCB congeners based on the number and position of chlorine atoms on the biphenyl molecule. However, only about a half of these compounds has been detected so far. Biphenyls are known to be a fire retardant and its efficiency increases with increasing chlorine substitution.

Currently PCBs are regulated under the Toxic Substances Control Act (TSCA) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), also known as SUPERFUND. Widespread existing contamination at current and former industrial sites is the target for several Superfund remediation actions. Of the many potential PCB technologies, incineration is the EPA approved method.

Remediation of PCB contaminated sites is a national priority, but current technologies are expensive and often lead to byproducts that are environmentally problematic. Among the several technologies, being utilized to address PCBs cleanup is

bioremediation. Bioremediation is an attractive option mainly because of its economic feasibility and potential for complete transformation/mineralization of the waste.

Partial bioremediation of polychlorinated biphenyl (PCB)-contaminated soils has been achieved using bioaugmentation with PCB-degrading bacteria and earthworms. Earthworms are the key organisms in breakdown of plant organic matter. Residues of chemicals can bioaccumulate in the earthworms. The first compounds to be investigated for bioaccumulation into earthworms were organochlorine insecticides (Whealtey and Hardman, 1964). Earthworms have a role in biomonitoring because they can bioaccumulate or bioconcentrate chemicals. *E.foetida* is the most commonly used species for degrading organic wastes.

The goal of this project is to develop a cost-effective method for cleaning PCB contaminated sludge in the Ralston Street Lagoon, Gary, Indiana. This site has been designated as a Superfund site by the United States environmental protection agency (USEPA). Results of investigations done by EPA indicated the presence of PCBs in concentrations ranging from 0.21 to 180 ppm. Analytical results indicate the presence of much higher PCB concentrations at lower depths, suggesting a downward migration and an accumulation of the contaminants.

Objectives and Rationale:

The objectives of this study were:

1. To determine the total PCB concentration in the contaminated sludge matrix obtained from Ralston Street Lagoon (RSL).

2. To identify the PCB components (congeners) in the sludge from RSL by employing methods of comparison with that of different Aroclors (1060, 1242, 1248, 1260).
3. To determine the concentration of congeners in the RSL sludge by developing various calibration curves with the internal and external standards (such as tetra chloro-m-xylene, decachlorobiphenyl, etc.)
4. To set up a vermicompost bioreactor (VB) for laboratory-scale process for bioremediation of PCBs in sludge from Ralston Street Lagoon using earthworms (*E. Foetida*).
5. To set up abiotic control reactors, to study the possibility of any potential PCB transformation through intrinsic remediation.
6. To investigate the toxicity of the sludge to *E.Foetida* species and to determine if they possess the ability to reduce concentrations of PCB in contaminated sludge.
7. To measure the rate and extent of PCB transformation under various experimental conditions in biotic VBs and abiotic control reactors.
8. To assess the effectiveness of the VB and other biological technologies for the mitigation of the PCB hazard in the sludge from the Ralston Street Lagoon.

The rationale for this approach is taken from previous experiments conducted in our laboratory, which had shown that there was reduction and possible biotransformation of PCBs in some initial sludge samples obtained from RSL (Tharakan, 2002, Satterwhite 2002).

Section 2: Background

Chapter 2: Polychlorinated Biphenyl's

2.1 Introduction:

Polychlorinated biphenyl's (PCBs) are a family of non-polar, aromatic chlorinated hydrocarbons. These compounds were produced commercially by the direct chlorination of biphenyls and there are no known natural sources of PCBs. There are 209 possible different PCB compounds referred to as congeners, depending on the biphenyl rings capacity of 1-10 potential chlorine atom sites. PCBs were manufactured under various trade names such as Aroclor [USA], Phenoclor, Pyralene [France], Clophen [Germany] , Kanechlor [Japan] and Solvos [former USSR] (Erickson, 1997). In the United States, Aroclors were the most commonly used PCB preparations. The Monsanto Chemical Co., which is currently an EPA Superfund site, manufactured these preparations, under trade names like Aroclors 1221, 1242, 1248, 1254 and 1260. All the Aroclor products are characterized by a four-digit number. The first two digits represent the type of base structure molecule with 12 being a chlorinated biphenyl. The last two digits give the weight percent of chlorine; thus, for example the above named Aroclor mixtures would contain 21%, 42%, 48%, 54% and 60% chlorine respectively. The exception is another of Monsanto's product, Aroclor 1016, which has 41% chlorine content (USEPA, 2003).

Biphenyl is known to be a fire retardant and its efficiency increases with increasing chlorine substitution. PCBs were extensively used in industries such as dielectrics and also as additives to heat transfer fluids, plasticizers, solvents and paints mainly due to their chemical and physical stability. PCBs are also found in old fluorescent lighting fixtures and electrical devices containing PCB capacitors and in old microscopic and hydraulic oils.

PCBs have also been used as coolants and lubricants in transformers and capacitors because they do not burn easily and are good insulators. Widespread PCB applications combined with lax disposal practices has resulted in almost ubiquitous contamination of various environmental media, ranging from soils and sediments to rivers and streams, with PCBs (Hutzinger et al. 1975).

Health concerns arose from PCBs suspected toxicity and carcinogenity, as well as its endocrine disruptive effects (USEPA, 2003). PCBs also bio-accumulate in the food chain, with concentrations increasing by several orders of magnitude at succeeding tropic levels. These factors, combined with growing awareness of the fragility of the environment, resulted in the banning of PCB production in 1977 in the US (Abromowicz et al. 1993).

Currently PCBs are regulated under the Toxic Substances Control Act (TSCA) and the Comprehensive Environmental Response and Liability Act (CERLA), and by the United States Environmental Protection Agency (USEPA).

2.2 PCB Classification:

PCBs are mixtures of aromatic chemicals, manufactured by the chlorination of biphenyl in the presence of a suitable catalyst. The general chemical formulae of any PCB could be represented as $C_{12}H_{10-n}\ Cl_n$, where subscript n indicates the number of chlorine atoms and has a range of 1-10. Theoretically, 209 congeners are possible. Each congener consists of a biphenyl molecule with chlorination from one (monochloro biphenyl) to 10 (decachlorobiphenyl) chlorines. Figure 2.1 is a schematic diagram of a biphenyl molecule showing the numbering of each ring and position designated as *ortho* (o), *meta* (m), and *para* (p), where chlorine substitution can occur in PCBs.

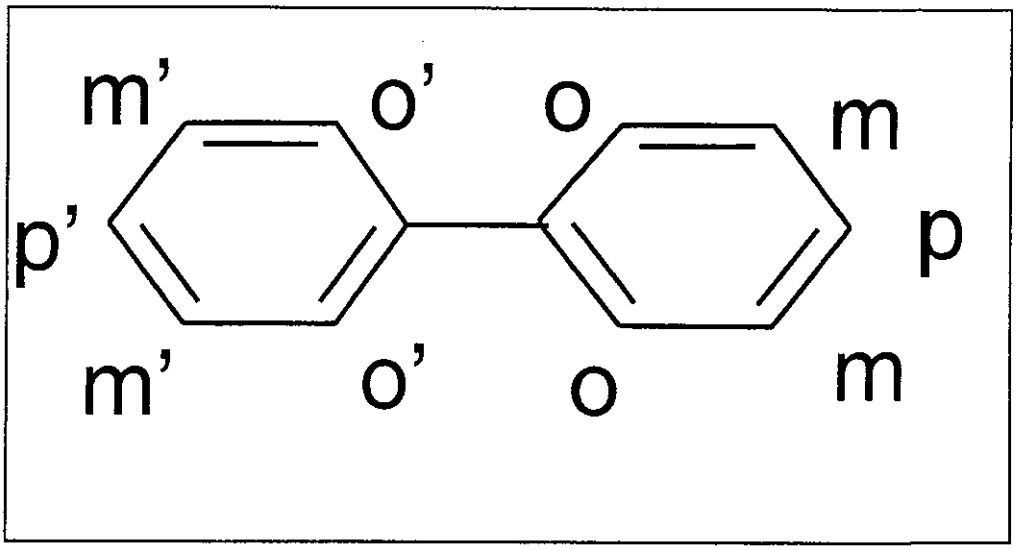

Figure 2.1: Structural formula of biphenyl

When PCBs are subdivided by the degree of chlorination (i.e., number of chlorine atoms), the term 'homolog' is used. PCBs of a given homolog with different chlorine substitutions are called isomers. Table 2.1 lists the molecular weight, and percent chlorine for the various possible PCB homologs. Hydrogen, carbon and chlorine have two values of the molecular weight which are explained by differences in atomic weight of the most common isotopes (i.e., ^{1}H –1.0079, ^{12}C- 12.000 and ^{35}Cl – 34.969) and natural abundance ratio of different isotopes (i.e. Hydrogen –1.0088, carbon – 12.011, chlorine – 35.453).

Table 2.1: Compositions of chlorinated biphenyls by homolog (**Erickson, 1992**)

Formula	Biphenyl substitution	Molecular weight	Wt% chlorine	Number of isomers
$C_{12}h_{10}$	Biphenyl	154.1	0	1
$C_{12}h_9cl$	Monochloro-	188.5	19	3
$C_{12}h_8cl_2$	Dichloro-	222.9	32	12
$C_{12}h_7cl_3$	Trichloro-	257.4	41	24
$C_{12}h_6cl_4$	Tetrechloro-	291.8	49	42
$C_{12}h_5cl_5$	Pentachloro-	326.3	54	46
$C_{12}h_4cl_6$	Hexachloro-	360.7	59	42
$C_{12}h_3cl_7$	Heptachloro-	395.2	63	24
$C_{12}h_2cl_8$	Octachloro-	429.6	66	12
$C_{12}hcl_9$	Nonachloro-	464.1	69	3
$C_{12}cl_{10}$	Decachloro-	498.5	71	1
				Total: 209

2.3 Physical and Chemical Properties of PCBs:

PCBs are either oily liquids or solids, which range from colorless to light yellow. They have no smell or taste, and there are no known natural sources of PCBs. PCB mixtures are prepared by the chlorination of biphenyl with anhydrous chlorine using iron filings or ferric chloride as the catalyst. In small-scale production, the crude product can be generally purified to remove color, traces of hydrogen chloride and catalyst, which is usually achieved by treatment with alkali distillation (Hutzinger et al., 1975).

Commercial PCB mixtures were usually synthesized by the direct chlorination of biphenyl with chlorine gas (Durfee *et al.*, 1976). The physical and chemical properties of PCBs vary on a congener-by-congener basis based on the degree of chlorination. The commercial mixtures usually contain only 60 to 90 of the possible congeners (Schulz et al., 1989). The most toxic congeners however, are those that hold a coplanar

conformation with chlorine substituents on the *meta* and *para* positions of the phenyl rings (Crine, 1986).

Most individual chlorobiphenyl's are solids at room temperature whereas commercial mixtures are mobile oils (e.g., Aroclor 1221, 1242, and 1248), viscous liquids (e.g., Aroclor 1254) or sticky resins (e.g., Aroclor 1260 and 1262), due to mutual depression of the melting points of their components (Hutzinger et al., 1975). Table 2.2 gives the average molecular weight of prevalent commercial Aroclor preparations.

The most important physical properties of PCBs from an environmental perspective are their solubility and vapor pressure. The solubility of PCBs in water is low and decreases with increasing chlorine content.

Table 2.2: Chlorine content of Aroclor preparations (Hutzinger et al., 1975 & Erickson, 1992)

Aroclor	%chlorine	Average number of Cl per molecule	Average molecular weight (g/mole)
1221	20.5 - 21.5	1.15	192
1232	31.5 -32.5	2.04	221
1242,1016	40 - 42	3.1	261
1248	48	3.9	288
1254	54	4.96	327
1260	60	6.3	372
1262	62	6.8	389
1268	68	8.7	453
1270	70 - 71	10	498

Studies on the solubility of PCB in water are sometimes complicated by the fact that these compounds are strongly adsorbed onto various surfaces. Cseh *et al.*, (1989) studied various materials potentially used in PCB handling and commonly found in laboratories and demonstrated that the adsorption of PCBs increases with lipophilicity of the materials used to handle PCBs.

PCBs are poorly soluble in water but extremely soluble in oils and fats. Therefore, they tend to partition out of the aquatic ecosystem into biological tissue. Because of the fact that they are persistent and tend to be poorly metabolized by living systems, they bio-accumulate in the food chain leading to an increase in concentration at each succeeding trophic levels. This is called bio-magnification. Depending on the congener, their half life in humans ranges from 30 days to 10 years (Clark, 1999).

Vaporization rate is also an important physical property to consider. In laboratory studies, using any of the commercial PCBs, careful attention must be given to both biotic and abiotic modes of PCB removal. Table 2.4 gives the vaporization rates of selected commercial Aroclors. Because of their low vaporization rates, even at elevated temperatures, this mode of PCB removal is usually insignificant, and in our studies and analyses, PCB volatilization was neglected as a mechanism for PCB transport.

In the environment, PCBs also occur as mixtures of congeners, but their composition differs from the commercial mixtures. This is because after release into the environment, the composition of PCB mixtures changes over time, through partitioning, chemical transformation, and preferential bioaccumulation. Partitioning refers to processes by which different fractions of a mixture separate into air, water, sediment, and soil. PCBs adsorb to organic materials, sediments, and soils; adsorption tends to increase with chlorine content of the PCBs and organic content of the other material (Callahan et al., 1979). PCBs can volatilize or disperse as aerosols, providing an effective means of transport in the environment (Callahan et al., 1979). Congeners with low chlorine content tend to be more volatile and more soluble in water (Callahan et al., 1979).

Table 2.3: Solubility of chlorobiphenyls and Aroclor mixtures in water 25°C (from Hutzinger *et al.*, 1975)

Compound	Solubility mg/l (ppm)
Biphenyl	7.1
Monochlorobiphenyls	
2	5.9
3	3.5
4	1.19
Dichlorobiphenyls	
2,4	1.4
2,2'	1.5
2,4'	1.88
4,4'	0.08
Trichlorobiphenyls	
2,4,4'	0.085
2',3,4	0.078
Tetrachlorobiphenyls	
2,2',5,5'	0.046
2,3',3,3'	0.034
2,2',3,5'	0.17
2,2', 4,4'	0.068
2,3', 4,4'	0.058
2,3', 4', 5	0.041
3,3', 4,4'	0.175
Pentachlorobiphenyls	
2,2', 3,4,5'	0.022
2,2', 4,5,5'	0.031
Hexachlorobiphenyls	
2,2', 4,4', 5,5'	0.0088
Octachlorobiphenyls	
2,2', 3,3', 4,4', 5,5'	0.007
Decachlorobiphenyl	0.0015
Aroclor 1242	200ppb
Aroclor 1248	100ppb
Aroclor 1254	40ppb
Aroclor 1260	25ppb

Table 2.4: Vaporization rates of Aroclors (from Hutzinger *et al.*, 1975).

Aroclor surface area: 12.28 cm^2	Wt loss (g)	Exposure at 100°c (hr)	Vaporization rate ($g/cm^2/hr$)
1221	0.5125	24	0.00174
1232	0.2572	24	0.000874
1242	0.0995	24	0.000338
1248	0.0448	24	0.000152
1254	0.0156	24	0.000053
1260	0.0039	24	0.000013
1262	0.0026	24	0.000009

2.4 Production And Uses Of PCBs:

The commercial production of the PCBs began in 1930 (USEPA, 2003). They have been widely used in electrical equipment, and smaller volumes of PCBs were used as fire-resistant liquids in nominally closed systems. By the end of 1980, the world production of PCBs was about 1 million tons. Despite increasing restrictions on its use, large amounts of this compound continue to be present in the environment, either in use or as a waste. Table 2.5 shows the usage of PCBs in various commercial and industrial sectors.

Table 2.5: Industrial uses of PCBs (from EPA, 1994)

PCBs usage	**Percentage**
Capacitors	50.3
Transformers	26.7
Plasticizer uses	9.2
Hydraulics and lubricants	6.4
Carbon-less copy paper	3.6
Heat transfer fluids	1.6
Petroleum additives	0.1
Miscellaneous industrial uses	2.2

2.5 Health Effects Of PCBs:

PCBs have been demonstrated to cause a variety of adverse health effects (US EPA, 2003). PCBs have been shown to cause cancer and a number of serious non-cancer health effects in animals, including effects on the immune system, reproductive system, nervous system, and endocrine system (Klaassen, 1995). The different health effects of PCBs may be interrelated, as alterations in one system may have significant implications for the other systems of the body.

People and most animals absorb PCBs through their skin, the lungs, and the gastrointestinal (GI) tract. For industrial workers, lungs and absorption through skin were the major modes of entry. However, for most people the GI tract is the primary source of entry into the body (Jacobson & Jacobson, 1996). Once these chemicals are inside an individual, they are transported through the blood stream to the liver and to various muscles. The liver is the organ that acts as a sink for these foreign molecules. However, because they are highly lipophilic, the PCBs tend to preferentially accumulate in adipose tissue. They are also present, to a smaller extent, in serum, organs and tissues, and human milk. The concentrations of PCBs in the different organs depend on the lipid content of such organs, with the exception of the brain, where the concentration is lower. PCBs, to a certain extent, do also pass through the placenta, and they are primarily excreted through bile and milk.

The Yusho accident in 1968 and Yu-Cheng accident in 1980 are two unfortunate examples of effects of short and long term exposure of humans to PCBs. In June 1968, patients with chloracne appeared at the hospital in Fukuoka, Japan, and it was found that the disease originated from the consumption of a particular batch of rice oil. The disease

was called Yusho (rice oil disease). The rice oil was found to be contaminated with about 375 mg/kg PCBs, which had entered the oil through a leak in a heat exchanger. By 1982, nearly 2000 Yusho patients had been identified. In 1979, a similar accident occurred in Taiwan that affected about 2000 persons. This incident was called Yu-Cheng. The affected persons had consumed rice-bran oil contaminated with PCBs that was used as a heat transfer medium in the manufacture of the oil. The estimated average total intake was 973 mg PCBs (Hayabuchi *et al.* 1979, Chen *et al.* 1985).

PCBs are known to be passed from the mother to the fetus through placental blood and to the baby via breast milk (Jacobson & Jacobson 1996). PCBs are also suspected to be immunotoxic. In animal studies, it was found that PCBs caused severe atrophy of the primary and secondary lymphoid organs. They also caused pancytopenia, cachexia, immunosuppression, and tumor promotion (Klaassen, 1995). Studies to characterize the immunotoxic action of the PCBs were primarily focused on the antibody response. PCB exposure and effects on antibody response have been demonstrated in guinea pigs, rabbits, mice, and rhesus monkeys (USEPA, 2003).

The toxic effects of PCBs on humans and animals may vary according to the route of exposure, age, sex, and the area of the body where the PCBs are concentrated. PCBs are suspected to be the promoters of tumors and birth defects based on animal studies (Klassen, 1995).

Studies showed that PCBs cause intellectual impairment in children exposed to them *in utero* (Jacobson, 1996). There are some commonly associated health problems in animals and humans which have been proven to be caused by PCB exposure, including cloracne (dermal lesions), progressive weight loss, bone marrow depression, reproductive

system dysfunction in females – uterotrophic abdominal pain, numbness of limbs, swelling of joints, chronic cough, menstrual irregularity, abnormal tooth development, low birth weight, hyper pigmentation, fatigue and headache (Klassen, 1995).

The Environmental Protection Agency (EPA) has set a maximum contaminant level (MCL) for PCBs of 0.0005 milligram per liter of drinking water (0.0005mg/l). The food and drug administration (FDA) requires that milk, eggs, other dairy products, poultry fat, fish, shellfish, and infant foods contain not more than 0.2-3 parts of PCBs per million parts (0.2-3 ppm) of food (US EPA, 2003).

2.6 Environmental Concerns From PCBs:

Eradicating PCBs from the global environment requires eliminating their sources, whether such sources are specific facilities, processes or materials. It also requires destruction of stockpiled PCB and associated environmental contamination. Persistent organic pollutant (POP) stockpiles are estimated to include more than one million tons of PCBs, distributed globally (Miertus et al., 2000).

The technologies used for destroying stockpiles of persistent organic pollutants must meet the following fundamental performance criteria:

Destruction efficiencies of effectively almost 100 percent for the chemicals of concern: the determination of 100 percent destruction efficiency is necessarily based on findings of extremely low concentrations of the chemicals of concern, approaching zero in any and all residues or outflow streams using the most sensitive analytical techniques available worldwide.

In order to maintain the above-mentioned goal, priority is recommended for technologies that imply containment of all residues and out flowing streams for screening

and, if necessary, reprocessing. Technologies which require uncontrolled releases, even at barely detectable levels, should be carefully scrutinized and possibly avoided.

2.6.1 Destruction Efficiency (DE):

The overall destruction of a hazardous compound is calculated based on total weight of the same into the process, minus the sum of the compound found in all products, by-products, and environmental releases, divided by the compound input. DE is reported as percentage. It is typical that a destruction efficiency of 99.99% must be maintained.

2.6.2 Destruction And Removal Efficiency (DRE):

Destruction and removal efficiency is intended as the efficiency in destruction and removal from the main stream, generally the flue gases. It is calculated similar to the DE, but it refers only to one stream that may be useful to evaluate cleaning equipment, while may be misleading for the whole process evaluation.

This measure only takes into account contaminants that are present in the stack gases (air emissions), but ignores toxic contaminants of concern released as solid and liquid residues, such as bottom ash and wastewater.

2.7 Reduction/ Destruction Technologies for PCBs:

In 1976, Congress enacted the Toxic Substances Control Act (TSCA), which directed the EPA to control the manufacture, processing, distribution, use, disposal and labeling of PCBs. Table 2.6 shows a list of disposal methods for different types of PCB materials approved by the US EPA.

Table 2.6: Methods approved for PCB disposal (from Miertus et al., 2000)

Type of PCB material	Methods
Liquid PCBs >500 ppm 50-500 ppm	PCB incinerator PCB incinerator, PCB boiler or PCB Landfill
Non-liquid PCBs > 50 ppm	PCB incinerator or PCB landfill
Dredged materials and municipal sewage treatment sludge > 50ppm	PCB incinerator or PCB landfill
PCB transformers >500 ppm 50-500 ppm	 PCB incinerator or PCB landfill Drain and dispose as solid waste
Other PCB- contaminated electrical equipment (except capacitors) containing 50-500 ppm	Drain and dispose as solid waste
PCB capacitors >500 ppm 50-500 ppm	 PCB incinerator PCB incinerator or PCB landfill
PCB hydraulics machine containing > 500ppm	Drain and dispose as solid waste
Other PCB articles >500 ppm 50-500 ppm	 PCB incinerator or PCB landfill Drain and dispose as solid waste
All other PCBs > 50 ppm	PCB incinerator

Currently PCBs are regulated under the Toxic Substances Control Act (TSCA), 1976 and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 1980 also known as superfund. Widespread contamination at current and formal industrial sites is the target of several superfund remediation sites. Of the many potential technologies, incineration is the main EPA approved method (Tharakan et al., 1998).

2.8 Historic Treatment Technologies:

In the past, PCBs and other POPs, that are difficult to destroy, have commonly been managed by storage, burials in landfills, and/or burning in combustion systems (e.g., dedicated incinerators, industrial boilers or cement kilns). Few nations still allow injection in deep wells. Among all these practices, only the combustion systems accomplish the degree of destruction that is recommended (Miertus et al., 2000).

2.8.1 Landfill Cap System and Deep Well Injection:

Landfill capping is one of the most common forms of remediation technologies. It is used to cover buried waste materials to prevent contact with the environment and to effectively manage the human and ecological risks associated with a remediation site. Landfills may be temporary or permanent. For persistent substances like PCBs, burial in landfills is not a destruction technology, but a method of containment. It is considered to be ineffective because constituents in the buried wastes can escape into the surrounding environment, primarily through leaching into ground water and volatilizing into the air. PCBs are known to escape from landfills by volatilizing into the surrounding air (Bracewell, 1993) and are known to evaporate more rapidly with increased moisture in soils, sediments and even with increased relative humidity (Chiarenzelli et al., 1998).

Injection of hazardous chemicals deep into wells is not a widely used technology. In fact, the Food and Agricultural Organization (FAO) in 1996 designated deep well injection as "unsuitable because of the environmental risk and lack of control". Little is known about the long-term behavior of the chemicals that have been injected down into the deep wells. The potential reactions that may occur underground are unknown and it is

not possible to track their movement, and they may later be found as groundwater contaminants (Miertus et al., 2000).

2.8.2 Solvent Extraction and Soil Washing:

Solvent extraction and soil washing are physical separation processes used for the transfer of constituents from one liquid solution or solid matrix to another. The separated constituents are chemically unchanged. Meckes, in 1994, demonstrated the Terra-Kleen[tm] solvent extraction systems ability to reduce PCB concentration in 1- ton batches of soil from each of three PCB contaminated sites to less than 2mg/kg, with removal efficiency rates from 98.7-98.9%. One of the benefits of solvent extraction and soil washing is the lower energy requirement. The primary concern of using extraction and washing technologies are the emission and residuals obtained which need further treatment and disposal.

2.8.3 Thermal Processes:

2.8.3.1 High Temperature Incineration:

This has been one of the most applied remediation technologies for the treatment of a variety of contaminants like PCBs. It is a high temperature (870°C to1200°C) destructive *ex situ* treatment of polluted soil. Contaminated soil is fed into the incinerators, under controlled conditions, and applying high heat inputs, chemical constituents are burned and chemically oxidized.

Incineration can handle a broad range of hazardous wastes. Burning can be enhanced by the presence of other high-energy oils in PCB transformers. These systems require significant energy consumption and are used for organic contaminants of high

concentrations. For PCBs, the high temperature incinerator can achieve destruction and removal efficiencies up to 99.9999% (OHM Remediation Service, 1995).

2.8.3.2 Pyrolyisis (Anaerobic Thermal Process):

Pyrolysis is defined as the chemical decomposition or change brought about by heating in the absence of oxygen. It involves physical separation process that thermally desorbs organics such as PCBs from soil, sediments, and sludge. In a case study at Wide Beach Superfund site in Brant, NY, PCB concentrations were reduced from an average concentration of 28.2 mg/kg in the contaminated soil to an average concentration of 0.043 mg/kg in the treated soil, using pyrolysis (de Percin, 1995).

Pyrolysis is a low temperature process compared to incineration. The recoverable constituents can be concentrated for reuse or as an energy source. The disadvantage of this process is the possibility that some of the carcinogenic substances present in the waste may not be completely degraded; higher temperatures may be needed for destruction and thus further treatment in an incinerator would be required (Chawla et al 2000).

2.9 Emerging and Innovative Technologies:

Evidence of adverse environmental public health impact of incinerators, cement kilns and similar combustions systems has created strong public opposition to incineration. This factor, as well as increasing infrastructural needs, particularly those associated with the management of air emissions and other residues, has encouraged the development of other destruction technologies. Australia holds a leading position in the use of technologies other than combustion for the destruction of intractable wastes and

environmental media contaminated with PCBs. As a result, Environment Australia (1997) has evaluated a wide range of these newer technologies described below.

2.9.1 Super Critical Oxidation:

The process of super critical oxidation appears to offer an effective means of treating organic contaminated wastewaters. Super Critical Water Oxidation (SCWO)™ process is a high temperature and pressure technology that uses the solubility properties of supercritical water for the destruction of organic compounds in toxic wastes. Under super critical conditions, with the addition of a proper oxidant (which may be oxygen, hydrogen peroxide, a combination of both, nitrate or any other oxidant) carbon is converted to carbon dioxide; hydrogen to water; chlorine atoms derived from chlorinated organic compounds to chloride ions, nitro-compounds to nitrates; sulfur to sulfates; and phosphorous to phosphates (Environment Australia, 1997).

The unique properties of super critical water are the key for the operation of this process. DREs of greater then 99% have been reported for the treatment of numerous hazardous organic compounds using SCWO. For example, bench scale tests have shown DREs of 99.999% or higher for chlorinated solvent and PCBs (National Research Council, 1993) remediation.

2.9.2 Chemical Reduction Reaction:

The Eco Logic ™ process involves the gas-phase reduction of organic compounds by hydrogen at temperatures of 850°C or greater. Organic compounds are ultimately reduced to methane, hydrogen chloride, and minor amounts of low molecular weight hydrocarbons (benzene and ethylene). The primary chemical reactions that occur in the Eco Logic process are reductive and involve breakdown of the hydrocarbon structure and

hydrogenation of the product carbon to form methane. Organic molecules such as PCBs, PAH'S, chlorophenols, dioxins and chlorobenzenes are quantitatively converted to methane.

In commercial scale performance in Canada, the gas-phase reduction process achieved very high destruction efficiencies and DREs with high strength PCB oils. Dioxins that were present as contaminants in the PCB oil were destroyed with efficiencies ranging from 99.999 to 99.9999% (Schwindendorf, 1995).

2.9.3 Catalytic Hydrogenation:

The potential destruction of chlorinated wastes by hydrogenation over noble metal catalysts has been recognized for many years (Environment Australia,1997). The Commonwealth Scientific and Industrial Research Organization (CSIRO) division of coal and energy technology has developed a process for the regeneration of PCB contaminated transformer fluids using hydrogenation catalysts based on metal sulfides. This process is claimed to destroy a wide range of chlorinated hydrocarbons, yielding hydrogen chloride and light hydrocarbons as by-products (Musoke et al. 1982).

Most gaseous effluents are recycled through the reactor. It was also detected that they were no hazardous gaseous emissions and that PCBs leaving the chamber were less than 15 ng/m^3.

2.9.4 Advanced Oxidative Process:

Advanced oxidative processes (AOPS) involve the use of O_2, H_2O_2, TiO_2, UV light, electrons, iron or other oxidizing compounds to degrade PCBs and volatile organic compounds (VOCS). AOPS utilize these oxidizing agents to produce free radicals, which indiscriminately destroy organic matter.

Electro Chemical Peroxidation (ECP) is an advanced oxidative process developed by researchers at the State University of New York at Oswego, which uses electricity, steel electrodes, and peroxide to degrade PCBs and VOC'S. ECP can effectively and economically degrade low PCB concentrations in soil, sediments, and dredged slurries. ECP has also reduced treatment duration from hours to minutes to degrade PCBs in sediment and water. Bench scale experiments have demonstrated degradation of 95% of PCBs in liquids and 68% of PCBs in slurries. Other applications for electrochemical peroxidation include PCB surface decontamination, dye decoloration, destruction of benzene, toluene, xylene in ground water, simultaneous metal removal and organic destruction (ERC 1996).

2.9.5 Solvent Extraction- Chemical Dehalogenation- Radiolytic Degradation:

Solvent extraction technology can be applied to soils contaminated with volatile and semi volatile organic compounds and other higher boiling point complex organics, such as polychlorinated biphenyls. Recent US EPA regulatory guidelines allow soil extraction with non-harmful solvents for removal of PCBs (USEPA, 1998). Under appropriate conditions, solvent extraction is considered a cost-effective method to treat PCBs and other chlorinated compounds. A major limitation is the compounds transferred to another phase must be subsequently destroyed through a secondary method adding to overall remediation costs. Recent studies showed that PCB concentration in transformer oil was reduced from 700 ppm to non-detectable levels in less than five minutes using chemical dehalogenation. Radiolytic degradation showed that increased γ–ray dosage degraded PCBs from 300ppm down to 1ppm in solvent saturated soil (Nam et al., 1999).

Chapter 3: Bioremediation

Bioremediation is a process that uses microorganisms to mediate the transformation of hazardous chemicals to less toxic and environmentally acceptable compounds (Hicks & Caplan, 1993). Bioremediation occurs only when microorganisms have access to a variety of materials that help them to generate energy. In this process, microorganisms break down the substrate (hazardous compound) and generate chemical energy. The energy liberated is used to drive non-spontaneous processes and also helps in building more cells, thus increasing the biomass (National Research Council, 1993). Bioremediation can be an efficient and cost effective way to remove hazardous substances from liquid, vapor, and solid phases. Bioremediation has become an attractive alternative as most full-scale bioremediation projects involve contaminant treatment on site. This is also attractive because it can potentially mineralize the organic compounds to CO_2 and H_2O.

Bioremediation has grown from an unknown technology to one of the preferred treatment technologies considered for source control at Superfund sites (EPA, 1989). Much of the basis for this growth is a result of bioremediation's lower cost compared to incineration and containment. Bioremediation is also attractive because it destroys most organic wastes, eliminating health and ecological effects as well as future environmental liabilities.

3.1 Application of Bioremediation:

Biological processes are similar to catalyzed chemical processes. Bioremediation is more intricate because it uses a catalyst (enzyme) that is supplied by microorganisms to catalyze the destruction of specific hazardous compounds (target compound), which may

or may not be the substrate. The catalyzed chemical reactions can be conducted within the cell (intracellular) or outside the cell (extracellular). The principle reactions are oxidation-reduction (redox) reactions that are necessary for the generation of energy for the microorganisms.

The application of catalyzed oxidation-reduction reactions would be relatively simple were it not for the unique requirements of microorganisms. Microbes are highly specialized and play very specific roles in the mineralization of organic compounds. Meticulous environment control is necessary for enzyme production and the desired reaction. Thus, for successful bioremediation, the process must be controlled with a suitable energy source, an electron donor-acceptor system and nutrients (Cookson, 1995).

Bioremediation has been successfully applied to enhance natural degradation of petroleum hydrocarbons and organic chemicals at sites throughout the world. The bioremediation activities on the oily beaches of the Prince William Sound caused by the Exxon Valdez spill in 1989 were widely publicized. Similar technology was applied to crude oil spills along the Texas gulf coast during 1990 (Harkness et al., 1993). Gasoline and diesel contamination is especially responsive to this technology, both in soils and groundwater. Bioremediation is cost effective when both soil and groundwater matrices are impacted because one remediation treatment system can be designed to treat both media simultaneously and in-place.

3.2 Requirements for Successful Bioremediation:

The basic requirements for *In situ* bioremediation center on having conducive environmental conditions for microorganisms to efficiently metabolize organic contaminants. The basic requirements (Hicks & Caplan 1993) are outlined below:

A capable organism: Treatability studies will be needed to document that the indigenous microbial community can degrade the site contaminants. Laboratory procedures articulate degradation rates and investigate techniques to optimize environmental conditions that will allow the specific contaminant degraders to become the dominant population. If indigenous microbes are incapable of the degradation of the target compound, alternative microbes can be utilized. Of prime importance are microorganisms capable of producing enzymes that will degrade the target compound.

Enzyme induction: A supply of energy is needed for enzyme synthesis. Of prime importance are an energy source and an electron acceptor. Enzyme induction is most likely to occur under carbon-limited conditions. The concentration of the energy source compound is extremely important. If the concentration is too high, it may be toxic. If the energy source is too low, it may be inadequate for enzyme induction.

Growth nutrients: In addition to an energy source, microorganisms require inorganic compounds to form cellular material for growth and reproduction. In addition to carbon, cells are mainly composed of the elements hydrogen, oxygen and nitrogen. These four elements constitute about 95% (by weight) of living cells. Two other elements, phosphorous and sulfur, contribute about 70% of the remainder. The microbial requirements for nutrients are approximately the same as the composition of their cells. Other essential growth nutrients, which may include trace minerals, are usually found in surface water, groundwater and soil in sufficient concentration.

Moisture: Living cells need water to survive. Water content affects the availability of contaminants, the transfer of gases, the effective toxicity level of contaminants, the movement and growth stage of microorganisms and the availability and

movement of needed nutrients. Inadequate moisture, less than 40%, is reported to significantly reduce the rate of bioremediation (Madsen, 1991). Low moisture levels restrict bacterial activity by limiting cellular movement and metabolism reactions.

Favorable Temperature: Most common environmental microbes are effective at degrading contaminants over a temperature range of 8°C-30°C. The rate of degradation is a direct function of temperature and obeys the relationships originally described by Arrhenius as

$$k = Ae^{-E/RT} \qquad (3.1)$$

Where A = frequency factor,

E = activation energy (Joule/Mole)

R = gas law constant (Joule/Mole x Kelvin)

T = absolute temperature (°K)

Most bacteria stop metabolic activities at temperatures just above the freezing point of water (Hicks & Caplan 1993).

Favorable pH: The pH affects both the microorganism's ability to conduct cellular functions, cell membrane transport and the equilibrium of catalyzed reactions. Most bacteria grow best at neutral to slightly alkaline pH. Generally, pH should be maintained near 7 with a range of 6 to 10. Growth is usually poor at pH 4 or lower (Bailey and Ollis, 1986), but is dependent on the specific microorganism.

Physical-Chemical Characteristics: The target compound's physical-chemical properties may be considered. This would include such properties as volatility, absorption, basicity, consistency and solubility.

Finally, biodegradation of organic pollutants is accomplished either aerobically or anaerobically.

A) aerobic metabolism: Aerobic respiration is energy yielding metabolism involving oxidation reactions in which hydrogen (electrons) is transferred to oxidized pyridine nucleotides (NAD and NADP) resulting in reduced forms (NADH and NADPH) that either provide reducing power for biosynthetic reactions or can transfer the electrons to electron transport chains wherein high energy bonds of ATP are formed. The final electron acceptor is molecular oxygen.

B) Anaerobic Metabolism: Anaerobic respiration is an energy yielding reaction in which the final electron acceptor is a compound other than molecular oxygen, such as sulfate or nitrate. Many compounds can be mineralized anaerobically, yielding carbon dioxide and methane. The aromatic ring is first reduced to a cyclohexanone, and then cleaved to an aliphatic acid. Reduced co-enzymes must be available for such reactions.

3.3 Bioremediation Configuration:

There are three different ways in which bioremediation is practiced, *In situ* bioremediation, *ex situ* bioremediation and intrinsic bioremediation. *Ex situ* bioremediation may b conducted on site or off site.

3.3.1 *In situ* Bioremediation

Bioremediation can be accomplished in situ. As the name implies, the treatment is performed in its original place. *In situ* treatment is composed of systems that are operated by stimulating indigenous microorganisms or by adding microbes to the site to degrade those organic contaminants dissolved in ground water and attached to aquifer solids.

There are a number of advantages to using *In situ* bioremediation. Unlike other aquifer remediation techniques, it can often be used to treat contaminants that are sorbed to aquifer material or trapped in pore spaces. This is often faster than extraction and treatment processes.

There are some disadvantages to *In situ* bioremediation. Many organic compounds are resistant to degradation, the toxicity of the organic compounds might inhibit the growth of microorganisms at concentrations often found in contaminated sites (Water Science Technology Board, 1993). Injection wells may also become clogged from profuse microbial growth resulting from the addition of nutrients and oxygen (Johnston et al., 1996). *In situ* bioremediation is also difficult in low permeability aquifers that do not permit the transport of adequate supplies of nutrients and electron acceptors to activate microbial populations.

3.3.2 *Ex Situ* Bioremediation:

Ex situ bioremediation process requires removal of contaminants from their location and requires excavation. The practice of these techniques disrupts the landscape, may expose contaminants, and also requires replacement of soils. This method is followed when contaminant concentration is too low or too hazardous either to support *In situ* bioremediation or to be too risky for the environment. There are two types of *ex situ* bioremediation process.

3.3.2.1 *Ex situ (on-site)* bioremediation on-site:

Treatment of solid phase media onsite is accomplished by one of the three types of processes including land treatment, composting or heaping.

Land treatment of waste is a method of treatment that applies the waste to the land and mixes it with the surface soil. This method is also called land farming. The widest use of this treatment occurs in the petroleum industry, and for wood industry preservatives including creosol and pentachlorophenol.

Composting of waste is another *ex-situ* biological technique used for the treatment of soil. It is used whenever microorganisms are present and there are adequate aeration, optimum temperature, nutrients, ideal pH, and moisture. One of the techniques is called static piles. This technique uses perforated pipes to aerate the piles on its top. A negative aeration system created by vacuum at the base of the piles enables the air to be treated before it exhausts to the atmosphere. The processed air can also be recycled through the pile (Lagrega et al., 1994).

Soil heaping is a combination of land treatment and windrow composting. It is particularly used for large amounts of soil with low concentration of pollutants. The waste is placed over a series of interconnected pipes. The pipe system pulls air vacuum through the heap or blows air through it. The disadvantage of this system is that it degrades the waste slowly due to the low concentration of organics.

3.3.2.2 *Ex Situ* (Off-Site) Bioremediation:

In the *ex-situ* configuration, bioremediation of site media is usually conducted slurry reactors. Slurry-phase treatment is similar to conventional biological treatment except that the biomass is not recycled. In the treatment, the wastes undergoes mixing and aeration, desorption and biodegradation. This process can occur in a single reactor or multiple stage system, and flow can be continuous or batch. A multiple stage system

includes pretreatment such as surfactant addition to enhance pollutant desorption from soil (Auger et al., 1995).

Slurry-phase treatment degrades waste at a faster rate and requires less land than solid phase treatment (Lagrega et al., 1994). The effectiveness of slurry-phase treatment depends upon a number of factors including, pretreatment, desorption, solids concentration, mixer design, and retention time. Desorption is an important factor in the slurry reactors biodegradation efficiency. Investigations in the Netherlands and United States have suggested that desorption-diffusion from the sorbed phase to the solute phase is the limiting factor for the slurry phase treatment (Lagrega et al., 1994).

3.3.3 *Intrinsic* Bioremediation:

In a few instances, the natural conditions of a site provide all the essential materials in large enough quantities to enable bioremediation to occur. This is known as intrinsic bioremediation or natural bio-attenuation. It is a passive remediation method that can effectively reduce petroleum contamination in soil and ground water levels, and does not pose a risk to human health and the environment. Natural attenuation results from the combined effects of several processes including biodegradation, dilution, sorption, dispersion, and volatilization.

Traditional bioremediation technologies such as composting can also be applied to treat hazardous wastes. Bioremediation can be an efficient and cost effective way to remove hazardous substances from liquid, vapor, and solid phases. Bioremediation has become an attractive remediation technology because most full-scale bioremediation processes involve contaminant treatment on-site that significantly reduces costs by eliminating any excavation and transportation costs.

Bioremediation is expected to play a vital role in treatment of contaminated soil, sludge, and groundwater in the future. Bioremediation is an emerging technology, because it is cost effective when compared with technologies like incineration or chemical treatment. It is also attractive because it can potentially mineralize the organic wastes to nontoxic compounds such as CO_2 and H_2O. Table 3.1 shows the cost of bioremediation relative to other treatment technologies (Cookson, 1995). Table 3.2 lists the advantages and disadvantages of bioremediation

Table 3.1: Relative costs of various treatment technologies for hazardous waste (Chawla et al., 2000)

Method	First year	Second year	Third year ($/cubic yard)
Incineration	$530	None	None
Solidification	$115	None	None
Landfill	$670	None	None
Thermal desorption	$200	None	None
Bioremediation	$175	$27	$20

Table 3.2: Advantages and disadvantages of biodegradation (Chawla et al., 2000)

Advantages	Disadvantages
1) can be done onsite	1) some chemicals cannot be biodegraded
2) permanently eliminates waste.	2) extensive monitoring is needed
3) is cheaper	3) site specific requirements can affect Applicability
4) has positive public acceptance	4) toxicity of contaminants can be a problem
5) eliminates long term liability	5) unknown by-products can be produced.
6) minimizes site destruction	6) perception of unproven technology may Affect the use
7) eliminates transportation cost and liability	
8) can be coupled with other treatment techniques	

As shown in Table 3.2 the major advantages of bioremediation include lower capital cost, use of natural means, and the ability to completely degrade toxic organic compounds to water and carbon dioxide. However, bioremediation is site specific and requires extensive monitoring. Technologies using bioremediation treatment include bio-augmentation, bio filters, bioreactors, bio-stimulation, bio-venting, composting and land-farming (Chawla et al., 2000).

Chapter 4: Ralston Street Lagoon

4.1 Background:

The presence of the Gary lagoon site was discovered in 1980 during an aerial photographic survey of the area, oil dumping was observed. The Indiana State Board of Health (ISBH) conducted a preliminary site assessment in March 1984, and the site was referred to the EPA. The site was never permitted for waste disposal. The presence of PCB in the sewage sludge deposited in the lagoon was also first determined in the 1980's. PCB concentrations found were greater than 50 ppm , which is the TSCA limit for PCB concentration in sludge. The disposition of this municipal sewage sludge is regulated by 40 CFR 761.60(a). This regulation limits the disposal of PCB contaminated sewage sludge to permitted incinerators, chemical waste landfills, and 'alternate disposal methods' approved by the agency's regional administrator. In 1989, Gary Sanitary District (GSD) proposed to manage the PCB contaminated sewage sludge in place, an approach that would result in the lagoon being considered as an alternate disposal method by the USEPA.

4.2 Site Location:

The Ralston Street Lagoon (RSL) is located in Gary, Indiana, approximately one mile west of the Gary Wastewater Treatment plant and one-half mile south of the Gary municipal airport (Figure 4.1). The grand calumet river and its surrounding wetlands bound the lagoon on the north and west. The Indiana east-west toll road bounds the lagoon on the south and Ralston Street forms the eastern boundary. A service road has been constructed on an Eastern berm, which extends around the perimeter of the lagoon.

Figure: 4.1 Ralston Street Lagoon site description (from Gary Sanitary Report, 1997)

4.3 Site Description:

The Ralston Street Lagoon has a surface area of 18.5 acres contained on a 22-acre site. The site was developed initially as a burrow pit for fill material by the state of Indiana. The lagoon is partially enclosed with 1-3 feet high sand berms, which historically have been breached in several locations, and has recently been repaired. PCB contaminated oil and sludge might have migrated east from the lagoon through the sand berm into the wetland area. Directly east of the lagoon is a wide strip of dead vegetation approximately 100 feet wide and 175 feet long. This appears to be caused by surface dispersion and possible sub-surface migration of an unidentified contaminant. The site is heavily vegetated and supports a wide variety of wildlife, including waterfowl, small mammals, reptiles and fish. It appears to be compromised by the uncontrolled dumping of trash and construction debris. This site was acquired by the city of Gary in 1962 for use as sewage sludge storage area and ceased operation in 1988. As part of the modifications done to the lagoon sludge storage, influent and effluent pipes were installed. PCB contamination of the sludge in the lagoon required that both the pipes be sealed to isolate the lagoon from the wastewater treatment plant and the Grand Calumet River. Figure 4.2 shows the sludge volume in the Ralston Street Lagoon.

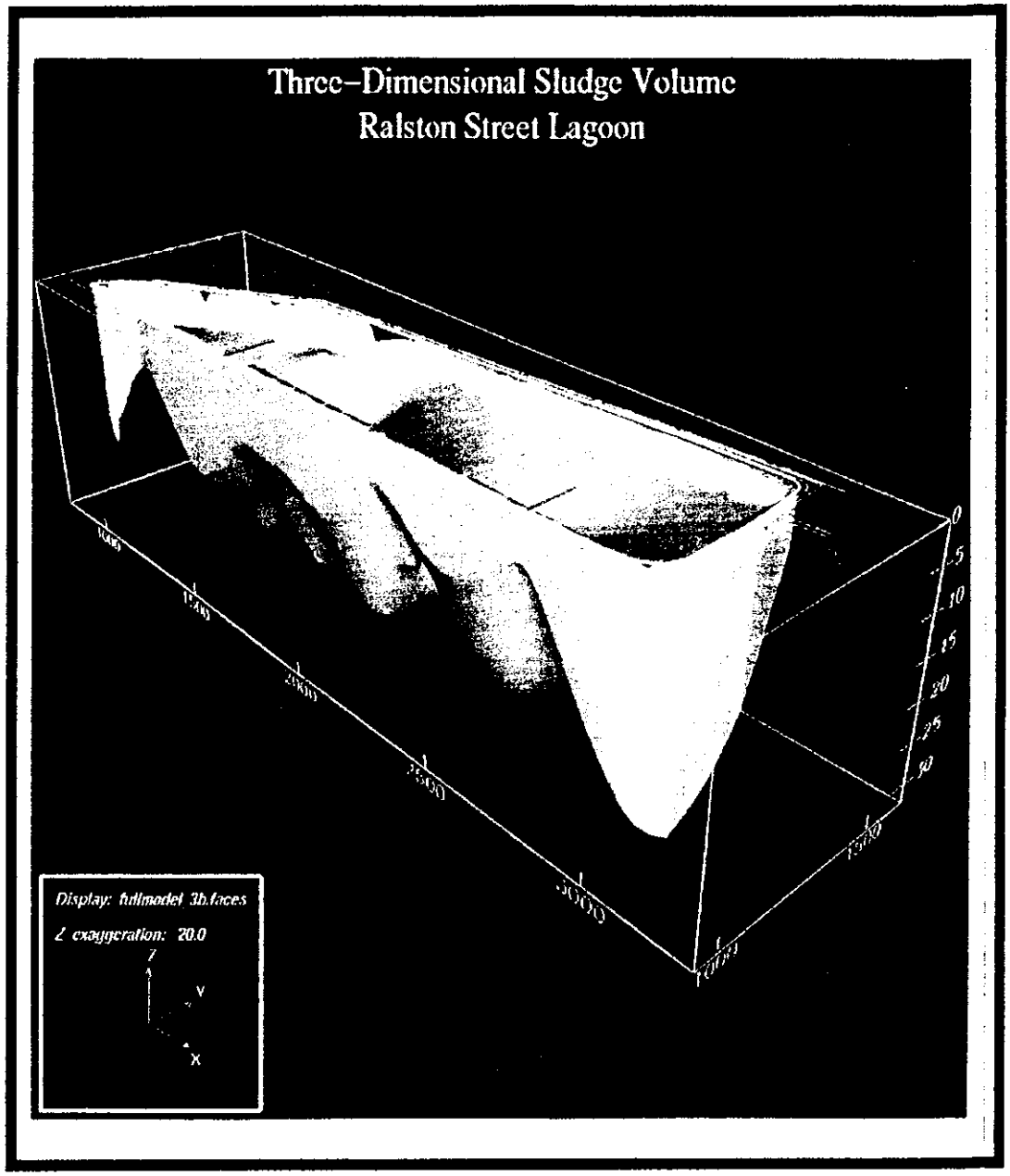

Figure 4.2 Three-dimensional sludge volume of the Ralston Street Lagoon (from Gary Sanitary Report, 1997)

4.4 Site History and Previous Analysis:

The presence of PCBs in the lagoon sludge has been a concern since the early 1980's. Two independent sampling events, done in 1983 and 1986, provided information on the amounts and distribution of the PCBs in the lagoon sewage sludge. Further sampling done in 1992 confirmed the high levels of PCB. Results from this study showed that the average PCB levels were significantly lower than previously determined.

In May 1983, sludge samples were analyzed from six locations along the three lagoon piers (located on the south side of the lagoon). The PCB content of these samples was reported as ranging from less than 10 to 1,000 parts per million (ppm) on a dry weight basis (mg/kg). Elevated PCB levels were observed in samples deep (>10ft) within the sludge deposited in the central and western portions of the lagoon. Specific Aroclor types were not determined for these samples.

In June 1986, sludge samples were taken from 25 randomly selected locations and analyzed for PCBs. Analytical results indicated that PCB concentration ranged between 70 to 790 ppm on a dry weight basis in these composites. The average PCB content in these composites was approximately 200 ppm. The PCBs present in the composites were identified as Aroclor 1248 and 1242.

In June 1992, twenty-two sludge samples were collected and analyzed for PCBs. The results showed that the specific type was mostly Aroclor 1248. The concentration ranged from less than 10 to over 300 ppm with an average of less than 50 ppm assuming a twenty percent solid content. The overall comparison showed no obvious similarities between the original depth specific 1983 sampling event and the 1992 depth specific sampling event. However, the 1992 date suggested that PCB concentrations throughout

the lagoon might now be significantly lower than previously determined. This may be due to anaerobic dechlorination or biodegradation caused by organisms present in the sludge, or possibly due to volatilization, although the latter rate would be extremely low.

4.5 RSL Sludge Description:

The sludge sampled throughout the lagoon was homogeneous in nature. There was a slight noticeable difference in the solid content with each sample; however, the color, texture, structure and consistency remained fairly similar.

The color of the sludge samples was black to dark gray. The underlying sand was brown to tan with gray appearance near the contact to the sludge. Occasionally the sludge or associated water would have a sheen and odor similar to that created by petroleum products. However, the sheen was more apparent bubbling up from depth at the sample grid location following the sampler removal (sheen on the lagoon's water surface) than what was seen in the actual sample extruded from the sampler.

The sludge samples were extremely fine ground, very soft organics resembling the texture of pudding. Occasionally there were accessory recognizable materials (e.g. Hair, cigarette stubs). The samples showed no signs of stratification or lamination. The sludge samples were loose and very plastic. There were some voids occasionally created in the two-foot sludge samples presumably due to vacuum effects.

The percent solids in the sludge samples were generally within a range of 2.0 to 73.0 percent and an average value of 14.7 percent.

4.5.1 PCB Concentrations in Sludge:

The only Aroclor detected above the method of detection limits was Aroclor 1248. The concentrations of Aroclor 1248 in the sludge on dry weight basis ranged from

19 to 1,300 ppm with an average value of 182.2 ppm. There is a general trend toward an increase in the concentration with depth. However, spatially within the sludge volume or there exist a wide range of concentration. The Ralston Street Lagoon report shows the presence of Aroclor 1248 in the sludge. The concentrations of Aroclor 1248 as given in the report are shown in Figure 4.3.

4.5.2 PCB Concentrations in Surface Waters:

The PCB analysis for the surface water samples demonstrated PCB levels below the detection limit. The result of the analyses of surface waters free of suspended particulates affirms the low solubility of PCBs, and supports the suggested migration of PCBs to the denser sludge layers at the bottom of the lagoon.

4.6 Risk Mitigating Factors

Historically, the overlying waters have shown only limited contamination by PCBs. The difference between the aqueous and solid phase levels clearly reflects the tendency of PCB towards sorption onto solid surfaces, and particularly towards those with organic character such as that found in the lagoon. The fact that PCBs contained in the overlying waters were removed upon laboratory filtration further supports this statement. This behavior is expected to limit the migration (and loss) of PCBs from the lagoon, either into the overlying waters or via passing groundwater. Continued ground water sampling since 1988 has shown results of non-detectable levels of PCBs in the groundwater. Overall, the observed pattern of sampling results suggests that the PCBs are being retained within the lagoon.

The evaluation indicated that the movement due to flooding of the lagoon was the only plausible pathway for potential human exposure to PCBs. The highest concentration

of PCB in the surface water measured prior to the August/September 1996 sampling event was 0.001ppm.

4.7 Sludge Sampling Analysis:

4.7.1 Conclusions and Recommendations of the Gary Sanitary District

The majority of the sludge within the Ralston Street Lagoon contains PCBs principally Aroclor 1248 above the 50 ppm regulatory threshold. Some isolated areas have also been found to contain Aroclor 1248 above 50ppm. Laboratory analysis of the Midwest sample confirms the presence of Aroclor 1248 in the sludge. Extraction and analysis in our laboratory demonstrated the sludge PCB concentration was around 900ppm. This is more than the regulatory threshold.

There is a general trend of increasing PCB concentration with depth within the sludge volume; however, the GSD data shows a spatial variability of concentration throughout the sludge. Large differences have been shown to exist over short spatial distances (~ < 10ft). The entire volume of sludge may be considered to be above regulatory limit of 50ppm with most of the area below 500 ppm PCB for remedial purposes. The preliminary risk analysis concluded that there is little chance of the contaminants migrating from the lagoon. Therefore, *In situ* treatment of the PCBs may be a viable choice for remediation and site clean-up.

The remedial alternative that appears most feasible and cost efficient at this time would be to combine the volume of sludge from the Ralston Street Lagoon with the larger remediation and disposal effort associated with the Grand Calumet River. The sludge could be hydraulically dredged and pumped to a remedial facility where it would be conditioned for disposal and/or treatment. Reducing the amount of water associated

with the sludge by dewatering prior to sludge removal or prior to disposal is critical in reducing the volume and cost of remediation.

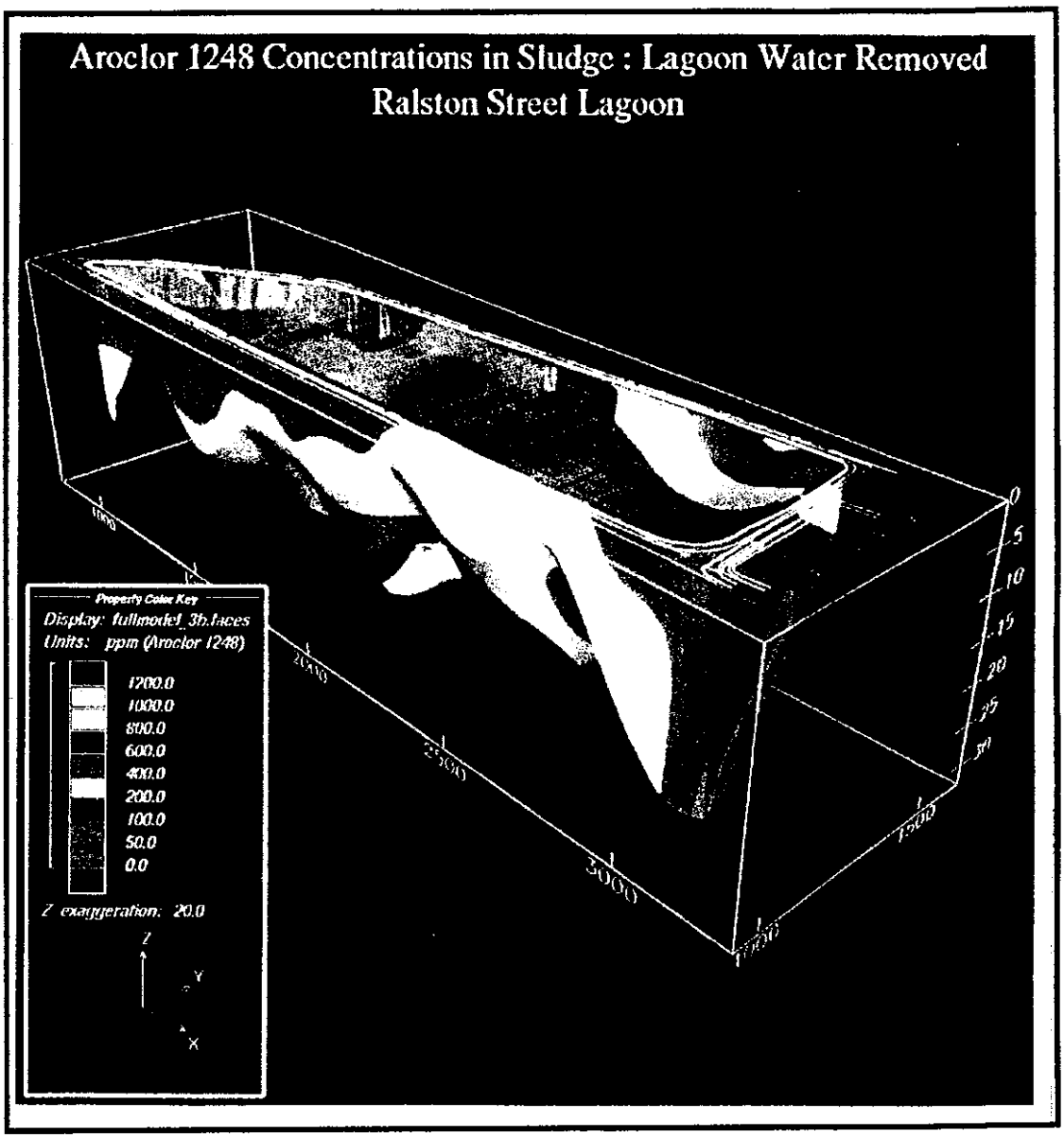

Figure 4.3 Aroclor 1248 concentrations in the sludge (from Gary Sanitary Report, 1997)

Chapter 5: Earthworms and Vermicomposting

5.1 Vermicomposting:

The Latin word for worms is 'vermes' and vermicomposting is essentially composting with worms. Everyday, organic wastes are generated from domestic residents, residential colonies, villages, towns, city municipalities and industries. Every one faces acute problems concerning the disposal of the organic wastes generated either from the kitchen or from factory sites. Treatment of such wastes using chemicals or other technological processes like incineration is not only expensive, but also requires a great deal of expertise and manpower and is also considered harmful to the environment and is dangerous to public health.

Vermicomposting can convert all such organic wastes into wealth (Darwin 1881). Every home or municipality can vermicompost its organic wastes after predigestion without the need to transport such wastes over long distances for disposal. This is an environment-friendly technique entailing no pollution whatsoever. Hence, vermicomposting is a more suitable technology for solid waste disposal compared to the conventional methods like land filling and incineration.

Earthworms are today being successfully used for purposes of treating a wide variety of organic wastes, because the wastes deposited in the worm decomposes and is gradually digested through the intestines of the earthworm. Passage of organic material through the earthworm's gut converts the locked-up minerals into available forms, which are readily assimilable by plants. This is made possible by the large number of micro flora in the gut of earthworms. Increased microbial numbers in the worms gut and cast compared to the surrounding soil have been reported by a number of researchers (Flack

and Hartenstein, 1984). This decomposition process can be speeded up resulting in obtaining a richer product.

True composting is the transformation of organic material (plant matter) through decomposition by microbes into a soil like material called compost. Vermicomposting is not really composting. In fact, worms are likely to die under true composting conditions due to heat production during the process (Ismail, 1997).

The five basic ingredients to start a vermibed (vermes = earthworms, bed = bedding) are a container, bedding, water, earthworms and non fatty kitchen scraps. A vermibed comprises a layer of 15-20 cm thick loamy soil above a thin, 5 cm layer of broken bricks and coarse sand. Earthworms are introduced in the soil layer with a little cattle dung and hay on the top as feed. The earthworms grow and multiply in this bed.

Vermitech (Figure 3.1) is carried out by first placing a basal layer of a vermibed comprising broken rocks or pebbles followed by coarse sand to a thickness of at least 6-7.5 cm to ensure proper drainage. This is topped by a layer of soil up to a height of not less than 15 cm, after it is moistened. In this soil, earthworms are inoculated. Small lumps of cow dung are scattered over the soil and this is covered with a layer of hay up to 10 cm in height. Water may be sprayed liberally until the entire set up is moist but not wet. The unit is finally covered with broad leaves like coconut or palm rah fronds or old jute bags. Regular watering and monitoring should be done. The steps described above are systematically shown in the diagrams A,B,C,D,E,F,G,H and I of Figure 5.1 (Ismail, 1997).

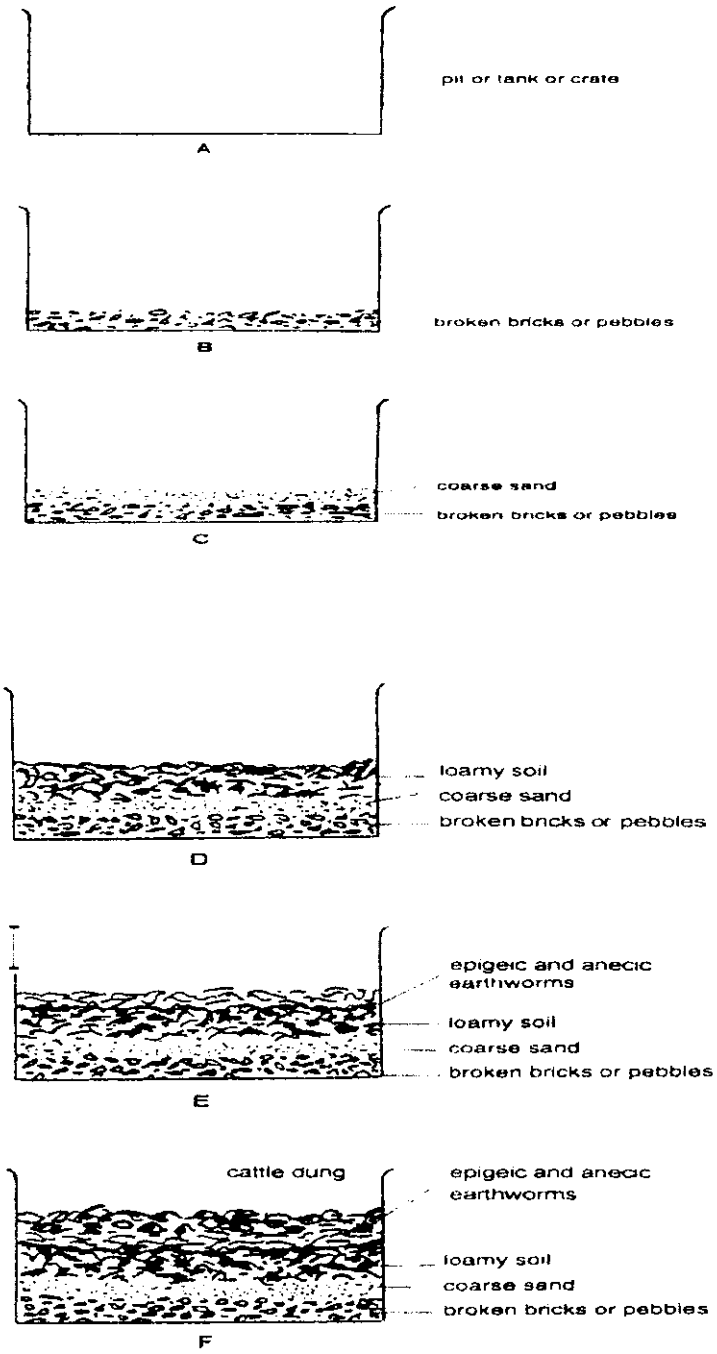

Figure 5.1: Setting up a vermicompost unit (from Ismail, 1997) (Continued)

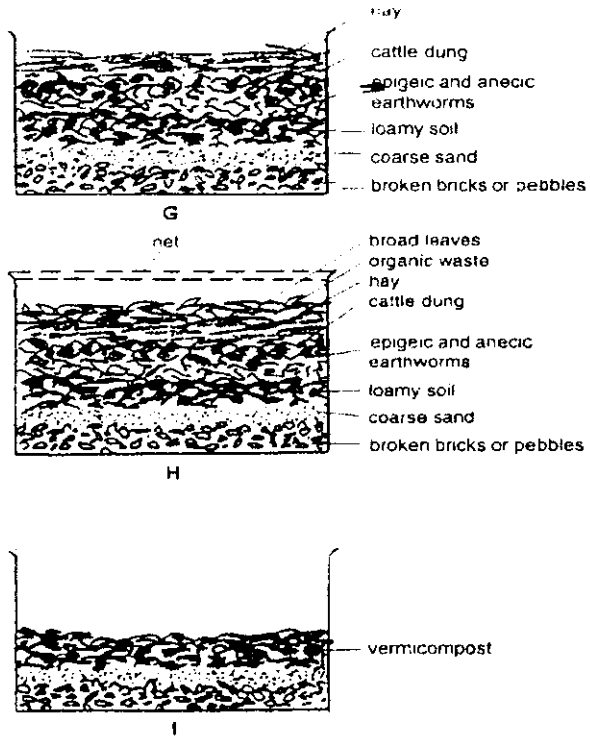

Figure 5.1

5.2 Earthworms

5.2.1 Introduction:

"All fertile areas of this planet have at least once passed through the bodies of the earthworms" ----------Charles Darwin (1881)

Earthworms are probably the most important members of the soil biota. Although they are not numerically dominant in soils, their large size makes them one of the major contributors to total biomass. Their activities are extremely important to maintain soil fertility in a variety of ways. Aristotle was the first to draw attention to their role in turning over the soil and aptly called them "the intestines of the earth". Gilbert White of Selborne, in 1770 wrote that, 'earthworms though in appearance are a small and despicable link in chain of nature, yet, if lost would make a lamentable chasm.... Worms

seem to be great promoters of vegetation, which would proceed but lamely without them'. However it was not until the late 1800s that Charles Darwin (1881), in his definitive work, concentrated on the role of earthworms in breakdown of dead plant and animal matter that reaches soil and in the continued maintenance of the soil structure, aeration, drainage and fertility. In his famous book "The formation of vegetable mould through the action of earthworms," he expressed the opinion that 'earthworms have played a most important part in the history of the world'. Other scientists contemporary with Darwin (Hensen, 1877; Muller, 1884; Urquhart, 1887) (Satchell, 1983) also believed that earthworms played a beneficial part in soil formation, and some stated that they were essential for soil fertility. Darwin's contribution to our knowledge of earthworms led to the great upsurge of interest in earthworms during the late nineteen and early twentieth century.

5.2.2 Earthworms and Soil Fertility:

Earthworms are extremely important in soil formation, principally through their activities in consuming organic matter, fragmenting it, breaking it, and mixing it intimately with mineral particles, and then ejecting this material as surface or sub-surface casts. They also burrow through the soil and bring subsoil to the surface. Earthworms move large amounts of soil from the deeper strata up to the surface. The amounts moved in this way range from 2 to 250 tons per hectare(ha) per annum, equivalent to bringing a layer of soil between one mm and five cm thick to the surface every year, creating a stone free layer on the soil surface (Edwards, 1992). During these processes, they thoroughly mix the soil, form water-stable aggregates, aerate the soil and improve its water holding capacity.

Aggregates are formed by internal secretions, which cement soil particles together as they pass through the intestines of earthworms (Bakhtin and Polsky, 1950). Another possible explanation of the aggregate formation is that those could be produced from soil particles, cemented together by calcium humate that is synthesized in the earthworm intestine from decaying organic matter and calcium from the calciferous glands (Swaby, 1949).

Earthworms improve aeration by their burrowing activity; they also influence the porosity of soils by their effect on soil structure. It has been calculated that earthworm burrows constitute up to 5% of the total soil volume (Stockli, 1949). Soils with earthworms drain from four to ten times faster than soils without earthworms (Guild, 1952). Clearly, earthworms influence the drainage of water from soil and the moisture-holding capacity of soil, both of which are important factors for growing crops.

5.2.3 Earthworms and Chemical Toxicity:

Earthworms are the key organisms in the breakdown of plant organic matter; their populations expand in relation to the availability of organic matter. Due to their wide spread distribution and importance in soil system, they are considered as very useful organisms for evaluating contamination of soils environment.

Residues of chemicals can bioaccumulate in the earthworms and may be distributed by them to the tissues of animals in the higher trophic levels within the food web (Edwards & Thompson, 1973). The first compounds to be investigated for bioaccumulation into earthworms were organochlorine insecticides (Whealtey and Hardman, 1964); there has also been concern over the fate of long-lived contaminants such as dioxin (Fanelli et al., 1980) polychlorinated biphenyls (Kreis et al., 1987) and

heavy metals (Ireland, 1983). Not all persistent compounds accumulate in the food web or are harmful. Some short-lived chemicals in the soil can also be very toxic to earthworms (Edwards, 1983).

Earthworms have a role in biomonitoring because they can bioaccumulate or bioconcentrate chemicals. They have been used to measure the level of contamination of soil due to heavy metals and long-lived organic chemicals (Marquenie and Simmers, 1988), fluorides (Garrec and Plebin, 1984) and acid precipitation (Kuperman, 1990).

5.2.4 Role of Earthworms as Indicators of Environmental Pollution:

Earthworms are always used as test organisms because of their important function as decomposer (Edwards & Bohlen, 1989), their high biomass in soil [10-200 g fresh weight m^{-2} (Dunger & Fiedler, 1989)] and their sensitive reactions towards environmental influences.

Earthworms are considered as excellent bioindicators of the relative health of soil ecosystems (Kuhle, 1983). Because of their wide distribution and relative immobility, they are in full contact with the substrates. They could be considered the terrestrial equivalent of aquatic filter-feeders (Morgan, 1986). The earthworms are not only killed by toxic chemicals they also accumulate some chemicals into their tissues at higher levels.

Earthworms have also been used as bioindicators for radioactive soil pollution and radioactive materials including strontium (Krivolutsky et al. 1982). It has also been suggested that earthworms could be used to determine the extent and the severity of the environmental contamination of hazardous waste sites, using the methods used for dredged river sediments (Miller et al., 1985).

Knuutinen et al. (1990) discussed the potential of earthworms for monitoring polychlorinated phenols and their metabolites in soils. Earthworms were also used in evaluating PCB contamination (Kreis et al., 1987). He reported that the uptake of PCBs from soil was in direct proportion to the amounts present. Earthworms were also used as successful bioindicators of soil contamination for dioxin (2,3,7,8- tetrachlorodibenzo-p-dioxin) after an explosion at a chemical plant near Seveso, Italy in 1976 (Fanelli et al., 1980).

It has been suggested that the earthworm *E.Foetida* could be used to determine the extent and severity of environmental contamination at hazardous waste sites, using the methods used for dredged river sediments (Miller et al., 1985). Such laboratory and field assays could be used to assess contamination by both organic contaminants and heavy metals.

If earthworms are used for environmental biomonitoring it has been suggested that the same species should be used consistently at different sites (Morgan, 1986). *E.foetida* has been used in this way (Simmers et al., 1983). Morgan (1986) emphasized the value of earthworms in assessing the potential biological significance of heavy metal pollutants. He stressed that direct measurement of heavy metal concentrations in sediments and soils has relatively little value and is not very sensitive.

Recent studies also suggested that earthworms could be used as good indicators of immunotoxicity of humans to chemicals. Many of the immune reactions of earthworms have similar mechanisms to those of mammals. Since earthworms are large and readily available, they offer considerable possibilities in studies of potential human immunotoxicity (Venables et al., 1991).

5.3 Earthworms Microbiology:

5.3.1 Microorganism's as Worm Pathogens:

A wide variety of parasitic and pathogenic organisms have been recorded from earthworms (Lee, 1985); these include bacteria, fungi, protozoans, rotifers, platyhelminths, nematodes, mites and dipterous larvae. Many of these are parasites of earthworm predators, and in some cases earthworms are secondary hosts in which the parasites complete part of their life cycle. Larvae of cluster fly (*Pollenia rudis*) parasitize and kill *lumbricids* in Europe and North America (Lee 1985). The mites feed on and destroy the developing worms. Most earthworms are infected with gregarine parasites. In a sample of 2,645 worms of 27 species, Duhlinska (1977) found all species were infected, with an infection rate for different species ranging from 70 to 96%. Valembois et al., (1982) has shown bacterial growth of some soil bacteria is inhibited by culturing them in the presence of *E.fetida* celomic fluid (Satchell, 1983).

5.4 Earthworm Ecology and Digestion Process:

5.4.1 Earthworms Ecology:

Earthworms derive their nutrition from organic matter, in the form of plant material, living protozoa, rotifers, nematodes, bacteria, fungi and other microorganisms, and decomposing remains of large and small animals. Most of these are extracted from the large quantities of soil that passes through the gut of the earthworm.

Worms inoculate food entering the gut with water, chalk, enzymes and bacteria. The muscles of the gut continually grind the food, exposing new surfaces to bacteria and enzymes within the gut. Many researchers have suggested that the breakdown of

microorganisms by worms is due to substances in the gut having bactericidal or virucidal properties.

Parle (1963) showed that enzymes produced by worms rather than microorganisms seemed to be the main agents in digesting cellulose and virucidal enzyme systems. Amaravadi et al., (1990) observed reduction in the infectivity of cowpea mosaic virus (CPMV) and tobacco mosaic virus and suggested that *E.Fetida* may posses a virucidal enzyme system, which may contribute to the inactivation of pathogenic viruses.

Van Gansen (1962) studied the digestive process for one species of earthworms *Eisenia foetida*. The digestive system was divided into three parts 'the reception zone', 'the secretory zone', and 'the absorption zone'. The reception zone (segments i-xiv) contains the sensitive, prehensile mouth, the oesophagus and the ductless pharyngeal gland, which secretes acid mucus containing an amylase. It was believed that its function was to regulate the calcium level of blood. The secretory zone (segments xv-xxxiv) contains the crop, which leads to the gizzard and the intestine. The strong muscular action of the body wall of the gizzard brings opposing surfaces of the thick internal cuticle against one another, thus grinding up the soil and organic matter, which then passes through the intestines. Studies by Van Gansen (1962) demonstrated that *E.Foetida* secretes two proteases and one amylase mainly from the epithelial brush-border cells and the intestinal walls secrete mucus. The digested food passes into the blood stream through the intestinal epithelium and is carried to the various parts of the body and tissues for use in metabolism and storage.

The last zone in *E.Foetida*, termed the absorption zone (segments xxxiv -anus) is where the undigested matter in the intestinal contents becomes enveloped by the periptophic membrane that lines the intestine and when excreted covers the casts. Figure

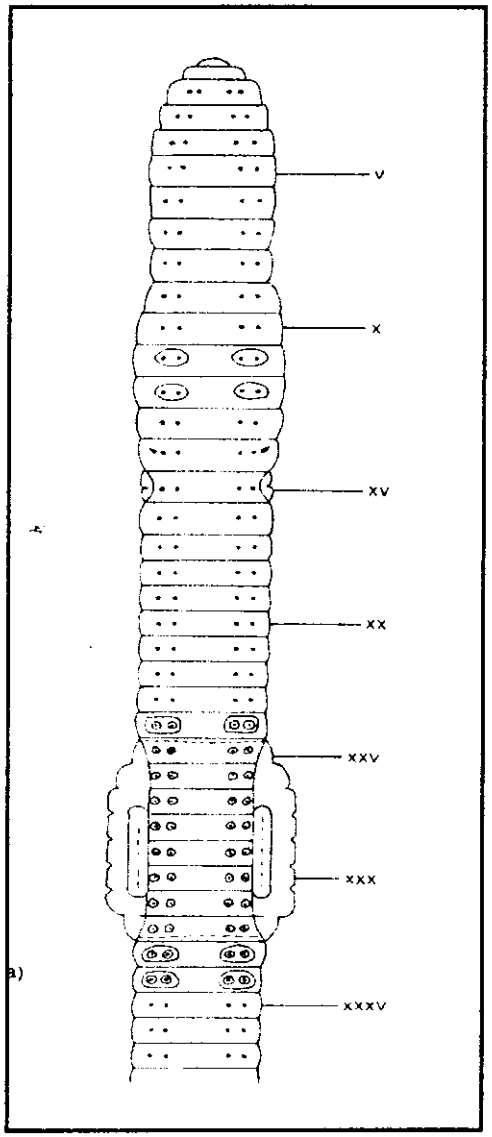

Figure: 5.2 Ventral view of the anterior region of *Eisenia Foetida*

5.5 Size of Population:

Earthworm populations can be expressed either in terms of numbers or in terms of total biomass. Numbers are sometimes misleading because of the differentiation between very small and large worms. Satchell (1969) described a method for calculating the live weight of earthworms that have been kept in 10% formalin solution. Satchell (1969) plotted a regression of the live weights of worms against their weight after being in 10% formalin, then oven-dried them at 105°C, and reweighed them. The expression for live weight that he obtained was

$$1\text{g dry weight} = 5.5\text{g live weight} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5.1)$$

The gut contents of an earthworm are considered to be as much as 20% of its total live weight, so this must be accounted for when estimates of population biomass are made.

5.6 Environmental Factors:

Earthworms are by no means randomly distributed in the soil (Guild, 1952). Murchie (1958) classified possible factors responsible for the variability in their distribution including:

1. Physio-chemical (soil temperature, moisture, pH, inorganic salts, aeration and texture)
2. Available food (herbage, leaf litter, dung, consolidated organic matter)
3. Reproductive potential and dispersive powers of the species

He concluded that these factors are not solely responsible for distribution, but rather the interaction of several factors coming together was the prime determinant.

5.6.1 pH:

It has been demonstrated that earthworms are very sensitive to the hydrogen-ion concentration, so pH is sometimes a factor that limits the distribution, number and species of earthworms that live in any particular soil. Several workers Arrhenius 1921; Moore, 1922 and Phillips, 1923 have stated that most species of earthworms prefer soils with a pH of about 7.0 (Lee 1985).

Soil pH may also influence the number of worms that go into diapause. Diapause is a period during which growth or development is suspended and physiological activity is diminished, in response to adverse environmental conditions. Doeksen and Van Wingerden (1964) reported that when they put individuals of *A.Caliginosa* into soils with pHs of 4.9, 5.4, 6.4, 7.6 and 8.6; the more acid the soil, the sooner worms went into diapause, and they remained in diapause longest, in soil with pH of 6.4.

It has also been reported by several workers that earthworm casts are usually more neutral than soil in which earthworms live (Salisbury, 1925; Puh, 1941, and Nye, 1955). It has been suggested that one explanation for this is that earthworms neutralize soil as it passes through them, by secretions of the calciferous glands; another and more probable explanation is that the soil is neutralized by the secretions from the intestine, and by the ammonia, which is excreted as well.

5.6.2 Moisture:

Water constitutes 75-90% of the body mass of earthworms (Grant, 1955), so prevention of water loss is a major problem of earthworm's survival. Nevertheless, they have considerable ability to survive adverse moisture conditions, either by moving to a more suitable area or by aestivating; sometimes inside clumps of soil earthworms are

found coiled into a knot, these worms are said to be aestivating, which means they are in a resting phase until the soil conditions are more favorable. Aestivating earthworms are smaller and pinker than regular active earthworms. If worms cannot avoid dry soil, they can survive the loss of a large part of the total water content of their bodies; *L.terrestris* can lose 70% and *A.chlorotica* 75% of their total body water and still survive (Roots, 1956). Grant (1955) considered that most lumbricid worms could sustain a water loss of atleast 50 %.

The fecundity of earthworms is greatly influenced by moisture. Gerard (1960) showed that some species could withstand dry conditions better than others could. Prolonged droughts markedly decrease numbers of earthworms and it may even take as long as two years for populations to recover when conditions become favorable.

Many species of earthworms can survive long periods submerged in water; for instance *A. Chlorotica, A. Longa, D. Subrubicunda, L. Rubellus and L. Terrestris* were all able to survive from thirty-one to fifty weeks in soil totally submerged below aerated water. They were also able to survive without food for ten to twenty weeks. The main problem during submergence is the uptake of water into the earthworm, but most species have adequate means of overcoming this. Cocoons can also hatch under water, and young worms feed and grow totally immersed (Roots, 1956).

5.6.3 Temperature:

The activity, metabolism, growth, respiration and reproduction of earthworms are all greatly influenced by temperature. Fecundity is affected very much by different temperatures. Cocoons also hatch sooner at higher temperatures; for example, cocoons of *A.chlorotica* hatched in 36 days at 20°C, 49 days at 15°C and 112 days at 10°C, when

there was adequate moisture (Gerard, 1960). The growth period from hatchling to sexual maturity is also dependent on temperature; *E. Foetida* took nine and a half weeks to mature at 18 °C and only six and a half weeks at 28°C (Michon, 1954).

Temperatures greatly affects the activity of the earthworms and hence their metabolism and respiration. Satchell (1967) concluded the observation made by Kollmannsperger (1955) that most suitable conditions for activity of earthworms on the surface were nights when the soil temperatures did not exceed 10.5°C. The temperature at which earthworms thrive best and which they prefer is not necessarily that at which they grow fastest or are most active. High surface temperatures and dry soils are much more limiting to earthworms than low temperatures and waterlogged soils (Nordström and Rundgren, 1974). Wolf (1938) concluded that a temperature of 27.5°C caused *Eisenia foetida* to move to cooler areas.

Extreme temperatures can also kill earthworms. For instance, it has been suggested that earthworm populations in arable soils in the United States may be destroyed by frost (Hopp, 1947). Earthworms can migrate away from soil at unsuitable temperatures. In some experiments in which individual species are studied, *E. Foetida* could also choose between soils at different temperatures (Grant, 1955).

5.6.4 Aeration and Carbon Dioxide

There is a little evidence that soil oxygen tension affects the distribution of earthworms in the soil. Satchell (1967) studied the distribution of certain species that appeared to be limited to some sites by the minimum oxygen tensions occurring at certain seasons, but was confused by other factors like pH, soil moisture content, and amount of raw humus, among others. He showed that there was some correlation between numbers

of *B.Eiseni* and oxidation-reduction potentials. Some species can survive low oxygen tensions for long periods. There is little evidence of the distribution of earthworms being affected by CO_2 concentrations in soil, and they do not seem to migrate in response to CO_2 concentrations. *E. Foetida* did not respond to soil concentration of CO_2 upto 25% (Shiraishi, 1954). The limits of CO_2 concentrations in soil are normally between 0.01% and 11.5% (Russell, 1950).

5.6.5 Organic Matter

The distribution of organic matter in soil greatly influences the distribution of earthworms. Soils that are poor in organic matter do not usually support large number of earthworms. Conversely, if there are few earthworms, the decaying organic matter usually lies in a thick mat on the soil surface.

Some species of earthworms are readily attracted to animal droppings and dung. Nordström and Rundgren (1974) found significant correlations between organic matter (and clay) content of soils and the abundance of deep-burrowing species of earthworms. Large amounts of dead roots and decaying leaves in woodlands are also a source of organic matter that usually favors earthworm multiplication.

5.6.6 Soil Type

There have been very few studies of the direct influence of soil type, based on mechanical compositions of the earthworms. Guild (1948) studied the major soil types in Scotland, and reported that there were differences both in total numbers and in relative numbers of each species. He also studied the relations of soil type to earthworm population that is tabulated in Table 5.2 given below.

Table5.2: Relations of soil type to earthworm populations (from Guild, 1951)

Soil type	Population (thousands/acre)	No/m2	No of species
Light sandy	232.2	57	10
Gravelly loam	146.8	36	9
Light loam	256.8	63	8
Medium loam	226.1	56	9
Clay	163.8	40	9
Alluvium	179.8	44	9
Peaty acid soil	56.6	14	6
Shallow acid peat	24.6	6	5

A few small species of earthworms can survive in deserts and semi-deserts (Kollmannsperger, 1956). It seems that although earthworms do better in good soils rather than poor ones, they can survive in many different kinds of soils provided there is adequate food and moisture.

5.6.7 Food Supply

Earthworms can use a wide variety of organic materials for food, and even in adverse conditions extract sufficient nourishment from soil to survive. The kind and amount of food available influences not only the size of the earthworm populations but also the species present, and their rate of growth and fecundity. Evans and Guild (1948) investigated the influence of food on cocoon production, and showed clearly that more cocoons were produced by worms that fed on decaying animal organic matter, than those that fed on plant material. They also showed that earthworms fed on any nitrogen rich diets grow faster than those with little nitrogen available.

Many workers have worked on the amounts of food taken by the earthworm and the amount passed through their guts. Satchell (1967) calculated that individuals of *l. Terrestris* pass 200-120 mg/g-day through their guts, and Crossley *et al.* (1971)

calculated that a species of *octolasion* had a soil intake of 1.2% of its live body weight per hour, which equals about 29% of its body weight per day or 290 mg/g-day Barley (1959) calculated that *A. Caliginosa* consumed 200-300 mg/g-day.

5.7 Classification of Earthworms:

Earthworms can be defined as invertebrates, belonging to the phylum *Annelida*, order *Oligocheta*, class *Clitellata*, which live in soil. They range in size from a fraction of a centimeter to two or more meters long. The current classification of the class *Oligochaeta* is divided into three orders: *Lumbriculida* (fresh water worms), *Moniligastrida* (soil-dwelling worms, found in India, Southeast Asia, Southern and Central China) and the *Haplotaxida* (all other *Oligochaeta* including true earthworms).

The earthworm *E.Foetida* used in our experiments belongs to the phylum: *Annelida,* subphylum: *Clitellata,* class: *Oligochaeta,* order: *Haplotaxida,* suborder: *Lumbricina,* superfamily: *Lumbricoidea,* family: *Lumbricidae* and subfamily: *Lumbricinae.*

5.8 Eisenia Foetida:

E.foetida was the name given by Savigny in 1826. They are also commonly known as red wrigglers and as brandling, brindling, bramble worm, manure worm and tiger worm (N.America). The species most commonly used for degrading organic wastes is *E. Foetida.* There are a number of reasons why this species is preferred. It is ubiquitous, and many organic wastes became naturally colonized by this species (Edwards, 1988). It has a wide temperature tolerance and can live in wastes with a good range of moisture contents; it is a tough worm, readily handled and in mixed cultures

usually becomes dominant, so that even when field systems begin with other species, they often end up with a large proportion of *E. Foetida* .

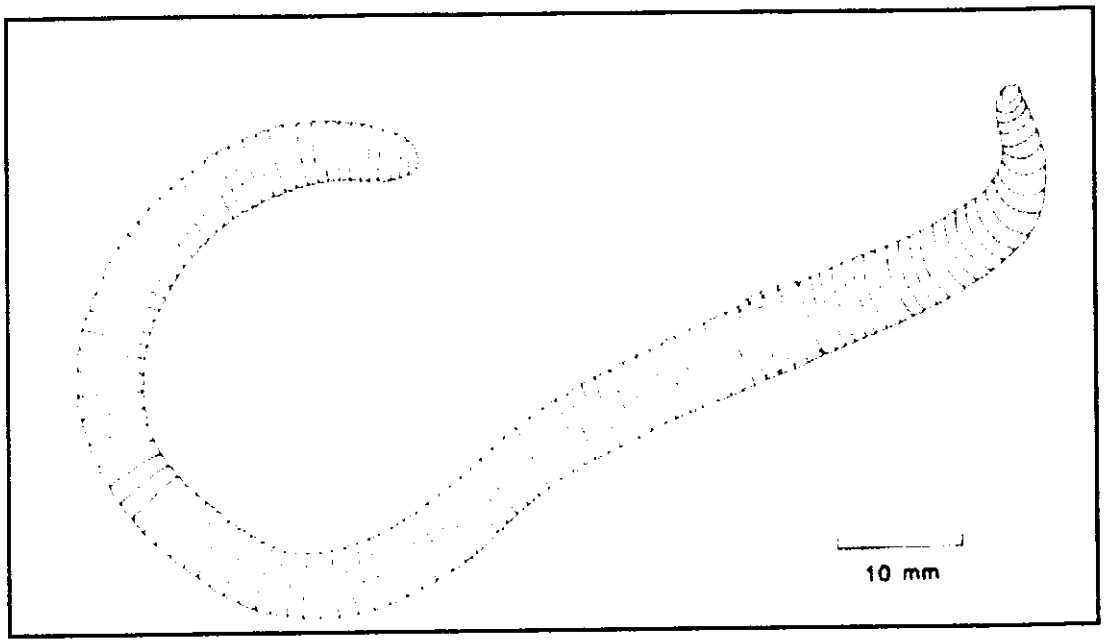

Figure 5.2: *Eisenia foetida* (Savigny) whole animal (from Sims, 1999)

5.8.1 Description:

The length of *Eisenia foetida* usually ranges from 35-120 mm or 60-130 mm and with a diameter ranging from 2-6 mm. The number of segments varies from 65-120. The body is cylindrical becoming trapezoidal posteriorly. Color varies from light pink through vinuous hues to purplish-red or brown, confined to the equatorial region of each segment often as narrow transverse stripes on the dorsum. Pigmentless yellowish white bands also extend from the furrows with the ventrum often entirely pigmentless (Sims, 1999).

5.8.2 Reproduction:

The earthworms are hermaphrodite (biparental), that is, both male and female reproductive organs are present in a single worm. They reproduce through copulation.

During copulation, two worms adhere to each other by their ventral surfaces with their head ends pointing in opposite directions. The spermatozoa from the male openings of one worm are then transferred to the spermthecae of the other worm.

As the time for laying eggs approaches, the clitellum forms a viscid, girdle- like structure which hardens into a tough capsule (cocoon) encircling the body of the worm. At the time of egg laying, the girdle is pushed forward by the wriggling movements of the body of the worm. The gridle slips off the anterior end of the worm and its two ends are closed forming a capsule containing the sperms and the ova. The capsule has nutritive, albuminous fluid secreted by the glands of the clitellum. Fertilization takes place in the egg case or cocoon that is deposited in a moist place. The Figure 5.3 shows the mating of two individual *E. Foetida.*

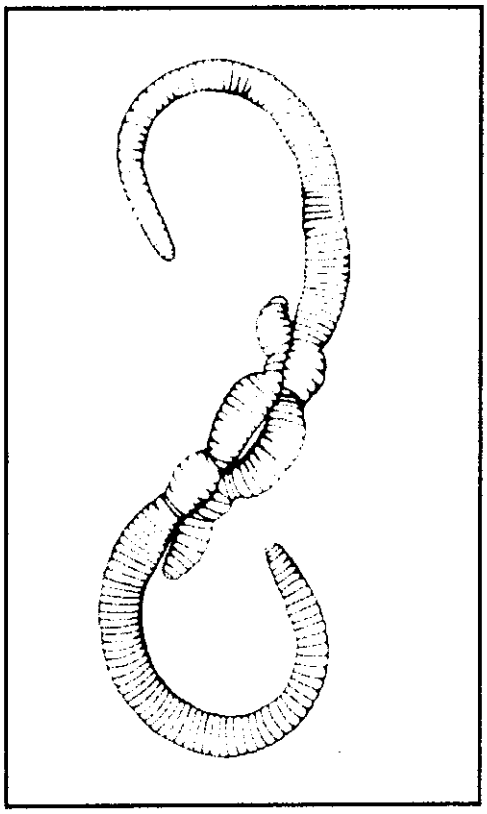

Figure 5.3: Two individuals mating of *Eisenia foetida* (from Sims, 1999)

5.8.3 Capsules:

The capsules have length from 2.4-5.2 mm, diameter from 2.3-4.4 mm and are spherical to sickle shaped. Capsules are opaque to greenish yellow, darkening with age with a surface that is smooth. Eight to twenty embryos are found in each capsule out of which only one to five hatchlings emerge. The hatchling length is 14 mm but is sometimes shorter when several hatchlings complete development in a single capsule. The Figure 5.4 below shows the capsule of the worm *Eisenia foetida.*

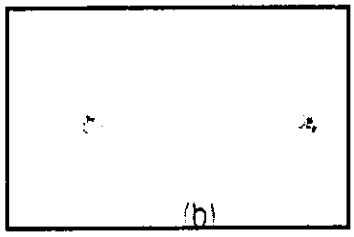

Figure 5.4: Egg capsule of *E.Foetida* (Sims, 1999)

Table 5.3 shows the optimal conditions for breeding *E. Foetida.*

Table 5.3: Optimal conditions for breeding *e. Foetida* in animal and vegetable wastes

Condition	Requirements
Temperature	15-20 °C (limits 4-30 °C)
Moisture content	80-90% (limits 60-90%)
Oxygen requirement	Aerobicity
Ammonia content of waste	Low: < 0.5 mg/g
Salt content of waste	Low: < 0.5 %
pH	> 5 and < 9

5.8.4 Environmental Factors Influencing *E. Foetida*:

Edwards & Neuhauser (1988) studied the influence of environmental factors on the survival, growth and reproduction of three different species of earthworms. All

species of earthworms required the waste to be aerobic, and they moved from the waste as soon as it turned anaerobic. In addition, they investigated the effects of temperature, moisture, ammonia content and pH and these results are discussed below.

5.8.4.1 Temperature:

These studies showed that *E.Foetida* had a tolerance of temperatures from 0-35°C and 35°C has been known as the thermal tolerance of *E.Foetida* (Mitchell, 1979). Figure 5.5 shows the growth of *E.Foetida* at different temperatures.

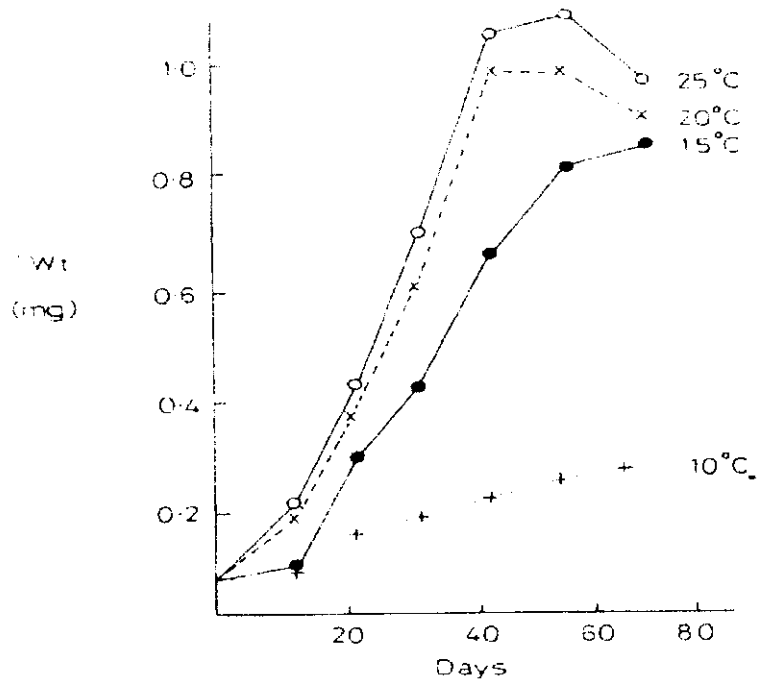

Figure 5.5: Growth of *E.Foetida* at different temperatures (from Edwards 1988)

5.4.8.2 Moisture:

Edward & Neuhauser (1988) also studied the growth of *E. Foetida* under different moisture conditions. Figure 5.6 shows the growth of *E.Foetida* at different moisture contents.

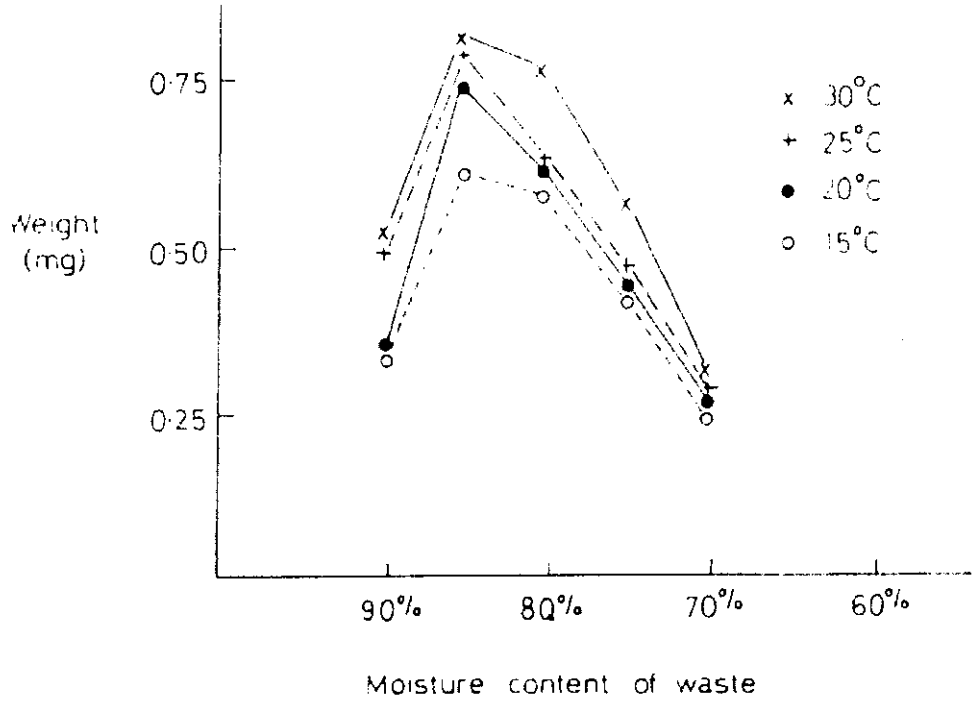

Figure 5.6: The growth of *E.Foetida* at different moisture contents (from Edwards 1988)

5.8.4.3 Ammonia Content:

Earthworms are very sensitive to ammonia and will not survive in organic wastes containing much ammonia for example fresh poultry litter. They also die in wastes with large amounts of inorganic salts. Both ammonia and inorganic salts have very sharp cut off points between being toxic and non-toxic. Wastes with too much ammonia are found to be acceptable only after excessive salts are removed following several washings. The figures below show the growth and survival of *E.Foetida* in wastes with varying ammonia and inorganic levels.

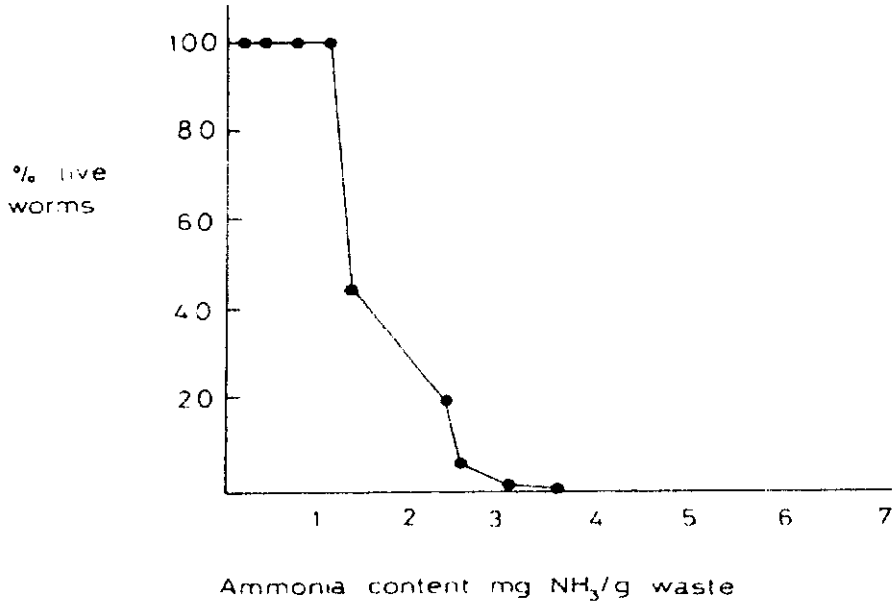

Figure 5.7: Survival of *E. Foetida* in different ammonia contents (from. Edwards 1988).

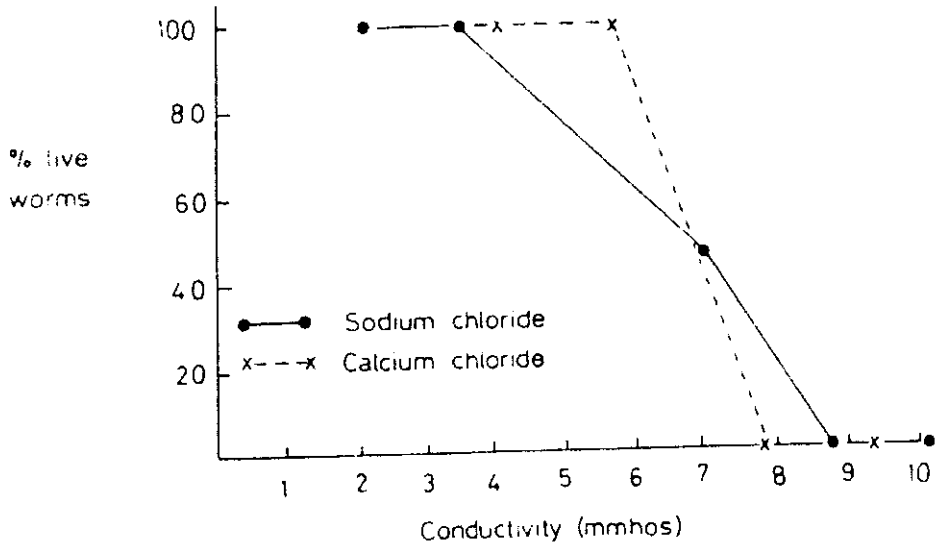

Figure 5.8: Survival of *Eisenia foetida* at different salt contents (from. Edwards 1988)

5.8.4.4 pH:

E.foetida seems to be very tolerant to the ph, but when given a choice they moved towards more acidic material. Hurwitz (1910) demonstrated the *E. Foetida* withdrew itself when its posterior end was dipped in acid solution, and the lower the pH of the solution the more rapidly it withdrew. It is well established that earthworms are rare in soils with pH less than 4.0-4.5, and they are generally absent where the pH is less than 3.5. Laverak (1961) indicated that low pH does itself inhibit earthworm activity. Figure 5.9 shows the pH preferences of *E. Foetida*.

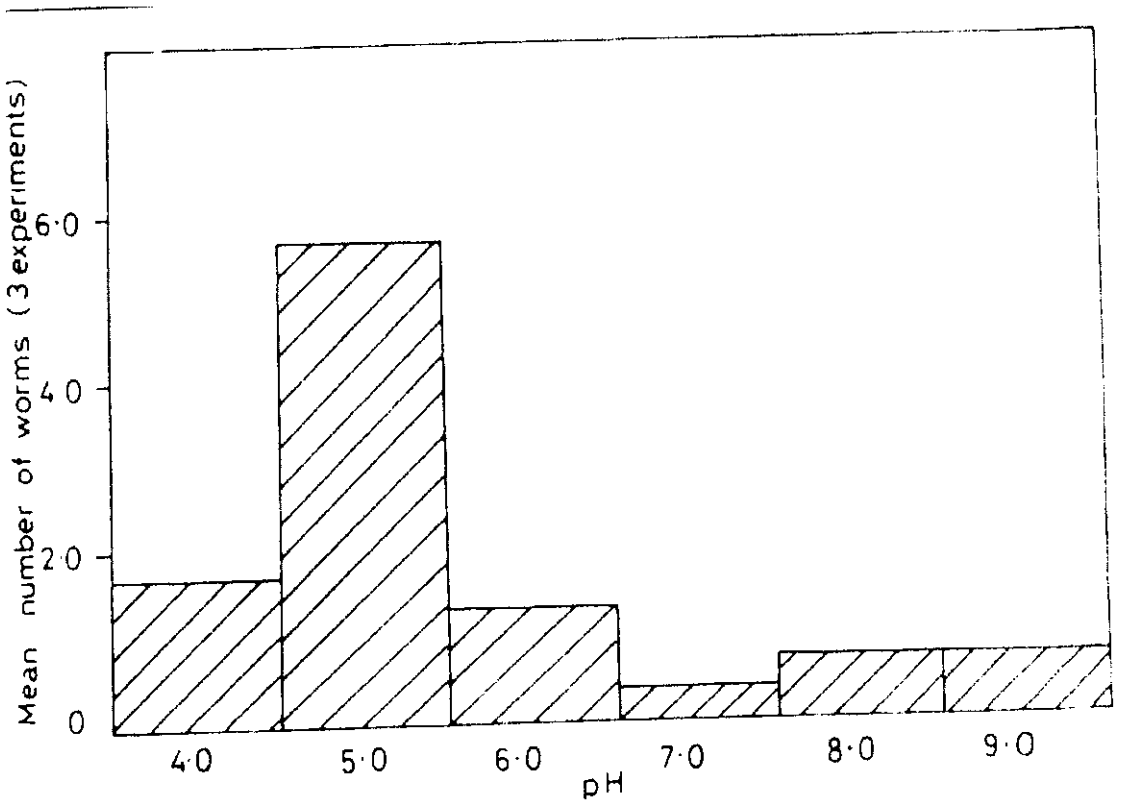

Figure 5.9: Effect of pH on *E. Foetida* growth (from C.A. Edwards, 1988)

5.9 Preference of *E.Foetida* over Other Species:

This worm is most commonly used for degrading organic wastes. It is a tough worm that can handle wide temperature range and in mixed cultures usually becomes dominant. It can also survive in a wide variety of animal and vegetable wastes. Figure 5.10 illustrates the growth of *E.Foetida* in different animal wastes.

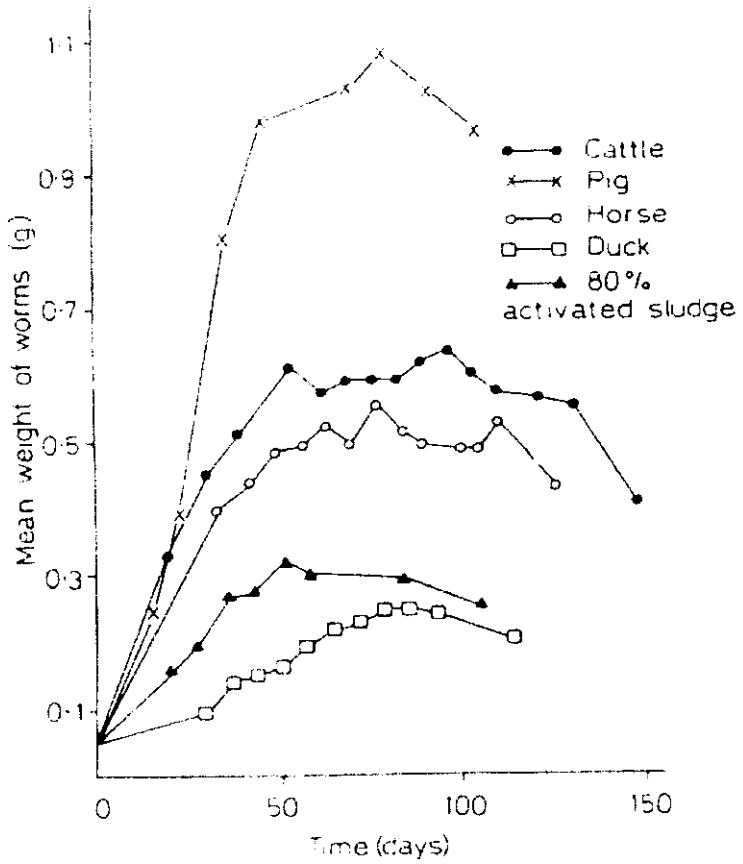

Figure 5.10: Growth of *E. Foetida* in different animal wastes (from C.A. Edwards, 1988)

5.10 Systems of Earthworm Production:

Systems of growing earthworms, range from low technology systems in windrows, heaps or boxes to complete continuous breeding systems. The basic principle

of breeding systems is to add wastes in small regular batches and allow the earthworms to process successive aerobic layers of wastes. The key to maximum productivity is to maintain aerobicity and optimal moisture and temperature conditions. The processing conditions are done under cover because the decomposing of waste maintains warm conditions. Table 5.4 below shows earthworms breeding methods.

Table 5.4 Earthworms breeding methods

Method	Comments
Windrows and beds	Labor intensive. Needs relatively large area of land, seasonal unless covered
Crates or boxes	Handling of units and watering difficult
Moving belt systems	High initial cost
Continuous flow suspended beds	High initial cost, but economic to run due to low labor costs
Trickling filter systems	Has excellent potential for liquid wastes. Needs further development

5.10.1 Windrows and Beds

Windrows are extensively being used both in the open and under cover, but require either a lot of land or large buildings. It is difficult to harvest the vermicompost without earthworms being included, so a mechanical harvester is commonly used with these operations.

The largest vermicomposting facility in the United States is operated by American Resource Recovery (ARR) in Wesley, California. Currently, an estimated 500,000 pounds of earthworms process 75,000 tons of materials annually on 70 of ARR's 320 acres. The worms are fed paper pulp generated from recycled cardboard, tomato residuals, manure, and green waste in three-foot wide windrows, some of which are a quarter mile long.

From 1994 until 1999, at the Crow Worm Farm in Cleburne, Texas, vermicomposting windrows occupied ten of the 200 acres. About 20,000 pounds of dairy manure were applied to windrows each week using a side discharge feed wagon pulled by a tractor. The hot, humid summers and cool winters posed challenges to keep temperature-sensitive red worms happy. Misting hoses on top of the windrows were used in summer and winter to protect worms from temperature fluctuations. In summer, windrows were kept moist by running the hoses twice daily for 15 minutes, or a third time if the temperatures soared above 100° F. Water was also used to protect the worms when freezing temperatures were expected.

In addition to being susceptible to overheating, worms are sensitive to vibrations, and thunderstorms can cause them to leave their beds. The Crow Worm Farm spaced their windrows 20 feet apart to allow worms that left their beds to reach another bed safely. About ten tons of vermicompost were harvested from the windrows each week at roughly a 40 percent moisture level. The crows priced their vermicompost at $55/yard in bulk (about 1,000 pounds), but the facility ended its operations in 1999 due to unsuccessful marketing.

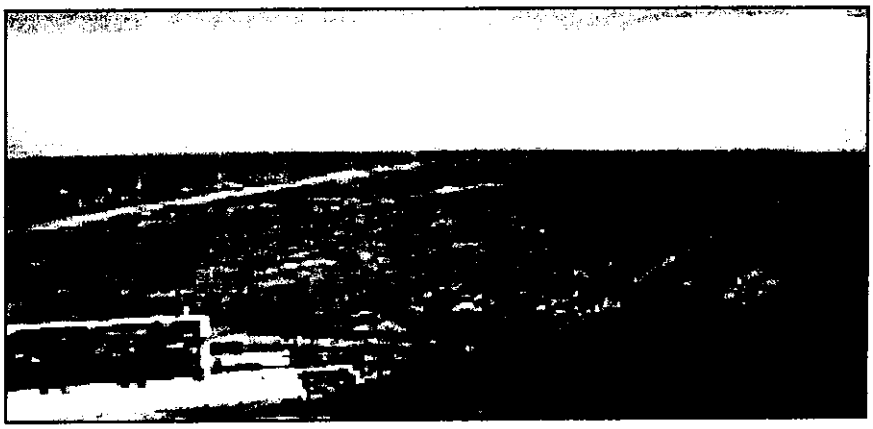

Figure 5.11: Windrow system used in earthworm production

Section 3: Materials & Methods

Chapter 6: Vermicompost Experiments

6.1 Setup of Vermicompost Reactor:

The earthworms (*E.Foetida)* used in our experiments were reared in an earthworm bin. The earthworm breeder box was made from a large plastic bin with holes drilled on the sides for air circulation. A drainage system was also constructed for the bin that allows the moisture content of the bedding to be continuously controlled. Figure 6.1 is a diagram of a worm bin that illustrates the various layers and composition of the bedding in the bin. This vermicompost bed was watered on a regular basis to keep moisture content of the soil between 60 to 80% and feeding was done on a regular basis using corn meal and, brown sugar. The temperature was also maintained between 10°C to 30°C (Satterwhite, 2002).

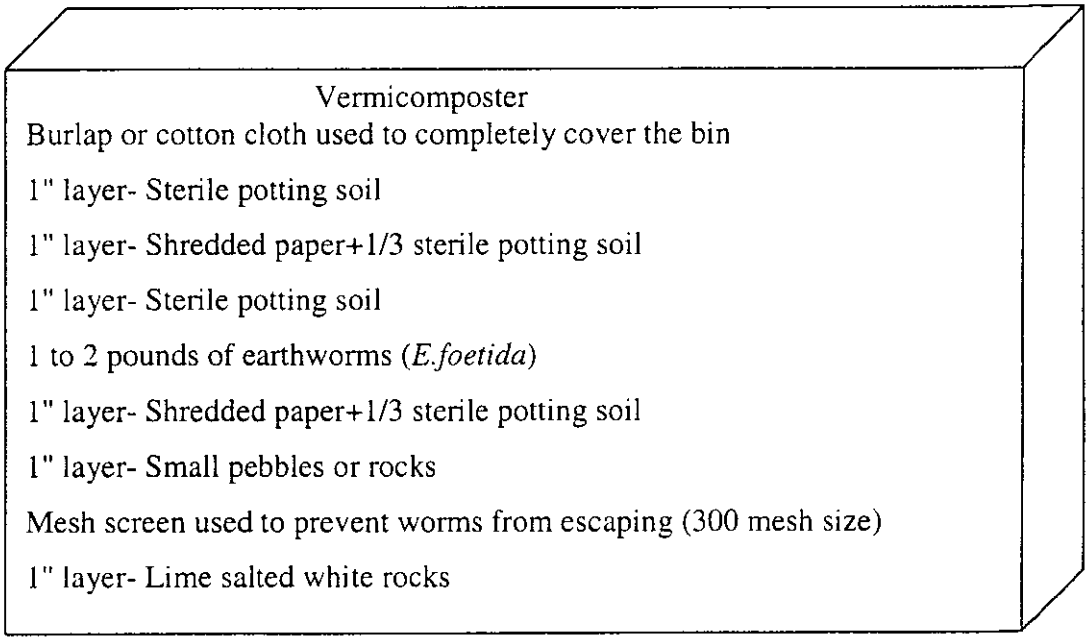

Figure: 6.1 Composition of the bedding used in the earthworm breeder

6.2 Contaminated Sludge

PCB contaminated sludge was obtained from the Superfund site at the Ralston Street Lagoon in Gary, Indiana. The Gary Sanitary District (GSD) was responsible for the packaging and delivery of the sludge to the university premises. Three five-gallon buckets of sludge were delivered to the Howard University Biochemical Engineering Lab (HUBEL) containing three different levels of PCB contamination. The samples were from different locations within the lagoon and were labeled Midwest, and Southwest based on sampling locations within the Lagoon, and were registered as 1000 ppm and 220 ppm measured as Aroclor 1248 respectively. The Midwest sample was chosen for our experiments.

6.3 Experimental Setup:

Two sets of vermicomposting bioreactors were established, with varying concentrations of sludge on volume fraction basis, ranging from 0%, 10%, 25% and 50%, upto 75% (v/v). The concentrated sludge was dried, weighed and then mixed with sterile potting soil as appropriate.

6.3.1 Biotic Vermicompost Bioreactors

One set of the vermicompost bioreactors (VBs) were inoculated with a known amount of earthworm biomass (in this case 9gm each). These reactors were initially layered with rock to allow drainage so that the earthworms can survive in the soil after it is wetted with water. A thin mesh is placed on top of the layer of rocks, so that the rock would not mix with the soil above and the earthworm would be held up. All the reactors were covered with a mesh to prevent the earthworms from escaping. The vermicompost reactors walls were also covered with aluminum foil to prevent their exposure to light,

because light would scare the earthworms away from the walls of the reactor. Light screening also minimized photodegradation of the PCBs. The VBs were configured as shown in Figure 6.3.1.

6.3.2 Abiotic Control Reactors

Another set of reactors were identically established as a negative control, but without earthworms in them. The potting soil used in these bioreactors was autoclaved to minimize introduction of any external microorganisms into the control reactors. Any biotic activity in these reactors would occur only due to microbial activity in the sludge. These reactors are set up as a control to assess changes occurring during the experiments in the vermicompost bioreactors attributable to the earthworm. It thus served as a measure of intrinsic biotransformation potential for PCB removal. This set up is schematically illustrated in Figure 6.3.2.

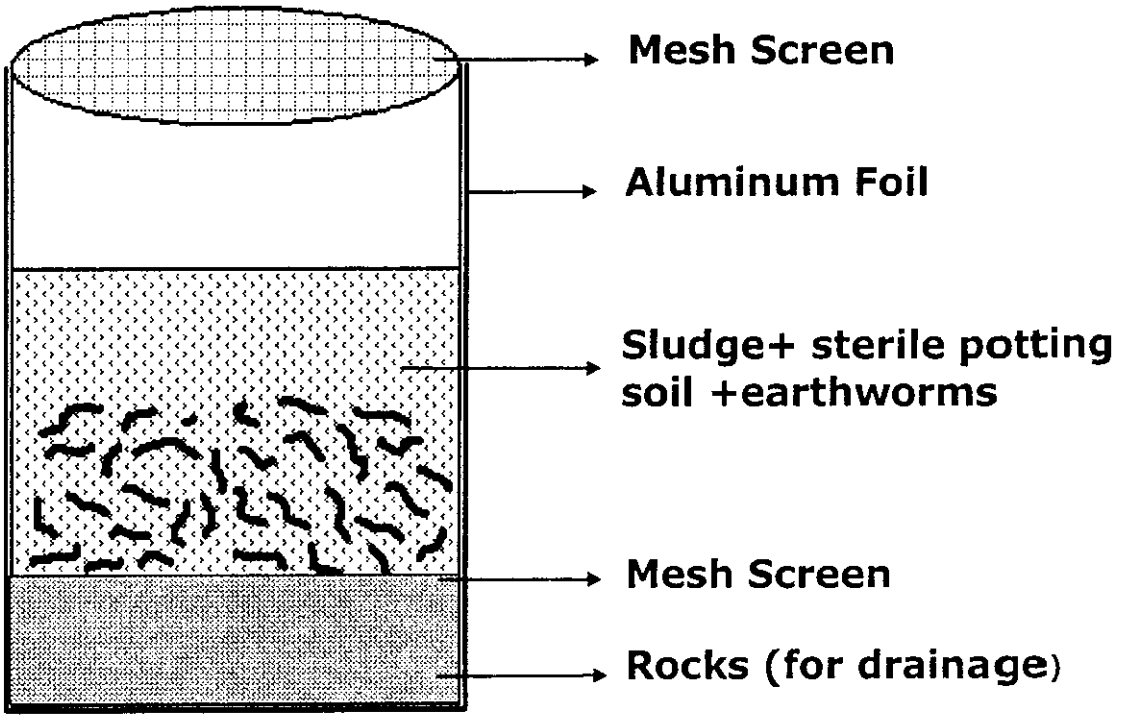

Figure 6.3.1: Biotic Vermicompost Bioreactors (VB)

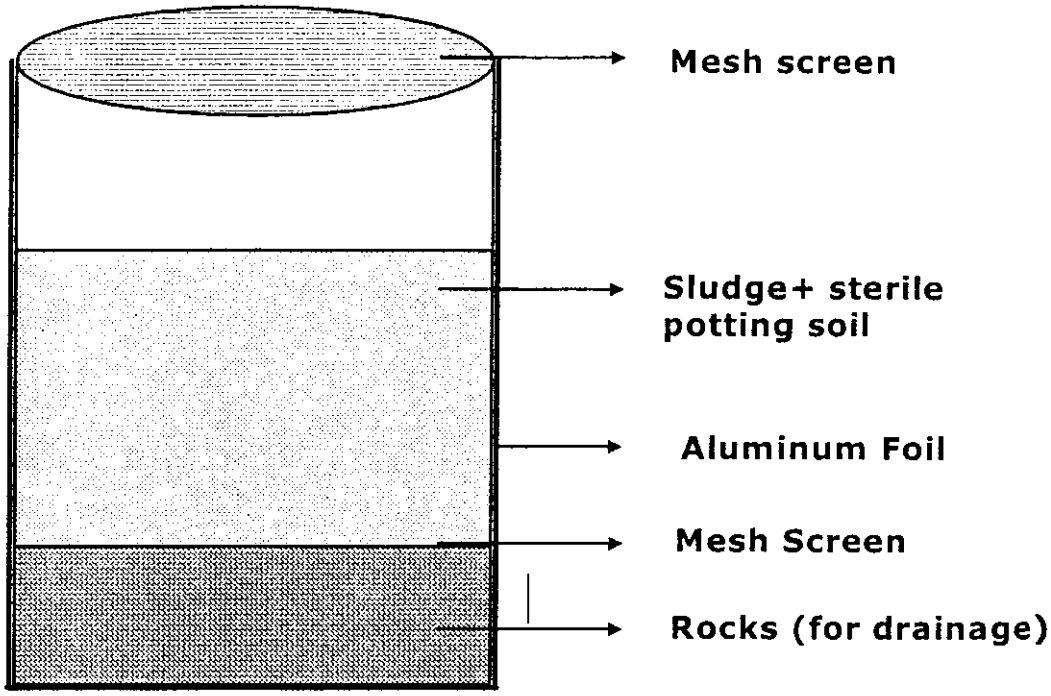

Figure 6.3.2: Abiotic Control Reactors

Table 6.4: Composition of the sludge for the different bioreactors

		Controls Reactors		Vermicompost Bioreactors[1]	
Concentration of Sludge		**Potting soil No worms**	**Sludge**	**Potting soil With worms**	**Sludge**
0%	Volume (ml)	200ml	0ml	200ml	0ml
10%	Volume (ml)	180ml	20ml	180ml	20ml
25%	Volume (ml)	150ml	50ml	150ml	50ml
50%	Volume (ml)	100ml	100ml	100ml	100ml
75%	Volume (ml)	50ml	150ml	50ml	150ml

[1] 9 gm of earthworms biomass was added to each of the VBs
Mixing based on sludge concentrations with 200ml constant volume for each bioreactor.

6.4 Earthworm Collection and Biomass Calculation:

Earthworms have a tendency to move away from light. This nature of earthworms is used to separate them from the potting soil. A simple set up is made in order to accomplish this. Aluminum foil placed on the table is layered on with wet burlap. On this a small amount of potting soil from the earthworm rearing vermicompost bed is taken and is placed on this burlap and spread out using a spatula. Light is focused right on this patch of soil. The earthworms move away from the light and down through the burlap, and stay on the aluminum foil that is placed below the burlap. The light is shown on the soil until the soil does not have any more worms. The soil is gently mixed to tease out any clumps until there are no more earthworms discernible. The soil is then removed and placed back in the vermicompost bed, leaving the earthworms between the foil and the burlap.

The earthworms that pass though the burlap are clean and do not have dirt or potting soil on them. If some soil particles are attached to the worms body, these are washed away with water before the earthworms are weighed. The separated earthworms are removed from the aluminum foil, weighed on a scale to measure total biomass and also counted to obtain the total number of worms. The worms have been weighed, an appropriate required biomass of earthworm was inoculated into each VB.

The same procedure is used for separating earthworms in our experiments for sampling purposes. This is the procedure employed to monitor the worm biomass and population numbers. Utmost care is taken to make sure no worms are lost during this process: every baby worm is also counted and the net increase or decrease in the biomass in the experimental vermicomposting beds are calculated. Figure 6.5 illustrates the earthworms separation set up used in our experiments

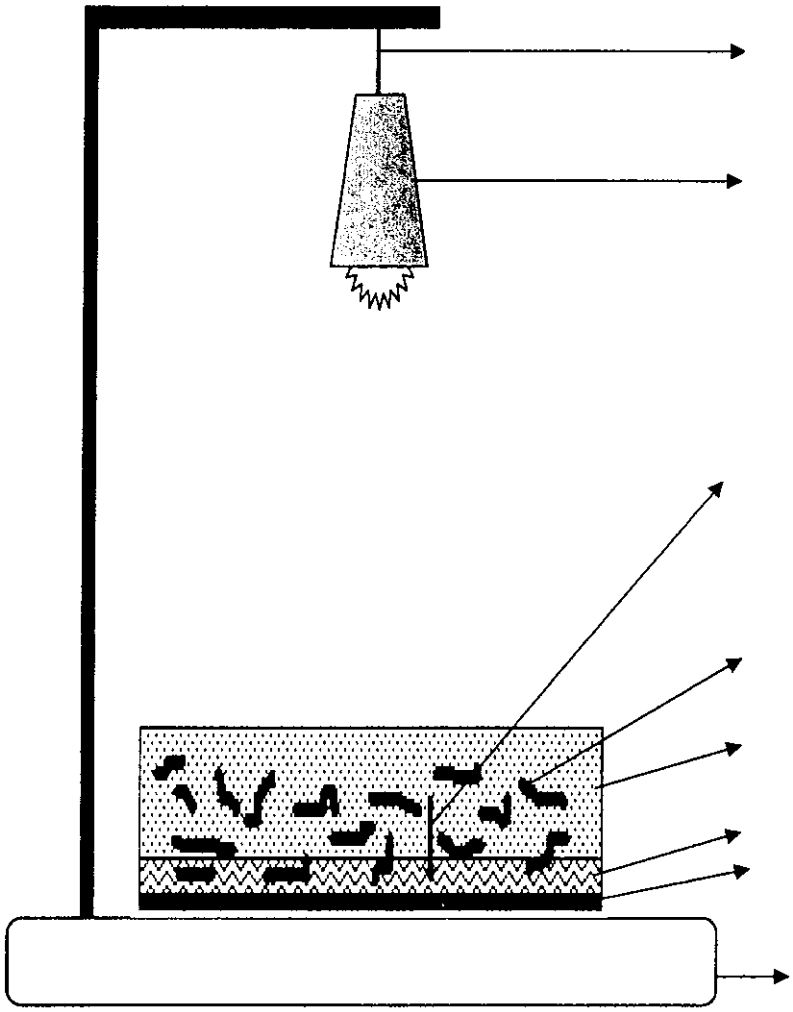

Figure 6.4 Diagram of earthworm separation set-up

Chapter 7: Sample Extraction and Analysis

7.1 Sludge Sample for Extraction

The vermicomposting bioreactors are monitored on a regular basis. Sampling was conducted once every two weeks for the first three months and then weekly until the end of the experiment. VB matrix samples are collected during the experiment as a part of the VB monitoring. Since the sludge is wet, a known amount of wet sample is taken from the different VBs. It is then placed on a Petri dish and kept for drying until a constant weight is obtained. 1 gm of the dried sludge samples are extracted using the manual extraction procedure using acetonitrile, with each gram of sample extracted utilizing 15-ml acetonitrile.

7.1.1 Ordinary Extraction:

In the ordinary extraction employed for some of the samples, a 5-gram weight of sludge is measured and air-dried at room temperature until a constant weight is attained. The moisture percent was determined. This gram of air-dried sludge sample was quantitatively weighed and placed into a 20 ml amber scintillation vial. 15-ml of acetonitrile was added to the extractant. The extraction is allowed to proceed for 18 hours. The extraction was done with the aid of a shaking water bath with vials placed in it. After 18 hr, the solvent is removed and filtered with a 0.2 μm filter. A 1-ml aliquot of the filtered sample is used for analysis by gas chromatography. Of this 2μl of sample is injected into the Gas Chromatography (GC) and monitored using electron capture detection (ECD).

7.1.2 Solid Sample Extraction:

According to the Gary Sanitary District (GSD) sampling procedures, a 20-gram weight of sludge is measured and air-dried at room temperature until a constant weight is attained. The moisture percent was determined. One gram of this air-dried sludge sample was then weighed and placed into an extraction thimble. 2-ml of surrogate is added to each sample for QC (Quality Control). 1-ml of matrix spike solution is also added to the sample. The samples are Soxhlet extracted in methylene chloride for 18 hours. The extract was then placed in a Kuderna-Danish concentrator and concentrated to about 2ml. This extract was then exchanged with hexane by placing the 2-ml of the extract into a 20-ml scintillation vial and adding 15-ml of hexane. The extract is allowed to concentrate by nitrogen blow down to 2-ml. This procedure is repeated by adding another 15-ml of hexane to the 2-ml of sample and the nitrogen blow down is repeated until a final volume of 2-ml is obtained. The extract is then brought to a 10-ml final volume by adding hexane. The final 10ml extract is then cleaned with a 1:1 sulfuric acid/water solution for several minutes. The phases are allowed to separate and the hexane layer (top layer) is removed. If the hexane layer is colored or has visible emulsion or cloudiness, the procedure is repeated until no color or cloudiness remains in the extract. The hexane layer is then drawn off. The cleaned extract is then submitted to the gas chromatography (GC) laboratory. A method blank must be taken through this procedure to ensure that no contamination has been introduced that requires a blank run to be done without any injection.

7.2 Standard Operating Procedure for the Determination of PCBs:

7.2.1 Introduction:

The GSD sampling procedures for the determination of PCBs is based on the EPA method. The method is based on a modified EPA SW-846, method 8080A for analysis and Method 3540 for extraction. It is designed to analyze waste sludge in order to determine PCBs as Aroclors. It determines analyte concentrations of total PCBs as Aroclors in the range of 1 to 50 ppm. This method is used to determine the concentrations of various PCBs as Aroclors in extracts from waste sludge matrices. It has a wide scope of application, as a large number of compounds will give a response on the electron capture detector (ECD) using this method. All PCBs are identified by pattern recognition and retention window matching in the chromatograms obtained from the analytical GC runs.

7.2.2 Sample Collection Preservation and Handling:

7.2.2.1 Sample Extraction

All samples were extracted within 10 days of sample receipt or within 14 days of collection. All extracts were stored in the refrigerator at 4°C (±2°C) and analyzed within 30 days of extraction.

7.2.2.2 Sample Storage

All the samples were protected from light and refrigerated at 4 °C (±2 °C). Any samples that were disposed of were done in a manner that complies with all applicable regulations. The samples were stored in a contamination free environment.

7.2.2.3 Sample Extract Storage

All sample extracts were protected from light and stored at 4 °C (±2 °C). Sample extracts were stored in a contamination free environment. In addition, measures have been taken to ensure that samples, sample extracts, and sample standards are stored separately.

7.2.3 Sample Extraction Protocol for GC Analysis

The sample collected for analysis is first tested to determine whether it is a solid or liquid sample. The sample is termed a solid or liquid depending on percent of solids present in the sample. Solid samples are samples which have >0.5% solids. Water samples are samples which have <0.5% solids. Table 7.1 describes the quantitation limits of analytes for water and solid samples as suggested by the GSD.

Table: 7.1 Quantitation Limits

Analyte	Water sample	Solid sample
Aroclor 1242	0.1ppm	0.1ppm
Aroclor 1248	0.1ppm	0.1ppm
Aroclor 1254	0.1ppm	0.1ppm
Aroclor 1260	0.2ppm	0.2ppm

7.2.4 Sample Preparation / Extraction Procedure

Solid samples are extracted by the Soxhlet extraction method and water samples are extracted by separatory funnel extraction method.

7.2.5 Standards and Spiking Solutions Preparations

7.2.5.1 Stock Standard Solutions

Certified standards are obtained from SUPELCO (Sigma Aldrich Corp, St Louis, MO, USA), and stock standards are diluted directly from the concentrates. The surrogate used is tetrachloro-m-xylene, and this is added to all standards, samples and blanks. Stock standard solutions are kept in the refrigerator at 4 °C (±2 °C) and changed every 3 months.

7.2.5.2 Calibration Standards

Solutions of calibration standards are prepared for each Aroclor (Fisher Chemicals, Fairlawn, NJ) at 5 concentration levels (10, 25, 50, 75, 100ppm) or (20, 40, 60, 80, 100ppm), respectively. Calibration standards are made every three months.

7.2.5.3 Spiking Solutions

7.2.5.3.1 Surrogate Solution:

The surrogate used is tetrachloro-m-xylene and this is added to all standards, samples, matrix spikes, and blanks. Surrogate spiking solution is at a concentration of 2μg/ml if the compound in acetone is prepared with tetrachloro-m-xylene. Spiking solution is equilibrated to room temperature before use.

7.2.5.3.2 Aroclor Laboratory Control and Matrix Spiking Solution:

A solution containing Aroclors 1016 and 1260 is prepared in acetone in the concentrations of Ar1016-6μ g/ml and Ar1260-12μg/ml. All standard solutions are stored in amber glass bottles with Teflon-lined screw caps at 4 °C (±2 °C) and protected from light.

7.3 Soxhlet Extraction:

In the Soxhlet extraction process, one gram dried sample that has to be extracted is placed in the extraction cellulose thimble (shown in Figure: 7.3.2) and placed in the Soxhlet chamber (shown in Figure: 7.3.1). Solvent is placed in the round bottom flask and heated to boiling. The vapors rise through the outer chamber and into the condenser. The vapors condense into liquid and fall back into the bottom of the Soxhlet chamber. As the distilled solvent rises in the chamber, it seeps through the permeable cellulose extraction thimble that holds the sludge sample. The solvent extracts the PCBs and other non-volatile compounds present in the sludge and leaves the solid mass behind. The extraction is usually indicated by observing that the solvent has a different color than it had in its pure form in the flask. As the solvent rises, the solution is forced through the small inner tube, and the chamber is flushed due to a siphoning effect. The flushed solvent returns to the flask taking the extracted compounds with it. The solvent is redistilled from the solution in the flask and condenses in the chamber, repeating the extraction with the fresh solvent. The process is repeated as many times as necessary. Each time this process is repeated, the more concentrated the solution in the flask becomes because more is extracted from the solid mass. The Soxhlet extraction is usually completed when the solution in the Soxhlet chamber is the same color as pure solvent. This means that nothing more is being extracted from the sludge sample by the solvent. Figure 7.3.1 shows the complete Soxhlet extraction unit.

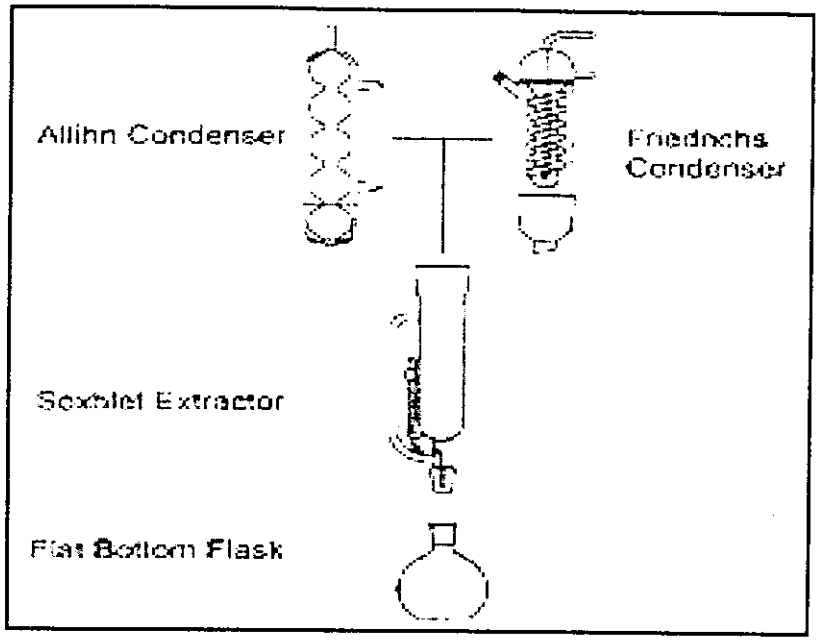

Figure 7.3.1: Soxhlet Extraction Unit (Organomation Associates Inc, Berlin, MA)

The Figure 7.3.2 below shows the two different types of extraction thimbles used to hold the sample in the Soxhlet extractor: the cellulose thimble and the glass thimble. Cellulose thimbles are preferred during our experiments, to avoid any possible contamination.

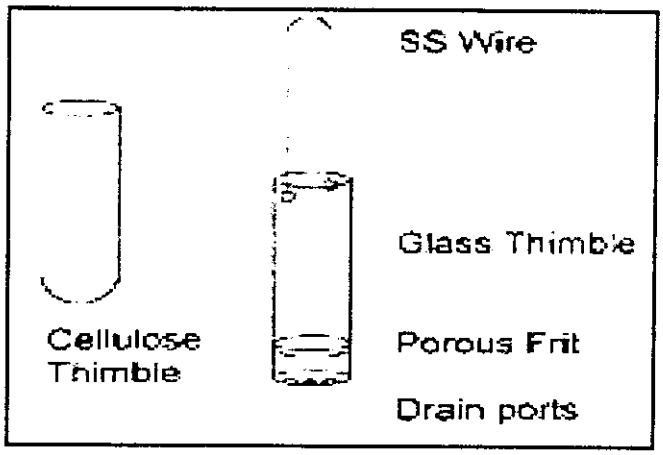

Figure 7.3.2: Cellulose thimble & Glass thimble (Organomation Associates Inc, Berlin, MA)

7.4 Kuderna-Danish Evaporative Concentrator:

The Kuderna-Danish concentrator was developed in the laboratories of Julius Hyman and company, Denver, Colorado for the concentration of materials dissolved in volatile solvents (Kimble Kontes, Concentrators, Vineland, NJ). It has found wide application in the field of pesticide analysis. Typical solvents include petroleum ether and hexane.

It is also used in environmental and other analyses where it is necessary to concentrate extracted materials from liquid or solid samples. This is accomplished by boiling the solvent in a heated water bath. Waste solvent is collected for further purification and reuse or for disposal. The process is fast and solvent loss is minimal. The Kuderna Danish Apparatus is described in the following sections.

7.4.1 Kuderna-Danish Flask:

This pear-shaped flask is used principally in pesticide residue analysis and employs the Kuderna-Danish apparatus for evaporation-concentration based extraction procedures. The lower body of the flask has a hemispherical shape to afford continuous flow of heavier fractions to the receiver tube during reflux. This flask is also supplied with glass hooks just above the lower joint to secure any connections.

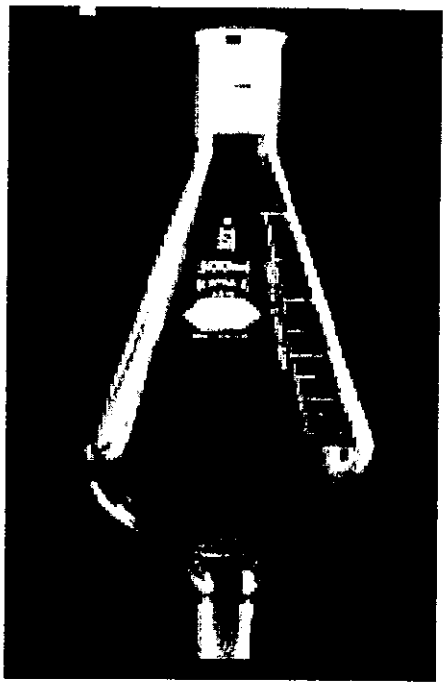

Figure 7.4.1: Kuderna-Danish Flask (Kimble Kontes, Concentrators, Vineland, NJ)

7.4.2 Macro Snyder Column:

This column contains no-flood floating ball vapor valves that provide improved vapor/liquid contact during reflux, yielding rapid, clean separation of volatiles from heavier fractions. Each column section is approximately 50 mm in length.

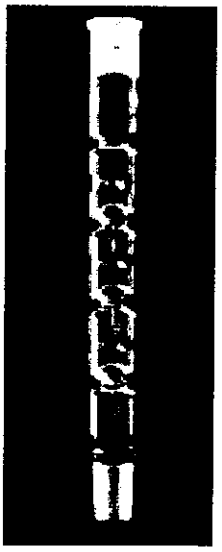

Figure 7.4.2: Macro Snyder Column (Kimble Kontes, Concentrators, Vineland, NJ)

7.4.3 Graduated Receiver With Reservoir Tip:

This is used in conjunction with the micro snyder of modified micro snyder columns or Kuderna-Danish flasks for the concentration of chemical extracts. Tubes are supplied with glass hooks to secure connections. The reservoir tip has a 1 ml capacity and allows a greater degree of measuring accuracy. Tubes are graduated with 1 ml subdivisions. Reservoir tips are graduated in 0.1 ml subdivisions.

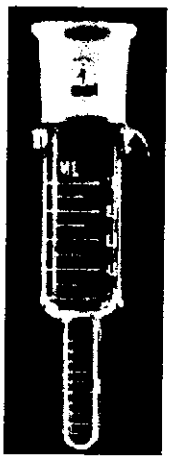

Figure 7.4.3: Graduated receiver with reservoir tip (Kimble Kontes, Concentrators, Vineland, NJ)

7.4.4 Process Description:

The Kuderna Danish evaporator preparation involves filling the flask to about 40 to 60 percent of capacity. To prevent sample loss initially, the column should be pre-wet with about 1 ml of the solvent used in the concentration. The column is designed to speed evaporation with reduced hold-up.

The charged assembly should be placed over a vigorously boiling water bath. The water level should be maintained just below the lower joint and the apparatus mounted so that the lower rounded surface of the flask is bathed in steam. The final sample remains in the graduated lower tube and is used for further analysis.

The entire assembly is set up in a hood. The solvent is allowed to escape, or can also be collected by the solvent recovery apparatus. The complete apparatus of the Kuderna Danish evaporative system is shown in Figure 7.4.4.

Figure: 7.4.4 Kuderna Danish Evaporative System

7.5 Gas Chromatography Analysis

PCB analysis for these experiments was performed using an electron capture detector on Hewlett-Packard (HP) 5890 Series II Gas Chromatograph (Hewlett Packard Co., Palo Alto, CA). The gas chromatograph was equipped with a Ni63 ECD and a DB-5 capillary column 30m length, 0.25mm inner diameter, film thickness, 0.25μm (J&W Scientific, Folsom, CA) and a phase ratio of 10. The carrier gas used was ultra pure nitrogen while the makeup gas consisted of 5% methane and 95% argon (Air Products, Allentown, PA).

The gas flow rate used in the GC corresponds to a linear velocity of 30 cm/s at 100 °C. Instrument control and data acquisition for the GC were driven by the software package known as Chemstation. The data controller consisted of Gateway Personal Computer and Chemstation software (Hewlett Packard, Wilmington, DE). The temperature program used for analyzing the aqueous PCB samples is shown in Table 7.5.

Table 7.5 Temperature Program for PCB analysis

Initial oven temperature	230 °C
Rate	20.0 °C / min
Final temperature	230 °C
Final holding time	0.10min
Injector temperature	220 °C
Detector temperature	300 °C

A 2-μl volume from each liquid sample extract was manually injected into the column using a gas-tight syringe (Hamilton, Reno, NV). Sample run time was approximately 60 minutes. The output obtained is known as a chromatogram.

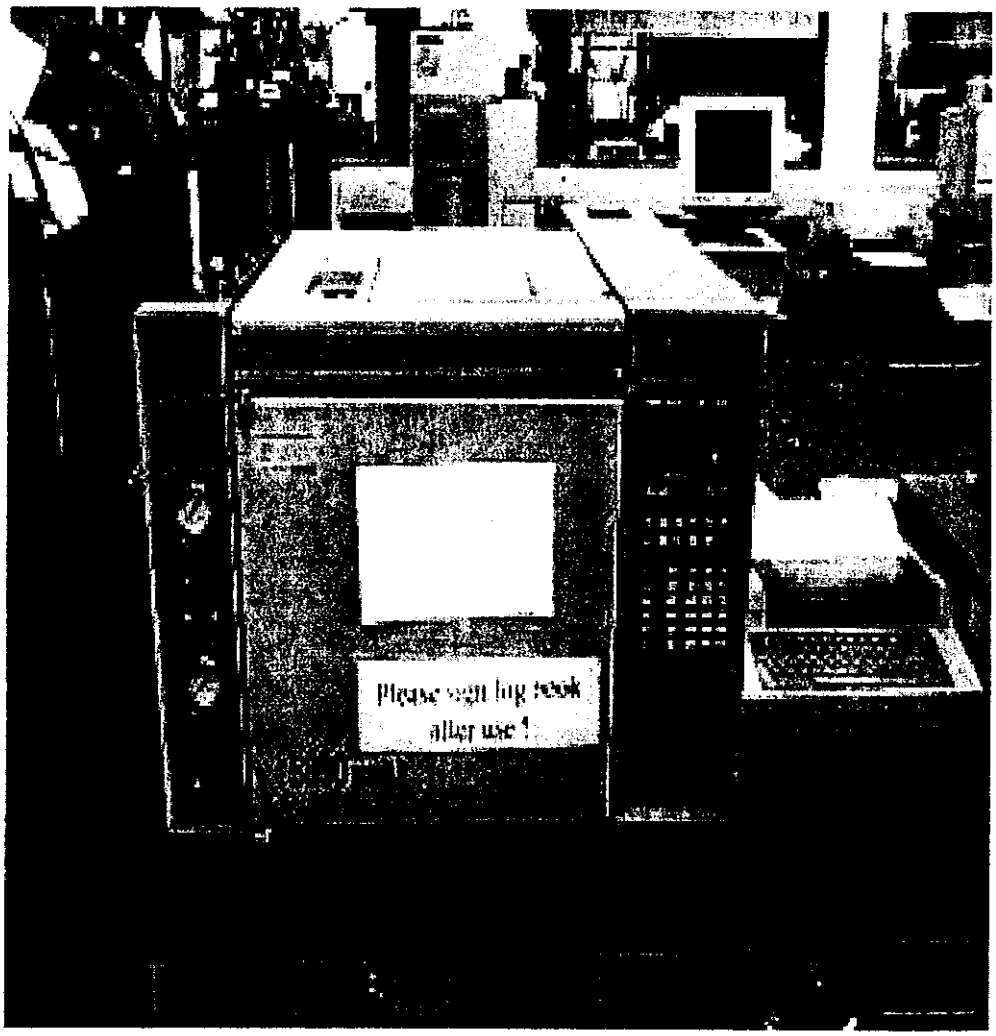

Figure 7.5.2: HP 5890 A Gas Chromatograph System (ECD & FID)

Section 4: Results and Discussion

Chapter 8: Earthworms Fate and Transformation

This study was conducted in order to find a viable and a possible alternative method for the remediation of PCBs with a focus on the feasibility of using earthworms (*E.Foetida)* as a suitable remedial method for degradation of the PCBs. The study was conducted in two different sets of experiments. In the biotic reactors, appropriate ratios of soil and sludge were mixed and then the VBs were inoculated with *E.Foetida.* In the abiotic control reactors, there were no worms inoculated and any transformation activity would come from the sludge itself. The abiotic control reactors would also provide a measure of the potential for intrinsic biodegradation or removal of PCBs through a simple *ex situ* process. PCB transformation was monitored in both these experiments and PCB concentration was measured in the various sludge concentrations of 10%, 25%, 50%, and 75%. Earthworms in the VBs were also monitored and measured for their number and biomass, and at the termination of the study, the VBs and controls were sacrificed in their entirety and extracted and analyzed.

The results from this entire study will be presented and discussed in the same order as mentioned above, concentrating on the effectiveness of earthworms for PCB transformation and also the effect of PCB concentration in the sludge on the growth and viability of the earthworms. The potential for any possible intrinsic bioremediation will also be discussed while describing the results of the abiotic control experiments.

8.1 Earthworm Growth Study

E. Foetida is the species most commonly used for degrading organic wastes. *E. Foetida* used in all our experiments was reared in our laboratory in the earthworm bin as described. There are a number of reasons why this species is preferred. *E. Foetida* is

ubiquitous, and many organic wastes become naturally colonized by this species (Edwards, 1988). It has a wide temperature tolerance and can live in wastes with a good range of moisture contents. It is a tough worm, readily handled, and in mixed cultures they usually become dominant, so that even when field systems begin with other species they often end up with a larger proportion of *E. Foetida.*

8.1.1 Worm Population:

E.Foetida were introduced into the VBs with different sludge concentrations. Feeding was done every week with 3-grams of corn meal. In addition, the VBs were watered twice every week to maintain the moisture content suitable for the earthworms. The earthworms were able to survive at all sludge concentrations, and demonstrated the ability to reproduce even at the highest PCB concentrations of contaminated sludge. Net earthworm population increased by 21% in VB with 10% (v/v) sludge to an actual reduction of -66% in the VB with 75% (v/v) sludge. Even though some worms were able to survive high sludge concentrations, our results show that their growth had been considerably inhibited.

In all the VBs (10%, 25% and 50%) earthworm population remained essentially the same for the first two months. Later, after some adaptation period, in the 10% and 25% VBs there was an increase in earthworm number. In the 50% VB, the earthworm number remained the same and in the 75% VB there was a decrease in population from the first week of the start up of the experiment. This might be due to high concentration of toxics in the 75% VB.

Results show that the worm population remained constant from t= 0 days to t = 60 days in 10, 25 and 50 percent sludge concentrations, while the population decreased from

t = 7 days in the 75% VB. In the VB with no sludge, there is also a decrease in population from t = 7 days, suggesting some adaptation was required. In the high concentration VB, the population reduction is likely due to the toxicity of the sludge. In the sludge free VB positive control, the lack of organic material from the sludge itself possibly served to reduce earthworm population. This seemingly contradictory set of stimuli for population reduction is supported by the data in the VBs with 10% and 25% sludge, which had slight population increases.

After the adaptation period of two months in the 10%, 25% and 50% VBs, earthworms multiplied. In 10%, VB, the presence of 2 medium sized and 26 baby worms was observed. In 25 % VB, 2 medium sized worms and 12 baby worms were observed, and in 50%, only two medium sized worms were observed. The trend in earthworm reproduction is also attributable to the toxicity of the sludge. As toxicity of the sludge increased, earthworm reproduction in the VBs decreased. This data is best shown in Figure 8.1.1, which shows the population curve of *E.Foetida* in different sludge concentrations through the course of this investigation.

To understand earthworm viability, it is not sufficient to only examine population numbers. It is also important to monitor the total biomass. Worms may not be reproducing but they can still be viable, healthy and growing, which would be evidenced by increasing the total EW biomass. This will be discussed next.

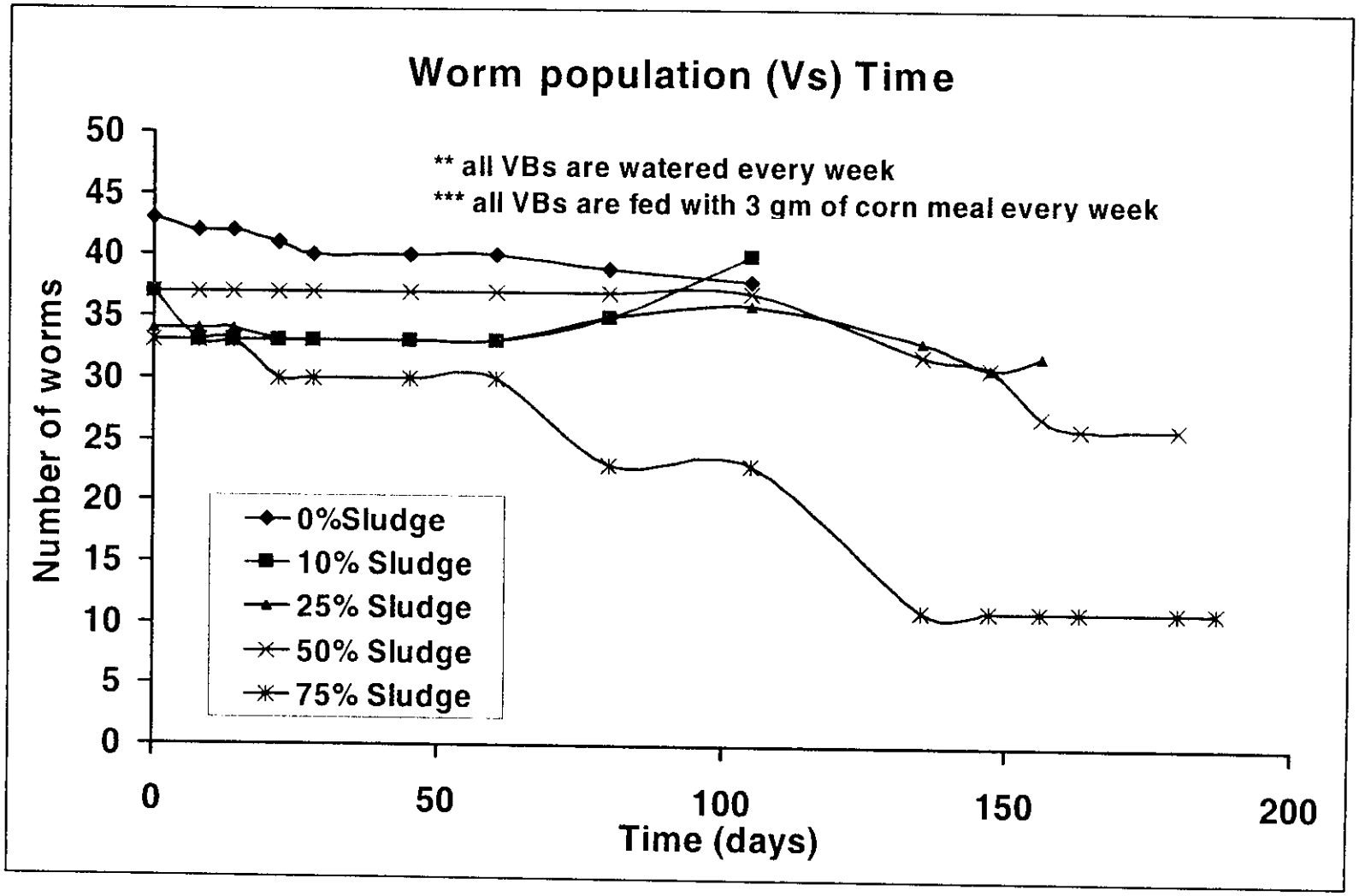

Figure 8.1.1 Population curve of *E.Foetida* in various sludge concentrations

8.1.2 Worm Biomass:

Nine grams of earthworms were inoculated into each VB during the initial setup of the investigation. The earthworms were able to survive in all PCB concentrations, and were also able to withstand high concentrations of PCBs as demonstrated by the increase in biomass and number of worms. Results show that the higher the fraction of sludge and hence higher PCB content, the net reduction in biomass appeared greater. In the reactor with no sludge, the net worm biomass increased by 47%, while the increase in biomass ranged from 35% with 10% (v/v) sludge to an actual net reduction in biomass (–54%) in the VB with 75% (v/v) sludge.

The maximum increase in total biomass was observed between t = 45 days to t = 60 days. In the VB with no sludge, the maximum biomass increase was almost two fold (104%) at t = 60 days. In the VB with 10% sludge fraction the maximum biomass increase of 86% at t = 60 days was observed. In 25% a maximum of 76% was observed at t = 45 days and this ranged to a maximum total biomass of 3.5% in the VB with 75% sludge. These results demonstrate that as the sludge concentration increased the maximum total biomass of earthworm in the reactors decreased. This data is shown in Table 8.1.

Even though some worms were able to survive high PCB concentrations, results show that their growth had subsided considerably. This data is plotted in Figure: 8.1.2, which shows total earthworm biomass in the various VBs through the course of the investigation.

In the 0% VB, the earthworm biomass had a very rapid increase in the first week; the total weight of the earthworms was almost doubled by the end of two months (it

increased from 9-grams to 18-grams). In the 10% VB, the biomass increased from 9-grams to 16-gms by the end of two months and then it decreased further to 12-grams in the third month. This might be the result of earthworm reproduction. A similar trend is observed in the case of 25% and 50% VBs; the total biomass numbers are different but less compared to 0% and 10%. The net reduction in biomass is more in 25 % and 50% VBs after third month; this might be due to the toxicity level of contamination in these reactors, which would negatively affect the net biomass of earthworms in the VBs.

Table 8.2 Maximum gain in total worm biomass in different sludge concentrations

Sludge concentration	**% gain in total earthworm biomass**	**Time(days)**
0%	104	60
10%	86.17	60
25%	74.67	45
50%	52.07	45
75%	3.5	45

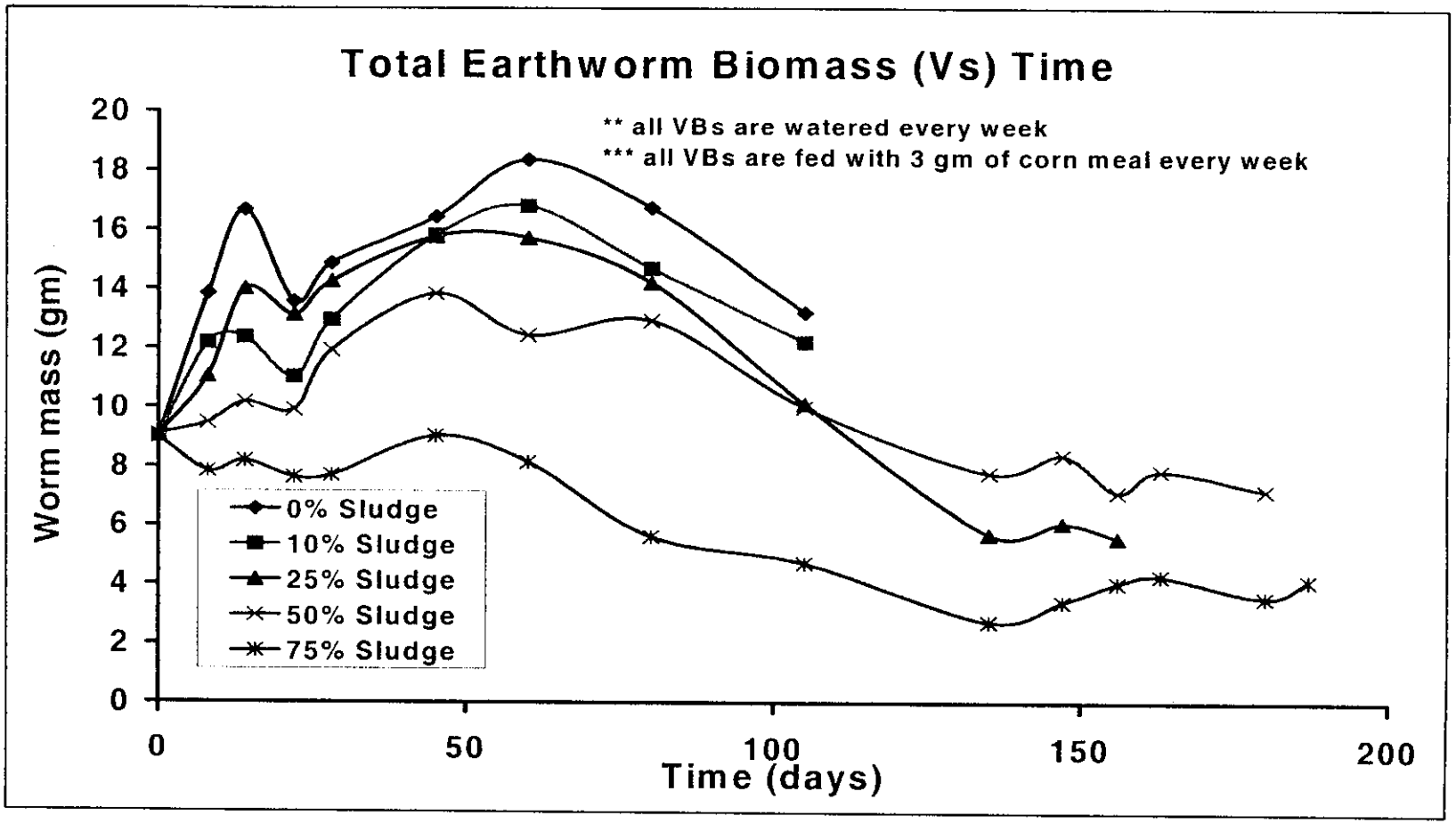

Figure 8.1.2: Worm mass of *E.Foetida* in different sludge concentrations through the course of Investigation.

8.1.3 Average Individual Worm Mass:

Figure 8.1.3 shows average individual worm mass of *E.Foetida* in different sludge concentrations. The average individual worm mass increased in all the reactors from initial set up to the termination. Earthworm number and Biomass are together responsible for the increase in the individual worm mass. This is because if total mass increases with simultaneous decrease in the number of worms, then the average mass per worm increases, and vice-versa.

Results show that in the VB with 10% sludge, average worm mass increased from 0.24 gm/worm to 0.50 gm/worm but later gradually decrease to 0.30 gm/worm. The average individual worm mass increased from initial time t = 0 to t = 60 days, and then gradually decreased for the rest of the experimental duration.. In the VB with 25% sludge, average worm mass increased from 0.26 gm/worm to 0.40 gm/worm but later gradually decreased to 0.17 gm/worm. This is because the decrease in worm biomass is very high compared to the decrease in worm number, which resulted in the decrease of the average individual worm mass.

In the VB with 50% sludge, average worm biomass increased from 0.24 gm/worm to 0.37 gm/worm, but later gradually decreased to 0.27 gm/worm. This is because there is a decrease in both the worm number and worm weight from t = 45 days to t = 180 days. In the VB with 75% sludge average worm weight increased from 0.27 gm/worm to 0.38 gm/worm but later gradually decreased to 0.37. The average worm weight however increased from initial time t=0 to t=187 days. In this reactor the decrease in worm biomass is less compared to the decrease in worm number, and thus the average individual worm mass in the reactor increased.

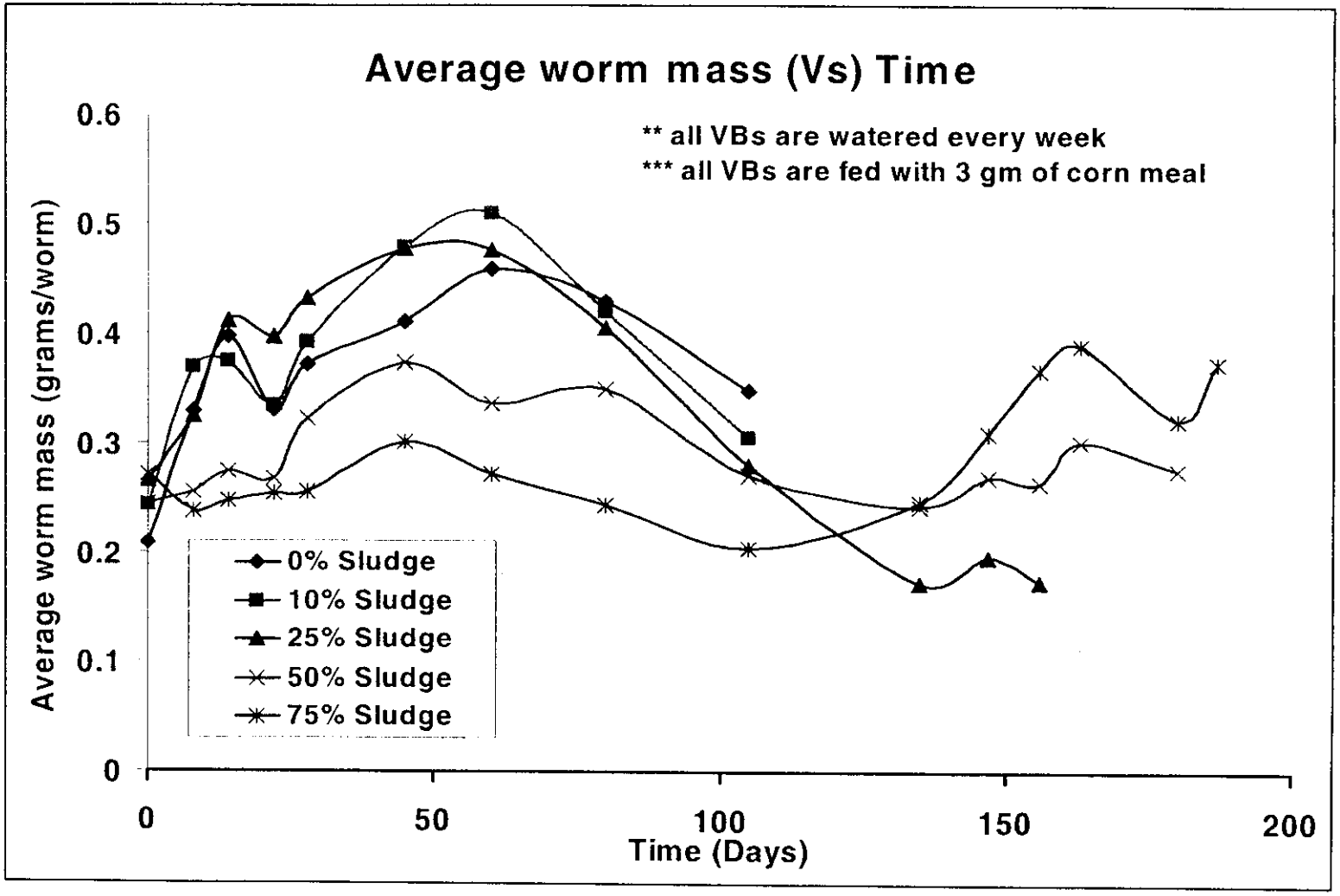

Figure 8.1.3: Average worm mass of *E.Foetida* in different sludge concentrations

The net worm population is decreased as the sludge concentration increased in each VB. In the lower concentration, the percentage gain is more and in the higher concentration percentage loss is high. Net percentage gain in worm biomass is higher in VB with no contamination (i.e. 0% sludge concentration), and it gradually decreased as the sludge concentration increased. In VB with 75% (v/v) sludge, there is no gain in worm biomass; rather, there is a net decrease of 50%. Table 8.2 shows the net percent gain or loss in worm biomass at the termination of each study. Previous experiments done in our laboratory have also shown that the growth of *E foetida* is affected by sludge concentration. Those results also support the fact that high PCB concentration is not suitable for the growth of *E.foetida* (Satterwhite & Tharakan ,2002).

Table 8.2 Net percent gain or loss in worm weight

Sludge concentration	**Net % gain or loss in total earthworm biomass**	**Time(days)**
0%	46.48	105
10%	35.165	105
25%	11.52	156
50%	10.11	180
75%	- 47.76	187

Chapter 9: PCBs Fate and Transformation

9.1 PCB Transformation in Biotic Vermicompost Bioreactors

Midwest sludge is used in all our experiments. This sludge has moisture content of 70%.This sludge has a PCB concentration of 912 ± 108 ppm, measured as Aroclor 1248. Analysis was done in our laboratory. The Gary Sanitary District Report suggests the sludge concentration to be around 1000 ppm. These results tally with our lab results. Figure 9.1 shows the analysis of Midwest sludge compared to Aroclor 1248 standard. The peaks in both the chromatograms fall in line, which supports the sampling analysis done by GSD, which also states that the Lagoon sludge consists primarily of Arolcor 1248.

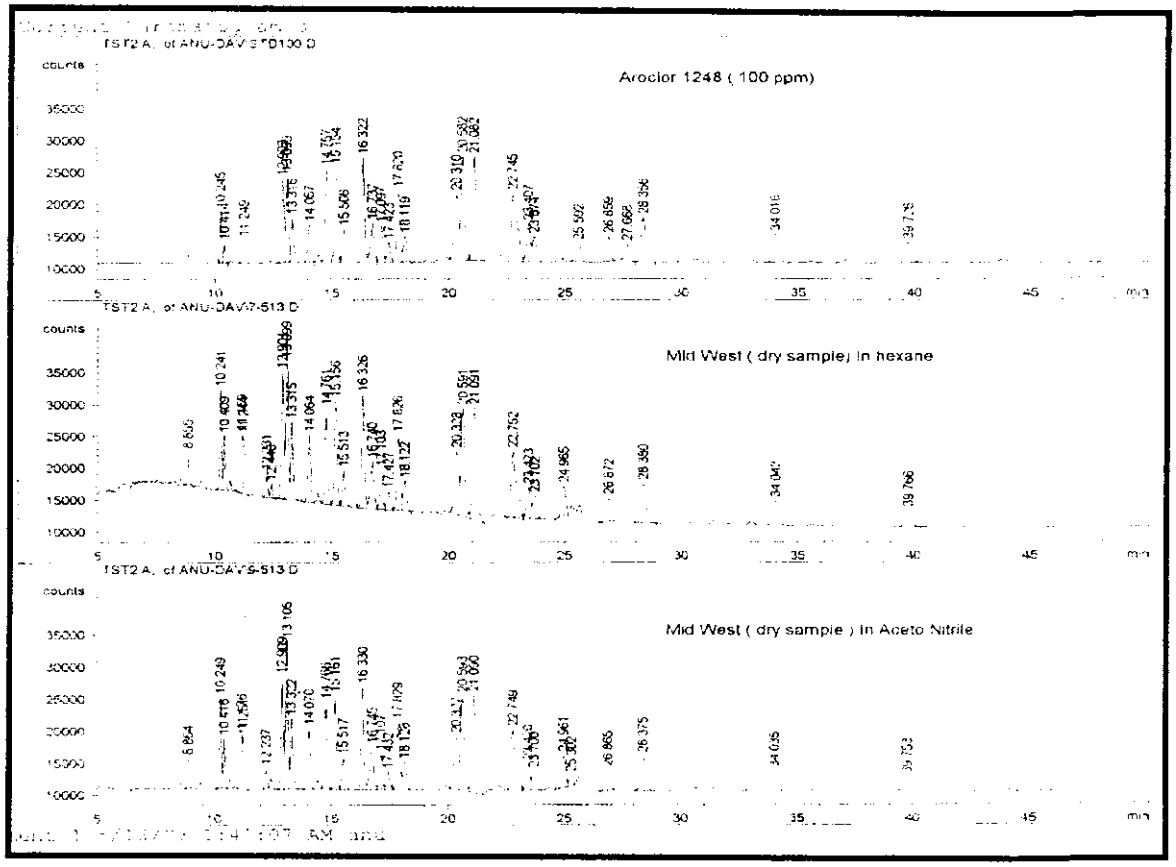

Figure: 9.1 Sludge sample analysis of Midwest sample compared with Aroclor 1248

9.1.1 10% Sludge Concentration:

The bioreactor with 10% sludge concentration was monitored for this experiment. This has an initial PCB concentration of 224ppm. The PCB concentration in this reactor has decreased considerably. Figure 9.1.1.1 shows a decrease in PCB concentration to 40 ppm, or an 82 % PCB reduction in this VB. At the termination of this experiment, the entire earthworm biomass present in the bioreactor was separated, dried, crushed and extracted. The earthworm analysis of the earthworm extracts showed a PCB concentration increase from 0 ppm to 148 ppm. Table 9.1.1 shows the data that demonstrates the bioaccumulation of PCBs in the body of the earthworm.

The data on PCB concentration was subject to kinetic analysis to provide some preliminary information on initial, final and global rates of PCB removal from the sludge soil matrix. The initial rate of PCB removal was calculated as 0.204 mg/days. Thus, PCB removal rate decreased through the course of the investigation ending in a global removal rate of 0.090 mg/day.

Table: 9.1.1 PCB concentration in earthworm biomass for 10% sludge VB

Time (days)	PCB concentration (ppm)
0	0
100	148.02

The rate equation for PCB reduction in sludge-soil matrix of 10% (v/v) vermicompost bioreactor is given by:

$$-r_{PCB} = 0.078\,(C_{PCB})^{0.789} \quad \text{.....} \quad (9.1)$$

Where $\alpha = 0.078$

$K = 0.789\ (ppm)^{1-\alpha}/days$

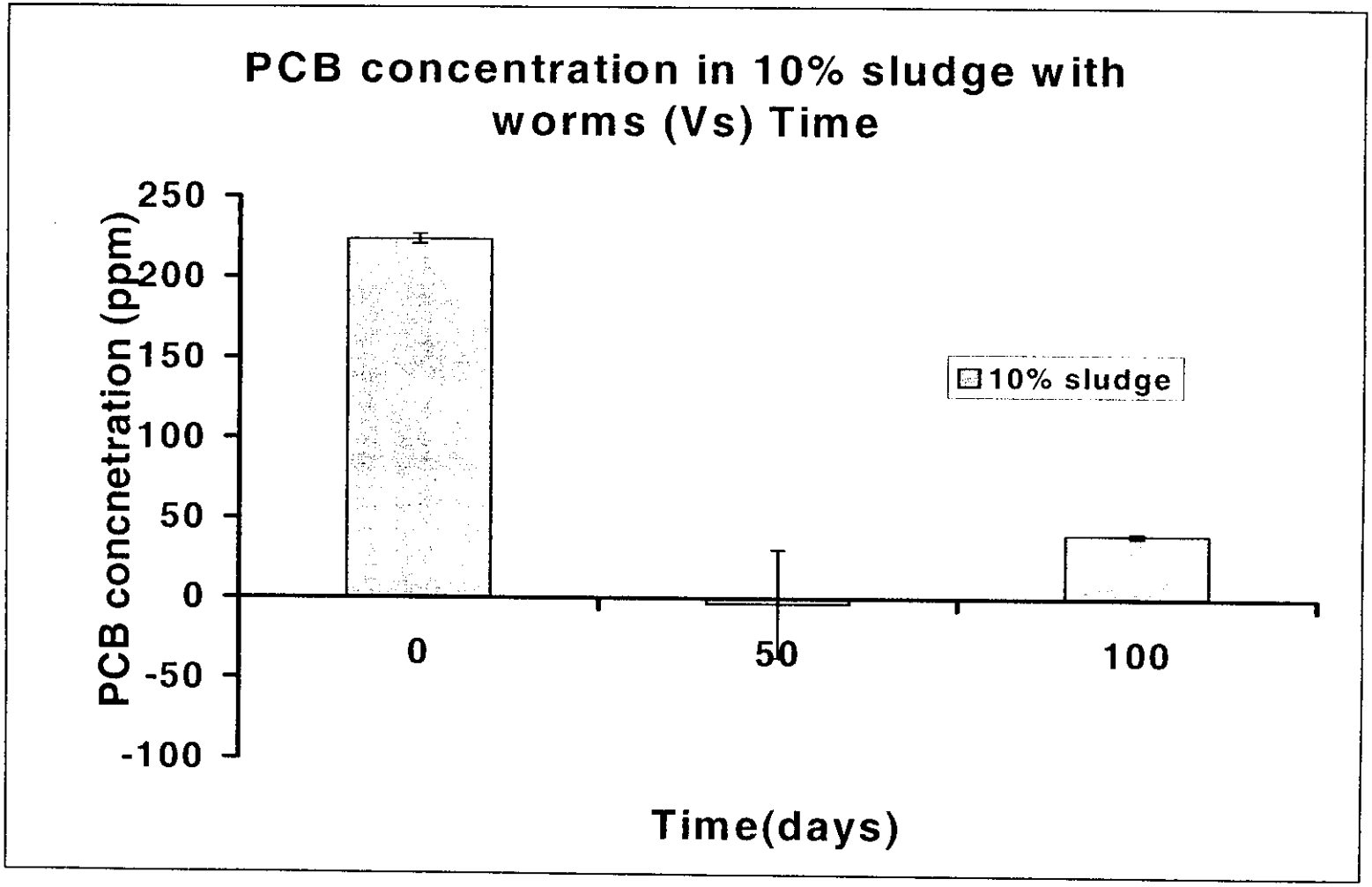

Figure: 9.1.1.1 PCB concentration in 10% (v/v) sludge fraction in vermicompost bioreactor

The overall PCB removal for the VB containing 10% sludge concentration is 82% from the sludge-soil matrix. The chromatogram (Figure 9.1.1.2) shows the reduction of peaks from the initiation of the VB to the termination (from t = 0 days to t = 100 days).

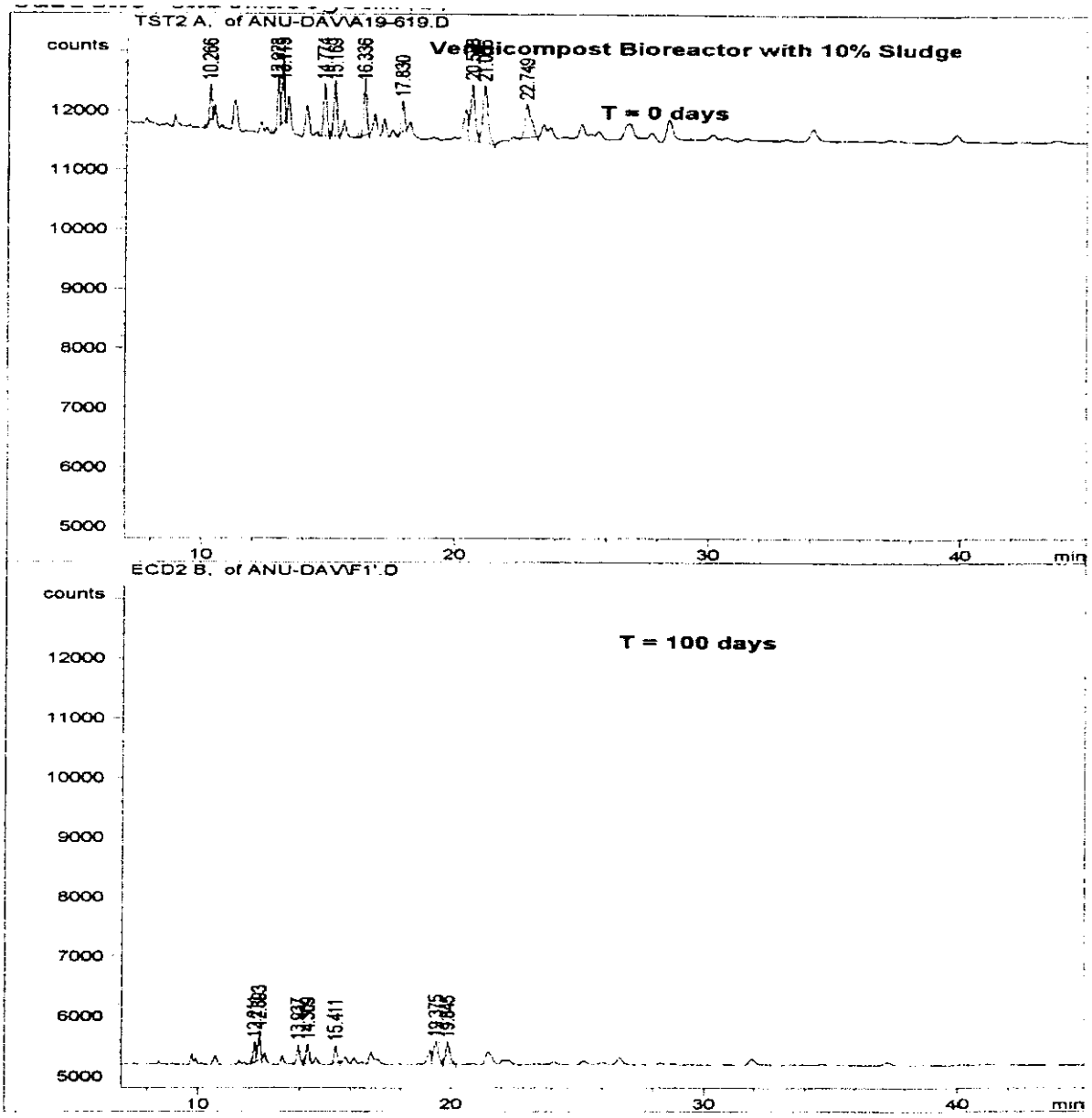

Figure 9.1.1.2: Chromatogram of sludge-soil matrix extracts from 10% (v/v) sludge VB at t = 0 days to t = 100 days

9.1.2 25% Sludge Concentration:

The VB with 25% sludge concentration is monitored for this experiment. This has an initial PCB concentration of 475 ppm. The PCB concentration in this reactor has decreased considerably to 87 ppm. Figure 9.1.2.1 shows a decrease in PCB concentration revealing an 88 % PCB removal in the sludge-soil matrix of this VB. Total earthworm biomass analysis shows PCB accumulation of 212 ppm. Table 9.1.2 data demonstrates the bioaccumulation of PCBs in the body of the earthworm.

The data on PCB concentration was subject to kinetic analysis to provide some preliminary information on initial and global rates of PCB removal from the sludge-soil matrix. The initial rate of PCB removal was calculated as 0.49 mg PCB/day. This PCB removal rate decreased through the course of investigation ending with a global PCB removal rate of 0.1785 mg/day.

Table: 9.1.2 PCB concentration in earthworm biomass for 25% sludge VB

Time (days)	PCB concentration (ppm)
0	0
150	212.8978

The rate equation for PCB reduction in sludge-soil matrix of 25% (v/v) vermicompost bioreactor is given by:

$$-r_{PCB} = 1.47\times10^{-3}\,(C_{PCB})^{1.3505} \quad \text{.....(9.2)}$$

Where $\alpha = 1.3505$

$K = 1.47\times10^{-3}\,(ppm)^{1-\alpha}/days$

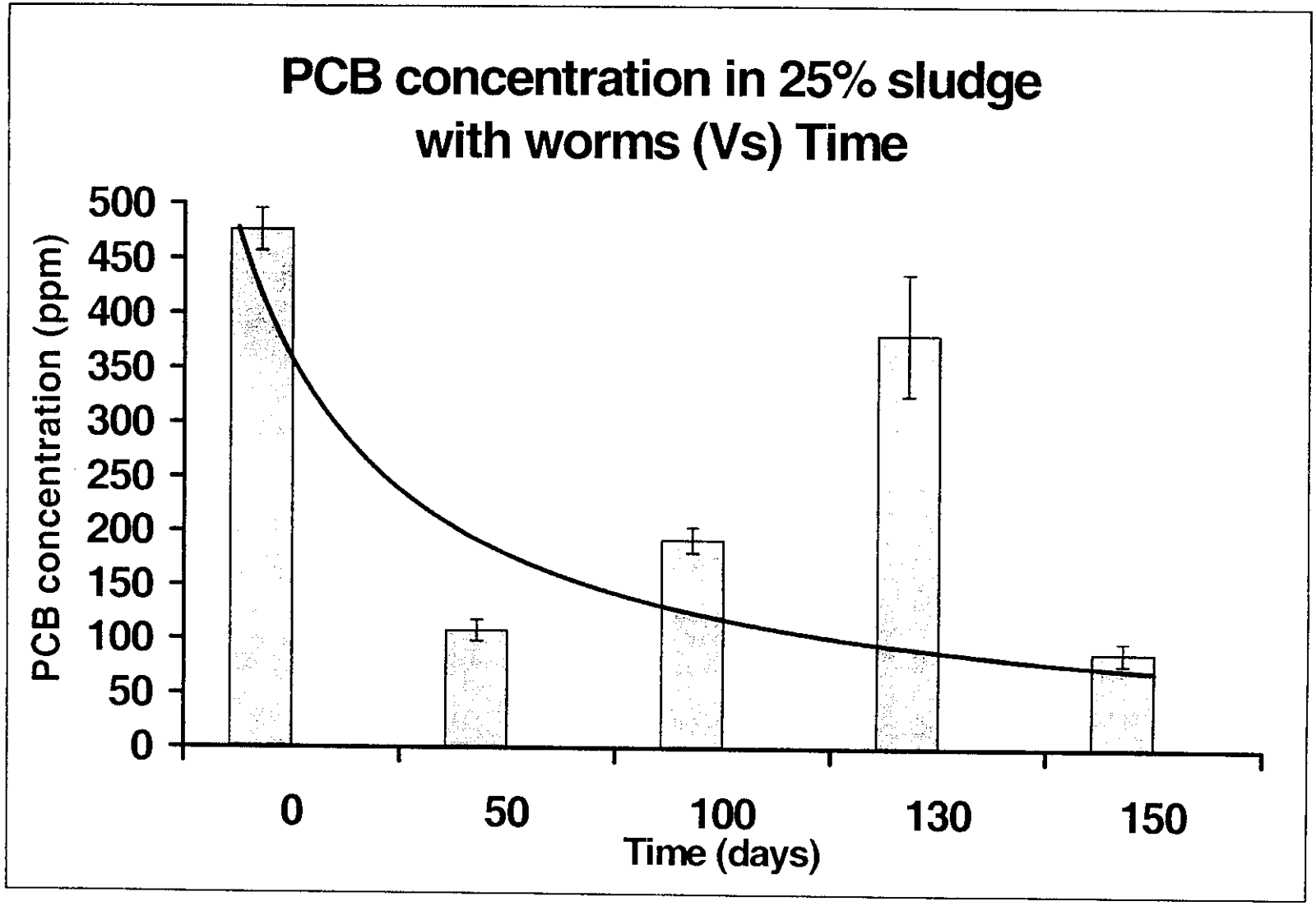

Figure: 9.1.2.1 PCB concentration in 25% (v/v) sludge fraction in vermicompost bioreactor

The overall PCB removal for the VB containing 25% sludge is 82% from sludge-soil matrix. The chromatogram (figure no: 9.1.2.2) shows the reduction of peaks from the initiation of the VB to the termination (from t = 0 days to t = 150 days).

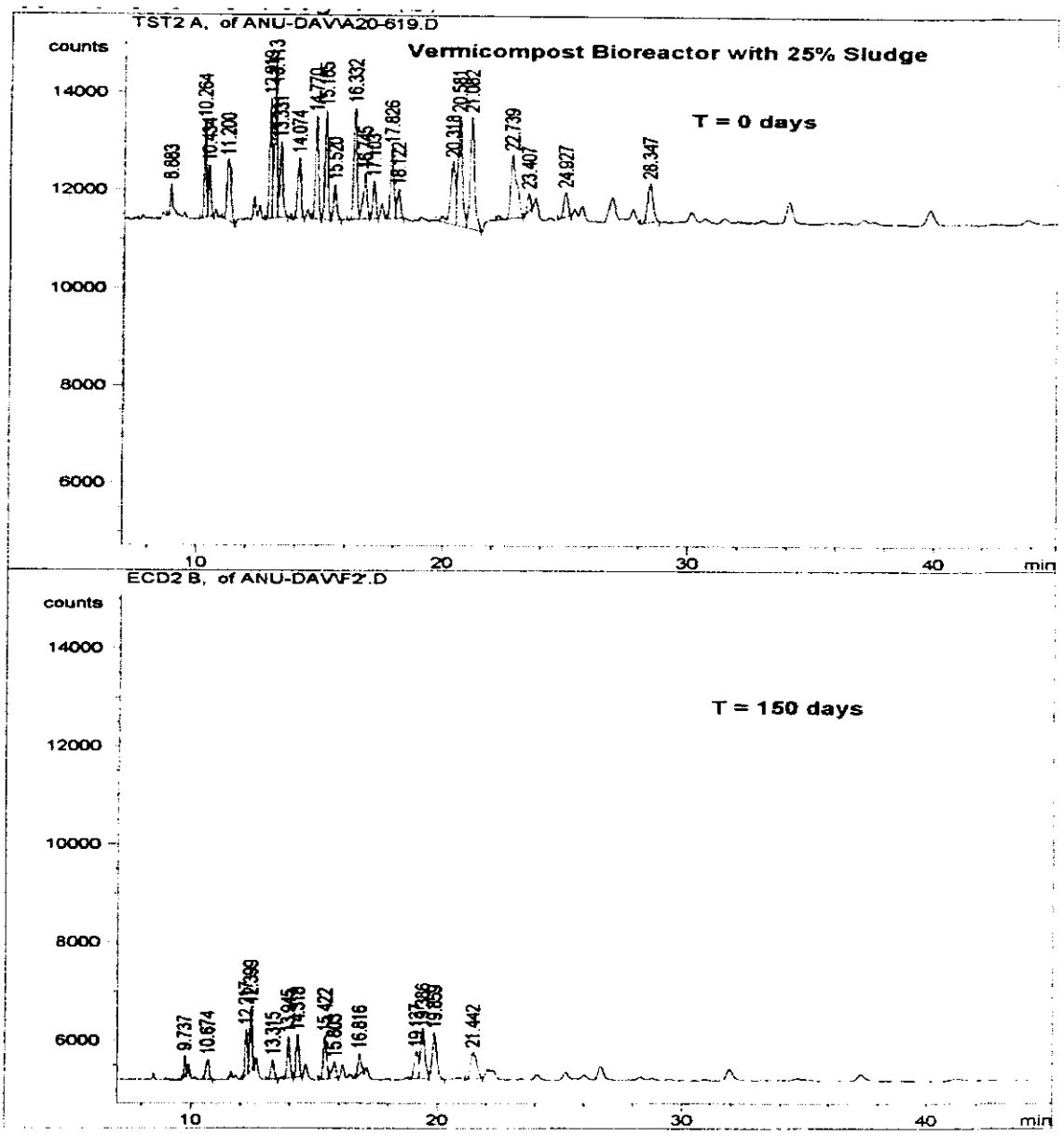

Figure 9.1.2.2: Chromatogram of sludge-soil matrix extracts from 25% (v/v) sludge VB from t = 0 days to t = 150 days

9.1.3 50% Sludge Concentration:

The VB with 50% sludge concentration is monitored for this experiment. This has an initial PCB concentration of 719 ppm. The PCB concentration in this reactor decreased considerably to 74 ppm. Figure 9.1.3.1 shows the decrease in PCB concentration revealing a 90 % PCB removal from the sludge-soil matrix in this VB. Total earthworm biomass analysis demonstrates PCB accumulation of 188 ppm. Data in Table 9.1.3 demonstrates the bioaccumulation of PCBs in the body of the earthworm.

The data on PCB concentration was subject to kinetic analysis to provide some preliminary information on initial and global rates of PCB removal from the sludge-soil matrix. The initial rate of PCB removal was calculated as 0.82 mg PCB/day. This PCB removal rate decreased through the course of investigation ending with a global PCB removal rate of 0.30 mg/day.

Table 9.1.3: PCB concentration in earthworm biomass for 50% sludge VB

Time (days)	PCB concentration (ppm)
0	0
185	188.3546

The rate equation for PCB reduction in sludge-soil matrix of 50% (v/v) vermicompost bioreactor is given by:

$$-r_{PCB} = 8.17\times10^{-3}\,(C_{PCB})^{1.3844} \quad \text{.....(9.3)}$$

Where $\alpha = 1.3844$

$K = 8.17\times10^{-3}\,(ppm)^{1-\alpha}/days$

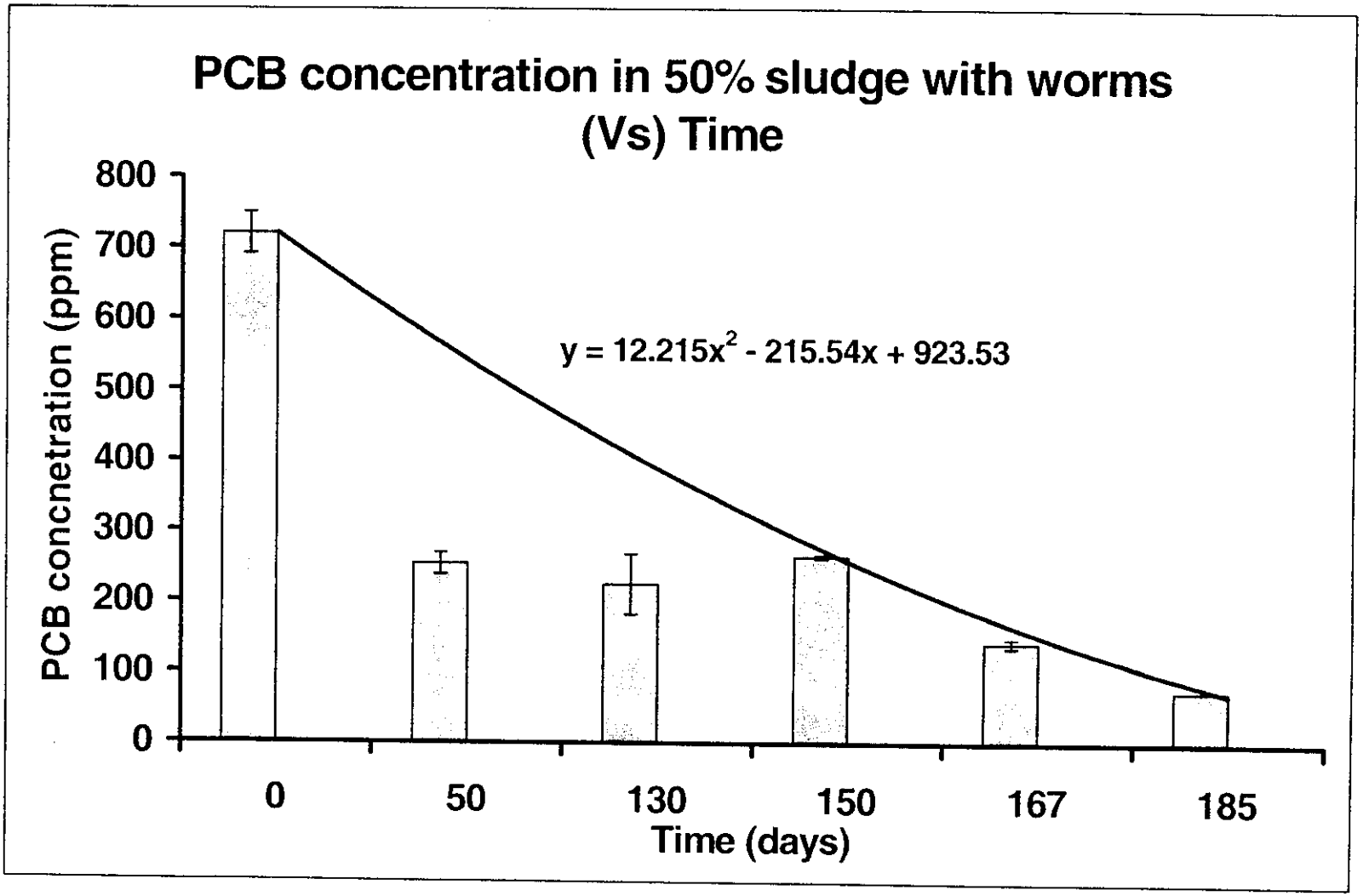

Figure: 9.1.3.1 PCB concentration in 50% (v/v) sludge fraction in vermicompost bioreactor

The overall PCB removal for the VB containing 50% sludge is 90% from sludge-soil matrix. The chromatogram (Figure 9.1.3.2) shows the reduction of peaks from the initiation of the VB to the termination (from t = 0 days to t = 185 days).

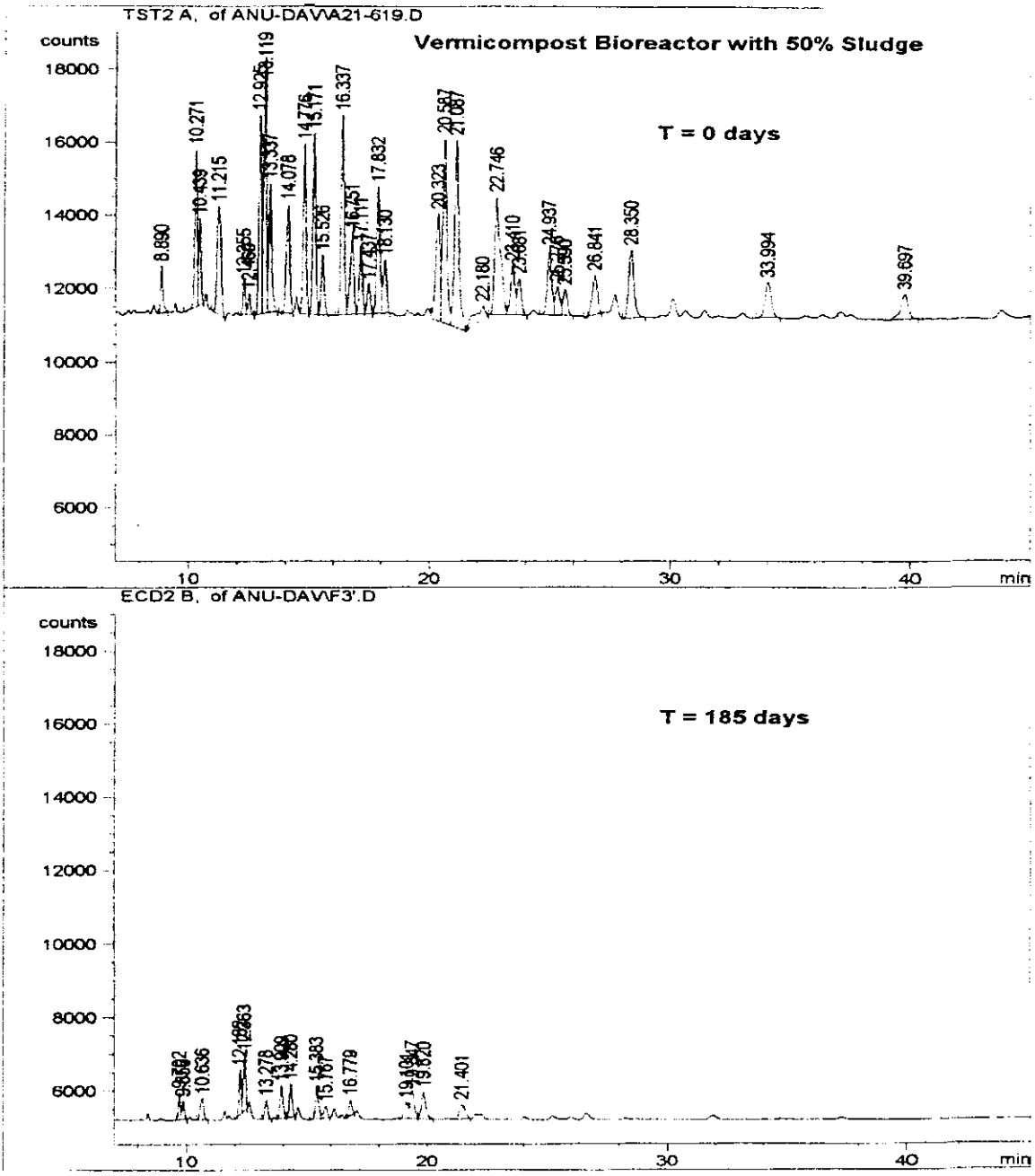

Figure 9.1.3.2: Chromatogram of sludge-soil matrix extracts from 50% (v/v) sludge VB from t = 0 days to t = 185 days

9.1.4 75% Sludge Concentration:

The VB with 75% sludge concentration is monitored for this experiment. This has an initial PCB concentration of 942 ppm. The PCB concentration in this reactor has decreased considerably to 161 ppm. Figure 9.1.4.1 shows a decrease in PCB concentration representing an 83% removal of PCBs in the sludge-soil matrix of this VB. Total earthworm biomass analysis demonstrates PCB accumulation of 313 ppm. Table 9.1.4 data shows the data supporting bioaccumulation of PCBs in the body of the earthworm.

The data on PCB concentration was subject to kinetic analysis to provide some preliminary information on initial and global rates of PCB removal from the sludge-soil matrix. The initial rate of PCB removal was calculated as 1.3736 mg PCB/day. This PCB removal rate decreased through the course of investigation ending with a global PCB removal rate of 0.4171 mg/day.

Table 9.1.4: PCB concentration in earthworm for 75% sludge VB

Time (days)	PCB concentration (ppm)
0	0
200	313.0813

The rate equation for PCB reduction in sludge-soil matrix of 75% (v/v) vermicompost bioreactor is given by:

$$-r_{PCB} = 1.05\times10^{-5}\,(C_{PCB})^{2.0169} \quad \text{.....(9.4)}$$

Where $\alpha = 2.0169$

$K = 1.05\times10^{-5}\,(ppm)^{1-\alpha}/days$

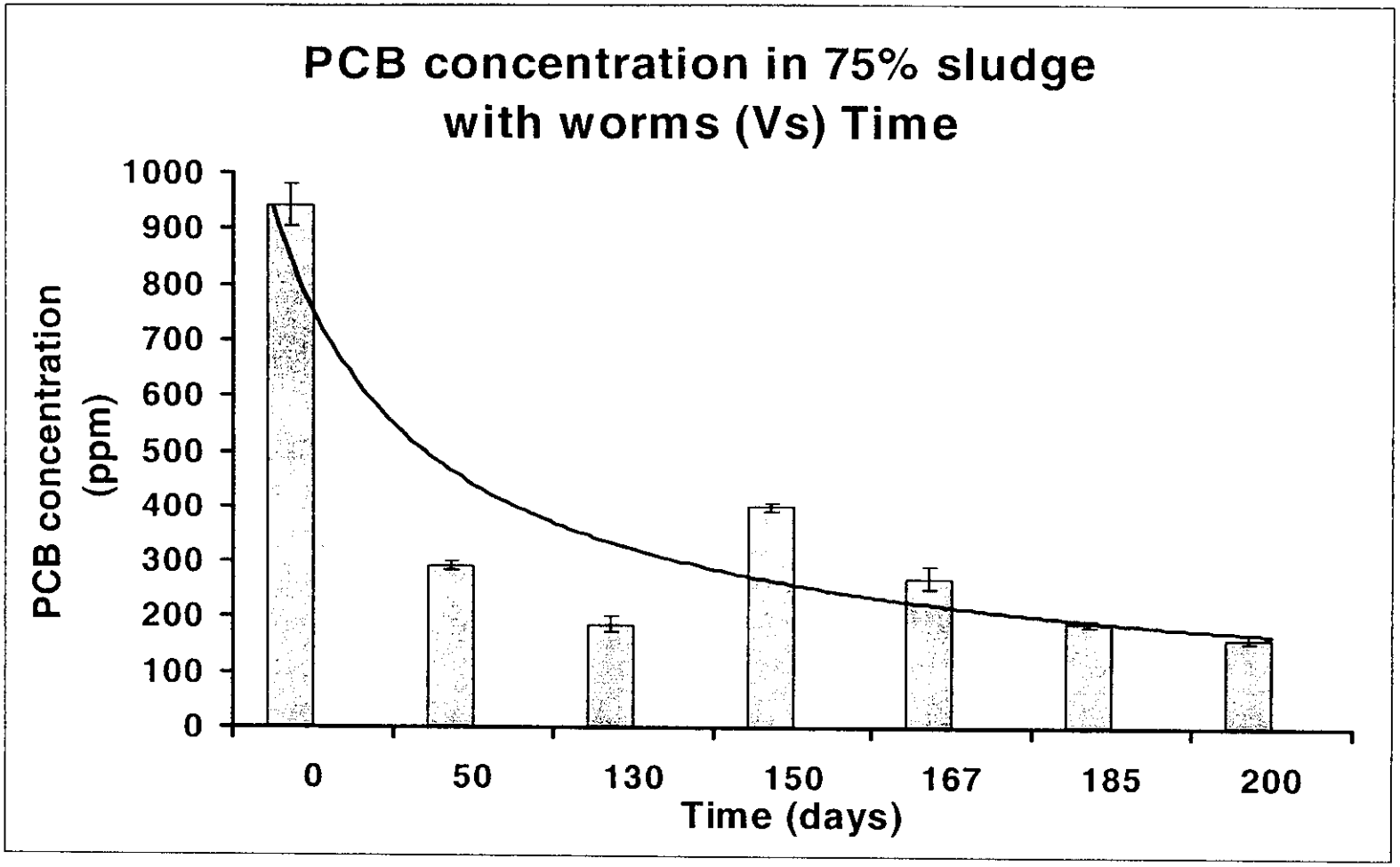

Figure: 9.1.4.1 PCB concentration in 75% (v/v) sludge fraction in vermicompost bioreactor

The overall PCB removal for the VB containing 75% sludge is 82% from sludge-soil matrix. The chromatogram (Figure no: 9.1.4.2) shows the reduction of peaks from the initiation of the VB to the termination (from t = 0 days to t = 200 days).

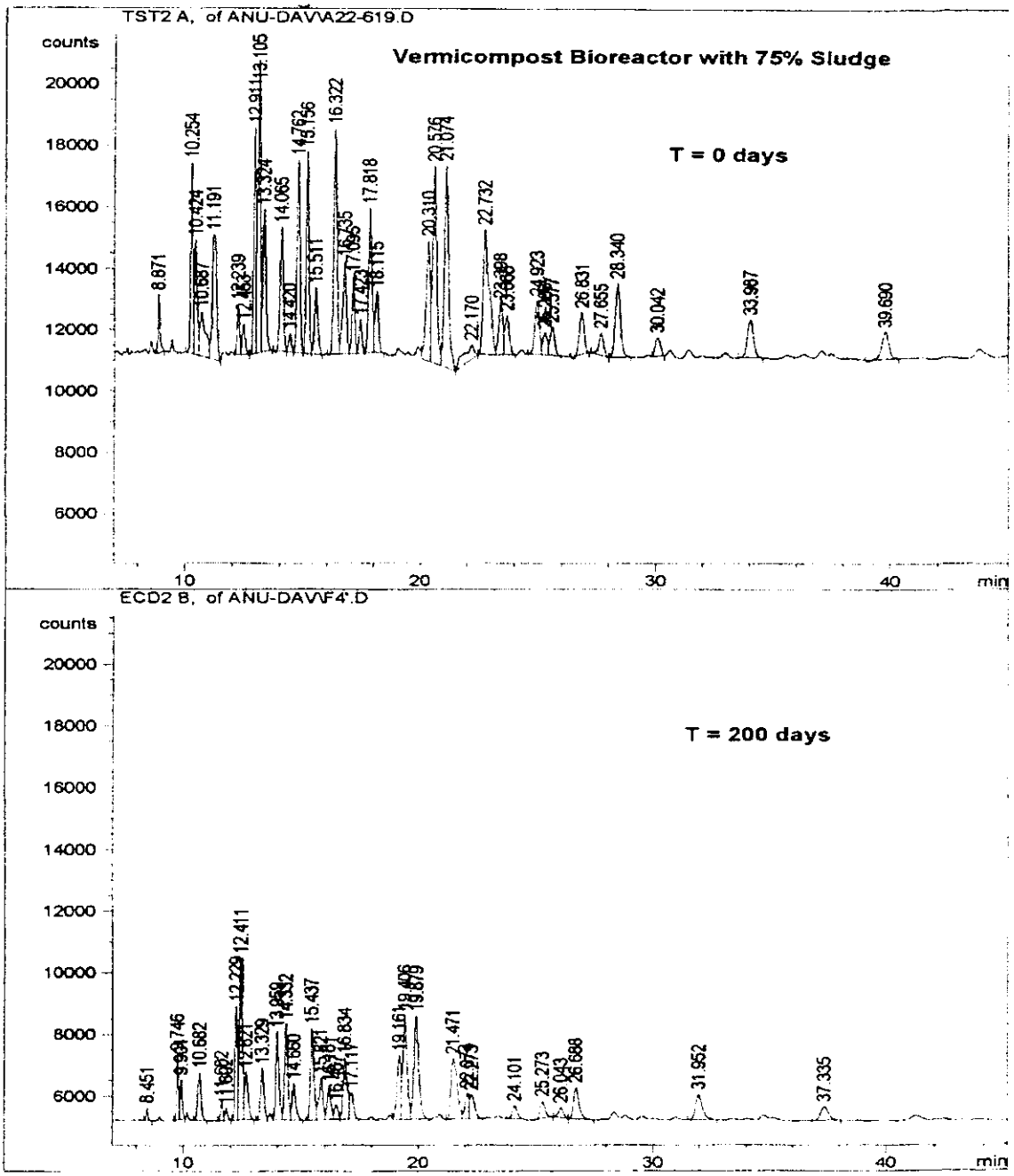

Figure 9.1.4.2: Chromatogram of sludge-soil matrix extracts from 75% (v/v) sludge VB from t = 0 days to t = 200 days

Table 9.1.5 shows that the percentage removal of PCBs from the sludge-soil matrix in the different sludge concentration VBs did not vary by much. All VBs demonstrated about 80% PCB removal by the termination of the experiment. Table 9.1.6 shows the PCB removal rate at initiation (t= 50 days) and global rate of PCB removal by the termination of the experiment.

Table: 9.1.5 PCB concentration in different sludge concentrations

Sludge concentration (%)	PCB concentration at initiation (ppm)	PCB concentration at termination (ppm)	Net % removed in PCB concentration.	Time required to obtain reduction (days)
10	223.65	40.07	82.08	100
25	476.28	87.46	81.63	150
50	719.57	73.8	89.67	185
75	942.17	160.83	82.93	200

Table 9.1.6: Rates of Total PCB Reduction from Sludge-Soil Matrix: Initial (t = 50 day) Rate and Global Rate for Vermicompost Bioreactors

Sludge concentration (%)	PCB Removal rate at initiation t = 50 days (mg/days) R_I	PCB Removal Rate Global (mg/days) R_F	% Mass of PCB Removed or Reduced	Time required to obtain final Reduction (days)
10	0.204	0.090	54.66	100
25	0.49304	0.1785	54.50	150
50	0.81932	0.3024	66.38	185
75	1.3736	0.4171	62.25	200

The data in the figures (9.1.1.1 to 9.1.4.2) of this section show a considerable decrease in PCB concentration. The overall removal can be approximated to 82 percent of the total PCB concentration present at the start of the experiment. As expected, there is a reduction of PCBs concentration in the sludge with an increased concentration in the earthworms *(E.Foetida)* indicating PCB bioaccumulation in their bodies.

Although the VBs are open to atmosphere, there is no forced circulation of air or other means of aeration. It is thus likely that there are many regions of the VB with anaerobic conditions, which might facilitate the reductive dechlorination of some of the higher chlorinated congeners, resulting in the creation of more chlorinated congeners. This could also be accounted for by the inhomogeneity of the VB sludge-soil matrix. Every attempt was made to mix the sludge-soil matrix at each sampling time and an effort was made to obtain a well-mixed and homogenized sample. Given the nature of the sludge and the resulting sludge-soil matrix, this was not always possible. Some mid-point increases in PCB level is likely attributable to this inhomogeneity, both in the matrix and in the sampling.

There might also be some possible error during analysis, which could shift the PCB concentration. To minimize this, samples were run in triplicate. The data thus suggests that specific congeners (peaks) in the sludge are being reduced and worked on by earthworms.

In VB with 10% sludge, the total PCB concentration at the start of the study is equal to the combined PCB concentration of that remaining in the sludge and that in the earthworms at termination of the experiment (t = 100 days). In the VBs with 25%, 50% and 75% sludge, the total PCB concentration at initial start up is greater than the total

PCB concentration remaining in the sludge and earthworms combined at the termination of each study. These results thus demonstrate that a considerable amount of PCBs have been transformed or removed by other means. This removal may be due to some indigenous microorganisms present in the sludge, or due to volatilization, aerobic transformation, irreversible adsorption, or photo degradation.

These results suggest that, with a suitable configuration of sludge and potting soil, vermicomposting may have the potential to biotransform or bioaccumulate PCBs from RSL sludge. Using vermicomposting the hazardous components in the superfund sludge may be removed and this may be a potential viable option for on-site *In situ* remediation of the Ralston Street Lagoon.

9.2 Total Earthworm Mass Balance:

The experiments were terminated, and the total biomass of the earthworms in different VBs was measured. In addition, the final sludge in the VBs was dried and extracted to measure PCBs remaining. Extracting all the remaining sludge in each VB enables a total PCB mass balance. The earthworms are crushed and dried until a constant weight is obtained. The same extraction procedure (Soxhlet extraction) is used for extracting this earthworm sample.

Table 9.2.1 shows the PCB concentration in earthworms removed from each of the VBs with different sludge loading. Initial earthworm analysis showed that the worms had no PCBs in them at the time of inoculation of the VBs. However, by the termination of the experiment, the earthworms in different sludge concentrations had bioaccumulated the PCB concentration in their bodies.

Table: 9.2.1 PCB concentrations in the earthworms from VBs with different sludge loading

Sludge concentration (%)	PCB concentration in earth worm (ppm)
0	0.00
10	148.02 ± 17.9
25	212.9 ± 17.058
50	189.25 ± 9.25
75	313.08 ± 8.9

In research conducted by US Department of Energy (1998), contaminant transfer from soil to earthworms was investigated. They worked on development and validation of bioaccumulation models for earthworms and also worked directly on PCB accumulation in earthworms. Surprisingly their results indicated that bioaccumulation by earthworms was non-linear and usually decreases as soil contaminant concentration increases. This is counter intuitive, and contradicts the results we obtained. Our results, however, indicate that earthworms growing in the sludge-soil matrix with greater levels of PCBs will bioaccumulate greater concentration of PCBs in their bodies. Figure 9.2.1 shows the PCB concentration in the earthworms from the VBs with different sludge loading.

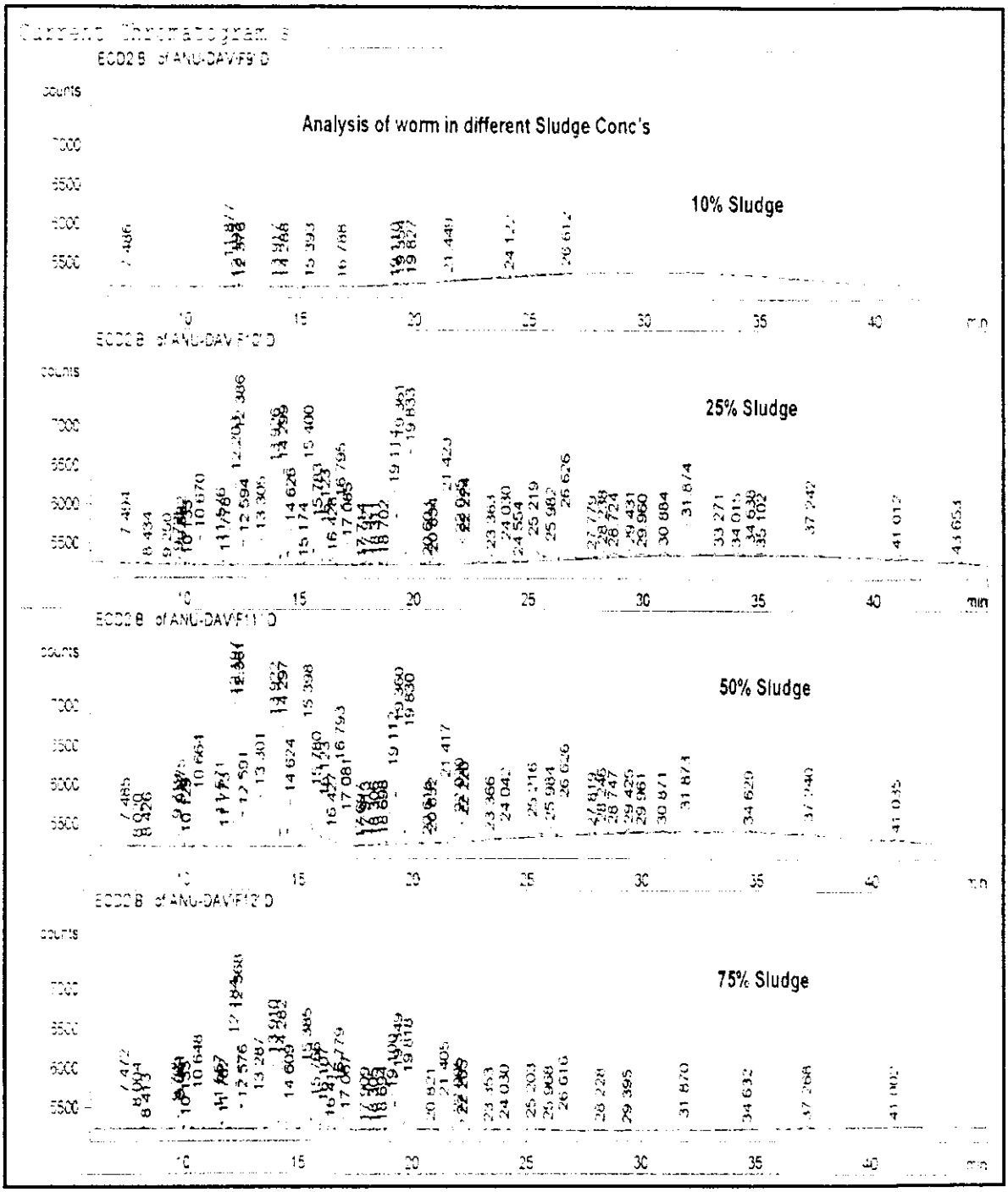

Figure: 9.2.1 Chromatogram of extracts of worms from VBs with various sludge loading

Earthworm analysis shown in Figure 9.2.1 demonstrates that PCB bioaccumulation in the worms varied with varying sludge concentrations. PCB bioaccumulation in earthworms present in the 10% sludge VB is much less compared to bioaccumulation in earthworms present in VBs of higher concentration (25%, 50%, and 75%).

The analysis of earthworms in the 75% VB demonstrates much lower peaks compared to other VBs (25% and 50%). It can be assumed that earthworms cannot withstand very high concentrations. The PCB that accumulated in the worm may also be degraded or biotransformed to other compounds, which would not be detected using our current analytical methods.

The peaks in the worm extracts from 25% and 50% VBs look very similar, but also higher than the 75% VBs worms. This might be due to the ability of the earthworm to tolerate an environment at the 50% sludge loading level. The experiments were terminated when there was a noticeable (>75%) removal of the PCBs from the sludge soil matrix. This occurred at different time points for each VB, usually increasing as the sludge loading increased. Thus, if the VBs were maintained viable by continued addition and supplementation with nutrients, it is possible what more of the PCBs that had bioaccumulated in the worms might be biotransformed. The data certainly suggests that they can be used as good accumulators of PCBs.

9.3 PCB Transformation in Abiotic Control Reactors

The abiotic control reactors did not have any earthworms inoculated at their initiation. They also had no microbial amendments or bioaugmentation, as the potting soil used to obtain the appropriate sludge mass fraction in each negative control was autoclaved. However, the controls were not completely abiotic. The target sludge was not autoclaved and hence any microbial activity intrinsic to the sludge was preserved. It is also possible that the mixing of the sludge with the soil provided aeration and some microbial nutrient amendments. Thus, the abiotic controls were a measure of any possible intrinsic biotransformation that may have become enabled.

9.3.1 10% Sludge Concentration:

The abiotic control reactor with 10% sludge concentration was monitored for this experiment. This had an initial PCB concentration of 219 ppm. The PCB concentration in this reactor has decreased considerably to 49 ppm. Figure 9.3.1.1 shows the data demonstrating decrease in PCB concentration from 219 ppm to 49 ppm in the 10% (v/v) sludge control reactor, yielding a net of 78 % PCB removal. Rates were calculated. The initial rate of PCB removal was 0.1303 mg/days and is greater than the global removal rate which was 0.0847 mg/days.

The rate equation for PCB reduction in sludge-soil matrix of 10% (v/v) abiotic control reactor is given by:

$$-r_{PCB} = 0.036\,(C_{PCB})^{0.8671} \quad \text{.....(9.5)}$$

Where $\alpha = 0.8671$

$K = 0.036\ (ppm)^{1-\alpha}/days$

9.3.2 25% Sludge Concentration:

The abiotic control reactor with 25% sludge concentration is monitored for this experiment. This had an initial PCB concentration of 476 ppm. The PCB concentration in this reactor has decreased considerably to 74 ppm. Figure 9.3.2.1 shows the data demonstrating decrease in PCB concentration from 476 ppm to 74 ppm in the 25% (v/v) sludge control reactor, yielding a net of 85 % PCB removal. Rates were calculated. The initial rate of PCB removal was 0.4 mg/days and is greater than the global removal rate which was 0.176 mg/days.

The rate equation for PCB reduction in sludge-soil matrix of 25% (v/v) abiotic control reactor is given by:

$$-r_{PCB} = 4.46\times10^{-3}(C_{PCB})^{1.1711} \quad \text{.....(9.6)}$$

Where $\alpha = 1.1711$

$K = 4.46\times10^{-3}\ (ppm)^{1-\alpha}/days$

9.3.3 50% Sludge Concentration:

The abiotic control reactor with 50% sludge concentration is monitored for this experiment. This had an initial PCB concentration of 719 ppm. The PCB concentration in this reactor has decreased considerably to 165 ppm. Figure 9.3.3.1 shows the data demonstrating decrease in PCB concentration from 719 ppm to 165 ppm in the 50% (v/v) sludge control reactor, yielding a net of 77 % PCB removal. Rates were calculated. The initial rate of PCB removal was 0.745mg/days and is greater than global removal rate which is 0.27 mg/days.

The rate equation for PCB reduction in sludge-soil matrix of 50% (v/v) abiotic control reactor is given by:

$$-r_{PCB} = 1.612 \times 10^{-6} (C_{PCB})^{2.3731} \quad \text{.....(9.7)}$$

Where $\alpha = 2.3731$

$K = 1.612 \times 10^{-6}\ (ppm)^{1-\alpha}/days$

9.3.4 75% Sludge Concentration:

The abiotic control reactor with 75% sludge concentration is monitored for this experiment. This had an initial PCB concentration of 942 ppm. The PCB concentration in this reactor has decreased considerably to 135 ppm. Figure 9.3.4.1 shows the data demonstrating decrease in PCB concentration from 942 ppm to 135 ppm in the 75% (v/v) sludge control reactor, yielding a net of 86 % PCB removal. Rates were calculated. The initial rate of PCB removal was 1.214 mg/days and is greater than the global removal rate, which is 0.415mg/days.

The rate equation for PCB reduction in sludge-soil matrix of 50% (v/v) abiotic control reactor is given by:

$$-r_{PCB} = 3.1375 \times 10^{-4} (C_{PCB})^{1.506} \quad \text{.....(9.7)}$$

Where $\alpha = 1.506$

$K = 3.1375 \times 10^{-4}\ (ppm)^{1-\alpha}/days$

In all the control reactors the transformation rate of PCBs is high during the initial stages and decreased by the termination of the experiments. In addition, it was also observed that the higher the initial PCB concentration in the sludge-soil matrix, the higher was the rate of PCB reduction from that matrix..

Figures 9.3.1.1 to 9.3.1.5 show PCB concentrations in abiotic controls reactors with different sludge, from their setup until their termination.

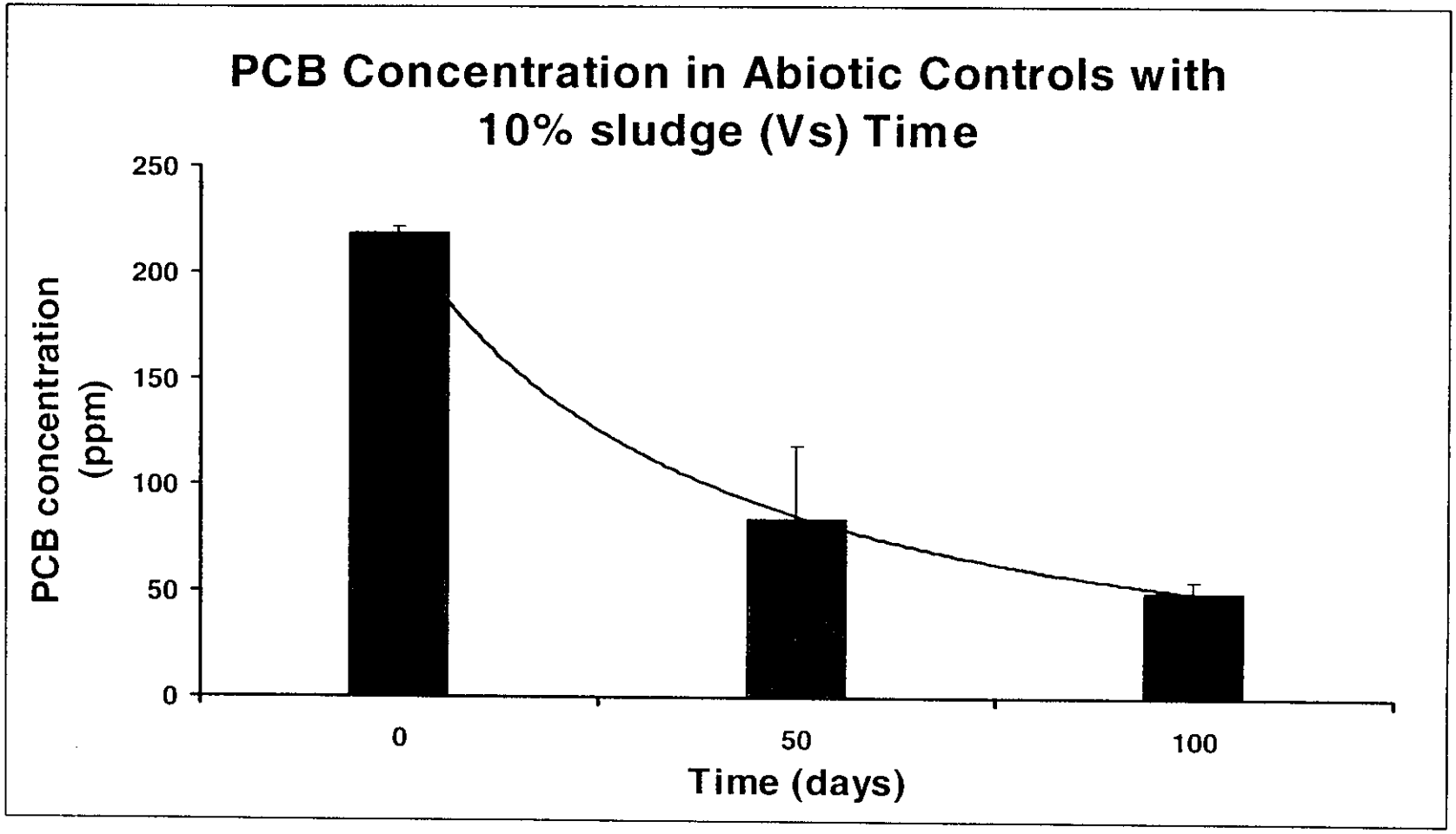

Figure: 9.3.1.1 PCB concentration in 10% (v/v) Sludge Fraction Abiotic Control Reactor

The overall PCB reduction for the abiotic control containing 10% sludge concentration is 78%. The chromatogram (Figure 9.3.1.2) shows the reduction of peaks from the initial set up to the termination of control (from t = 0 days to t = 100 days).

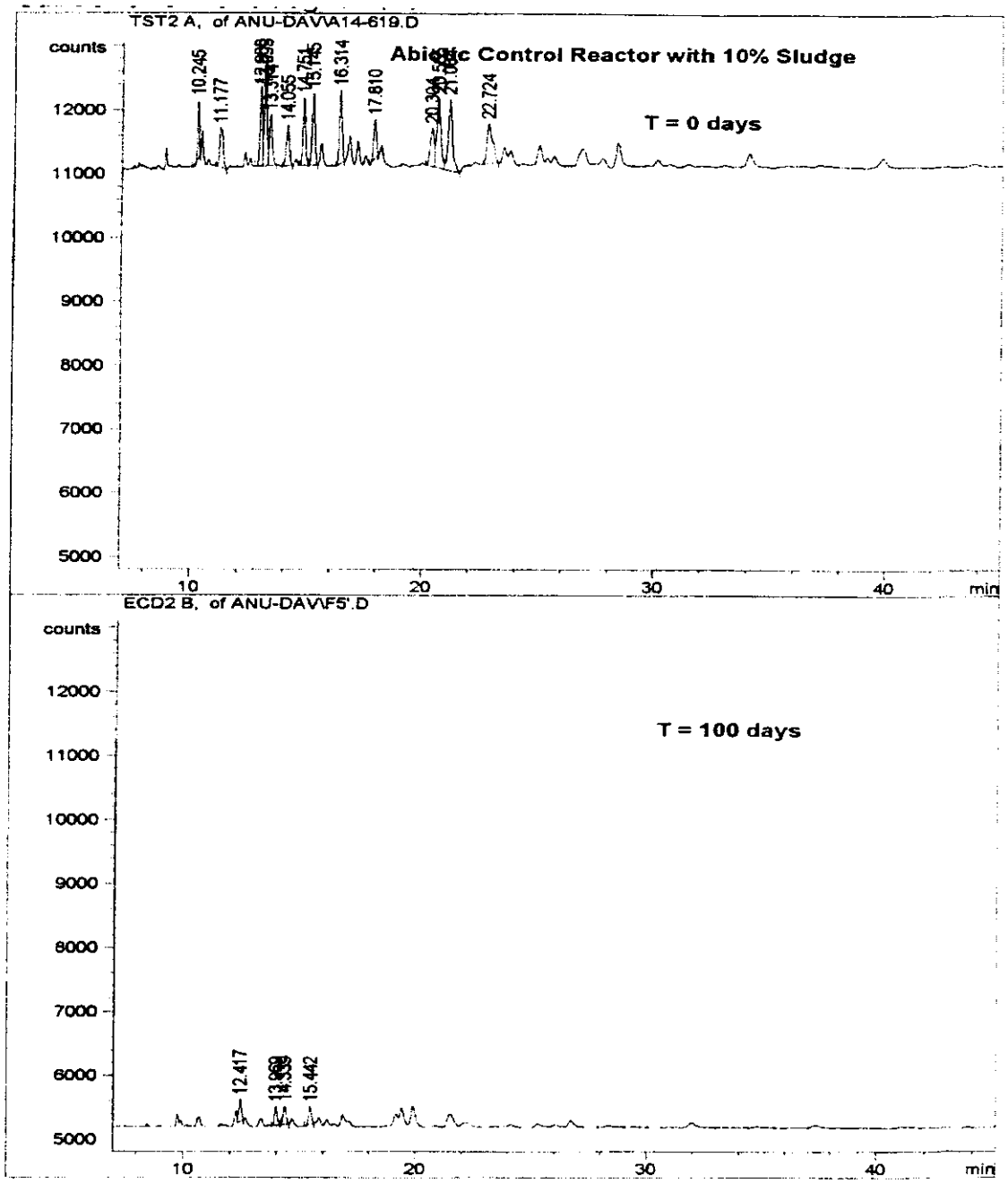

Figure: 9.3.1.2 Chromatogram of extracts from 10% v/v sludge "Abiotic" controls at start up and at termination (from t = 0 days to t = 100 days)

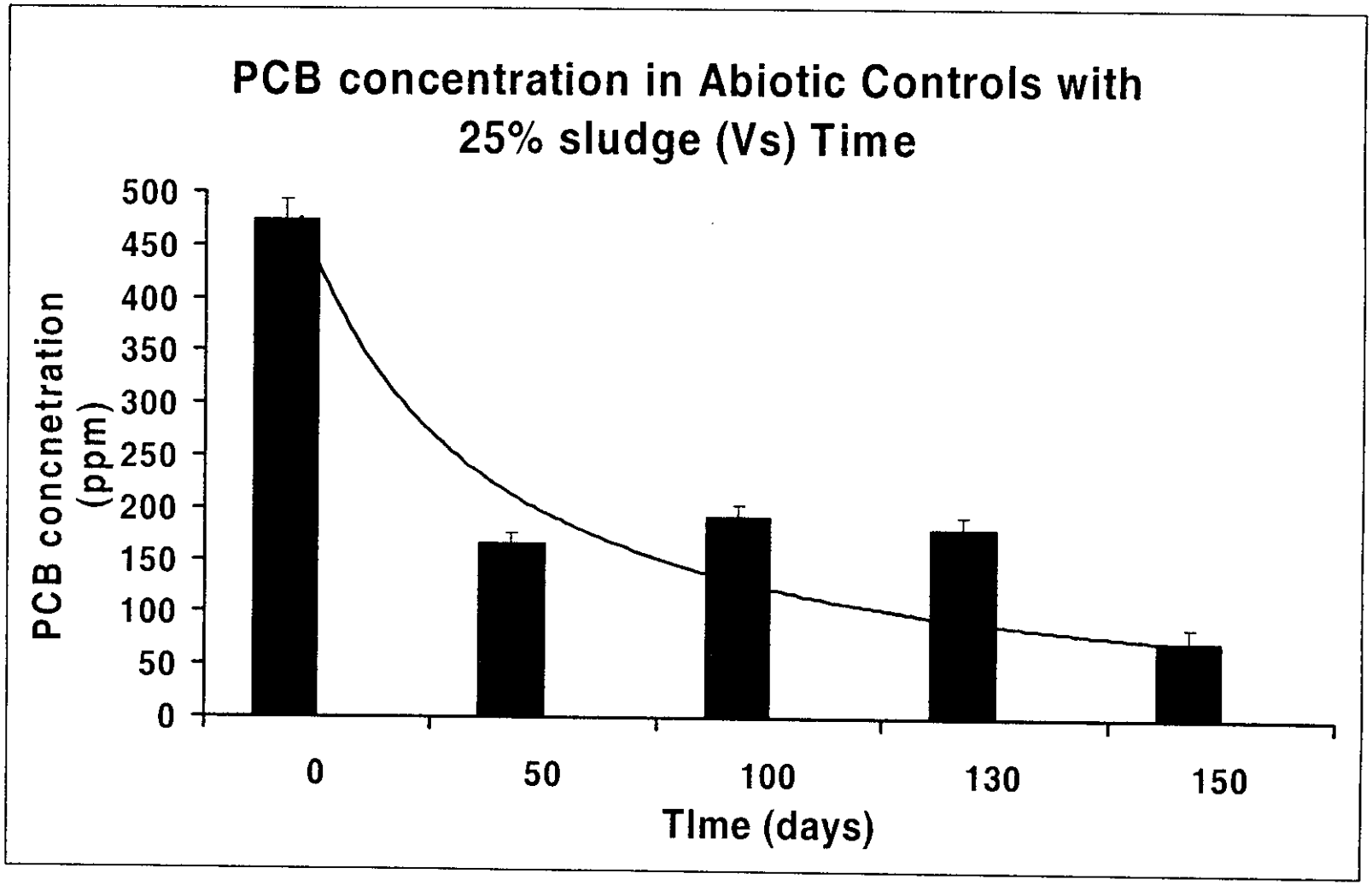

Figure: 9.3.2.1 PCB concentration in 25% (v/v) Sludge Fraction Abiotic Control Reactor

The overall PCB reduction for the abiotic control containing 25% sludge concentration is 85%. The chromatogram (Figure 9.3.2.2) shows the reduction of peaks from the initial set up to the termination of this control (from t = 0 days to t = 150 days).

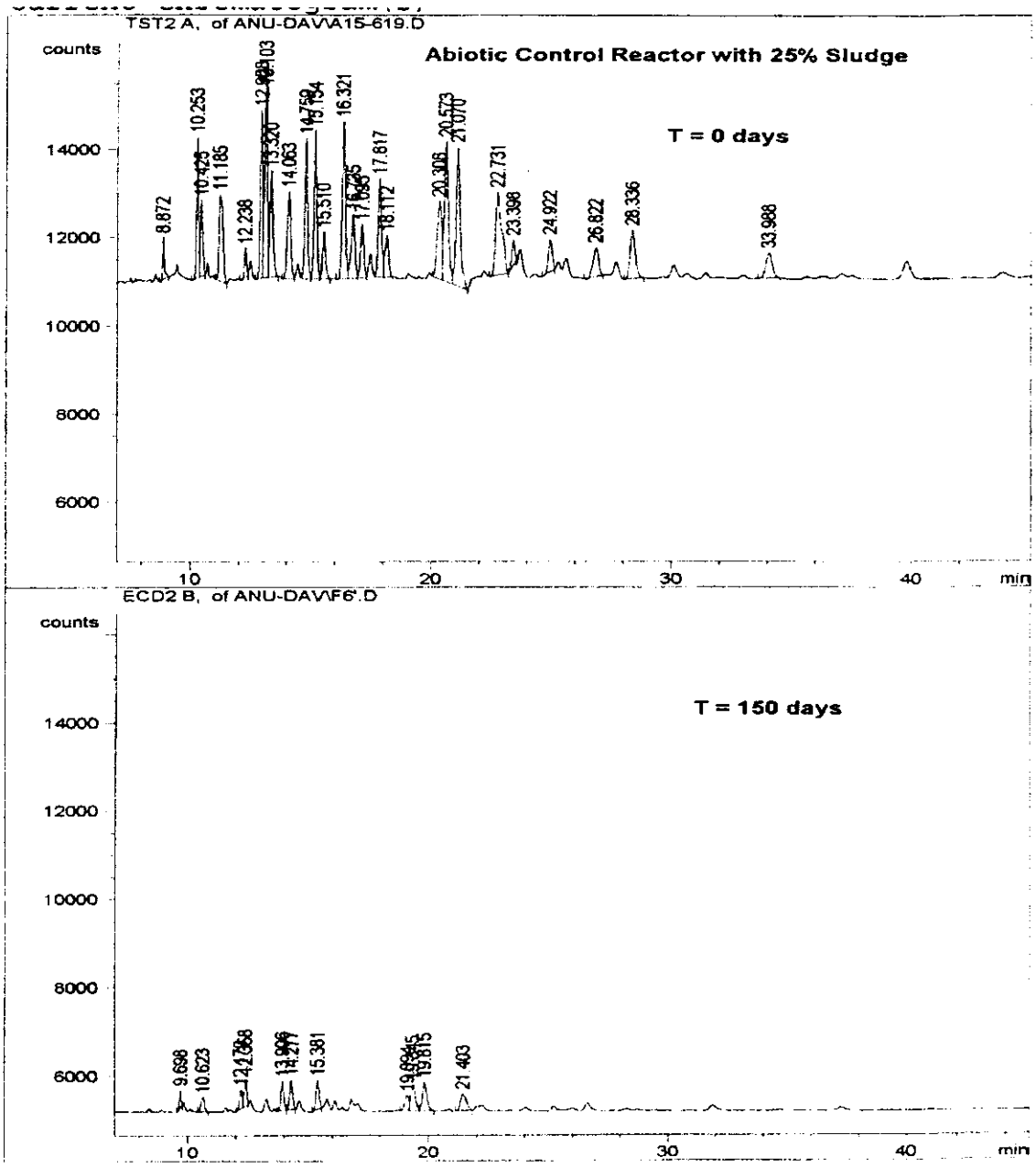

Figure 9.3.2.2: Chromatogram of extracts from 25% v/v sludge "Abiotic" controls at start up and at termination from t = 0 days to t = 150 days

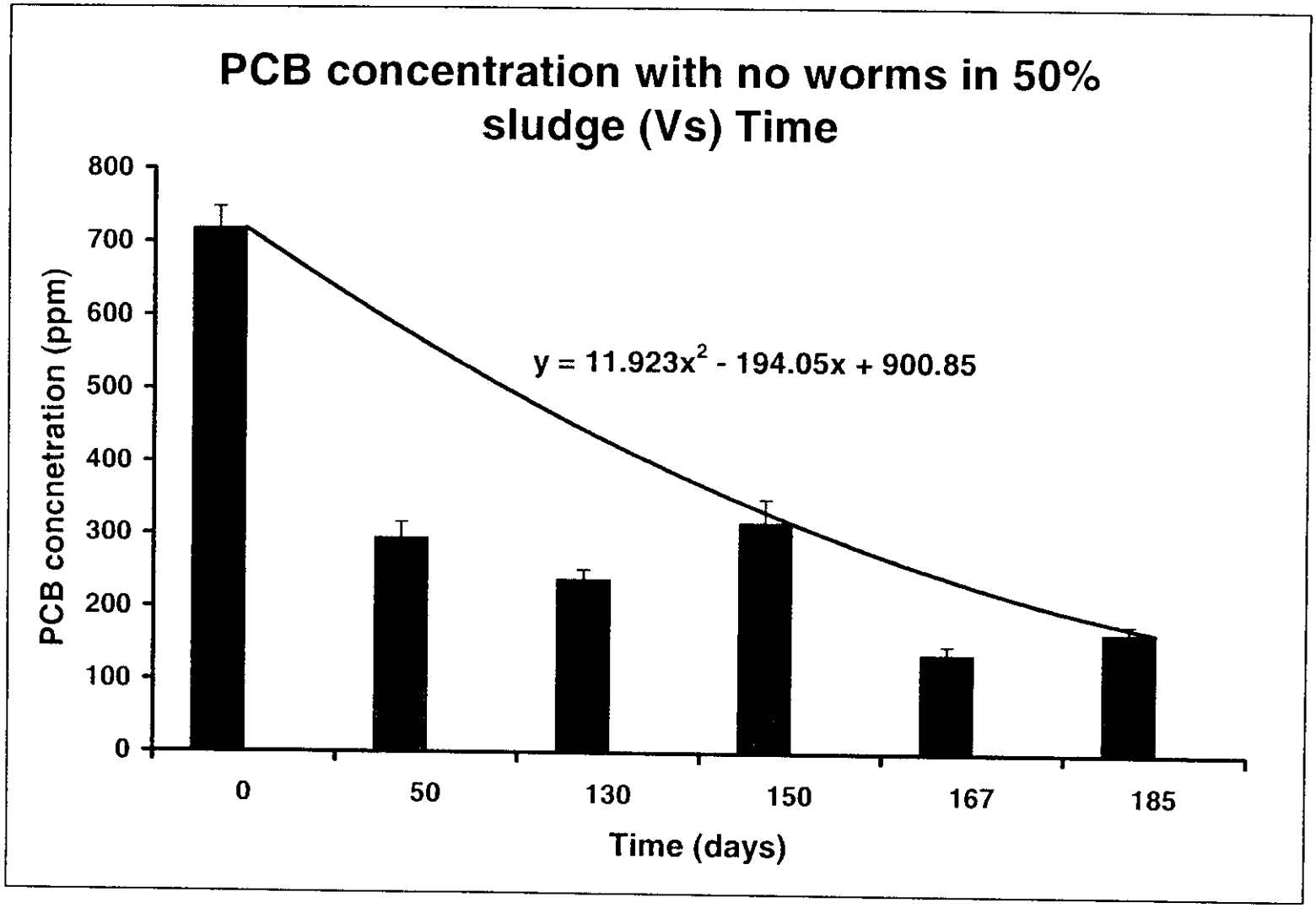

Figure: 9.3.3.1 PCB concentration in 50% sludge (v/v) Sludge Fraction Abiotic Control Reactor

The overall PCB reduction for the abiotic control containing 50% sludge concentration is 77%. The chromatogram (Figure 9.3.3.2) shows the reduction of peaks from the initial set up to the termination of this control (from t = 0 days to t = 185 days).

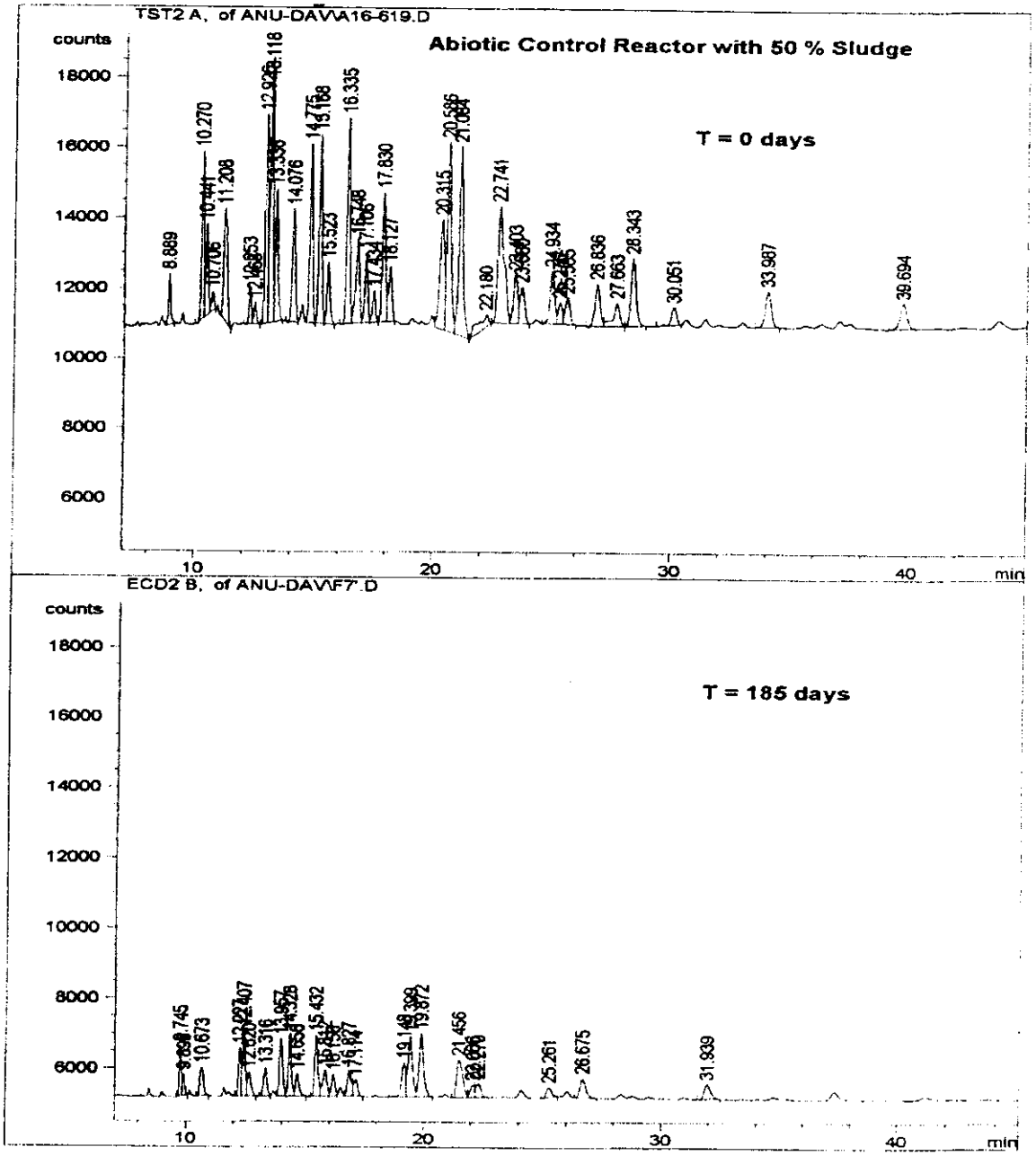

Figure 9.3.3.2: Chromatogram of extracts from 50% v/v sludge "Abiotic" controls at start up and at termination (from t = 0 days to t = 185 days)

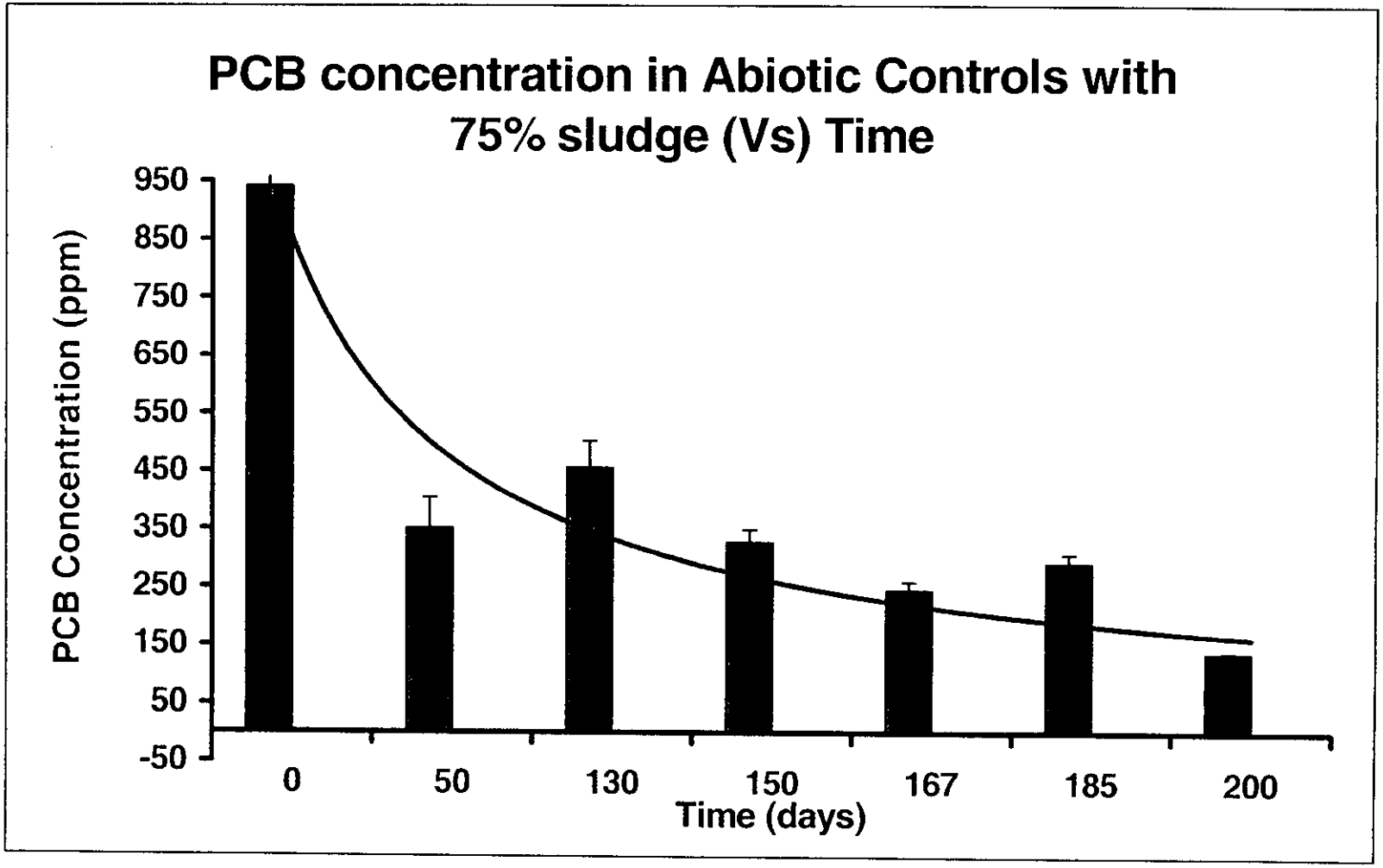

Figure: 9.3.4.1 PCB concentration in 75% sludge (v/v) Sludge Fraction Abiotic Control Reactor

The overall PCB reduction for the abiotic control containing 75% sludge concentration is 86%. The chromatogram (Figure 9.3.4.2) shows the reduction of peaks from initial set up to the end of termination of this control (from t = 0 days to t = 200 days).

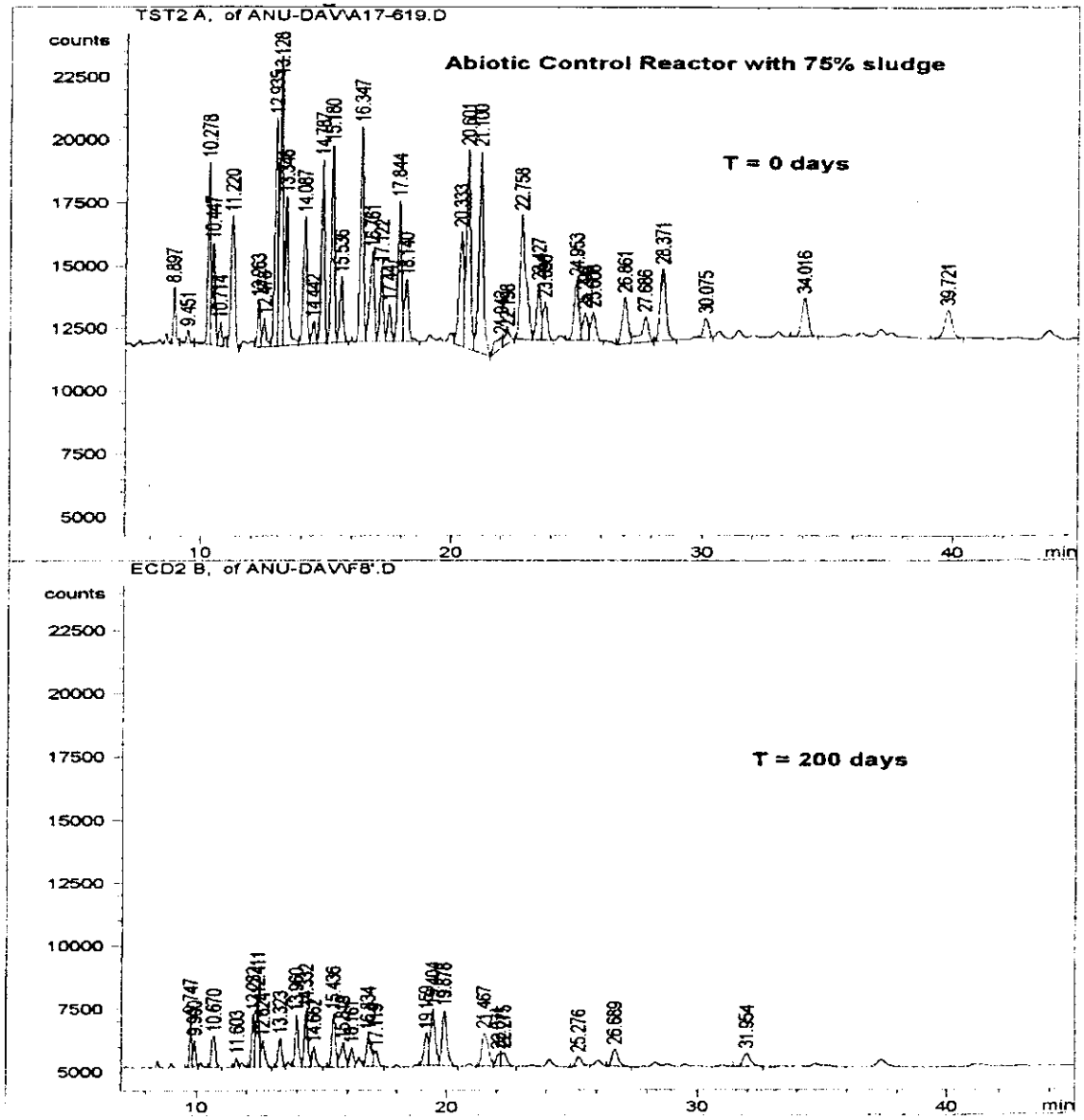

Figure: 9.3.4.2 Chromatogram of extracts from 75% v/v sludge "Abiotic" controls at start up and at termination from t = 0 days to t = 200 days

Table 9.3.5 shows the percentage PCB removal from sludge-soil matrix in all the control reactors with different sludge loading. All control reactors demonstrated PCB removals ranging from 76 to 86 percent of the initial PCB level. Table 9.3.5 shows the transformation of PCBs in different sludge concentrations in the controls. Table 9.3.6 shows the PCB removal rate at initiation (T=50 days) and the global rate of PCB removal of the control reactors.

Table: 9.3.5 PCB concentration in different sludge concentrations

Sludge concentration (%)	PCB concentration at initiation (ppm)	PCB concentration at termination (ppm)	Net % reduction in PCB concentration	No of days required for PCB reduction (days)
10	218.36	49.122	77.504	100
25	474.6	51.89	84.507	150
50	718.725	165.8075	76.93	185
75	941.535	135.492	85.609	200

Table 9.3.6: PCB removal rates, initial rates at t=50 days and global PCB removal rate at termination for control reactors

Sludge concentration (%)	PCB Removal rate at initiation t = 50 days (mg/days) R_I	PCB Removal Rate Global (mg/days) R_F	% Mass of PCB Removed or Reduced	Time required to obtain final Reduction (days)
10	0.204	0.090	54.66	100
25	0.49304	0.1785	54.50	150
50	0.81932	0.3024	66.38	185
75	1.3736	0.4171	62.25	200

These control reactors did not have any earthworms. Soil mixed into the contaminated sludge was autoclaved. Thus, any biotransformative activity resident in the control reactors would have to obtain from a number of alternative sources. There are several additional routes for PCB transformation and transport. These include degradation of PCBs due to photoactivity (from light) and volatilization of the PCB congeners. Photodegradative activity would have been minimized because the reactors were wrapped in aluminum foil. Although there was some incident light on the reactor surface, this was small. Volatilization of PCBs is assumed to be quite low due to the extremely low volatilization rates seen for various PCB congeners (Hutzinger *et al.*, 1975). An additional source of PCB transformation activity could be any microbial activity in the sludge itself.

In Singer's work (Singer et al., 2000), PCB loss from contaminated soil of upto 30% was observed without any earthworms. Addition of earthworms only increased the reduction to 55%. Similar work showed an increased reduction from 44% to 65% with addition of earthworms. Whether Singer's study was real biotransformation or simply bioaccumulation into the earthworms biomass was not elucidated or clarified in the results reported. Our results line with his and suggest that at specific concentrations the vermicompost bioreactors with worms demonstrated a better reduction of PCBs compared to the control reactors without worms.

9.4 Fate of PCBs in Vermicompost Bioreactors

The Vermicompost bioreactors were set up with sludge mixed with sterile potting soil to avoid any possible addition of microbial amendment. The final total mass of PCBs was much reduced from that at start up. There are many potential routes for PCB fate and transport. These possible routes are best described in Figure 9.4.1.

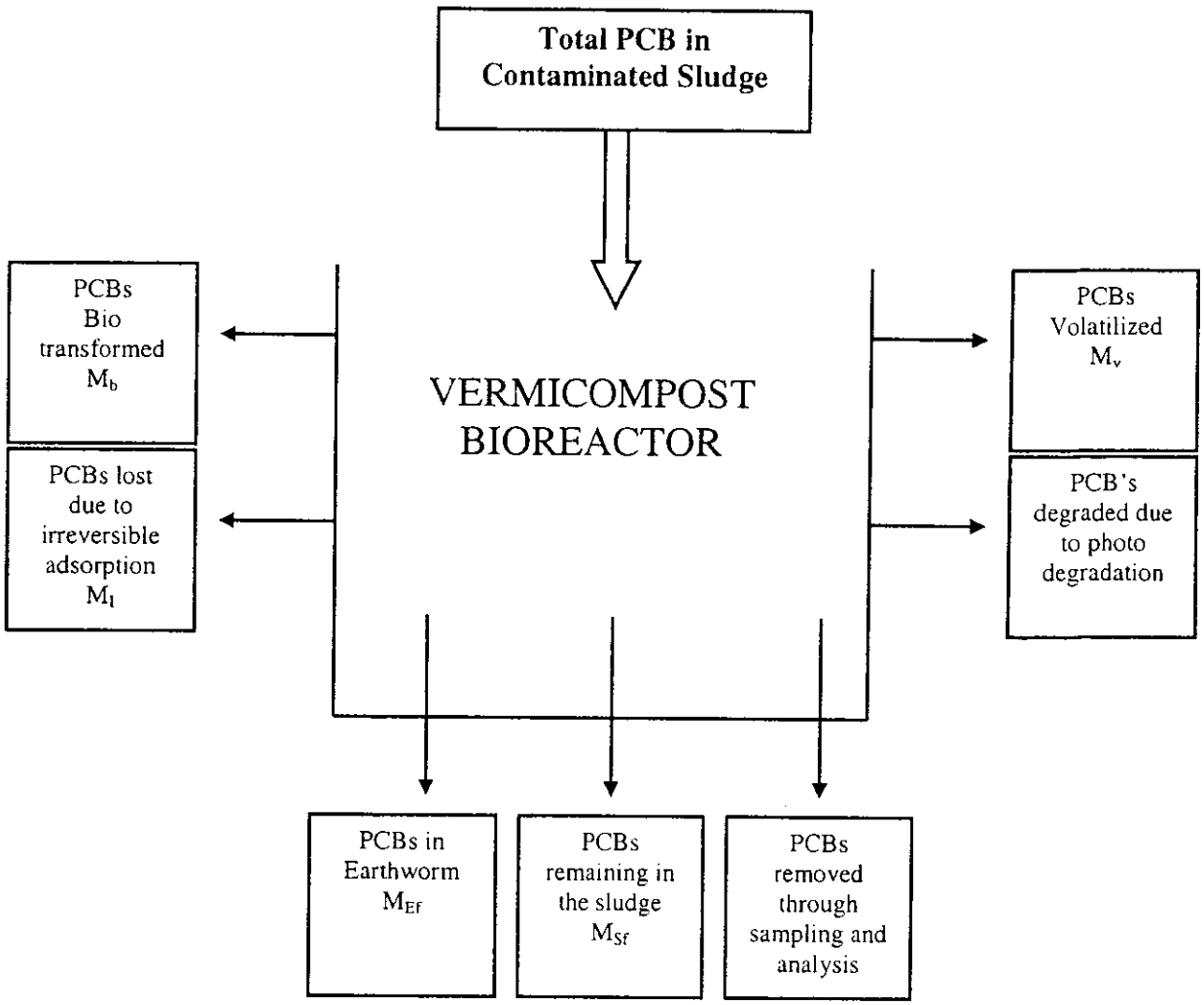

Figure: 9.4.1 Possible Fate for PCB in Vermicompost Bioreactors

The equation for total mass balance of PCBs around the vermicompost bioreactor is given by:

$$\mathbf{M_{si} + M_{ei} = M_{sf} + M_{ef} + M_b + M_v + M_i} \text{ .....(9.9)}$$

Where

$\mathbf{M_{si}}$ = Initial mass of PCBs in sludge (mg).

$\mathbf{M_{ei}}$ = Initial mass of PCBs in earthworms (mg).

$\mathbf{M_r}$ = Total mass of PCBs removed for extraction and analysis (mg).

$\mathbf{M_{sf}}$ = Final mass of PCBs in sludge (mg)

$\mathbf{M_{ef}}$ = Final mass of PCBs in earthworms (PCBs bioaccumulated in EWs) (mg)

$\mathbf{M_b}$ = Mass of PCBs biotransformed (mg).

$\mathbf{M_v}$ = Mass of PCBs vaporized or volatilized (mg)

$\mathbf{M_i}$ = Mass of PCBs lost due to irreversible adsorption (mg)

$\mathbf{M_p}$ = Mass of PCBs transformed due to photo degradation (mg).

Due to low vaporization rates of PCBs even at elevated temperatures (Hutzinger et al., 1975), and with the VBs in this study at room temperature, M_v is considered to be negligible (= 0 gm). The reactors are covered with aluminum foil to avoid any possible photo remediation and hence M_p = 0 gm. The samples were extracted using an 18-hour Soxhlet extraction, which is considered the most efficient method for extraction of PCBs from soil. This minimizes any PCB irreversible adsorption, Thus, for our analysis M_i = 0 gm. Substituting all the parameters in the Total Mass Balance equation given (III) we can calculate the net amount of PCBs that may have possibly been biotransformed (M_b) in each different set of VBs.

To summarize the results on PCB removal in the VBs and the abiotic controls. Data for all the VB and controls are collected and presented in an combined set of tables as follows. Table 9.4.1 shows the mass of PCBs at initial and final stages and also the amount of PCBs bio transformed and bio accumulated in the earthworms.

Table: 9.4.1 Distribution of initial and final mass of PCBs in vermicompost reactors

Sludge Volume Fraction (%)	Initial PCB Mass in Sludge (mg)	Final PCB Mass in Sludge (mg)	Final Total PCB Mass in EW (mg)	Total PCB Mass Removed for Sampling (mg)	Total PCB Mass Reduced (mg)	% PCB removed with worms	Mass of PCB per unit Time	Mass of PCB Reduced per Unit Mass of EW per unit Time
10	10.3 ±0.67	1.242 ±0.05	0.0629	3.3661	5.63	54.66	0.056	0.0043
25	30.584 ±1.24	3.814 ±0.44	0.2846	9.814	16.67	54.5	0.1111	0.0099
50	60.258 ±2.45	4.3 ±0.01	0.358	15.596	40.00	66.38	0.216	0.022
75	95.76 ±3.87	12.34 ±0.69	0.33	23.4712	59.62	62.26	0.298	0.0497

Table: 9.4.2 Distribution of initial and final mass of PCBs in control reactors

Sludge Volume Fraction (%)	Initial PCB Mass in Sludge (mg)	Final PCB Mass in Sludge (mg)	Total PCB Mass Removed for Sampling (mg)	Total PCB Mass Reduced or Removed (mg)	% PCB Removed or Reduced through Intrinsic bioremediation	Mass of PCB per unit Time
10	9.789 ±0.134	1.3147 ±0.15	3.726	4.7483	48.50	0.0475
25	29.495 ±1.2	2.996 ±0.084	10.151	16.348	55.4	0.109
50	59.799 ±2.416	10.023 ±0.69	16.349	33.427	55.89	0.1807
75	93.874 ±3.793	10.87 ±0.193	18.337	64.667	68.88	0.3233

The results in Tables 9.4.1 and 9.4.2 show the total amount of PCBs removed at the termination of the experiments. The total mass of PCB removal is more in the VBs with worms compared to the abiotic controls. This difference in the transformation is larger in the of 50% and 75% sludge concentration VBs compared to 10 % and 25 %. This could be due to the lower PCB concentration in the sludge for these VBs. This suggests that earthworms could play a role in PCB remediation. The results also show that the more the degree of concentration, the rate of PCB removal appears high.

Comparing the total amount of PCBs removal in both biotic vermicompost bioreactors and abiotic controls for different sludge concentrations, VBs with earthworms have shown slightly increased reduction compared to the control reactors. For 10 % sludge concentration, total percentage of mass of PCBs biotransformed is greater for VB with worms (54.66) compared to the control (48.50 mg). This suggests that, at low concentrations PCB removal is almost 50%. The difference in PCB removal could be due to the presence of earthworms in the other reactor.

It is also clear that some PCB removal is occurring intrinsically with no microbial or earthworm amendments. This possible transformation may be due to some indigenous microorganisms present in the sludge. Singer et al., (2000) used earthworms in their investigation to enhance the dispersal of the bioaugmented PCB-degrading micro-organisms, while simultaneously improving soil aeration, increasing soil carbon and nitrogen content, and modifying the soil microbial community. He worked with a different type of earthworm *Pheretima hawayana*, and achieved 55% removal of total soil PCB as compared to only 39% in identically treated soils without earthworms.

Earthworm-treated soils achieved upwards of 65% PCB degradation at subsurface depths, as compared to 44% in soils without earthworms.

Singers study supports PCB biotransformation or PCB removal due to indigenous microorganisms. Our research can be further extended using *E.foetida* as a bioaccumulator while testing for the presence of microorganisms in the lagoon's sludge. This would further enhance biotransformation of PCBs.

At 25 % sludge loading, the VB transformed 16.67 mg of initial PCB (or 54.5%) while the "abitoic" control showed removal of 16.35 mg (or 55.4%). For the 50% v/v sludge loaded VB, PCB removal of 40 mg of initial PCB loading (or 66.38%) was demonstrated, while the " abiotic control showed removal of 33 mg (or 55.84%). In the 75% sludge loaded VB, 60 mg of the initially loaded PCBs (or 62.26%) was removed, possibly by biotransformation. In the "abiotic" control at the same sludge loading, 64 mg (or 68.88%) was removed, again possibly by intrinsic biotransformation.

9.4.1 Comparison between Vermicompost Bioreactors and Control Reactors:

Chromatographic results from both sets of reactors were compared. The results demonstrated possible biotransformation in both the VBs and the abiotic control reactor sets. Chromatographic analysis is based on the retention time of the different congeners, revealed as various peaks. Previous analyses done in our lab suggests that the higher the retention time, the greater the chlorination of the congener. For example, consider the congener PCB 18 (2, 2', 5-tri chloro biphenyl). This peak comes out at retention time of approximately 8 min. This implies that all the peaks that come before this retention time are lower chlorinated compounds (i.e. lower than trichloro) and all the peaks that appear after this retention time are either the same or higher chlorinated than trichloro.

For 10% sludge, comparison of the chromatographic results (peaks) from initial to termination of the experiment showed that only lower chlorinated congener peaks were found in both the reactors. In the vermicompost bioreactor, the final peaks were higher compared to the "abiotic" control reactor. However, total PCB concentration results show little variation in the PCB transformation for both sets. In addition, the rate of PCB removal is larger for the VB (i.e. with worms) than for the control reactor. This can be seen comparing Figures 9.1.1.2 and 9.2.1.2.

For 25% sludge (comparing Figures 9.1.2.2 and 9.2.2.2), the congener peaks are the same for both the reactors at the initiation and termination of the experiment. Specific peaks in both the reactors have been reduced; these reduced peaks have yielded new peaks that are similar for both the reactors at the termination of the experiment. For example, the peak generated at retention time of approx 8.8 minutes in the initial sludge for both reactors is not present in the final sample; also a new peak with a retention time

of approx 9.6 minutes is detected. These results suggest some transformation of PCBs is occurring. Although transformation is observed in both the cases, calculations demonstrate that the removal rate is larger with the VB compared to the control reactor.

The chromatographic results for the 50% sludge reactors provides additional support for the potential for enhanced PCB removal. For the VB, a larger number of peaks are transformed compared to the abiotic control reactor, as demonstrated when comparing Figures 9.1.3.2 and 9.2.3.2. Higher chlorinated congeners are successfully reduced in the case of vermicompost bioreactor, while the peaks remained the same for abiotic control reactor. In addition, the total amount of PCBs removed from the sludge-soil matrix and the removal rate is larger for reactor with earthworms.

In reactors with 75% sludge, gas chromatographic results show that the peaks have decreased in total height and area, but have not been significantly reduced. This might be due to the high toxicity of the components in the sludge at that concentration. The earthworms inoculated in this reactor showed a considerable decrease in population and total biomass. The total amount of PCB reduced is actually less in the VB compared to the "abiotic" control reactor.

Although the decrease in peak heights and areas suggests PCB removal, we cannot reach a definitive conclusion about results since specific congener reductions would need to be investigated in experiments with earthworm and soil contaminated with just a single congener. The chromatographic analysis on the control reactors supports the presence of indigenous microorganisms in the sludge that might have enhanced some transformative activity in these reactors.

Section 5 : Conclusions & Recommendations

Chapter 10

10.1 Conclusions:

This study shows that the earthworms (*E.Foetida*) were able to bioaccumulate the PCBs from the sludge and also reduce the total amount of PCB congeners left in the sludge. Some biotransformation of PCBs is suggested by the data, especially a close examination of the various congener peaks. However, the bulk of the removal of PCBs from the VB matrices appeared to be due to transport into the earthworm biomass. There is a decrease in the PCB concentrations in the sludge after exposure, and working over by, the earthworms. Approximately 20% of PCBs are left in the sludge and the reasons for its recalcitrant to further biotransformation requires more study and investigation in order to elucidate what might be occurring. Several possibilities make themselves apparent. Of course, it is entirely possible that a certain percentage of PCB contamination is hard to access and hence recalcitrant to any transformative activity. Bioavailability of the PCB in the sludge may be a large hindering factor, especially given the nature of the sludge, which was extremely dense and clay-like. Another possibility is that the earthworms did not have sufficient time and sufficient additional feeding; hence it may be that with sufficient additional resources and longer experiments, more complete removal and actual biotransformation may be observed. Much of the PCBs are not biotransformed but simply bioaccumulated into the earthworms. The higher the surrounding PCB concentrations, the larger the amount of PCBs found in the earthworm biomass. A higher degree of bioaccumulation is occurring, and it is likely that bioaccumulation and biotransformation may take place together.

This study also demonstrates the presence of microbial activity in the RSL sludge, which is supported by the PCB removal in the "abiotic" control reactors. There is intrinsic remedial activity occurring in the control reactors, which can be attributed to the presence on indigenous microorganisms present tin the sludge itself.

Nevertheless, these results do suggest that vermicomposting may be a potentially viable alternative to enhance removal of PCB congeners from contaminated sludge or soils. Some further processing, however, may be required for complete elimination of the PCB. The results obtained show that vermicomposting can be considered as an economically viable option for the remediation of PCBs. These experiments show that earthworms, which are friendly to the environment, can not only degrade wastes but can also possibly biotransform hazardous wastes. This indicates that bioremediation using earthworms is a promising technique that can be done onsite and *In situ,* and is an environmental friendly method that can potentially bioaccumulate and remove PCBs effectively in a more economic fashion compared to currently approved treatment technologies like landfill and incineration.

10.2 Recommendations:

To further our understanding of the potential for the use of earthworms to biotreat PCB contaminated media, additional research is required. The following recommendations are made for further studies:

1. Study the difference between bioaccumulation and biotransformation of PCB in earthworms.

2. Conduct a continuous study on the fate and analysis of PCB in earthworms at different times intervals. This would provide kinetic data on bioaccumulation and biotransformation rates.
3. Further, analyze products of PCB reduction and transformation.
4. Investigate the microbes responsible for intrinsic remediation occurring in the sludge.
5. Study specific congeners present in the sludge and study their fate during the run of the entire experiment; this would help to see whether complete biotransformation is occurring.
6. Study the effects of using microorganisms inoculated in this specific worm *E.Foetida,* since this worm has proved to bioaccumulate PCBs.
7. Work with the same system using soil that is spiked with known congeners mixtures (Aroclors).

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Appendix A: Gas Chromatography

Gas chromatography:

Chromatography is defined as the separation of a mixture of compounds (solutes) into separate components. By separating the sample into individual components, it is easier to identify (qualitate) and measure the amount (quantitate) of the various sample components.

In gas chromatography (GC), the sample is vaporized and injected onto chromatographic columns and then separated into many components. The sample is transported through the column by the flow of an inert, gaseous mobile phase. The column itself contains a liquid stationary phase, which is adsorbed onto the surface of an inert solid. The elution is brought about by the flow of an inert gaseous mobile phase. The carrier gas serves as the mobile phase that elutes the components of a mixture from a column containing an immobilized stationary phase. The mobile phase does not interact with molecules of the analytes.

Carrier gases in the **mobile phase** of GC include helium, argon and nitrogen, which are chemically inert. The choice of carrier gas is often dependant upon the type of detector used. The carrier gas system also contains a molecular sieve to remove water and other impurities.

The stationary phase in gas-solid chromatography is a solid that has a large surface area at which adsorption of the analyte species (solutes) take place. In gas-liquid chromatography, a **stationary phase** is liquid that is immobilized on the surface of a solid support by adsorption or by chemical bonding. Gas chromatographic separation occurs because of differences in the positions of adsorption equilibria between the

gaseous components of the sample and the stationary phases. Figure 4 gives the schematic diagram of the gas chromatograph.

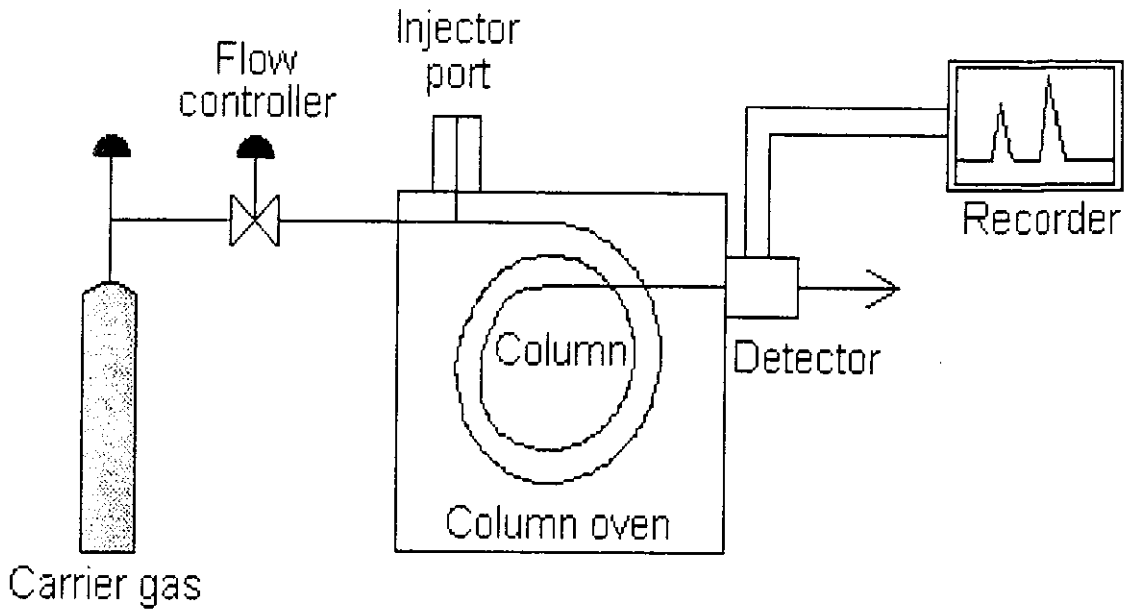
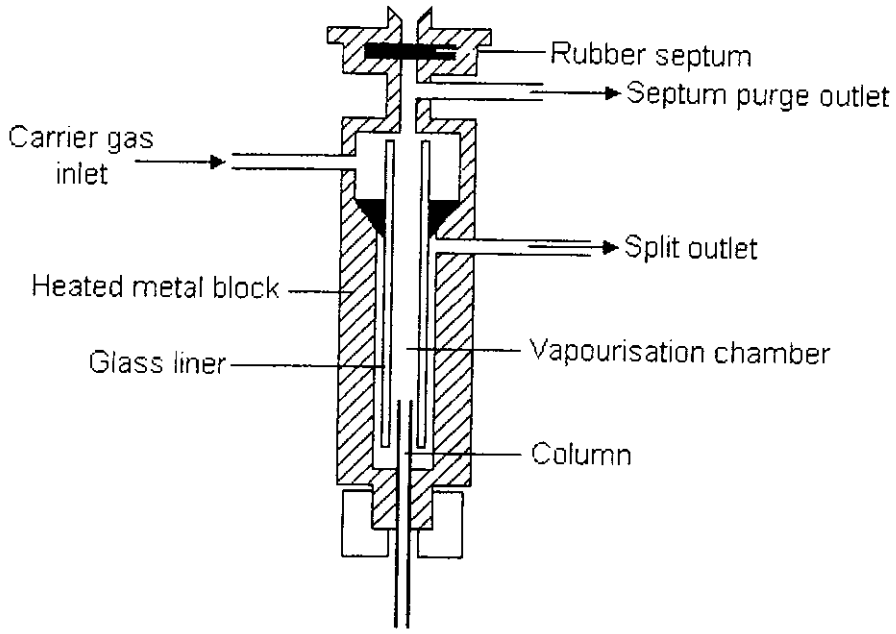


Figure A.1: Schematic diagram of a gas chromatograph

A1 Sample injection port:

For optimum column efficiency, the sample should not be too large, and should be introduced onto the column as a "plug" of vapor - slow injection of large samples causes band broadening and loss of resolution. The most common injection method is where a microsyringe is used to inject sample through a rubber septum into a flash vaporizer port at the head of the column. The temperature of the sample port is usually about 50°c higher than the boiling point of the least volatile component of the sample. For packed columns, sample size ranges from tenths of a microliter up to 20 microliters. Capillary columns, on the other hand, need much less sample, typically around 10^{-3} ml. For capillary GC, split/splitless injection is used. Figure 7.5.1 shows the schematic diagram of a split/splitless injector;



FigureA2: Split/ Splitless Injector

A2 Calibration curves:

Components are identified based on their chromatographic and electrographic characteristics. In order to quantify these elements, a calibration curve had to be created. It is a process of determining the characteristics of the component in order to calculate absolute component concentrations, and is carried out by injecting and analyzing specially prepared calibration samples. This curve is based on the gas chromatographic response that provides the area counts and the retention time of each congener in accordance with their concentrations. The area count of each congener is used to determine its concentration in the mixture. Many injections in the GC are made until a calibration curve is created with an acceptable degree of accuracy, which is determined by the correlation factor "r". A good calibration curve has its correlation factor in the range of 0.98 to 1.00. However, a calibration curve with good correlation factor is not necessarily accurate.

Calibration samples containing Aroclor 1248 at concentration of 10, 20, 40, 60, 80, 100ppm, were prepared. Calibration curves for some individual congeners were also created and used to quantify unknown samples. Calibration curves were repeatedly done prior to each experimental analysis. Figure 7.6 shows the chromatograms used to generate the calibration curve of Aroclor 1248.

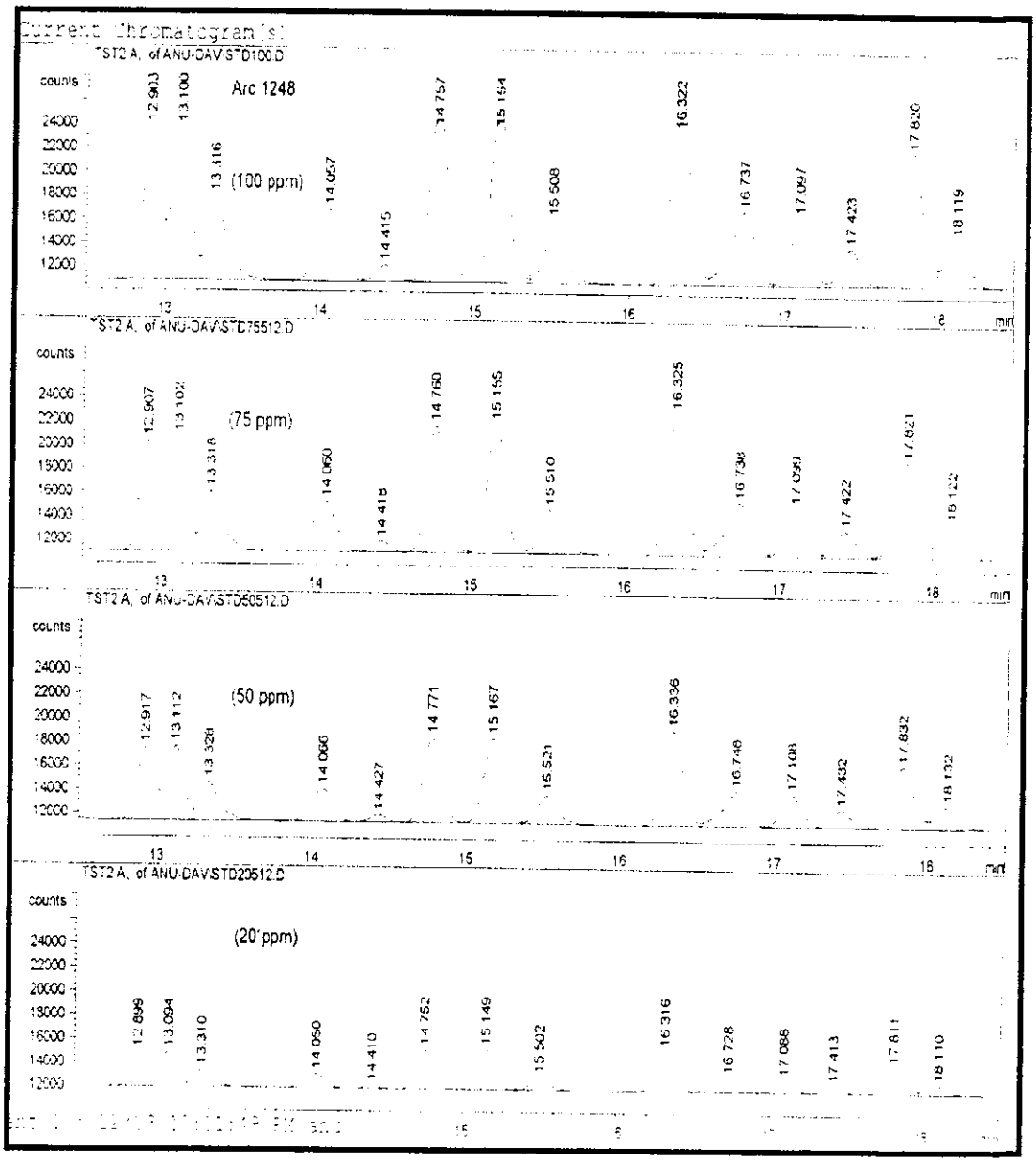


Figure A3: Chromatograms for Aroclor 1248 calibration

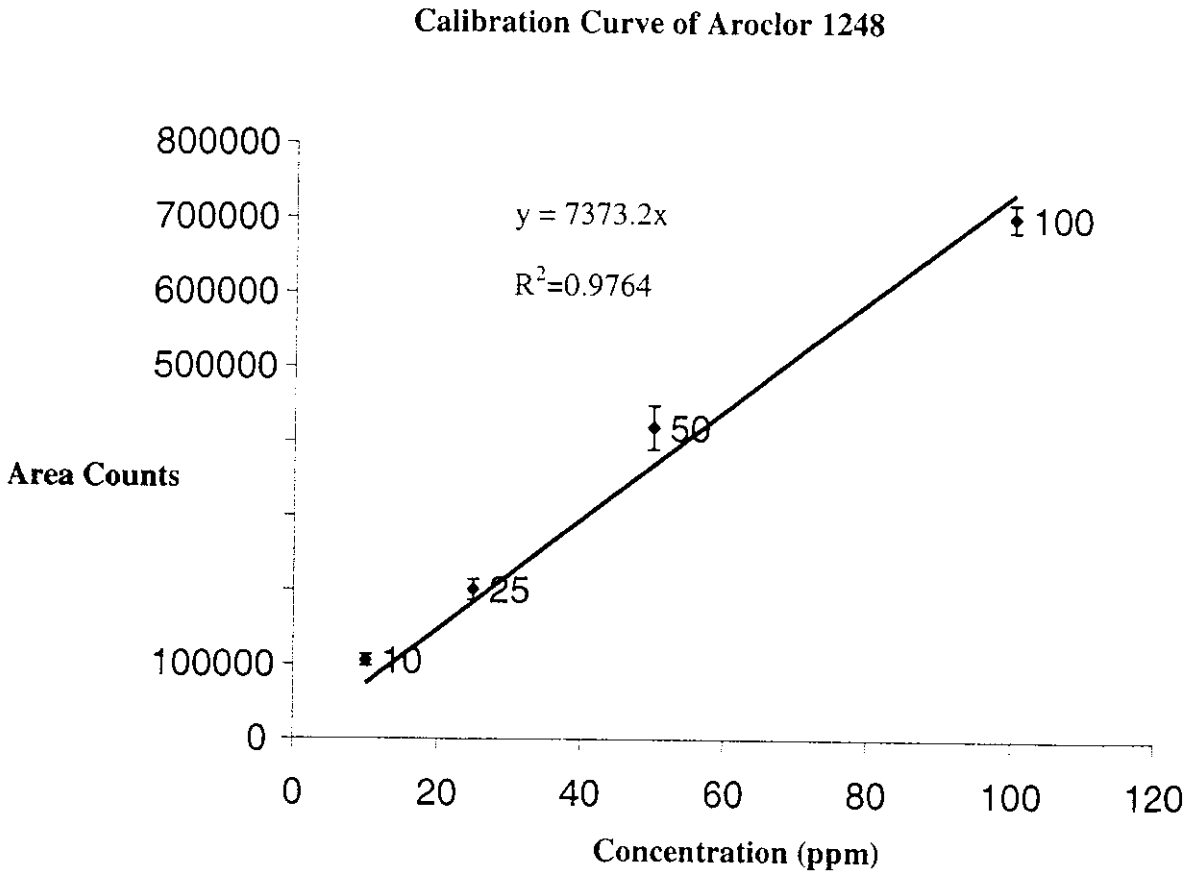


Figure: A4 Calibration curve for Aroclor 1248

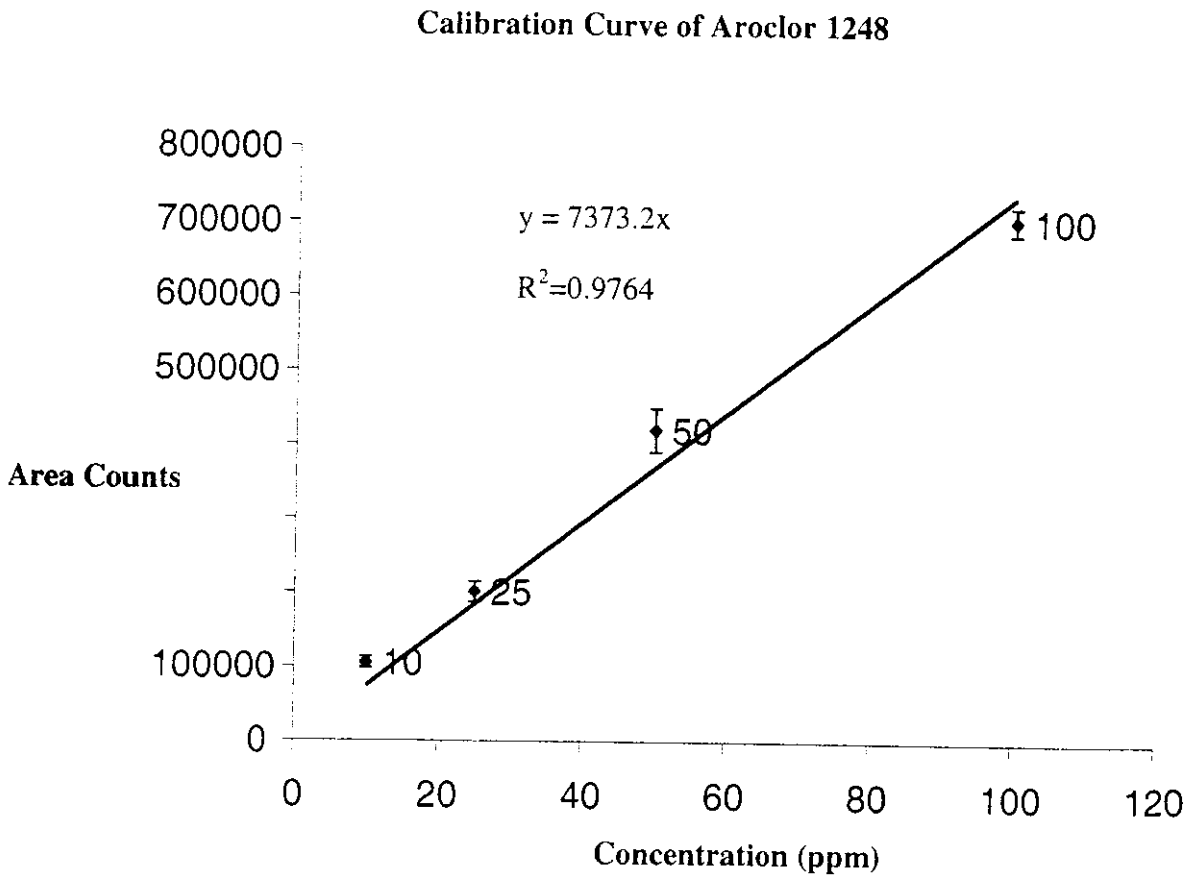


Figure: A4 Calibration curve for Aroclor 1248

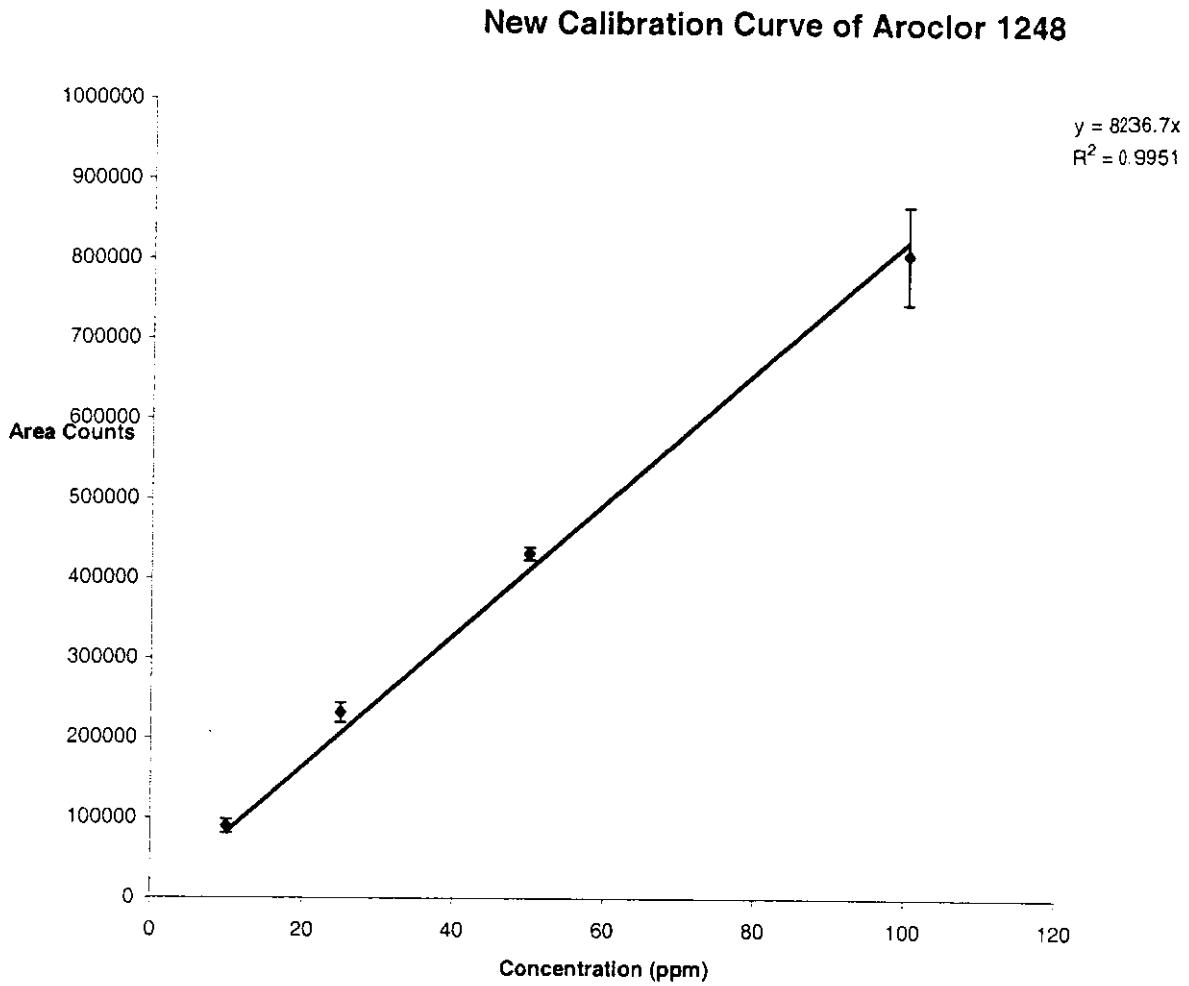


Figure A5: Calibration curve for Aroclor 1248

Appendix B: Tables

Table B1 Population of *E.Foetida* in various sludge concentrations

No of days	Number of worms				
	0% sludge	10% sludge	25% sludge	50% sludge	75% sludge
0	43	33	34	37	33
8	42	33	34	37	29
14	42	33	34	37	29
22	41	33	33	37	30
28	40	33	33	37	30
45	40	33	33	37	30
60	40	33	33	37	30
80	39	35	35	37	23
105	38	40	36	37	23
135			33	32	11
147			31	31	11
156			32	27	11
163				26	11
180				26	11
187					11

Table B2 Total worm mass of *E.Foetida* in the different reactors with various sludge concentrations

No of days	Mass of worms (gm)				
	0%	10%	25%	50%	75%
0	9.011	9.026	9.057	9.09	8.997
8	13.83	12.173	11.052	9.486	7.855
14	16.667	12.369	14	10.182	8.193
22	13.553	11.028	13.124	9.92	7.637
28	14.854	12.95	14.255	11.923	7.7
45	16.432	15.812	15.766	13.824	9.032
60	18.367	16.804	15.726	12.427	8.14
80	16.731	14.687	14.203	12.917	5.601
105	13.2	12.2	10.1	10	4.7
135			5.679	7.763	2.72
147			6.061	8.368	3.398
156			5.563	7.112	4.036
163				7.838	4.278
180				7.173	3.539
187					4.11

Table B3 Average Individual worm mass of *E.Foetida* in different sludge concentrations

No of days	Average Individual mass of worms				
	0%	10%	25%	50%	75%
0	0.209558	0.243946	0.266382	0.245676	0.272636
8	0.329286	0.368879	0.325059	0.256378	0.23803
14	0.396833	0.374818	0.411765	0.275189	0.248273
22	0.330561	0.334182	0.397697	0.268108	0.254567
28	0.37135	0.392424	0.43197	0.322243	0.256667
45	0.4108	0.479152	0.477758	0.373622	0.301067
60	0.459175	0.509212	0.476545	0.335865	0.271333
80	0.429	0.419629	0.4058	0.349108	0.243522
105	0.347368	0.305	0.280556	0.27027	0.204348
135			0.172091	0.242594	0.247273
147			0.195516	0.269935	0.308909
156			0.173844	0.263407	0.366909
163				0.301462	0.388909
180				0.275885	0.321727
187					0.373636

Table B4 Net % gain or loss in worm population

Sludge concentration	% Gain or Loss
0%	-11.627
10%	8.108
25%	-5.88
50%	-29.73
75%	-66.66

Table B5: PCB Concentration Vs Time for VB with 10% Sludge

Time (days)	PCB Concentration (ppm)
0	223.65 ± 2.99
50	-3.496 ± 33.86
100	40.067 ± 1.38

Table B6: PCB Concentration Vs Time for VB with 25% Sludge

Time (days)	PCB Concentration ppm
0	476.28 ± 19.24
50	107.62 ± 9.8
100	191.625 ± 11.625
130	380.67 ± 56.10
150	87.46275 ± 10.20

Table B7: PCB Concentration Vs Time for VB with 50% Sludge

Time (days)	PCB Concentration ppm
0	719.565 ± 29.074
50	253.185 ± 15.14
130	223.84 ± 42.60
150	263.13 ± 2.40
167	141.6657 ± 6.08
185	73.7989 ± 0.25

Table B8: PCB Concentration Vs Time for VB with 75% Sludge

Time (days)	PCB Concentration ppm
0	942.165 ± 38.069
50	292.099 ± 9.011
130	186.68 ± 14.108
150	398.9525 ± 8.16
167	269.22 ± 20.35
185	188.715 ± 6.11
200	160.8265 ± 8.97

Table B9: PCB Concentration Vs Time for Control Reactor with 10% Sludge

Time (days)	PCB Concentration (ppm)
0	218.36 ± 2.99
50	83.8745 ± 33.86
100	49.12197 ± 5.295

Table B10: PCB Concentration (vs.) Time for Control Reactor with 25% Sludge

Time (days)	PCB Concentration ppm
0	474.6 ± 19.176
50	165.359 ± 9.78
100	191.625 ± 11.6
130	179.4 ± 11.625
150	73.5286 ± 12.7822

Table B11: PCB Concentration Vs Time for Control Reactor with 50% Sludge

Time (days)	PCB Concentration ppm
0	718.725 ± 29.04
50	293.576 ± 22.25
130	236.715 ± 14.39
150	315.435 ± 32.58
167	136.3494 ± 11.255
185	165.8075 ± 11.422

Table B12: PCB Concentration Vs Time for Control Reactor with 75% Sludge

Time (days)	PCB Concentration ppm
0	941.535 ± 38.044
50	350.7213 ± 53.92
130	456.541 ± 46.25
150	326.775 ± 22.16
167	244.9673 ± 14.184
185	291.9435 ± 14.83
200	135.492 ± 2.41

Appendix C: Kinetic Analysis

Rate equation for total PCB (as Aroclor 1248) reduction from the vermicompost and the control sludge-soil matrices is given by

$$-r_{PCB} = K\,(C_{PCB})^{n}$$

Table C1: Rate equations for vermicompost bioreactors

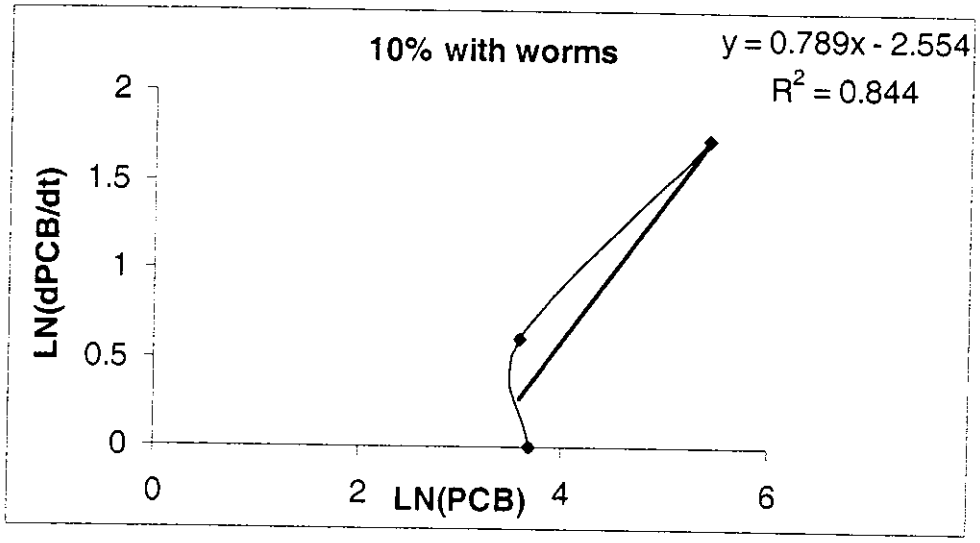
Sludge Concentration	Rate Constant K	Order of equation "n"
10	0.078	0.789
25	1.47×10^{-3}	1.3505
50	8.17×10^{-4}	1.3844
75	1.05×10^{-5}	2.0169

Table C2: Rate equations for abiotic control reactors

Sludge Concentration	Rate Constant K	Order of equation "n"
10	0.036	0.8671
25	4.46×10^{-3}	1.1711
50	1.612×10^{-6}	2.3731
75	3.138×10^{-4}	2.0169

Determining rate equation for PCB concentration in different sludge concentrations in the vermicompost bioreactors

For 10% sludge VB



Days	PCB concentration	d(PCB)/dt	neg-d(PCB)/dt	Ln(dPCB)/dt	Ln (PCB)
0.01	223.65	-5.6702	5.6702	1.735224	5.410082
1	36	-1.8402	1.8402	0.609874	3.583519
100	40.067	1.9898	-1.9898	#NUM!	3.690553

Equation from curve

Where $\alpha = 0.789$

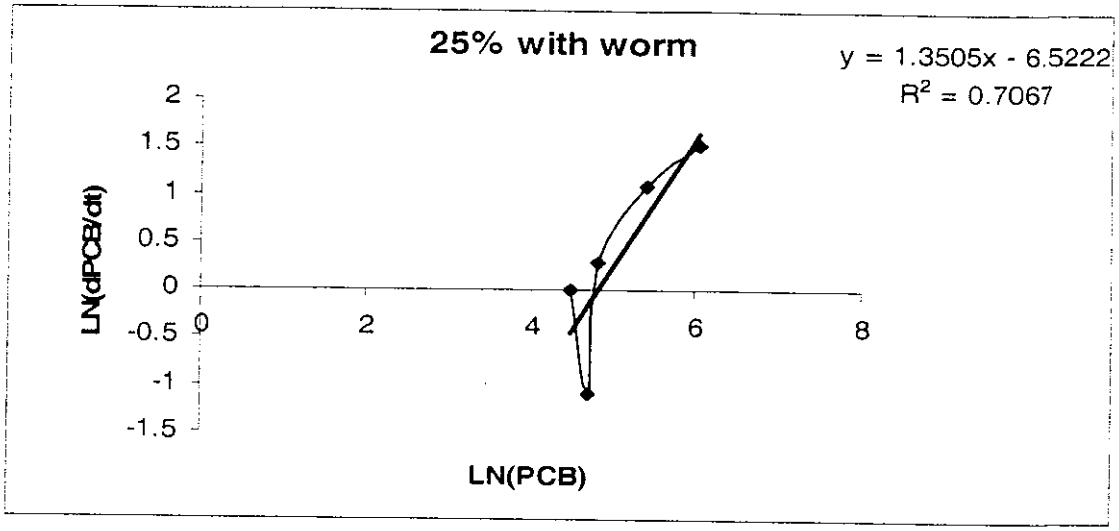
$\text{Ln } K = -2.554 \rightarrow K = (e)^{-2.554}$

$K = 0.078\ (\text{ppm})^{1-\alpha}/\text{days}$

Hence the rate law shown in equation 9.1 from section 9.1.1 is

$$-r_{PCB} = 0.078\ (C_{PCB})^{0.789}$$

For 25% sludge VB



Days	PCB concentration	d(PCB)/dt	neg-d(PCB)/dt	Ln(dPCB)/dt	Ln (PCB)
0	425	-4.6282	4.6282	1.532168	6.052089
50	225	-2.9782	2.9782	1.091319	5.4161
100	125	-1.3282	1.3282	0.283825	4.828314
130	110	-0.3382	0.3382	-1.08412	4.70048
150	90	0.3218	-0.3218	#NUM!	4.49981

Equation from curve

Where $\alpha = 1.3505$

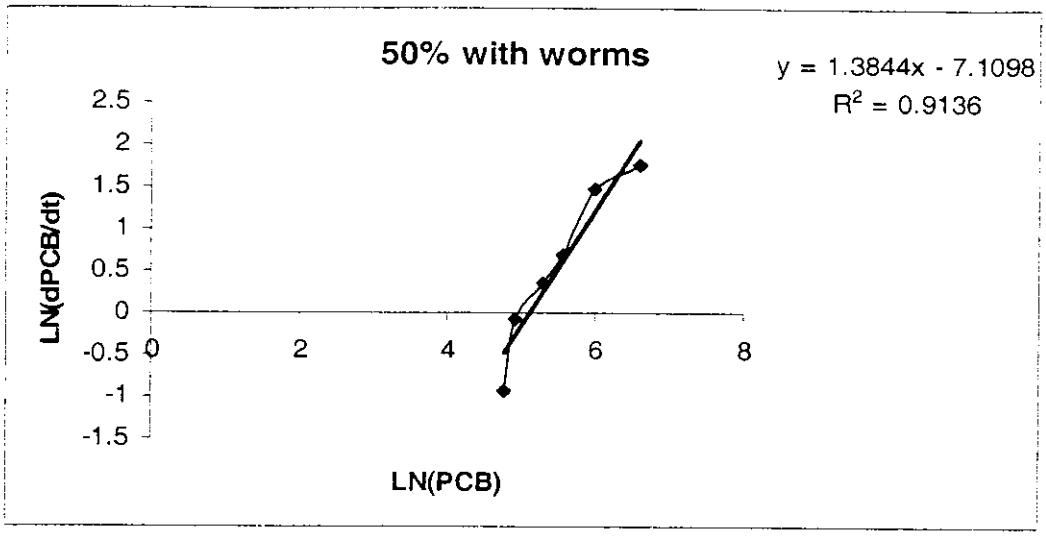
$\mathbf{Ln\ K = -6.5222 \rightarrow K = (e)^{-6.5222}}$

$\mathbf{K = 1.47x10^{-3}\ (ppm)^{1-\alpha}/days}$

Hence the rate law shown in equation 9.2 from section 9.1.2 is

$$\boxed{-r_{PCB} = 1.47x10^{-3}\ (C_{PCB})^{1.3505}}$$

For 50% sludge VB



days	PCB concentration	d(PCB)/dt	neg-d(PCB)/dt	Ln(dPCB)/dt	Ln (PCB)
0	750	-5.838	5.838	1.764388	6.620073
50	400	-4.368	4.368	1.474305	5.991465
130	260	-2.016	2.016	0.701115	5.560682
150	200	-1.428	1.428	0.356275	5.298317
167	140	-0.9282	0.9282	-0.07451	4.941642
185	120	-0.399	0.399	-0.91879	4.787492

Equation from curve

Where $\alpha = 1.3844$

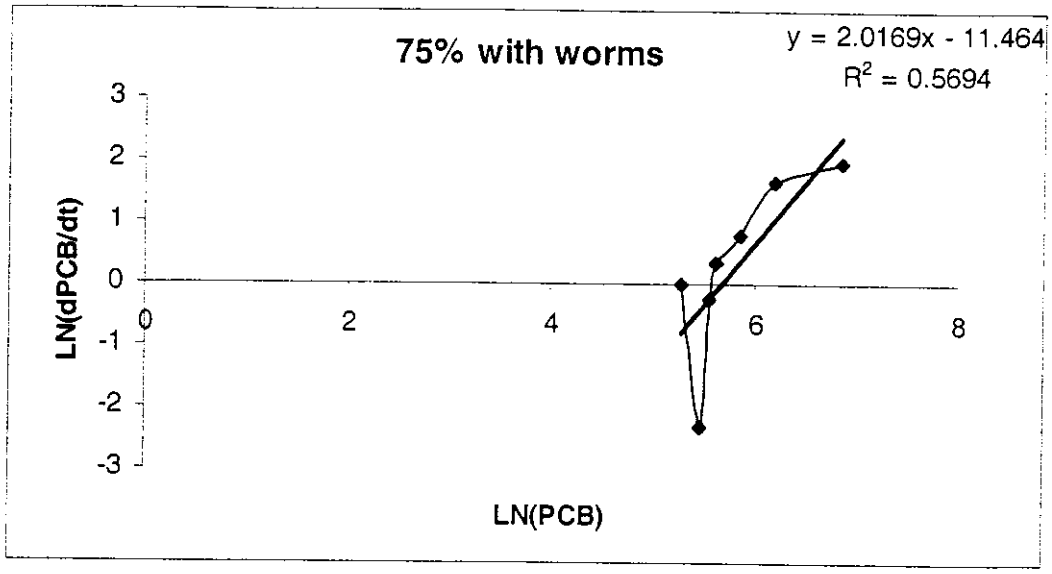
$\text{Ln } K = -7.1098 \rightarrow K = (e)^{-7.1098}$

$K = 8.17\text{x}10^{-4}\ (\text{ppm})^{1-\alpha}/\text{days}$

Hence the rate law shown in equation 9.3 from section 9.1.3 is

$$-r_{PCB} = 8.17\text{x}10^{-4}\ (C_{PCB})^{1.3844}$$

For 75% sludge VB



Days	PCB concentration	d(PCB)/dt	neg-d(PCB)/dt	Ln(dPCB)/dt	Ln (PCB)
0	950	-7.1646	7.1646	1.969152	6.856462
50	490	-5.2546	5.2546	1.659104	6.194405
130	350	-2.1986	2.1986	0.787821	5.857933
150	280	-1.4346	1.4346	0.360886	5.63479
167	260	-0.7852	0.7852	-0.24182	5.560682
185	240	-0.0976	0.0976	-2.32688	5.480639
200	200	0.4754	-0.4754	#NUM!	5.298317

Equation from curve

Where $\alpha = 2.0169$

$\text{Ln } K = -11.464 \rightarrow K = (e)^{-11.464}$

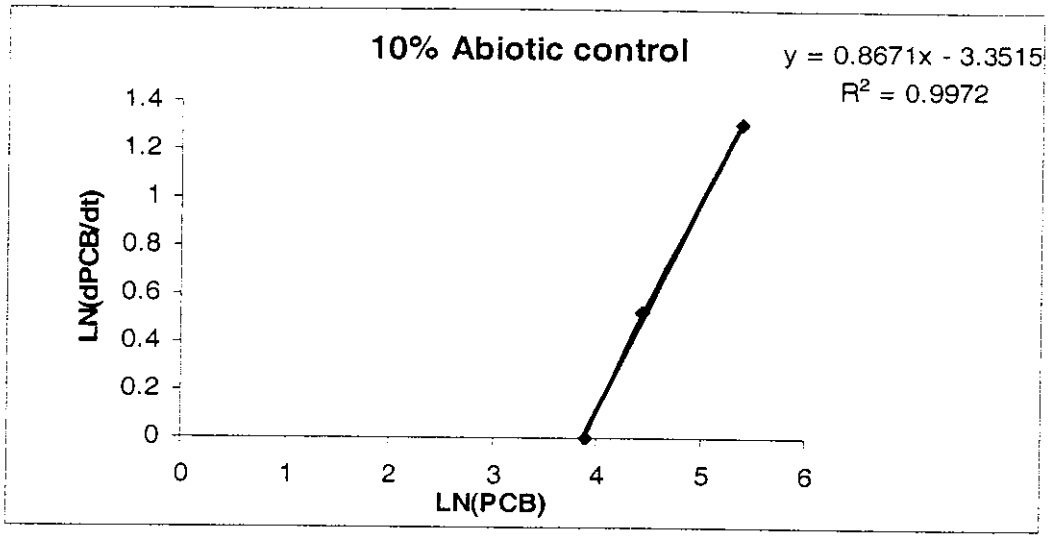
$K = 1.05\text{x}10^{-5}\ (\text{ppm})^{1-\alpha}/\text{days}$

Hence the rate law shown in equation 9.4 from section 9.1.4 is

$$-r_{PCB} = 1.05\text{x}10^{-5}\ (C_{PCB})^{2.0169}$$

Determining rate equation for PCB concentration in different sludge concentrations in the abiotic control reactors

For 10% Sludge Abiotic Control Reactor



Days	PCB concentration	d(PCB)/dt	neg-d(PCB)/dt	Ln(dPCB)/dt	Ln (PCB)
0	218.36	-3.687	3.687	1.304813	5.386145
50	83.8745	-1.697	1.697	0.528862	4.429322
100	49.12197	0.293	-0.293	#NUM!	3.894306

Equation from curve

Where $\alpha = 0.8671$

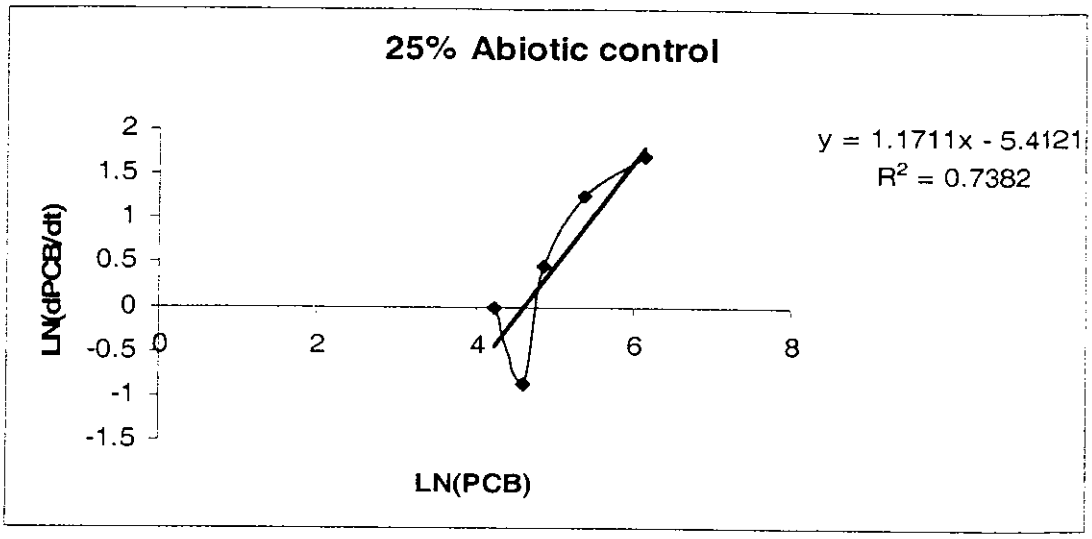
$\text{Ln } K = -3.3515 \rightarrow K = (e)^{-3.3515}$

$K = 0.036\ (ppm)^{1-\alpha}/days$

Hence the rate law shown in equation 9.5 from section 9.2.1 is

$$-r_{PCB} = 0.036\ (C_{PCB})^{0.8671}$$

For 25% Sludge Abiotic Control Reactor



Days	PCB concentration	d(PCB)/dt	neg-d(PCB)/dt	Ln(dPCB)/dt	Ln (PCB)
0	475	-5.4621	5.4621	1.697833	6.163315
50	220	-3.5221	3.5221	1.259057	5.393628
100	130	-1.5821	1.5821	0.458753	4.867534
130	100	-0.4181	0.4181	-0.87203	4.60517
150	70	0.3579	-0.3579	#NUM!	4.248495

Equation from curve

Where $\alpha = 1.1711$

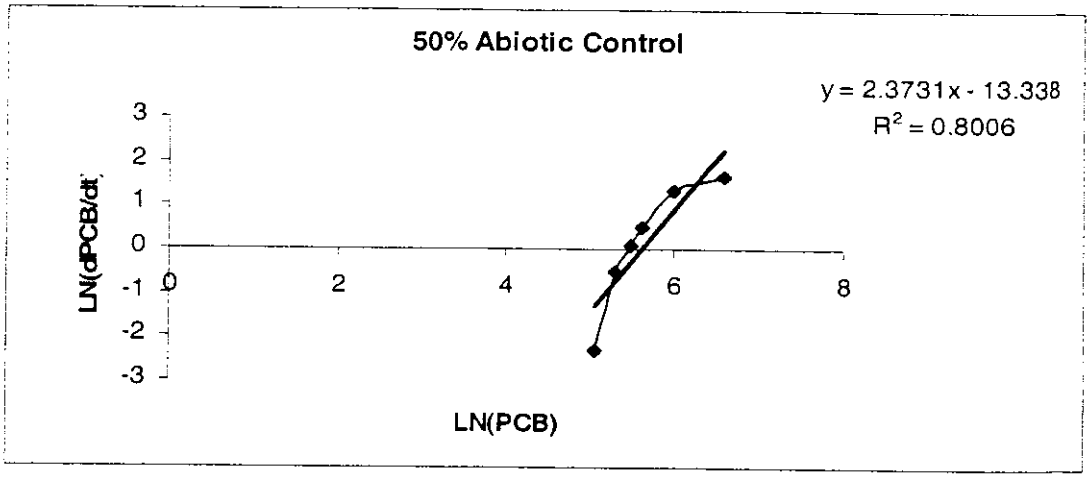
$\mathbf{Ln\ K = -\ 5.4121 \rightarrow K = (e)^{-5.4121}}$

$\mathbf{K = 4.46 \times 10^{-3}\ (ppm)^{1-\alpha}/days}$

Hence the rate law shown in equation 9.6 from section 9.2.2 is

$$\boxed{-r_{PCB} = 4.46 \times 10^{-3}\ (C_{PCB})^{1.1711}}$$

For 50% Sludge Abiotic Control Reactor



Days	PCB concentration	d(PCB)/dt	neg-d(PCB)/dt	Ln(dPCB)/dt	Ln (PCB)
0	720	-5.281	5.281	1.664115	6.579251
50	400	-3.881	3.881	1.356093	5.991465
130	280	-1.641	1.641	0.495306	5.63479
150	240	-1.081	1.081	0.077887	5.480639
167	200	-0.605	0.605	-0.50253	5.298317
185	160	-0.101	0.101	-2.29263	5.075174

Equation from curve

Where $\alpha = 2.3731$

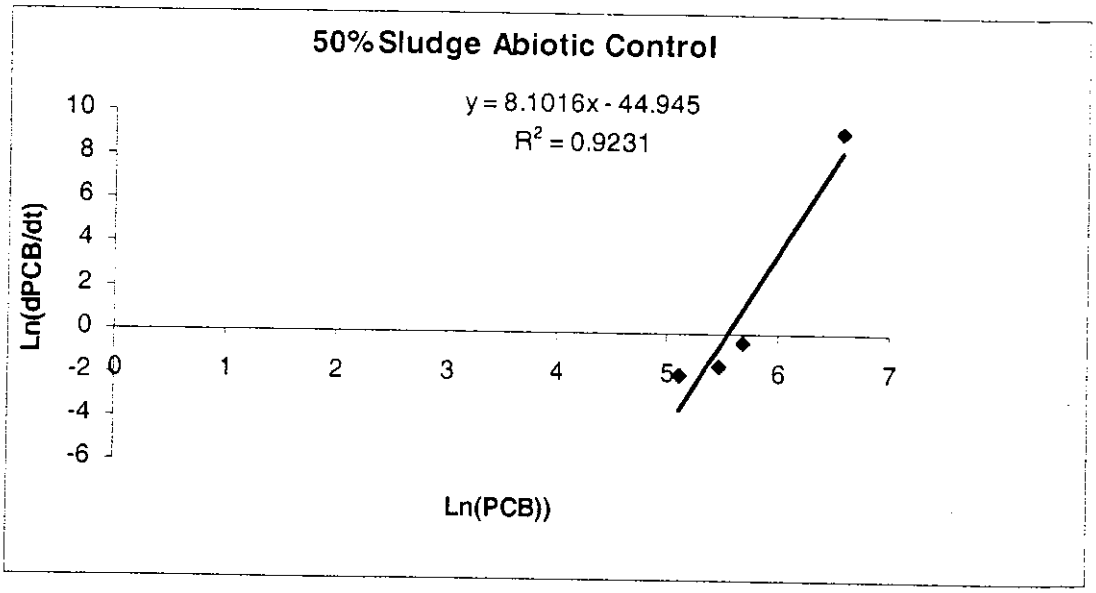
$$\text{Ln } K = -13.338 \rightarrow K = (e)^{-13.338}$$

$$K = 1.612 \times 10^{-6} \text{ (ppm)}^{1-\alpha}/\text{days}$$

Hence the rate law shown in equation 9.7 from section 9.2.3 is

$$\boxed{-r_{PCB} = 1.612 \times 10^{-6} (C_{PCB})^{2.3731}}$$

For 75% Sludge Abiotic Control Reactor



Days	PCB concentration	d(PCB)/dt	neg-d(PCB)/dt	Ln(dPCB)/dt	Ln (PCB)
0	940	-6.5347	6.5347	1.877126	6.84588
50	500	-5.0047	5.0047	1.610377	6.214608
130	360	-2.5567	2.5567	0.938717	5.886104
150	290	-1.9447	1.9447	0.665108	5.669881
167	230	-1.4245	1.4245	0.353821	5.438079
185	190	-0.8737	0.8737	-0.13502	5.247024
200	170	-0.4147	0.4147	-0.8802	5.135798

Equation from curve

Where $\alpha = 1.506$

$$\text{Ln } K = -8.0669 \rightarrow K = (e)^{-8.0669}$$

$$K = 3.1375 \times 10^{-4} \text{ (ppm)}^{1-\alpha}/\text{days}$$

Hence the rate law shown in equation 9.8 from section 9.2.4 is

$$\boxed{-r_{PCB} = 3.1375 \times 10^{-4} (C_{PCB})^{1.506}}$$

Appendix D: Calculations

Moisture Percent calculation:

Wet weight of sample = X gm

Dry weight of sample = Y gm

% Moisture in sample = (X-Y)/X * 100

Example:

Wet weight of sample = 10 gm

Dry weight of sample = 5 gm

% Moisture in sample = (10-5)/10 * 100 = 50

Therefore moisture percent is sample is 50%.

UNITS OF PPM:

In solution	PPM = μg /mL
In solids	PPM = μg /gm (or) mg/kg

PPM CALCULATIONS

1. From Calibrations curve, obtain equation for total Area under peaks (Vs) concentration of Arolcor 1248.
2. For Example $Y = m X + C$ (or) $Y = mX$
3. Where
4. Y = Total Area under the peaks from a chromatogram
5. X = Concentration of Aroclor 1248 in ppm
6. From GC chromatograms, Obtain Total Area under peaks for various sample (Y1, Y2, Y3 etc)
7. For Y (Y1, Y2, Y3 .....) values find the corresponding X values (X1, X2, X3 ....) respectively.
8. Since the X obtained is a representative of the Concentration of PCB (measured as Arolcor 1248) present in 2-μl of sample injected into GC.
9. Find out concentration of PCB in 2-μl sample in μg
10. Then back calculate to see how much is present in 10 ml sample extract in μg
11. Since this 10 ml is obtained from extracting 1-gram sample
12. This gives μg of PCB in 1-gram sample, which is calculation of PPM in solid sample

Example:

Consider the calibration curve of Aroclor 1248

$$Y = 8236.7X \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (a)$$

And lets assume, the total Integrated area under peaks for Sample 1 is Y1 = 10000

Calculation:

Substituting Y1 in equation (a), we get

$X1 = 10000 / 8236.7$

$= 1.2140$ ppm (concentration of the sample in 2 μl)

The concentration of the sample in 2-μl is 1.2140 ppm

1.2140 ppm $= 1.2140 \times \mu g / mL \times mL / 10^3\ \mu l$

$= 1.214 \times 10^{-3}\ \mu g$

This Implies in 2-μl sample contains 2.428×10^{-3} μg of PCB (measured as Aroclor 1248)

So 10 mL contains

$= (10\ mL/2\ \mu l) \times (2.428 \times 10^{-3}\ \mu g) \times (10^3\ \mu l / 1 mL)$

$= 12.14\ \mu g$ of PCB

Since 10 mL is the extract obtained from extracting 1-gram sample of the sludge-soil matrix, this is the concentration of PCB in 1-gram sample

This implies 12.14 μg of PCB in 1-gram sample

$= 12.14\ \mu g / 1\ gm$

= 12.14 ppm

APPENDIX I

CDM

Memorandum

To: *Dan Vicari*

From: *Brian Bennett*

Date: *July 21, 2005*

Subject: *Electrofishing of Ralston Street Lagoon*

In order to determine if aquatic species, particularly fish, were present in the Ralston Street Lagoon (RSL), and whether they could be potential receptors for ecological risk assessment analysis, CDM conducted a study on July 6, 2005. Drew Santini and Brian Bennett from CDM conducted an electroshocking analysis of the lagoon.

Approach

The Ralston Street Lagoon is a relatively small (18.5 acre) body of water with a shoreline that is easily accessible with a 14-foot boat. By navigating around the three protruding piers and following the shoreline, it was possible to conduct electrofishing around the entire perimeter of the lagoon. In addition to sampling the perimeter, five lateral transects were sampled. Transects were located between each of the three piers and between the shoreline and the outermost piers.

Since electrofishing gear is only effective to a depth of approximately 1-2 m (depending on equipment and environmental factors), the sampling focused on the shallower depths around the shoreline. The sampling was conducted after sunset in an attempt to capture predatory fish species that are known to feed in shallow water at night. Three permanent piers in place at the site could potentially provide cover for resident fishes, so an area in close proximity to each pier was carefully sampled. Electrofishing across the lateral transects was performed to include as much of the remaining deep-water habitat as possible in the sample. This combination of sampling the shoreline, around the piers, and across lateral transects of the lagoon was chosen to maximize the potential fish habitats included in the sample.

Sampling of the Ralston Street Lagoon resident fish population was conducted using a boat-mounted electrofishing rig. A 9-hp gasoline powered outboard motor was mounted to a 14-foot aluminum boat outfitted with electrofishing gear. A gasoline powered generator was placed in the boat and a connected to four 1000-watt searchlights mounted to provide illumination for nighttime sampling. A variable voltage pulsator (VVP) was also connected to the generator. A cathode consisting of an exposed wire was connected to the VVP and

suspended in the water on the right side of the boat. A chandelier-style probe (anode) was also connected to the VVP and suspended approximately 1.5 meters off the bow. The anode penetrated the surface of the water to a depth of 0.5 meters. A safety kill switch was placed in the front half of the vessel to be used by the forward crew member. Dip-nets, insulated rubber gloves, waders, and life preservers were supplied for each of the two crew members on board. A scale, measuring board, cooler for live fish storage, and field data sheets were also stored on the boat.

After preparing the electrofishing boat, a two-person crew boarded the craft and began sampling at approximately 9:00 p.m. One crew member controlled the motor, generator, and electrofisher from the back of the boat, while the other crewmember operated the lights and safety kill switch and served as the primary dip-netter from the front. The rear crewmember also served as a secondary dip-netter and piloted the boat.

Electrofishing began near the northwest corner of the site and proceeded in a counter-clockwise direction around the lagoon. This direction was chosen to maximize the amount of the electric field in the shallow, shoreline area of the water body. The crew piloted the craft as closely as possible to the water's edge without turning up sediment or causing the boat to run aground. The variable voltage pulsator was set to allow for the maximum amount of power to be passed through the water without causing the generator to stall. One of the 1000-watt searchlights was disconnected so that more power would be available for the electrofishing unit.

The crew followed the shoreline of the lagoon closely until reaching the first pier. At this point, the boat was piloted closely around the pier and the area on both sides of it was carefully sampled. Then the crew returned to sampling the shoreline until the next pier was reached and the process was repeated. After completing one full circuit around the lagoon, the five transects were sampled. In all, approximately 2.5 hours of total electrofishing was completed.

Results

Electrofishing of the Ralston Street Lagoon was conducted for over two hours and a complete circuit of the perimeter as well as five lateral transects were carefully sampled. The sampling yielded no fish specimen of any kind. However, one Western painted turtle (*Chrysemys picta bellii*) was captured along the western shore of the lagoon. Results of the electrofishing study suggest that it is unlikely that a resident fish population exists in the Ralston Street Lagoon.

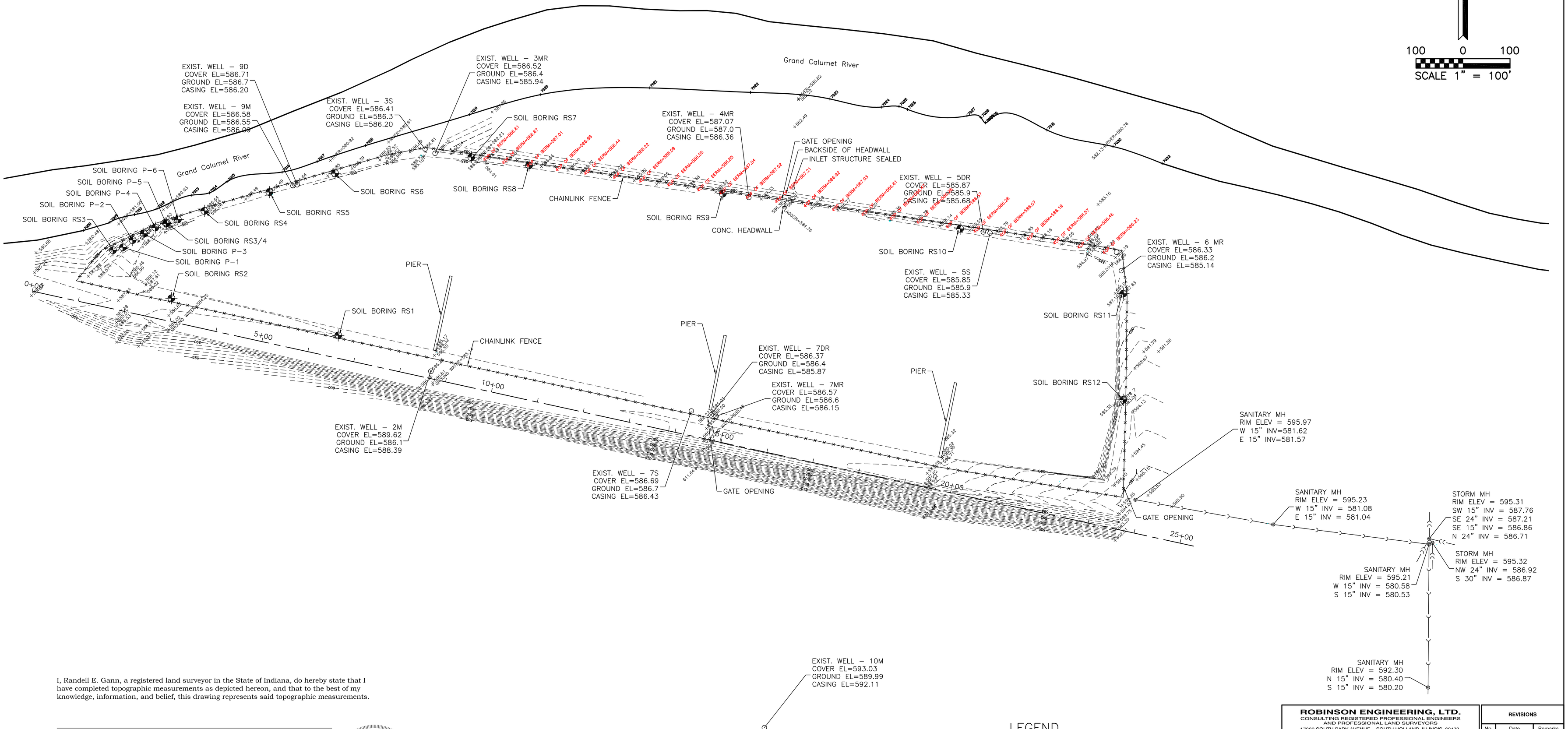
APPENDIX J

SECTION 1, TOWNSHIP 36 NORTH, RANGE 9 WEST OF THE 2ND P.M.

GARY SANITARY DISTRICT

RALSTON STREET LAGOON

EXISTING CONDITIONS WITH AS BUILT BERM



I, Randell E. Gann, a registered land surveyor in the State of Indiana, do hereby state that I have completed topographic measurements as depicted hereon, and that to the best of my knowledge, information, and belief, this drawing represents said topographic measurements.

Randell E. Gann
Indiana Registered Land Surveyor #LS29600023
Expires July 31, 2006

The drawing is dated March 22, 2005.

RANDELL E. GANN REGISTERED NO. LS 29600023 STATE OF INDIANA LAND SURVEYOR

LEGEND

RED= INTERIM BERM HEIGHT IMPROVEMENTS OF APRIL 2005

BENCH MARK:

BENCH MARK GPS #93634
1/2" SS ROW IN A STANDARD GARY CAP AT ENTRANCE TO GARY AIRPORT.
ELEVATION=NGVD 29(FEMA) 590.429

ROBINSON ENGINEERING, LTD.
CONSULTING REGISTERED PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS
17000 SOUTH PARK AVENUE SOUTH HOLLAND, ILLINOIS 60473
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RALSTON STREET LAGOON
GARY SANITARY DISTRICT

GARY, INDIANA

Drawn by:	JM	Date:	3/19/05
Checked by:	RS, REG	Scale:	1" = 100'
Sheet	3 of 3	Project No.	04-573

REVISIONS

No.	Date	Remarks
1	03/22/2005	CERT.

04573-TOPO-01

APPENDIX K

CDM

Memorandum

To: *Dan Vicari*

From: *Mike Miller*

Date: *September 30, 2005*

Subject: *PCB Bioremediation: the State of the Technology*

Certain **anaerobic** mixed bacterial cultures and/or isolated individual bacterial strains have been shown to reductively dechlorinate highly chlorinated PCB congeners. These microbes remove chlorine atoms from the PCB molecules, replacing them with hydrogen. They only partially dechlorinate the PCB molecules and then stop. The process results in fewer chlorines, but the same number of PCB molecules. Furthermore, only certain highly chlorinated PCB congeners are susceptible to attack; others remain completely unaffected. Thus, currently, purely anaerobic biodegradation cannot fully degrade PCBs in soils and groundwater.

There are **aerobic** bacterial strains and cultures that are capable of biodegrading biphenyl. They metabolize the molecule, breaking it down into carbon dioxide and water (mineralization). Many of these bacteria can also degrade PCBs, but only those congeners with relatively low numbers of chlorine atoms attached. Some of the susceptible PCBs are degraded completely to non-toxic end products, while others are only partially degraded. Thus, currently, purely aerobic biodegradation cannot fully degrade PCBs either, but the total number of PCB molecules can be reduced. The aerobic process leaves behind a PCB mixture enriched in the more highly chlorinated molecules.

Both the anaerobic and aerobic processes are limited by the low solubility of PCBs. The compounds must be dissolved in order to be taken up by the bacteria and/or enzymes. Non-toxic and biodegradable surfactants have been identified that can ease the solubility problem to a certain extent, thus facilitating higher rates of biodegradation. Either anaerobic or aerobic bioremediation of PCBs could be applied in a saturated zone soil environment (in situ) with or without added surfactants. However, as described above, neither process can fully degrade the PCB contaminants.

By a different approach, ex situ treatment could employ a slurry phase (soil plus water) bioreactor with added surfactants. The first stage of the reactor would be anaerobic to reduce the number of substituted chlorines, while the second stage would be aerobic to further break

down the partially dechlorinated PCBs. Although such bioreactors are now in the experimental and developmental stages, again complete removal of PCBs is not yet possible. The limitations to the bioreactor are that during the anaerobic phase, only partial dechlorination will occur with some congeners remaining totally untreated; while during the aerobic phase, only some of the partially dechlorinated PCBs will be further degraded.

The most promising research aimed at improving PCB bioremediation involves genetic engineering of some of the bacteria and enzymes discussed above. Anaerobic research is focused on creating bacteria capable of degrading a wider range of PCB congeners, preferably all congeners. The goal of the aerobic research is to create bacteria that can completely mineralize any PCB congener. Research also attempts to give bacteria the ability to manufacture PCB-solubilizing surfactants. The genetic engineering research is new, and at least several years away from creating a remedy to apply to a contaminated site. Also note that there are potential risks of releasing genetically engineering microorganisms (GEMs) into the environment, so strict regulations govern such activity. In fact, so far only one GEM has ever been approved for in situ bioremediation testing in the United States. Thus, difficult regulatory hurdles must be cleared even after effective bacteria are developed.

In conclusion, both anaerobic and aerobic bioremediation processes show promise for PCB bioremediation. However, technologies for complete biodegradation of a whole PCB aroclor mixture do not yet exist. Research utilizing state of the art methods of genetic engineering is ongoing, but development of a fully field implementable technology is probably several years away.

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APPENDIX L

APPENDIX M

- **Engineers Estimates and Contractor Bids Comparisons for Projects A and B**

BID COMPARISONS FOR PROJECT A (2005)

Item No.	Item Description	unit	quantity	Engineer's Estimate unit price	Engineer's Estimate costs	Contractor A unit price	Contractor A costs	Contractor B unit price	Contractor B costs	Contractor C unit price	Contractor C costs	Contractor D unit price	Contractor D costs
Item No.													
1	**GENERAL CONDITIONS**												
1a	Mobilization/Demobilization	ls	1	$ 50,000.00	$ 50,000.00	$ 125,500.00	$ 125,500.00	$ 450,000.00	$ 450,000.00	$ 275,122.39	$ 275,122.39	$ 346,244.00	$ 346,244.00
1b	Survey	ls	1	$ 10,000.00	$ 10,000.00	$ 6,750.00	$ 6,750.00	$ 52,500.00	$ 52,500.00	$ 99,541.38	$ 99,541.38	$ 40,922.00	$ 40,922.00
1c	Health and Safety Equipment	ls	1	$ 50,000.00	$ 50,000.00	$ 12,500.00	$ 12,500.00	$ 117,100.00	$ 117,100.00	$ 114,594.96	$ 114,594.96	$ 28,061.00	$ 28,061.00
1d	Site Security	ls	1	$ 45,000.00	$ 45,000.00	$ 8,500.00	$ 8,500.00	$ 44,250.00	$ 44,250.00	$ 46,443.93	$ 46,443.93	$ 218,874.00	$ 218,874.00
	SUBTOTAL ITEM NO. 1				**$ 155,000.00**		**$ 153,250.00**		**$ 663,850.00**		**$ 535,702.66**		**$ 634,101.00**
2	**SITE PREPARATION**												
2a	Obtain Permits	ls	1	$ 5,000.00	$ 5,000.00	$ 1,000.00	$ 1,000.00	$ 15,000.00	$ 15,000.00	$ 14,197.62	$ 14,197.62	$ 11,692.00	$ 11,692.00
2b	Storm Water Management	ls	1	$ 60,000.00	$ 60,000.00	$ 25,500.00	$ 25,500.00	$ 25,000.00	$ 25,000.00	$ 8,947.62	$ 8,947.62	$ 147,130.00	$ 147,130.00
2c	Erosion and Environmental Controls	ls	1	$ 11,400.00	$ 11,400.00	$ 35,500.00	$ 35,500.00	$ 25,000.00	$ 25,000.00	$ 16,690.24	$ 16,690.24	$ 95,029.00	$ 95,029.00
2d	Clearing and Grubbing (exclusion zone + staging area)	ls	1	$ 38,500.00	$ 38,500.00	$ 6,500.00	$ 6,500.00	$ 40,000.00	$ 40,000.00	$ 17,494.69	$ 17,494.69	$ 72,044.00	$ 72,044.00
2e	Traffic Control	ls	1	$ 94,000.00	$ 94,000.00	$ 5,500.00	$ 5,500.00	$ 6,000.00	$ 6,000.00	$ 53,785.52	$ 53,785.52	$ 104,448.00	$ 104,448.00
2f	Temporary Stabilized Construction Entrance (subgrade prep., filter fabric, crushed stone)	ls	1	$ 1,500.00	$ 1,500.00	$ 8,500.00	$ 8,500.00	$ 6,800.00	$ 6,800.00	$ 8,647.95	$ 8,647.95	$ 13,219.00	$ 13,219.00
2g	Staging and Decontamination Areas	ls	1	$ 25,000.00	$ 25,000.00	$ 15,000.00	$ 15,000.00	$ 5,000.00	$ 5,000.00	$ 153,159.94	$ 153,159.94	$ 73,971.00	$ 73,971.00
2h	Removal/Storage of Railroad Spur (rail, ties, ballast, installation of rail car stop)	ls	1	$ 13,000.00	$ 13,000.00	$ 12,500.00	$ 12,500.00	$ 17,000.00	$ 17,000.00	$ 22,660.97	$ 22,660.97	$ 12,599.00	$ 12,599.00
2i	Demolition and Removal of Building Structures	ls	1	$ 15,750.00	$ 15,750.00	$ 1,500.00	$ 1,500.00	$ 10,000.00	$ 10,000.00	$ 19,268.83	$ 19,268.83	$ 20,999.00	$ 20,999.00
2j	Demolition and Removal of Concrete/Slab on Grade along Barrier Wall Alignment	ls	1	$ 12,200.00	$ 12,200.00	$ 2,550.00	$ 2,550.00	$ 14,000.00	$ 14,000.00	$ 5,147.57	$ 5,147.57	$ 41,998.00	$ 41,998.00
2k	Removal and Storage of Existing Chainlink Fence	ls	1	$ 8,100.00	$ 8,100.00	$ 1,500.00	$ 1,500.00	$ 14,000.00	$ 14,000.00	$ 7,896.81	$ 7,896.81	$ 21,329.00	$ 21,329.00
2l	Relocation of Active Utilities	ls	1	$ 5,000.00	$ 5,000.00	$ 15,000.00	$ 15,000.00	$ 7,500.00	$ 7,500.00	$ 26,546.43	$ 26,546.43	$ 32,500.00	$ 32,500.00
2m	Removal and De-energizing of electrical poles	ls	1	$ 5,000.00	$ 5,000.00	$ 7,500.00	$ 7,500.00	$ 1,000.00	$ 1,000.00	$ 27,596.43	$ 27,596.43	$ 1,950.00	$ 1,950.00
2n	Plugging Abandoned Utility Pipes	ls	1	$ 6,000.00	$ 6,000.00	$ 4,500.00	$ 4,500.00	$ 5,000.00	$ 5,000.00	$ 32,633.52	$ 32,633.52	$ 40,049.00	$ 40,049.00
2o	Removal and Plugging of Brick Arch Sewer	ls	1	$ 20,000.00	$ 20,000.00	$ 6,800.00	$ 6,800.00	$ 7,500.00	$ 7,500.00	$ 21,800.42	$ 21,800.42	$ 13,669.00	$ 13,669.00
2p	Abandonment of existing monitoring wells (grout) (1)	ea	36	$ 400.00	$ 14,400.00	$ 250.00	$ 9,000.00	$ 250.00	$ 8,250.00	$ 753.64	$ 27,131.15	$ 1,079.00	$ 38,844.00
2q	Abandonment of existing monitoring wells (drill and grout)	ea	1	$ 800.00	$ 800.00	$ 1,500.00	$ 1,500.00	$ 2,500.00	$ 2,500.00	$ 912.85	$ 912.85	$ 3,224.00	$ 3,224.00
2r	Protecting existing monitoring wells to be saved	ls	1	$ 2,000.00	$ 2,000.00	$ 500.00	$ 500.00	$ 3,000.00	$ 3,000.00	$ 1,885.28	$ 1,885.28	$ 13,700.00	$ 13,700.00
2s	Barrier Wall Pretrenching (including Source Material Removal Area 4 and additional source material)	ls	1	$ 285,000.00	$ 285,000.00	$ 650,000.00	$ 650,000.00	$ 249,800.00	$ 249,800.00	$ 94,351.04	$ 94,351.04	$ 182,395.00	$ 182,395.00
2t	Barrier Wall Pretrench Backfill (includes backfilling and surface restoration of Source Material Removal Area 4	cy	5,500	$ 25.00	$ 137,500.00	$ 25.00	$ 137,500.00	$ 35.35	$ 194,425.00	$ 28.64	$ 157,510.90	$ 65.90	$ 362,450.00
2u	Delineation of Source Material Removal Areas 1 to 3 (includes test pit explorations and surveying)	ls	1	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 4,000.00	$ 4,000.00	$ 11,697.98	$ 11,697.98	$ 18,505.00	$ 18,505.00
	SUBTOTAL ITEM NO. 2				**$ 761,650.00**		**$ 949,350.00**		**$ 660,775.00**		**$ 729,963.76**		**$ 1,321,744.00**
3	**GROUNDWATER PRETREATMENT SYSTEM**												
3a	Fractionation Tanks	ea	6	$ 9,200.00	$ 55,200.00	$ 6,384.00	$ 38,304.00	$ 8,000.00	$ 48,000.00	$ 41,548.77	$ 249,292.63	$ 14,217.00	$ 85,302.00
3b	Oil-Water Separator	ea	2	$ 11,600.00	$ 23,200.00	$ 10,800.00	$ 21,600.00	$ 12,500.00	$ 25,000.00	$ 18,054.92	$ 36,109.83	$ 41,530.00	$ 83,060.00
3c	Dewatering Pump	ea	2	$ 4,962.50	$ 9,925.00	$ 51,000.00	$ 102,000.00	$ 12,500.00	$ 25,000.00	$ 11,170.63	$ 22,341.26	$ 9,728.00	$ 19,456.00
3d	Discharge Pump	ea	2	$ 5,362.50	$ 10,725.00	$ 2,400.00	$ 4,800.00	$ 12,500.00	$ 25,000.00	$ 12,863.76	$ 25,727.51	$ 9,728.00	$ 19,456.00
3e	Flow Meter	ea	1	$ 4,000.00	$ 4,000.00	$ 500.00	$ 500.00	$ 4,500.00	$ 4,500.00	$ 3,928.13	$ 3,928.13	$ 6,735.00	$ 6,735.00
3f	Dewatering Discharge Structure (includes riprap, filter fabric, haybales)	ls	1	$ 2,000.00	$ 2,000.00	$ 1,500.00	$ 1,500.00	$ 10,000.00	$ 10,000.00	$ 9,179.33	$ 9,179.33	$ 14,977.00	$ 14,977.00
3g	6" HDPE Discharge Pipe	lf	850	$ 12.94	$ 10,999.00	$ 4.00	$ 3,400.00	$ 43.50	$ 36,975.00	$ 22.16	$ 18,832.76	$ 29.35	$ 24,947.50
	SUBTOTAL ITEM NO. 3				**$ 116,049.00**		**$ 172,104.00**		**$ 174,475.00**		**$ 365,411.45**		**$ 253,933.50**
4	**STORMWATER DRAINAGE**												
4a	Precast Catch Basin (includes excavation, bedding and backfill material)	ea	3	$ 4,600.00	$ 13,800.00	$ 2,550.00	$ 7,650.00	$ 6,000.00	$ 18,000.00	$ 8,394.81	$ 25,184.42	$ 27,333.00	$ 81,999.00
4b	12" HDPE Pipe (includes excavation, bedding and backfill material)	lf	120	$ 37.50	$ 4,500.00	$ 40.00	$ 4,800.00	$ 95.00	$ 11,400.00	$ 171.45	$ 20,573.95	$ 52.76	$ 6,331.20
4c	14" HDPE Pipe (includes excavation, bedding and backfill material)	lf	85	$ 41.18	$ 3,500.30	$ 50.00	$ 4,250.00	$ 105.00	$ 8,925.00	$ 200.21	$ 17,017.58	$ 58.76	$ 4,994.60
	SUBTOTAL ITEM NO. 4				**$ 21,800.30**		**$ 16,700.00**		**$ 38,325.00**		**$ 62,775.95**		**$ 93,324.80**
5	**BARRIER WALL CONSTRUCTION**												
5a	Installation of Work Platform	cy	6,500	$ 15.00	$ 97,500.00	$ 25.00	$ 162,500.00	$ 24.75	$ 160,875.00	$ 45.97	$ 298,829.76	$ 34.30	$ 222,950.00
5b	Installation of Slurry Wall	vsf	98,300	$ 12.00	$ 1,179,600.00	$ 4.33	$ 425,639.00	$ 9.00	$ 884,700.00	$ 6.54	$ 642,420.77	$ 8.57	$ 842,431.00
5c	Removal/Regrading of Work Platform (includes regrading work platform fill within Barrier Wall limits)	cy	6,500	$ 8.00	$ 52,000.00	$ 3.00	$ 19,500.00	$ 8.40	$ 54,600.00	$ 6.88	$ 44,743.63	$ 10.91	$ 70,915.00
5d	Installation of Augmented Clay on Top of Slurry Wall	cy	1,100	$ 20.00	$ 22,000.00	$ 25.00	$ 27,500.00	$ 43.50	$ 47,850.00	$ 36.64	$ 40,304.45	$ 65.48	$ 72,028.00
5e	QC Testing	ls	1	$ 33,000.00	$ 33,000.00	$ 35,500.00	$ 35,500.00	$ 95,000.00	$ 95,000.00	$ 40,315.32	$ 40,315.32	$ 24,943.00	$ 24,943.00
5f	Installation of Barrier Wall crossings (includes geogrid and crushed stone)	ea	4	$ 1,300.00	$ 5,200.00	$ 850.00	$ 3,400.00	$ 1,250.00	$ 5,000.00	$ 4,998.37	$ 19,993.49	$ 18,707.00	$ 74,828.00
	SUBTOTAL ITEM NO. 5				**$ 1,389,300.00**		**$ 674,039.00**		**$ 1,248,025.00**		**$ 1,086,607.42**		**$ 1,308,095.00**
6	**PIPE JACKING**												
6	(includes installing jacking and receiving pits, carrier pipe through Barrier Wall, pipe jacking under Washington Street, connecting to groundwater extraction well system, installing manholes)	ls	1	$ 225,000.00	$ 225,000.00	$ 85,800.00	$ 85,800.00	$ 240,500.00	$ 240,500.00	$ 351,789.18	$ 351,789.18	$ 743,491.00	$ 743,491.00
	SUBTOTAL ITEM NO. 6				**$ 225,000.00**		**$ 85,800.00**		**$ 240,500.00**		**$ 351,789.18**		**$ 743,491.00**
7	**OBSERVATION WELLS**												
7a	Drilling, Installation, and Development	ea	12	$ 3,000.00	$ 36,000.00	$ 1,500.00	$ 18,000.00	$ 3,350.00	$ 40,200.00	$ 2,695.00	$ 32,339.99	$ 6,212.00	$ 74,544.00
	SUBTOTAL ITEM NO. 7				**$ 36,000.00**		**$ 18,000.00**		**$ 40,200.00**		**$ 32,339.99**		**$ 74,544.00**
8	**EXTRACTION WELLS**												
8a	Drilling, Installation, and Development	ea	2	$ 25,000.00	$ 50,000.00	$ 44,656.00	$ 89,312.00	$ 57,000.00	$ 114,000.00	$ 22,970.64	$ 45,941.27	$ 58,772.00	$ 117,544.00
8b	Installation of Pump and Equipment (includes instrumentation, controls, telemetry system, backfilling)	ea	2	$ 22,500.00	$ 45,000.00	$ 8,500.00	$ 17,000.00	$ 18,000.00	$ 36,000.00	$ 4,122.38	$ 8,244.76	$ 31,646.00	$ 63,292.00
8c	2" HDPE Header Pipe	lf	1,000	$ 8.00	$ 8,000.00	$ 2.50	$ 2,500.00	$ 13.00	$ 13,000.00	$ 11.73	$ 11,725.54	$ 15.10	$ 15,100.00
8d	Crushed Stone for Access Paths	cy	240	$ 33.33	$ 7,999.20	$ 35.00	$ 8,400.00	$ 55.00	$ 13,200.00	$ 81.03	$ 19,446.34	$ 80.00	$ 19,200.00
	SUBTOTAL ITEM NO. 8				**$ 110,999.20**		**$ 117,212.00**		**$ 176,200.00**		**$ 85,357.91**		**$ 215,136.00**
9	**PHASE 1 INTERIM CAP**												
9a	Site grading	ls	1	$ 21,500.00	$ 21,500.00	$ 2,900.00	$ 2,900.00	$ 8,000.00	$ 8,000.00	$ 36,057.99	$ 36,057.99	$ 54,556.00	$ 54,556.00
9b	10 mil HDPE Liner	sf	400,000	$ 0.25	$ 100,000.00	$ 0.19	$ 76,000.00	$ 0.17	$ 68,000.00	$ 0.48	$ 192,436.74	$ 0.86	$ 344,000.00
9c	QC Testing	ls	1	$ 2,500.00	$ 2,500.00	$ 3,500.00	$ 3,500.00	$ 2,500.00	$ 2,500.00	$ 11,572.62	$ 11,572.62	$ 38,973.00	$ 38,973.00
	SUBTOTAL ITEM NO. 9				**$ 124,000.00**		**$ 82,400.00**		**$ 78,500.00**		**$ 240,067.35**		**$ 437,529.00**
10	**SITE FENCING**												
10a	Restoration/Replacement of Chain Link Fence along Niagara Mohawk WGP Property	lf	1,750	$ 12.00	$ 21,000.00	$ 22.46	$ 39,305.00	$ 26.25	$ 45,937.50	$ 20.69	$ 36,204.41	$ 29.59	$ 51,782.50
10b	Installation of Chain Link Fence along Monarch Chemical/Niagara Mohawk WGP Boundary	lf	1,010	$ 12.00	$ 12,120.00	$ 22.46	$ 22,684.60	$ 26.25	$ 26,512.50	$ 22.34	$ 22,558.61	$ 29.59	$ 29,885.90
10c	Gates-20' wide at gravel wall crossings on Washington Street	ea	2	$ 1,200.00	$ 2,400.00	$ 850.00	$ 1,700.00	$ 2,000.00	$ 4,000.00	$ 1,722.21	$ 3,444.41	$ 2,338.00	$ 4,676.00
10c	Gates-30' wide at gravel wall crossings on Washington Street	ea	1	$ 3,200.00	$ 3,200.00	$ 1,100.00	$ 1,100.00	$ 2,700.00	$ 2,700.00	$ 2,814.40	$ 2,814.40	$ 2,962.00	$ 2,962.00
10d	Gates-40' wide at Railroad Spur entering Monarch Chemical	ea	1	$ 4,000.00	$ 4,000.00	$ 2,800.00	$ 2,800.00	$ 4,000.00	$ 4,000.00	$ 3,444.40	$ 3,444.40	$ 4,209.00	$ 4,209.00
	SUBTOTAL ITEM NO. 10				**$ 42,720.00**		**$ 67,589.60**		**$ 83,150.00**		**$ 68,466.23**		**$ 93,515.40**
11	**ELECTRICAL AND INSTRUMENTATION AND CONTROL SYSTEMS**	ls	1	$ 147,000.00	$ 147,000.00	$ 85,500.00	$ 85,500.00	$ 95,000.00	$ 95,000.00	$ 103,340.22	$ 103,340.22	$ 215,852.00	$ 215,852.00
	SUBTOTAL ITEM NO. 11				**$ 147,000.00**		**$ 85,500.00**		**$ 95,000.00**		**$ 103,340.22**		**$ 215,852.00**
12	**BONDS**												
12a	Payment Bond	ea	1		$ -	$ 31,250.00	$ 31,250.00	$ 54,000.00	$ 54,000.00	$ 29,565.90	$ 29,565.90	$ -	$ -
12b	Performance Bond	ea	1		$ -	$ 31,250.00	$ 31,250.00	$ 54,000.00	$ 54,000.00	$ 59,421.60	$ 59,421.60	$ -	$ -
	SUBTOTAL ITEM NO. 12				**$ -**		**$ 62,500.00**		**$ 108,000.00**		**$ 88,987.50**		**$ -**
	TOTAL BID PRICE				**$ 3,129,518.50**		**$ 2,484,444.60**		**$ 3,607,000.00**		**$ 3,750,809.62**		**$ 5,391,265.70**

Final Design Construction
Cost Estimate

No.	Item Description	Unit	Quantity	Unit Price	Cost
0	**PRECONSTRUCTION**				
0.1	Utility Relocation	ls	1	$500,000	$500,000
1	**GENERAL CONDITIONS**				
1.1	Mobilization/Demobilization	ea	1	$200,000	$200,000
1.2	Survey	ls	1	$10,000	$10,000
1.3	Erosion Control	lf	8,000	$2	$16,000
1.4	Health and Safety Equipment	ls	1	$120,000	$120,000
2	**SITE PREPARATION**				
2.1	3 Additional borings in western portion of IM-4/5 to verify top of limestone	ls	1	$10,000	$10,000
2.2	CCA Pond Bathymetric Survey	ls	1	$10,000	$10,000
2.3	Offsite removal of pressure treated wood stockpiles	cy	500	$25	$12,500
2.4	Crushing of concrete stockpiles, utility pole foundations in IM-2	cy	1,000	$40	$40,000
2.5	Removal/Storage of Railroad Spur (rail, ties, ballast, subballast)	lf	1,000	$25	$25,000
2.6	Gabbion Wall Construction	cy	100	$250	$25,000
2.7	Clearing and Grubbing	acre	42	$2,500	$105,000
3	**EXCAVATION & DEWATERING**				
3.1	Excavation Sediments Burnett Creek	cy	330	$30	$9,900
3.2	Excavation Material CCA Waste Cell	cy	8,800	$10	$88,000
3.3	Excavation of shallow surface soils	cy	78,000	$10	$780,000
3.4	Dewatering of IM-1 and IM-2 Ponds	gal	2,626,000	$0.10	$262,600
3.5	Dewatering of IM-4 and IM-5 Ponds	gal	5,251,500	$0.10	$525,150
3.6	Dewatering of the CCA Pond	gal	1,656,000	$0.10	$165,600
3.7	Excavation of Impoundment Ponds in IM-1/2 area	cy	7,000	$10	$70,000
3.8	Excavation of Impoundment Ponds in IM-4/5 area	cy	51,500	$10	$515,000
3.9	Materials handling and dewatering	cy	58,500	$8	$468,000
3.10	Dust Control	ls	1	$50,000	$50,000
3.11	Analytical Sampling and Testing	ea	100	$500	$50,000
4	**BARRIER WALL CONSTRUCTION**				
4.1	*IM-1/2 Area*				
4.1.1	Earthworks (Working Platform)	cy	11,800	$10	$118,000
4.1.2	Installation of slurry wall	sf	155,000	$12	$1,860,000
4.1.3	Removal of Working Platform	cy	11,800	$8	$94,400
4.1.4	Installation of Augmented Clay on Top of Slurry Wall	cy	860	$20	$17,200
4.1.5	QC Testing	ls	1	$50,000	$50,000
4.2	*IM-4/5 Area*				
4.2.1	Earthworks (Working Platform + CCA Pond fill)	cy	25,000	$10	$250,000
4.2.2	Installation of slurry wall	sf	180,000	$12	$2,160,000
4.2.3	Removal of Working Platform	cy	25,000	$8	$200,000
4.2.4	Installation of Augmented Clay on Top of Slurry Wall	cy	950	$20	$19,000
4.2.5	QC Testing	ls	1	$60,000	$60,000
5	**SOLIDIFICATION/STABILIZATION**				
5.1	*IM-1/2 Area*				
5.1.1	S/S Treatment (Mixing)	cy	7,000	$60	$420,000
5.1.2	QC Testing	ls	1	$51,000	$51,000
5.2	*IM-4/5 Area*				
5.2.1	S/S Treatment (Mixing)	cy	138,630	$60	$8,317,800
5.2.2	QC Testing	ls	1	$206,000	$206,000
6	**GAS VENT SYSTEM**				
6.1	Gas Vents	ea	10	$3,000	$30,000
6.2	QC Testing	ls	1	$3,000	$3,000

Final Design Construction
Cost Estimate

No.	Item Description	Unit	Quantity	Unit Price	Cost
7	**CAPPING**				
7.1	*IM-1/2 Area*				
7.1.1	Cap subbase fill	cy	21,500	$10	$215,000
7.1.2	GCL	acre	6	$40,000	$240,000
7.1.3	Installation of Drainage Layer	cy	10,200	$15	$153,000
7.1.4	Installation of Common Fill Layer	cy	10,200	$15	$153,000
7.1.5	Installation of Topsoil Layer	cy	5,100	$20	$102,000
7.1.6	Installation of Vegetative Cover	acre	6	$3,000	$18,000
7.1.7	Runoff Control Trenching	lf	2,500	$1	$2,500
7.1.8	QC Testing	ls	1	$24,000	$24,000
7.2	*IM-4/5 Area*				
7.2.1	GCL	acre	11	$40,000	$440,000
7.2.2	Installation of Drainage Layer	cy	18,500	$15	$277,500
7.2.4	Installation of Common Fill Layer	cy	18,500	$15	$277,500
7.2.5	Installation of Topsoil Layer	cy	9,250	$20	$185,000
7.2.6	Installation of Vegetative Cover	acre	11	$3,000	$33,000
7.2.7	Runoff Control Trenching	lf	2,700	$1	$2,700
7.2.8	QC Testing	ls	1	$24,000	$24,000
8	**SITE GRADING AND FENCING**				
8.1	Grading Outside Caps	acre	25	$3,000	$75,000
8.2	Backfilling outside of the caps - Common Fill	cy	55,000	$10	$550,000
8.3	Backfilling outside of the caps - Topsoil	cy	18,000	$20	$360,000
8.4	Fencing	lf	5,300	$12	$63,600
8.5	Gates - 20' wide	ea	3	$1,200	$3,600
8.6	Gates - 30' wide	ea	2	$3,200	$6,400
	ADDITIONAL COSTS				
	Subtotal 1 - Capital Cost				$21,119,950
	Contractor Fee (10% of Capital Cost)				$2,111,995
	Legal Fees, Licenses & Permits (5% of Capital Costs)				$1,055,998
	Engineering & Administrative (15% of Capital Costs)				$3,167,993
	Total Construction Cost				***$27,455,935***
	ALTERNATIVE CAP OPTION				
	(Using standard common fill instead of high perm. common fill, adding filter fabric, adding geonet)				
	Additional Filter fabric (for caps if common fill is different from drainage layer)	acre	17	$8,000	$136,000
	Additional Geonet (for caps if common fill is different from drainage layer)	acre	17	$26,500	$450,500
	Using standard common fill instead of high perm. common fill ($10 cu.yd vs. $15 cu.yd)	cy	24,700	-$5	-$123,500
	Additional Cost for Alternative Cap Option				***$463,000***

- **Site Preparation Costs**
  - Mobilization/Demobilization
  - Clearing and Grub
  - Preparation of Access Road
  - Site Survey
  - Erosion Control
  - Health and Safety
  - Sheet Pile

Contractor mob/demob

31 05 Common Work Results for Earthwork

31 05 23 – Cement and Concrete for Earthwork

	31 05 23.30 Plant Mixed Bituminous Concrete	Crew	Daily Output	Labor-Hours	Unit	2007 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**PLANT MIXED BITUMINOUS CONCRETE**									
0020	Asphaltic concrete plant mix (145 LB per c.f.)				Ton	48			48	53
0040	Asphaltic concrete less than 300 tons add trucking costs									
0050	See Div. 31 23 23.18 for hauling costs									
0200	All weather patching mix, hot					48			48	53
0250	Cold patch					53			53	58.50
0300	Berm mix					48			48	53
0400	Base mix					48			48	53
0500	Binder mix					48			48	53
0600	Sand or sheet mix					53			53	58.50

	31 05 23.40 Recycled Plant Mixed Bituminous Concrete									
0010	**RECYCLED PLANT MIXED BITUMINOUS CONCRETE**									
0200	Reclaimed pavement in stockpile				Ton	15.20			15.20	16.75
0400	Recycled pavement, at plant, ratio old: new, 70:30					25			25	27.50
*0600	Ratio old: new, 30:70					38			38	42

31 06 Schedules for Earthwork

31 06 60 – Schedules for Special Foundations and Load Bearing Elements

	31 06 60.14 Piling Special Costs									
0010	**PILING SPECIAL COSTS**									
0011	Pile caps, see Division 03 30 53.40									
0500	Cutoffs, concrete piles, plain	1 Pile	5.50	1.455	Ea.		52		52	85.50
0600	With steel thin shell, add		38	.211			7.55		7.55	12.35
0700	Steel pile or "H" piles		19	.421			15.10		15.10	24.50
0800	Wood piles		38	.211			7.55		7.55	12.35
0900	Pre-augering up to 30' deep, average soil, 24" diameter	B-43	180	.267	L.F.		8.45	19.45	27.90	34.50
0920	36" diameter		115	.417			13.25	30.50	43.75	54
0960	48" diameter		70	.686			22	50	72	88.50
0980	60" diameter		50	.960			30.50	70	100.50	124
1000	Testing, any type piles, test load is twice the design load									
1050	50 ton design load, 100 ton test				Ea.				15,900	17,013
1100	100 ton design load, 200 ton test								20,405	22,330
1150	150 ton design load, 300 ton test								26,510	28,270
1200	200 ton design load, 400 ton test								28,820	31,680
1250	400 ton design load, 800 ton test								33,330	37,070
1500	Wet conditions, soft damp ground									
1600	Requiring mats for crane, add								40%	40%
1700	Barge mounted driving rig, add								30%	30%

	31 06 60.15 Mobilization									
0010	**MOBILIZATION**									
0020	Set up & remove, air compressor, 600 C.F.M.	A-5	3.30	5.455	Ea.		157	10.70	167.70	256
0100	1200 C.F.M.	"	2.20	8.182			235	16.05	251.05	385
0200	Crane, with pile leads and pile hammer, 75 ton	B-19	.60	106			3,925	2,750	6,675	9,275
0300	150 ton	"	.36	177			6,550	4,575	11,125	15,500
0500	Drill rig, for caissons, to 36", minimum	B-43	2	24			765	1,750	2,515	3,100
0520	Maximum		.50	96			3,050	7,000	10,050	12,400
0600	Up to 84"		1	48			1,525	3,500	5,025	6,200
0800	Auxiliary boiler, for steam small	A-5	1.66	10.843			310	21.50	331.50	510
0900	Large	"	.83	21.687			625	42.50	667.50	1,025
1100	Rule of thumb: complete pile driving set up, small	B-19	.45	142			5,250	3,675	8,925	12,400

mob demob
h&S

33 01 Mobilization and Preparatory Work

33 01 01	Mobilization of Construction Equipment and Facilities	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0101	**Mobilize/DeMobilize Drilling Rig & Crew**	**LS**				**748.00**	**3,379**	**0.00**	**4,127**
02674 8570	Standby Well	HR	1	ULADB	8.000	93.50	422.38	0.00	4,127
33 01 0102	**Van or Pickup Rental**	**DAY**				**0.00**	**0.00**	**39.19**	**39.19**
01954 6121	Van or Pickup Rental	DAY	0	N/A	1.000	0.00	0.00	39.19	39.19
33 01 0103	**Flatbed Truck Rental**	**DAY**				**0.00**	**0.00**	**74.67**	**74.67**
01954 6122	Flat Bed Truck Rental	DAY	0	N/A	1.000	0.00	0.00	74.67	74.67
33 01 0104	**Car or Van Mileage Charge**	**MI**				**0.00**	**0.00**	**0.38**	**0.38**
01954 6131	Car or Van Mileage Charge	MI	0	N/A	1.000	0.00	0.00	0.38	0.38
33 01 0105	**Pickup Truck Mileage Charge**	**MI**				**0.00**	**0.00**	**0.29**	**0.29**
01954 6132	Pickup Truck Mileage Charge	MI	0	N/A	1.000	0.00	0.00	0.29	0.29
33 01 0106	**Flatbed Truck Mileage Charge**	**MI**				**0.00**	**0.00**	**0.41**	**0.41**
01954 6133	Flatbed Truck Mileage Charge	MI	0	N/A	1.000	0.00	0.00	0.41	0.41
33 01 0107	**Van or Pickup Rental**	**DAY**				**0.00**	**0.00**	**39.19**	**39.19**
01954 6121	Van or Pickup Rental	DAY	0	N/A	1.000	0.00	0.00	39.19	39.19
33 01 0108	**Sedan, Automobile, Rental**	**DAY**				**0.00**	**0.00**	**50.27**	**50.27**
01954 6125	Sedan, Automobile, Rental	DAY	0	N/A	1.000	0.00	0.00	50.27	50.27
33 01 0109	**Truck, 2 Axle, Highway, 21,700 GVW, 4 x 2, 2 Axle**	**DAY**				**0.00**	**0.00**	**135.30**	**135.30**
01954 6126	Truck, 2 Axle, Highway, 21,700 GVW, 4 x 2 2 Axle	DAY	0	N/A	1.000	0.00	0.00	135.30	135.30
33 01 0111	**Truck, 2 Axle, Highway, 33,000 GVW, 6 x 2, 2 Axle**	**DAY**				**0.00**	**0.00**	**239.85**	**239.85**
01954 6127	Truck, 2 Axle, Highway, 33,000 GVW, 6 x 2 2 Axle	DAY	0	N/A	1.000	0.00	0.00	239.85	239.85

33 01 02	Mobilization of Personnel	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0201	**Mobilize Crew, >= 500 Miles, per Person**	**EA**				**0.00**	**0.00**	**503.31**	**503.31**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.500	0.00	0.00	1,007	503.31
33 01 0202	**Per Diem (per person)**	**DAY**				**0.00**	**0.00**	**95.35**	**95.35**
01954 6141	Personnel Per Diem	DAY	0	N/A	1.000	0.00	0.00	95.35	95.35
33 01 0203	**Mobilize Crew, 250 Miles, per Person**	**EA**				**0.00**	**0.00**	**251.66**	**251.66**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.250	0.00	0.00	1,007	251.66
33 01 0204	**Mobilize Crew, 100 Miles, per Person**	**EA**				**0.00**	**0.00**	**100.66**	**100.66**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.100	0.00	0.00	1,007	100.66

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33 01 02	Mobilization of Personnel	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0205	**Mobilize Crew, 50 Miles, per Person**	**EA**				**0.00**	**0.00**	**75.50**	**75.50**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.075	0.00	0.00	1,007	75.50
33 01 0206	**Mobilize Crew, Local, per Person**	**EA**				**0.00**	**0.00**	**25.17**	**25.17**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.025	0.00	0.00	1,007	25.17
33 01 0207	**Mobilize Crew, >=500 Miles, per Person**	**EA**				**0.00**	**0.00**	**503.31**	**503.31**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.500	0.00	0.00	1,007	503.31
33 01 0208	**Mobilize Crew, 250 Miles, per Person**	**EA**				**0.00**	**0.00**	**251.66**	**251.66**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.250	0.00	0.00	1,007	251.66
33 01 0209	**Mobilize Crew, 100 Miles, per Person**	**EA**				**0.00**	**0.00**	**100.66**	**100.66**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.100	0.00	0.00	1,007	100.66
33 01 0210	**Mobilize Crew, 50 Miles, per Person**	**EA**				**0.00**	**0.00**	**75.50**	**75.50**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.075	0.00	0.00	1,007	75.50
33 01 0211	**Mobilize Crew, Local, per Person**	**EA**				**0.00**	**0.00**	**25.17**	**25.17**
01954 6142	Mobilize/Demobilize 2-man Sampling Crew, 500 Miles	EA	0	N/A	0.025	0.00	0.00	1,007	25.17

33 01 04	Temporary Facilities/Personal Protective Equipment	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0401	**Process Trailers (3)**	**MO**				**0.00**	**0.00**	**30,649**	**30,649**
02083 6132	10.25' x 5.5' x 8.33' - 10 Drum Capacity, 175 Gallon Sump, Two Doors	EA	0	N/A	3.000	0.00	0.00	10,216	30,649
33 01 0402	**Supplied Air**	**EA**				**0.00**	**0.00**	**1,488**	**1,488**
01951 5712	PPE, emergency escape breathing apparatus, 10 minute unit	EA	0	N/A	1.000	0.00	0.00	518.97	518.97
01951 5732	Supplied Air Respirator, Full Facepiece with Hose Assembly	EA	0	N/A	1.000	0.00	0.00	969.10	969.10
33 01 0403	**Breathing Apparatus (SCBA)**	**EA**				**0.00**	**0.00**	**3,310**	**3,310**
01951 5731	Self-contained Breathing Apparatus - 60 Minute Unit	EA	0	N/A	1.000	0.00	0.00	3,310	3,310
33 01 0404	**Level "C" Breathing Apparatus (Full Face Respirator)**	**EA**				**0.00**	**0.00**	**214.47**	**214.47**
01951 5723	Cartridges, Respirator, Organic Vapor	EA	0	N/A	2.000	0.00	0.00	7.68	15.36
01951 5725	Full Facepiece Air-purifying Respirators, Chemical Cartridge	EA	0	N/A	1.000	0.00	0.00	199.12	199.12

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33 01 04	Temporary Facilities/Personal Protective Equipment	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0405	**Level "C" Breathing Apparatus (Half-face Respirator)**	**EA**				**0.00**	**0.00**	**37.33**	**37.33**
01951 5723	Cartridges, Respirator, Organic Vapor	EA	0	N/A	1.000	0.00	0.00	7.68	7.68
01951 5726	Half-mask Air-purifying Respirators	EA	0	N/A	1.000	0.00	0.00	29.66	29.66
33 01 0406	**Level "C" Respirator Cartridges**	**EA**				**0.00**	**0.00**	**15.36**	**15.36**
01951 5723	Cartridges, Respirator, Organic Vapor	EA	0	N/A	2.000	0.00	0.00	7.68	15.36
33 01 0407	**Basic Level "A" Encapsulation Suit**	**EA**				**0.00**	**0.00**	**369.35**	**369.35**
01951 5302	Basic Level A Suit (Large)	EA	0	N/A	1.000	0.00	0.00	369.35	369.35
33 01 0408	**Butyl Level "A" Suit**	**EA**				**0.00**	**0.00**	**942.63**	**942.63**
01951 5304	Butyl, Level A (Large)	EA	0	N/A	1.000	0.00	0.00	942.63	942.63
33 01 0409	**PVC Level "A" Suit**	**EA**				**0.00**	**0.00**	**741.39**	**741.39**
01951 5305	PVC, Level A (Large)	EA	0	N/A	1.000	0.00	0.00	741.39	741.39
33 01 0410	**Teflon/Nomex Level "A" Suit**	**EA**				**0.00**	**0.00**	**661.96**	**661.96**
01951 5306	Teflon/Nomex, Level A (Large)	EA	0	N/A	1.000	0.00	0.00	661.96	661.96
33 01 0411	**Viton Level "A" Suit**	**EA**				**0.00**	**0.00**	**751.98**	**751.98**
01951 5307	Viton, Level A (Large)	EA	0	N/A	1.000	0.00	0.00	751.98	751.98
33 01 0412	**Basic Level "B" Suit**	**EA**				**0.00**	**0.00**	**222.42**	**222.42**
01951 5303	Basic Level B Suit (Large)	EA	0	N/A	1.000	0.00	0.00	222.42	222.42
33 01 0413	**Reusable PVC Boots**	**PAIR**				**0.00**	**0.00**	**13.24**	**13.24**
01951 5103	PVC Overboots (Reusable)	PR	0	N/A	1.000	0.00	0.00	13.24	13.24
33 01 0414	**Reusable Neoprene Chemical-resistant Boots**	**PAIR**				**0.00**	**0.00**	**54.55**	**54.55**
01951 5102	Neoprene Overboots (Reusable)	PR	0	N/A	1.000	0.00	0.00	54.55	54.55
33 01 0415	**Hard Hat**	**EA**				**0.00**	**0.00**	**10.17**	**10.17**
01951 5801	Hard Hats	EA	0	N/A	1.000	0.00	0.00	10.17	10.17
33 01 0416	**Reusable Gloves (Butyl)**	**PAIR**				**0.00**	**0.00**	**25.42**	**25.42**
01951 5501	Butyl, Medium Weight Gloves (Reusable)	PR	0	N/A	1.000	0.00	0.00	25.42	25.42
33 01 0417	**Reusable Gloves (Viton) for Chlorin/Aromatic Solvents**	**PAIR**				**0.00**	**0.00**	**0.48**	**0.48**
01951 5504	PVC/Nitrile Blend Gloves (Package of 12 Pair)	EA	0	N/A	0.083	0.00	0.00	5.72	0.48
33 01 0418	**Reusable Gloves (PVC/Nitrile)**	**PAIR**				**0.00**	**0.00**	**0.48**	**0.48**
01951 5504	PVC/Nitrile Blend Gloves (Package of 12 Pair)	EA	0	N/A	0.083	0.00	0.00	5.72	0.48
33 01 0419	**Reusable Gloves (Neoprene)**	**PAIR**				**0.00**	**0.00**	**0.79**	**0.79**
01951 5502	Neoprene Coated Gloves (Reusable) (Package of 12 Pair)	EA	0	N/A	0.083	0.00	0.00	9.43	0.79

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33 01 04	Temporary Facilities/Personal Protective Equipment	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0420	**Two-way Radio (Reusable)**	**EA**				**0.00**	**0.00**	**71.29**	**71.29**
01951 5811	Ear-Mike Two-way Radio	EA	0	N/A	1.000	0.00	0.00	71.29	71.29
33 01 0421	**Disposable Boot Covers (Tyvek)**	**PAIR**				**0.00**	**0.00**	**1.20**	**1.20**
01951 5202	Boot Covers, Tyvek (Bag of 10 Pair)	EA	0	N/A	0.100	0.00	0.00	11.97	1.20
33 01 0422	**Briefs (Disposable)**	**EA**				**0.00**	**0.00**	**0.08**	**0.08**
01951 5203	Briefs (Case of 100)	EA	0	N/A	0.010	0.00	0.00	7.68	0.08
33 01 0423	**Disposable Gloves (Latex)**	**PAIR**				**0.00**	**0.00**	**0.22**	**0.22**
01951 5206	Gloves, Latex (Box of 100) (Single Hand)	EA	0	N/A	0.020	0.00	0.00	10.86	0.22
33 01 0424	**Disposable Coveralls (Tyvek/Polycoated)**	**EA**				**0.00**	**0.00**	**6.83**	**6.83**
01951 5216	Coveralls, Tyvek, Polycoated (each)	EA	0	N/A	1.000	0.00	0.00	6.83	6.83
33 01 0425	**Disposable Coveralls (Tyvek)**	**EA**				**0.00**	**0.00**	**4.71**	**4.71**
01951 5215	Coveralls, Tyvek (each)	EA	0	N/A	1.000	0.00	0.00	4.71	4.71
33 01 0426	**Face Shield (Reusable)**	**EA**				**0.00**	**0.00**	**17.53**	**17.53**
01951 5401	Face Shield	EA	0	N/A	1.000	0.00	0.00	17.53	17.53
33 01 0427	**Safety Goggles**	**EA**				**0.00**	**0.00**	**6.88**	**6.88**
01951 5403	Safety Goggles	EA	0	N/A	1.000	0.00	0.00	6.88	6.88
33 01 0428	**Safety Glasses**	**EA**				**0.00**	**0.00**	**7.31**	**7.31**
01951 5402	Safety Glasses	EA	0	N/A	1.000	0.00	0.00	7.31	7.31
33 01 0429	**Disposable Ear Plugs**	**PAIR**				**0.00**	**0.00**	**0.13**	**0.13**
01951 5602	Ear Plugs, Disposable (Box of 200)	EA	0	N/A	0.005	0.00	0.00	25.42	0.13
33 01 0430	**Aluminized Outer Cover Suit for Level "A"**	**EA**				**0.00**	**0.00**	**1,959**	**1,959**
01951 5301	Aluminized Outercover	EA	0	N/A	1.000	0.00	0.00	1,959	1,959
33 01 0431	**Emergency Escape Breathing Apparatus (5 Minute)**	**EA**				**0.00**	**0.00**	**455.43**	**455.43**
01951 5711	PPE, emergency escape breathing apparatus, 5 minute unit	EA	0	N/A	1.000	0.00	0.00	455.43	455.43
33 01 0432	**Supplied Air**	**EA**				**0.00**	**0.00**	**1,488**	**1,488**
01951 5712	PPE, emergency escape breathing apparatus, 10 minute unit	EA	0	N/A	1.000	0.00	0.00	518.97	518.97
01951 5732	Supplied Air Respirator, Full Facepiece with Hose Assembly	EA	0	N/A	1.000	0.00	0.00	969.10	969.10
33 01 0433	**Breathing Apparatus (SCBA)**	**EA**				**0.00**	**0.00**	**3,310**	**3,310**
01951 5731	Self-contained Breathing Apparatus - 60 Minute Unit	EA	0	N/A	1.000	0.00	0.00	3,310	3,310

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33 01 04	Temporary Facilities/Personal Protective Equipment	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0434	**Level "C" Breathing Apparatus (Full Face Respirator)**	**EA**				**0.00**	**0.00**	**214.47**	**214.47**
01951 5723	Cartridges, Respirator, Organic Vapor	EA	0	N/A	2.000	0.00	0.00	7.68	15.36
01951 5725	Full Facepiece Air-purifying Respirators, Chemical Cartridge	EA	0	N/A	1.000	0.00	0.00	199.12	199.12
33 01 0435	**Level "C" Breathing Apparatus (Half Face Respirator)**	**EA**				**0.00**	**0.00**	**45.01**	**45.01**
01951 5723	Cartridges, Respirator, Organic Vapor	EA	0	N/A	2.000	0.00	0.00	7.68	15.36
01951 5726	Half-mask Air-purifying Respirators	EA	0	N/A	1.000	0.00	0.00	29.66	29.66
33 01 0436	**Level "C" Respirator Cartridges**	**EA**				**0.00**	**0.00**	**7.68**	**7.68**
01951 5723	Cartridges, Respirator, Organic Vapor	EA	0	N/A	1.000	0.00	0.00	7.68	7.68
33 01 0437	**Basic Level "A" Encapsulation Suit**	**EA**				**0.00**	**0.00**	**369.35**	**369.35**
01951 5302	Basic Level A Suit (Large)	EA	0	N/A	1.000	0.00	0.00	369.35	369.35
33 01 0438	**Butyl Level "A" Suit**	**EA**				**0.00**	**0.00**	**942.63**	**942.63**
01951 5304	Butyl, Level A (Large)	EA	0	N/A	1.000	0.00	0.00	942.63	942.63
33 01 0439	**PVC Level "A" Suit**	**EA**				**0.00**	**0.00**	**741.39**	**741.39**
01951 5305	PVC, Level A (Large)	EA	0	N/A	1.000	0.00	0.00	741.39	741.39
33 01 0440	**Teflon/Nomex Level "A" Suit**	**EA**				**0.00**	**0.00**	**661.96**	**661.96**
01951 5306	Teflon/Nomex, Level A (Large)	EA	0	N/A	1.000	0.00	0.00	661.96	661.96
33 01 0441	**Viton Level "A" Suit**	**EA**				**0.00**	**0.00**	**751.98**	**751.98**
01951 5307	Viton, Level A (Large)	EA	0	N/A	1.000	0.00	0.00	751.98	751.98
33 01 0442	**Basic Level "B" Suit**	**EA**				**0.00**	**0.00**	**222.42**	**222.42**
01951 5303	Basic Level B Suit (Large)	EA	0	N/A	1.000	0.00	0.00	222.42	222.42
33 01 0443	**Reusable PVC Boots**	**PAIR**				**0.00**	**0.00**	**13.24**	**13.24**
01951 5103	PVC Overboots (Reusable)	PR	0	N/A	1.000	0.00	0.00	13.24	13.24
33 01 0444	**Reusable Neoprene Chemical Resistant Boots**	**PAIR**				**0.00**	**0.00**	**54.55**	**54.55**
01951 5102	Neoprene Overboots (Reusable)	PR	0	N/A	1.000	0.00	0.00	54.55	54.55
33 01 0445	**Hard Hat**	**EA**				**0.00**	**0.00**	**10.17**	**10.17**
01951 5801	Hard Hats	EA	0	N/A	1.000	0.00	0.00	10.17	10.17
33 01 0446	**Reusable Gloves (Butyl)**	**PAIR**				**0.00**	**0.00**	**25.42**	**25.42**
01951 5501	Butyl, Medium Weight Gloves (Reusable)	PR	0	N/A	1.000	0.00	0.00	25.42	25.42
33 01 0447	**Reusable Gloves (Viton) for Chlorin./Aromatic Solvents**	**PAIR**				**0.00**	**0.00**	**5.69**	**5.69**
01951 5505	Safety, PPE, gloves (reusable),viton, pkg of 12	PR	0	N/A	0.083	0.00	0.00	68.31	5.69

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33 01 04	Temporary Facilities/Personal Protective Equipment	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0449	**Reusable Gloves (Neoprene)**	**PAIR**				**0.00**	**0.00**	**0.79**	**0.79**
01951 5502	Neoprene Coated Gloves (Reusable) (Package of 12 Pair)	EA	0	N/A	0.083	0.00	0.00	9.43	0.79
33 01 0450	**Two-Way Radio (Reusable)**	**EA**				**0.00**	**0.00**	**71.29**	**71.29**
01951 5811	Ear-Mike Two-way Radio	EA	0	N/A	1.000	0.00	0.00	71.29	71.29
33 01 0451	**Disposable Boot Covers (Tyvek)**	**PAIR**				**0.00**	**0.00**	**1.20**	**1.20**
01951 5202	Boot Covers, Tyvek (Bag of 10 Pair)	EA	0	N/A	0.100	0.00	0.00	11.97	1.20
33 01 0452	**Briefs (Disposable)**	**EA**				**0.00**	**0.00**	**0.08**	**0.08**
01951 5203	Briefs (Case of 100)	EA	0	N/A	0.010	0.00	0.00	7.68	0.08
33 01 0453	**Disposable Gloves (Latex)**	**PAIR**				**0.00**	**0.00**	**0.22**	**0.22**
01951 5206	Gloves, Latex (Box of 100) (Single Hand)	EA	0	N/A	0.020	0.00	0.00	10.86	0.22
33 01 0454	**Disposable Coveralls (Tyvek/Polycoated)**	**EA**				**0.00**	**0.00**	**6.83**	**6.83**
01951 5216	Coveralls, Tyvek, Polycoated (each)	EA	0	N/A	1.000	0.00	0.00	6.83	6.83
33 01 0455	**Disposable Coveralls (Tyvek)**	**EA**				**0.00**	**0.00**	**4.71**	**4.71**
01951 5215	Coveralls, Tyvek (each)	EA	0	N/A	1.000	0.00	0.00	4.71	4.71
33 01 0456	**Face Shield (Reusable)**	**EA**				**0.00**	**0.00**	**17.53**	**17.53**
01951 5401	Face Shield	EA	0	N/A	1.000	0.00	0.00	17.53	17.53
33 01 0457	**Safety Goggles**	**EA**				**0.00**	**0.00**	**6.88**	**6.88**
01951 5403	Safety Goggles	EA	0	N/A	1.000	0.00	0.00	6.88	6.88
33 01 0458	**Safety Glasses**	**EA**				**0.00**	**0.00**	**7.31**	**7.31**
01951 5402	Safety Glasses	EA	0	N/A	1.000	0.00	0.00	7.31	7.31
33 01 0459	**Disposable Ear Plugs**	**PAIR**				**0.00**	**0.00**	**0.13**	**0.13**
01951 5602	Ear Plugs, Disposable (Box of 200)	EA	0	N/A	0.005	0.00	0.00	25.42	0.13
33 01 0460	**Aluminized Outer Cover Suit For Level "A"**	**EA**				**0.00**	**0.00**	**1,959**	**1,959**
01951 5301	Aluminized Outercover	EA	0	N/A	1.000	0.00	0.00	1,959	1,959
33 01 0461	**Emergency Escape Breathing Apparatus (5 Minute)**	**EA**				**0.00**	**0.00**	**455.43**	**455.43**
01951 5711	PPE, emergency escape breathing apparatus, 5 minute unit	EA	0	N/A	1.000	0.00	0.00	455.43	455.43
33 01 0462	**Truck Scale Rental**	**MO**				**0.00**	**0.00**	**3,221**	**3,221**
13276 1275	Truck Scale Rental	MO	0	N/A	1.000	0.00	0.00	3,221	3,221

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33 01 04	Temporary Facilities/Personal Protective Equipment	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0463	**EOD Team Work Clothing Ensemble**	**EA**				**0.00**	**0.00**	**115.36**	**115.36**
01951 5104	Leather Work Gloves	EA	0	N/A	1.000	0.00	0.00	7.78	7.78
01951 5105	Boots, Leather, Safety Toe	PR	0	N/A	1.000	0.00	0.00	70.69	70.69
01951 5214	Coveralls, Cotton	EA	0	N/A	1.000	0.00	0.00	36.90	36.90
33 01 0464	**EOD Personal Safety Equipment**	**EA**				**0.00**	**0.00**	**27.70**	**27.70**
01951 5401	Face Shield	EA	0	N/A	1.000	0.00	0.00	17.53	17.53
01951 5801	Hard Hats	EA	0	N/A	1.000	0.00	0.00	10.17	10.17
33 01 0465	**Supervisor's Hazardous Training Course, 8-hours**	**EA**				**0.00**	**0.00**	**191.70**	**191.70**
01951 6102	8-Hour Supervisor Course	EA	0	N/A	1.000	0.00	0.00	191.70	191.70
33 01 0466	**Hazardous Training, per Worker, 40-hours**	**EA**				**0.00**	**0.00**	**471.31**	**471.31**
01951 6104	40-Hour Hazardous Worker Training	EA	0	N/A	1.000	0.00	0.00	471.31	471.31
33 01 0467	**Emergency Medical Kit**	**EA**				**0.00**	**0.00**	**89.50**	**89.50**
01951 1504	Safety, emer eqpt, first aid kits, 36 ingredients	EA	0	N/A	1.000	0.00	0.00	89.50	89.50

33 01 05	Construct Temporary Utilities	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 01 0502	**4.0 KW, 120/240 VAC, Generator, Daily Rental**	**DAY**				**0.00**	**0.00**	**63.40**	**63.40**
16513 6020	Portable Generator Set, 4 KW, 120/241 VAC Gas Powered, Hourly Rental	HR	0	N/A	10.000	0.00	0.00	6.34	63.40
33 01 0503	**5.0 KW, 120/240 VAC, Generator, Daily Rental**	**DAY**				**0.00**	**0.00**	**67.06**	**67.06**
16513 6040	Portable Generator Set, 5 KW, 120/242 VAC Gas Powered, Hourly Rental	HR	0	N/A	10.000	0.00	0.00	6.71	67.06
33 01 0504	**7.5 KW, 120/240 VAC, Generator, Daily Rental**	**DAY**				**0.00**	**0.00**	**93.88**	**93.88**
16513 6060	Portable Generator Set, 7.5 KW, 120/243 VAC Gas Powered, Hourly Rental	HR	0	N/A	10.000	0.00	0.00	9.39	93.88
33 01 0505	**10 KW, 120/240 VAC, Generator, Daily Rental**	**DAY**				**0.00**	**0.00**	**96.32**	**96.32**
16513 6080	Portable Generator Set, 10 KW, 120/244 VAC, Gas Powered, Hourly Rental	HR	0	N/A	10.000	0.00	0.00	9.63	96.32
33 01 0507	**Portable Water Pump, 2" 6,000 GPH, Water/Fertilizer Transfer**	**EA**				**0.00**	**0.00**	**1,086**	**1,086**
15113 1134	2" Inside Diameter, 20' Rubber Discharge Hose	EA	0	N/A	1.000	0.00	0.00	27.80	27.80
15113 1138	2" Inside Diameter, 20' Rubber Intake Hose	EA	0	N/A	1.000	0.00	0.00	85.34	85.34
15290 0100	Portable Water Pump, 2", 6,000 GPH Water/Fertilizer Transfer	EA	0	N/A	1.000	0.00	0.00	958.29	958.29
15428 2101	2" Strainer, Pump Suction Side	EA	0	N/A	1.000	0.00	0.00	15.03	15.03

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Clearing and grubbing

31 06 Schedules for Earthwork

31 06 60 – Schedules for Special Foundations and Load Bearing Elements

31 06 60.15 Mobilization

		Crew	Daily Output	Labor-Hours	Unit	Material	2007 Bare Costs Labor	Equipment	Total	Total Incl O&P
1200	Large	B-19	.27	237	Ea.		8,750	6,100	14,850	20,600
1300	Mobilization by water for barge driving rig									
1310	Minimum				Ea.				6,875	7,590
1320	Maximum				"				44,770	49,390

31 11 Clearing and Grubbing

31 11 10 – Clearing and Grubbing

31 11 10.10 Clear and Grub

0010	**CLEAR AND GRUB**									
0020	Cut & chip light trees to 6" diam.	B-7	1	48	Acre		1,475	1,075	2,550	3,475
0150	Grub stumps and remove	B-30	2	12			390	920	1,310	1,600
0200	Cut & chip medium, trees to 12" diam.	B-7	.70	68.571			2,100	1,550	3,650	4,950
0250	Grub stumps and remove	B-30	1	24			780	1,825	2,605	3,225
0300	Cut & chip heavy, trees to 24" diam.	B-7	.30	160			4,900	3,625	8,525	11,600
0350	Grub stumps and remove	B-30	.50	48			1,550	3,675	5,225	6,425
0400	If burning is allowed, reduce cut & chip									40%
3000	Chipping stumps, to 18" deep, 12" diam.	B-86	20	.400	Ea.		15.35	5.30	20.65	29
3040	18" diameter		16	.500			19.20	6.65	25.85	36.50
3080	24" diameter		14	.571			22	7.60	29.60	41.50
3100	30" diameter		12	.667			25.50	8.85	34.35	48.50
3120	36" diameter		10	.800			30.50	10.65	41.15	58
3160	48" diameter		8	1			38.50	13.30	51.80	72.50
5000	Tree thinning, feller buncher, conifer									
5080	Up to 8" diameter	B-93	240	.033	Ea.		1.28	2.14	3.42	4.28
5120	12" diameter		160	.050			1.92	3.21	5.13	6.40
5240	Hardwood, up to 4" diameter		240	.033			1.28	2.14	3.42	4.28
5280	8" diameter		180	.044			1.71	2.85	4.56	5.70
5320	12" diameter		120	.067			2.56	4.28	6.84	8.55
7000	Tree removal, congested area, aerial lift truck									
7040	8" diameter	B-85	7	5.714	Ea.		176	105	281	390
7080	12" diameter		6	6.667			206	123	329	450
7120	18" diameter		5	8			247	148	395	540
7160	24" diameter		4	10			310	185	495	680
7240	36" diameter		3	13.333			410	246	656	905
7280	48" diameter		2	20			615	370	985	1,350
9000	Site clearing with 335 H.P. dozer, trees to 6" diameter	B-10M	280	.043			1.51	4.65	6.16	7.40
9010	To 12" diameter		150	.080			2.81	8.65	11.46	13.85
9020	To 24" diameter		100	.120			4.22	13	17.22	20.50
9030	To 36" diameter		50	.240			8.45	26	34.45	41.50
9100	Grub stumps, trees to 6" diameter		400	.030			1.06	3.25	4.31	5.20
9103	To 36" diameter		195	.062			2.17	6.65	8.82	10.65

17 01 Site Clearing

17 01 01	Clearing	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
17 01 0101	**Light Brush without Grub, Clearing**	**ACRE**				**43.18**	**27.16**	**0.00**	**70.34**
02110 0500	Clearing, brush w/dozer & brush rake, light brush	ACRE	4.25	COMCB	1.000	43.18	27.16	0.00	70.34
17 01 0102	**Medium Brush without Grub, Clearing**	**ACRE**				**80.80**	**88.56**	**0.00**	**169.36**
02110 0550	Clearing, brush w/dozer & brush rake, medium brush	ACRE	3.5	COMCE	1.000	80.80	88.56	0.00	169.36
17 01 0103	**Medium Brush with Average Grub & Some Trees, Clearing**	**ACRE**				**233.04**	**427.60**	**0.00**	**660.63**
02110 1060	Clearing - Medium Brush, Average Grub & Trees	ACRE	1.063	COMCC	1.000	233.04	427.60	0.00	660.63
17 01 0104	**Heavy Brush without Grub, Clearing**	**ACRE**				**113.72**	**231.24**	**0.00**	**344.96**
02110 0600	Clearing, brush w/dozer & brush rake, heavy brush	ACRE	2.5	COMCF	1.000	113.72	231.24	0.00	344.96
17 01 0105	**Heavy Brush with Average Grub, Medium - Heavy Trees, Clearing**	**ACRE**				**317.74**	**624.11**	**0.00**	**941.85**
02110 1070	Clearing - Heavy Brush, Average Grub, Medium Trees	ACRE	1.063	COMCD	1.000	317.74	624.11	0.00	941.85
17 01 0106	**Heavy Brush, Light Trees, Clear, Grub, Haul**	**ACRE**				**2,902**	**2,654**	**0.00**	**5,556**
02109 0010	Clear and Grub, Light Trees to 6" (15 cm) Diameter, Cut and Chip	ACRE	0.088	COMCA	1.000	2,008	1,888	0.00	3,896
02110 0600	Clearing, brush w/dozer & brush rake, heavy brush	ACRE	2.5	COMCF	1.000	113.72	231.24	0.00	344.96
02110 2000	Machine Load Spoils, 2 Mile Haul (3.2 km), Haul to Dump	CY	5.375	COETF	35.000	22.30	15.30	0.00	1,316
17 01 0107	**Medium Brush, Medium Trees, Clear, Grub, Haul**	**ACRE**				**3,538**	**3,056**	**0.00**	**6,594**
02109 0152	Clear and Grub, Medium Trees to 10" (25 cm) Diameter, Cut and Chip	ACRE	0.075	COMCA	1.000	2,343	2,202	0.00	4,545
02110 0550	Clearing, brush w/dozer & brush rake, medium brush	ACRE	3.5	COMCE	1.000	80.80	88.56	0.00	169.36
02110 2000	Machine Load Spoils, 2 Mile Haul (3.2 km), Haul to Dump	CY	5.375	COETF	50.000	22.30	15.30	0.00	1,880
17 01 0108	**Light Brush, Heavy Trees, Clear, Grub, Haul**	**ACRE**				**4,812**	**3,972**	**0.00**	**8,783**
02109 0154	Clear and Grub, Heavy Trees to 16" (41 cm) Diameter, Cut and Chip	ACRE	0.066	COMCA	1.000	2,650	2,491	0.00	5,141
02110 0500	Clearing, brush w/dozer & brush rake, light brush	ACRE	4.25	COMCB	1.000	43.18	27.16	0.00	70.34
02110 2000	Machine Load Spoils, 2 Mile Haul (3.2 km), Haul to Dump	CY	5.375	COETF	95.000	22.30	15.30	0.00	3,571
17 01 0110	**Light, without Grub D5 LGP, Wet Clearing**	**ACRE**				**384.29**	**241.19**	**0.00**	**625.48**
02110 8010	Wet Clearing - Light, without Grub, D5LGP	ACRE	0.688	COMCG	1.000	384.29	241.19	0.00	625.48
17 01 0111	**Medium, without Grub D7 LGP, Wet Clearing**	**ACRE**				**327.02**	**271.40**	**0.00**	**598.42**
02110 8020	Wet Clearing - Medium, without Grub, D7LGP	ACRE	0.813	COMCH	1.000	327.02	271.40	0.00	598.42
17 01 0112	**Heavy, without Grub D7 LGP, Wet Clearing**	**ACRE**				**610.74**	**634.89**	**0.00**	**1,246**
02110 8030	Wet Clearing - Heavy, without Grub, D7LGP	ACRE	0.438	COMCI	1.000	610.74	634.89	0.00	1,246

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17 01 Site Clearing

17 01 01	Clearing	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
17 01 0113	**Heavy Brush & Trees, Wet Clearing**	**ACRE**				**610.74**	**634.89**	**0.00**	**1,246**
02110 1050	Wet Clearing - Heavy Brush & Trees	ACRE	0.438	COMCI	1.000	610.74	634.89	0.00	1,246
17 01 02	**Tree Removal**	**Unit**	**Hourly Output**	**Crew**	**Factor**	**Labor**	**Equip.**	**Matl.**	**Total**
17 01 0201	**<= 6" Tree Removal, Hand**	**EA**				**58.57**	**55.06**	**0.00**	**113.63**
02109 7300	Tree Removal to 6" (15 cm) Diameter	EA	3	COMCA	1.000	58.57	55.06	0.00	113.63
17 01 0202	**> 6" and <= 12" Tree Removal, Hand**	**EA**				**87.85**	**82.59**	**0.00**	**170.44**
02109 7310	Tree Removal, 6" to 12" (15 cm to 30 cm) Diameter"	EA	2	COMCA	1.000	87.85	82.59	0.00	170.44
17 01 0203	**> 12" and <= 24" Tree Removal, Hand**	**EA**				**117.13**	**110.12**	**0.00**	**227.25**
02109 7320	Tree Removal, 12" to 24" (30 cm to 61 cm) Diameter"	EA	1.5	COMCA	1.000	117.13	110.12	0.00	227.25
17 01 0204	**> 24" and <= 36" Tree Removal, Hand**	**EA**				**175.70**	**165.18**	**0.00**	**340.88**
02109 7330	Tree Removal, 24" to 36" (61 cm to 91 cm) Diameter"	EA	1	COMCA	1.000	175.70	165.18	0.00	340.88
17 01 0205	**Brush Removal Equipment**	**EA**				**0.00**	**0.00**	**132.21**	**132.21**
02102 1601	Brush Removal Equipment	EA	0	N/A	1.000	0.00	0.00	132.21	132.21
17 01 0210	**Clear Trees to 6" Diameter with D8 Cat**	**EA**				**1.36**	**4.98**	**0.00**	**6.34**
02109 9000	Site Clearing, Clear Trees to 6" Diameter with 335 HP Dozer	EA	35	CODTL	1.000	1.36	4.98	0.00	6.34
17 01 0211	**Clear Trees to 12" Diameter with D8 Cat**	**EA**				**2.54**	**9.30**	**0.00**	**11.84**
02109 9010	Site Clearing, Clear Trees to 12" Diameter with 335 HP Dozer	EA	18.75	CODTL	1.000	2.54	9.30	0.00	11.84
17 01 0212	**Clear Trees to 24" Diameter with D8 Cat**	**EA**				**3.81**	**13.95**	**0.00**	**17.76**
02109 9020	Site Clearing, Clear Trees to 24" Diameter with 335 HP Dozer	EA	12.5	CODTL	1.000	3.81	13.95	0.00	17.76
17 01 0213	**Clear Trees to 36" Diameter with D8 Cat**	**EA**				**7.62**	**27.91**	**0.00**	**35.53**
02109 9030	Site Clearing, Clear Trees to 36" Diameter with 335 HP Dozer	EA	6.25	CODTL	1.000	7.62	27.91	0.00	35.53
17 01 03	**Stump Removal**	**Unit**	**Hourly Output**	**Crew**	**Factor**	**Labor**	**Equip.**	**Matl.**	**Total**
17 01 0301	**<= 6" Stump Removal, with Excavator**	**EA**				**18.68**	**37.08**	**0.00**	**55.76**
02109 0740	Stump Removal, to 6" (15 cm) Diameter	EA	5	COETV	1.000	18.68	37.08	0.00	55.76
17 01 0302	**> 6" and <= 12" Stump Removal, with Excavator**	**EA**				**23.35**	**46.34**	**0.00**	**69.69**
02109 0750	Stump Removal, 6" to 12" (15 cm to 30 cm) Diameter	EA	4	COETV	1.000	23.35	46.34	0.00	69.69

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17 01 03	Stump Removal	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
17 01 0303	**> 12" and <= 24" Stump Removal, with Excavator**	**EA**				**31.13**	**61.79**	**0.00**	**92.93**
02109 0760	Stump Removal, 12" to 24" (30 cm to 61 cm) Diameter	EA	3	COETV	1.000	31.13	61.79	0.00	92.93
17 01 0304	**> 24" and <= 36" Stump Removal, with Excavator**	**EA**				**46.70**	**92.69**	**0.00**	**139.39**
02109 0770	Stump Removal, 24" to 36" (61 cm to 91 cm) Diameter	EA	2	COETV	1.000	46.70	92.69	0.00	139.39
17 01 0310	**< 6" Wet Stump Removal, with LGP D7**	**EA**				**17.93**	**52.58**	**0.00**	**70.50**
02109 0700	Wet Stump Removal <= 6"	EA	2.5	CODTS	1.000	17.93	52.58	0.00	70.50
17 01 0311	**> 6" < 12" Wet Stump Removal, with LGP D7**	**EA**				**22.41**	**65.72**	**0.00**	**88.13**
02109 0710	Wet Stump Removal >= 6" <= 12"	EA	2	CODTS	1.000	22.41	65.72	0.00	88.13
17 01 0312	**> 12" < 24" Wet Stump Removal, with LGP D7**	**EA**				**29.88**	**87.63**	**0.00**	**117.50**
02109 0720	Wet Stump Removal >= 12" < 24"	EA	1.5	CODTS	1.000	29.88	87.63	0.00	117.50
17 01 0313	**> 24" < 36" Wet Stump Removal, with LGP D7**	**EA**				**44.81**	**131.44**	**0.00**	**176.26**
02109 0730	Wet Stump Removal >= 24" <= 36"	EA	1	CODTS	1.000	44.81	131.44	0.00	176.26
17 01 0314	**<= 6" Stump Removal, with D8**	**EA**				**0.95**	**3.49**	**0.00**	**4.44**
02109 9100	Site Clearing, Grub Stumps to 6" Diameter with 335 HP Dozer	EA	50	CODTL	1.000	0.95	3.49	0.00	4.44
17 01 0315	**> 6" and <= 12" Stump Removal, with D8**	**EA**				**1.52**	**5.58**	**0.00**	**7.11**
02109 9110	Site Clearing, Grub Stumps to 12" Diameter with 335 HP Dozer	EA	31.25	CODTL	1.000	1.52	5.58	0.00	7.11
17 01 0316	**> 12" and <= 24" Stump Removal, with D8**	**EA**				**15.24**	**55.82**	**0.00**	**71.06**
02109 9120	Site Clearing, Grub Stumps to 24" Diameter with 335 HP Dozer	EA	3.125	CODTL	1.000	15.24	55.82	0.00	71.06
17 01 0317	**> 24" and <= 36" Stump Removal, with D8**	**EA**				**38.10**	**139.54**	**0.00**	**177.64**
02109 9130	Site Clearing, Grub Stumps to 36" Diameter with 335 HP Dozer	EA	1.25	CODTL	1.000	38.10	139.54	0.00	177.64

17 01 04	Chipping	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
17 01 0401	**Light Brush without Grub, Chipping**	**ACRE**				**624.82**	**587.39**	**0.00**	**1,212**
02112 0600	Chipping - Light Brush	ACRE	0.281	COMCA	1.000	624.82	587.39	0.00	1,212
17 01 0402	**Medium Brush without Grub, Chipping**	**ACRE**				**803.38**	**755.26**	**0.00**	**1,559**
02112 0650	Chipping - Medium Brush	ACRE	0.219	COMCA	1.000	803.38	755.26	0.00	1,559
17 01 0403	**Heavy Brush without Grub, Chipping**	**ACRE**				**1,125**	**1,057**	**0.00**	**2,182**
02112 0700	Chipping - Heavy Brush	ACRE	0.156	COMCA	1.000	1,125	1,057	0.00	2,182

17 01 05	Grubbing	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total

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17 01 05	Grubbing	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
17 01 0501	**Dozer 105 HP D5, Grubbing & Stacking**	**CY**				**2.79**	**4.09**	**0.00**	**6.88**
02109 0360	Grub & Stack, D5 Dozer	CY	17.5	COFCZ	1.000	2.79	4.09	0.00	6.88
17 01 0502	**Dozer 200 HP D7, Grubbing & Stacking**	**CY**				**0.82**	**2.24**	**0.00**	**3.06**
02109 0365	Grub & Stack, D7 Dozer	CY	61.25	COFCY	1.000	0.82	2.24	0.00	3.06
17 01 0503	**Dozer 460 HP D9, Grubbing & Stacking**	**CY**				**0.12**	**0.53**	**0.00**	**0.65**
02109 0370	Grub & Stack, D9 Dozer	CY	411.3	CODTO	1.000	0.12	0.53	0.00	0.65
17 01 0505	**Track Loader, 2.50 CY 963, Grubbing & Stacking**	**CY**				**1.94**	**4.17**	**0.00**	**6.11**
02109 0375	Grub & Stack, 963 Track Loader	CY	26	COFCN	1.000	1.94	4.17	0.00	6.11
17 01 0506	**Track Loader, 3.75 CY 973, Grubbing & Stacking**	**CY**				**1.64**	**3.56**	**0.00**	**5.20**
02109 0380	Grub & Stack, 973 Track Loader	CY	39	CODLF	1.000	1.64	3.56	0.00	5.20
17 01 0510	**Dozer 105 HP D5 LGP, Wet Grubbing & Stacking**	**CY**				**2.79**	**4.09**	**0.00**	**6.88**
02109 0360	Grub & Stack, D5 Dozer	CY	17.5	COFCZ	1.000	2.79	4.09	0.00	6.88
17 01 0511	**Dozer 200 HP D7 LGP, Wet Grubbing & Stacking**	**CY**				**0.82**	**2.24**	**0.00**	**3.06**
02109 0365	Grub & Stack, D7 Dozer	CY	61.25	COFCY	1.000	0.82	2.24	0.00	3.06
17 01 0515	**Scraper, 11 CY, 613, Grubbing, Haul 1 Mile & Spoil**	**CY**				**0.81**	**2.19**	**0.00**	**3.00**
02109 1000	Grubbing, 11 CY, Scraper	CY	228	CODSC	1.000	0.81	2.19	0.00	3.00
17 01 0516	**Scraper, 15 CY, 621, Grubbing, Haul 1 Mile & Spoil**	**CY**				**0.53**	**2.54**	**0.00**	**3.07**
02109 1100	Grubbing, 15 CY, Scraper	CY	345.6	CODSD	1.000	0.53	2.54	0.00	3.07
17 01 0517	**Scraper, 22 CY, 623, Grubbing, Haul 1 Mile & Spoil**	**CY**				**0.34**	**1.68**	**0.00**	**2.02**
02109 1200	Grubbing, 22 CY, Scraper	CY	544	CODMA	1.000	0.34	1.68	0.00	2.02
17 01 0520	**Scarifying, 12G - 2 Pass**	**SY**				**0.09**	**0.14**	**0.00**	**0.23**
02245 2206	Semi-Grade, 12G, Double Pass	SY	625	COFGA	1.000	0.09	0.14	0.00	0.23
17 01 0521	**Scarifying, 14G - 2 Pass**	**SY**				**0.06**	**0.14**	**0.00**	**0.20**
02245 2205	Semi-Grade, 14G, Double Pass	SY	625	COFCC	1.000	0.06	0.14	0.00	0.20

17 01 06	Selective Thinning	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
17 01 0601	**Selective Thinning**	**ACRE**				**297.87**	**160.14**	**0.00**	**458.01**
02116 1500	Selective Thinning, 8"-12" Diameter	ACRE	0.75	COMCJ	1.000	297.87	160.14	0.00	458.01

17 01 07	Debris Disposal	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total

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17 01 07	Debris Disposal	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
17 01 0701	**Light Burning**	**ACRE**				**472.97**	**402.76**	**3,344**	**4,220**
02109 0420	Burning - Light (Incinerator)	ACRE	0.281	UOEHZ	1.000	472.97	402.76	3,344	4,220
17 01 0702	**Medium Burning**	**ACRE**				**608.14**	**517.86**	**4,913**	**6,039**
02109 0430	Burning - Medium (Incinerator)	ACRE	0.219	UOEHZ	1.000	608.14	517.86	4,913	6,039
17 01 0703	**Heavy Burning**	**ACRE**				**851.47**	**725.08**	**6,142**	**7,718**
02109 0440	Burning - Heavy (Incinerator)	ACRE	0.156	UOEHZ	1.000	851.47	725.08	6,142	7,718
17 01 0705	**5 Miles, Dump Truck, Load & Haul Debris**	**CY**				**1.16**	**1.94**	**0.00**	**3.10**
02234 0545	Haul, 12 CY (91 m3) Truck, 6 Miles (10 km), 40 MPH (60 km/Hour), 2.1 Cycles/Hour	CY	24.5	COEID	1.000	1.16	1.94	0.00	3.10
17 01 0706	**5 Miles, Semi Dump, Load & Haul Debris**	**CY**				**0.83**	**3.33**	**0.00**	**4.16**
02234 1115	Haul, 16.5 CY (12.6 m3) Truck, 6 Miles (10 km), 40 MPH (60 km/Hour), 2.1 Cycles/Hour	CY	34.25	COETH	1.000	0.83	3.33	0.00	4.16

17 02 01	Building Mass Demolition	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
17 02 0101	**Multilevel, Steel, Nonexplosive, Building Demolition**	**CF**				**0.04**	**0.03**	**0.00**	**0.08**
02049 8110	Steel, No Disposal, Multi-Level Building, Non-Explosive Demolition	CF	2688	COETZ	1.000	0.04	0.03	0.00	0.08
17 02 0102	**Multilevel, Concrete, Nonexplosive, Building Demolition**	**CF**				**0.06**	**0.05**	**0.00**	**0.11**
02049 8120	Concrete, No Disposal, Multi-Level Building, Non-Explosive Demolition	CF	1913	COETZ	1.000	0.06	0.05	0.00	0.11
17 02 0103	**Multilevel, Masonry, Nonexplosive, Building Demolition**	**CF**				**0.05**	**0.03**	**0.00**	**0.08**
02049 8130	Masonry, No Disposal, Multi-Level Building, Non-Explosive Demolition	CF	2513	COETZ	1.000	0.05	0.03	0.00	0.08
17 02 0105	**Single-level, Steel, Nonexplosive, Building Demolition**	**CF**				**0.06**	**0.07**	**0.00**	**0.14**
02049 8000	Steel, No Disposal, Single-Level Building, Non-Explosive Demolition	CF	1850	COFCX	1.000	0.06	0.07	0.00	0.14
17 02 0106	**Single-level, Concrete, Nonexplosive, Building Demolition**	**CF**				**0.08**	**0.10**	**0.00**	**0.18**
02049 8010	Concrete, No Disposal, Single-Level Building, Non-Explosive Demolition	CF	1413	COFCX	1.000	0.08	0.10	0.00	0.18
17 02 0107	**Single-level, Masonry, Nonexplosive, Building Demolition**	**CF**				**0.06**	**0.07**	**0.00**	**0.14**
02049 8020	Masonry, No Disposal, Single-Level Building, Non-Explosive Demolition	CF	1850	COFCX	1.000	0.06	0.07	0.00	0.14
17 02 0108	**Single-level, Wood, Nonexplosive, Building Demolition**	**CF**				**0.06**	**0.07**	**0.00**	**0.14**
02049 8030	Wood, No Disposal, Single-Level Building, Non-Explosive Demolition	CF	1850	COFCX	1.000	0.06	0.07	0.00	0.14

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Prep of access road

01 54 Construction Aids

01 54 26 – Temporary Swing Staging

01 54 26.50 Swing Staging	Crew	Daily Output	Labor-Hours	Unit	Material	2007 Bare Costs Labor	Equipment	Total	Total Incl O&P
1010 Rent per month				Ea.	585			585	645
2200 Move swing staging (setup and remove)	E-4	2	16	Move		670	57.50	727.50	1,300

01 54 36 – Equipment Mobilization

01 54 36.50 Mobilization or Demob.

0010	**MOBILIZATION OR DEMOB.** (One or the other, unless noted)								
0015	Up to 25 mi haul dist (50 mi RT for mob/demob crew)								
0020	Dozer, loader, backhoe, excav., grader, paver, roller, 70 to 150 H.P.	B-34N	4	2	Ea.	59	124	183	228
0100	Above 150 HP	B-34K	3	2.667		79	192	271	335
0300	Scraper, towed type (incl. tractor), 6 C.Y. capacity		3	2.667		79	192	271	335
0400	10 C.Y.		2.50	3.200		94.50	231	325.50	400
0600	Self-propelled scraper, 15 C.Y.		2.50	3.200		94.50	231	325.50	400
0700	24 C.Y.		2	4		118	288	406	500
0900	Shovel or dragline, 3/4 C.Y.		3.60	2.222		65.50	160	225.50	277
1000	1-1/2 C.Y.		3	2.667		79	192	271	335
1100	Small equipment, placed in rear of, or towed by pickup truck	A-3A	8	1		28.50	11.40	39.90	56.50
1150	Equip up to 70 HP, on flatbed trailer behind pickup truck	A-3D	4	2		57	46	103	139
2000	Mob & demob truck-mounted crane up to 75 ton, driver only	1 Eqhv	3.60	2.222		88.50		88.50	133
2100	Crane, truck-mounted, over 75 ton	A-3E	2.50	6.400		222	36.50	258.50	380
2200	Crawler-mounted, up to 75 ton	A-3F	2	8		277	305	582	760
2300	Over 75 ton	A-3G	1.50	10.667		370	445	815	1,050
2500	For each additional 5 miles haul distance, add					10%	10%		
3000	For large pieces of equipment, allow for assembly/knockdown								
3001	For mob/demob of vibrofloatation equip, see section 31 45 13.10								
3100	For mob/demob of micro-tunneling equip, see section 33 05 23.19								
3200	For mob/demob of pile driving equip, see section 31 62 19.10								
3300	For mob/demob of caisson drilling equip, see 31 63 26.13								

01 54 39 – Construction Equipment

01 54 39.70 Small Tools

0010	**SMALL TOOLS**								
0020	As % of contractor's work, minimum				Total			.45%	.50%
0100	Maximum				"			1.82%	2%

01 55 Vehicular Access and Parking

01 55 23 – Temporary Roads

01 55 23.50 Roads and Sidewalks

0010	**ROADS AND SIDEWALKS** Temporary								
0050	Roads, gravel fill, no surfacing, 4" gravel depth	B-14	715	.067	S.Y.	3.87	2.04	.34	6.25	7.80
0100	8" gravel depth	"	615	.078	"	7.75	2.38	.40	10.53	12.60
1000	Ramp, 3/4" plywood on 2" x 6" joists, 16" O.C.	2 Carp	300	.053	S.F.	1.28	1.96		3.24	4.46
1100	On 2" x 10" joists, 16" O.C.	"	275	.058	"	1.89	2.14		4.03	5.40

CDM

CLIENT
PROJECT
DETAIL CALC FOR ACCESS ROAD

JOB NO.
DATE CHECKED
CHECKED BY

COMPUTED BY MTM
DATE 6/4/97
PAGE NO.

Cost for TEMPORARY ROADS FROM RS MEANS

ROADS, GRAVEL FILL, NO SURFACING, 4" GRAVEL DEPTH $7.80/SY
8" GRAVEL DEPTH $12.60/SY

CALCULATE PERIMETER/LENGTH OF REQUIRED ACCESS ROAD
FROM FIGURE APPROX. = 3100' = 1033 yards

CALCULATE SY NEEDED (ASSUME ACCESS ROAD 30' WIDE)
30' = 10 yards

1033 yd × 10 yd = 10,330 SY NEEDED

CALCULATE COST

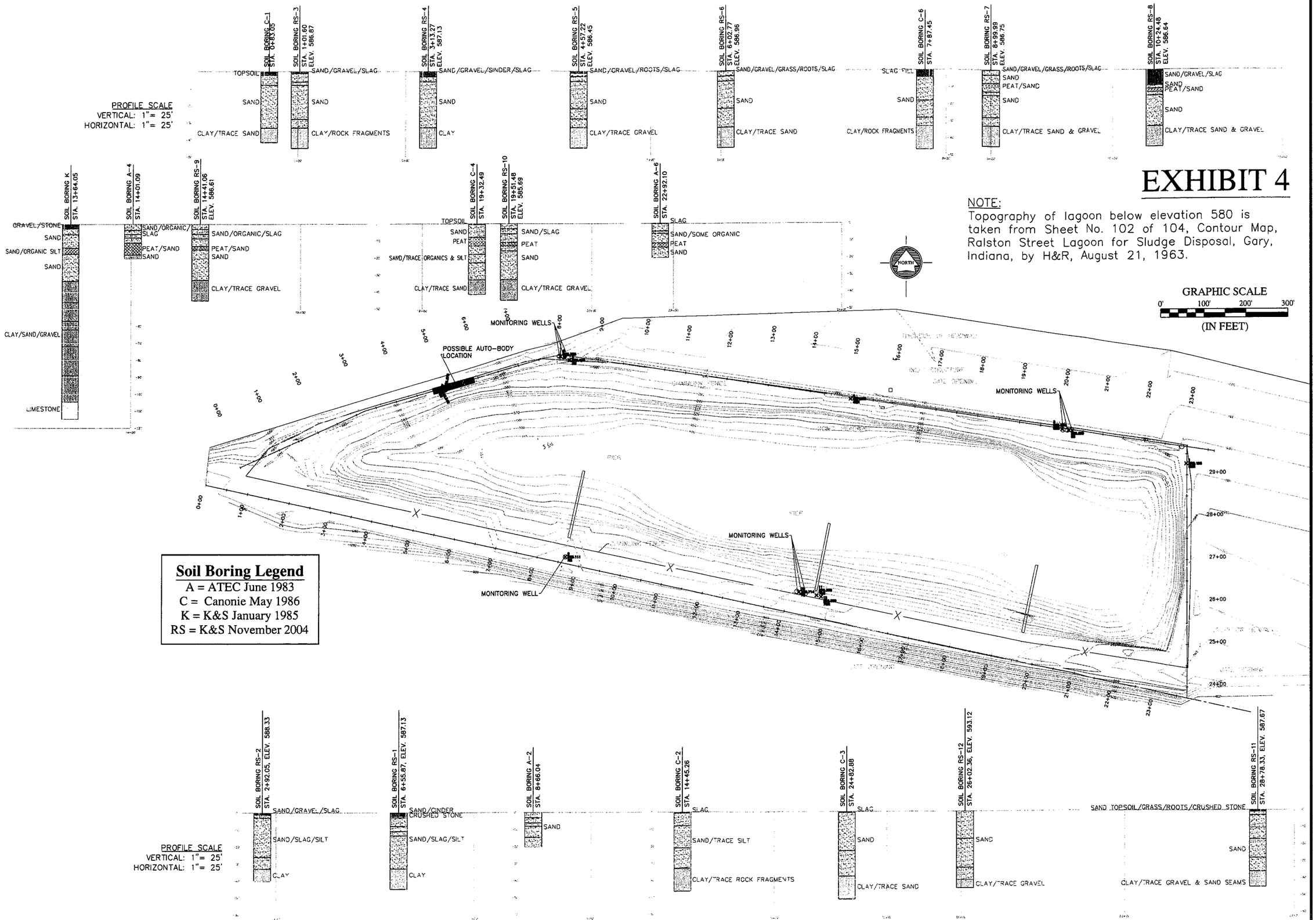
4" GRAVEL DEPTH
10,330 SY × $7.80/SY = $80,574

8" GRAVEL DEPTH
10,330 SY × $12.60/SY = $130,150

EXHIBIT 4

NOTE:
Topography of lagoon below elevation 580 is taken from Sheet No. 102 of 104, Contour Map, Ralston Street Lagoon for Sludge Disposal, Gary, Indiana, by H&R, August 21, 1963.

PROFILE SCALE
VERTICAL: 1" = 25'
HORIZONTAL: 1" = 25'



Soil Boring Legend

A = ATEC June 1983
C = Canonie May 1986
K = K&S January 1985
RS = K&S November 2004

REVISIONS		
DATE	DESCRIPTION	BY

HANNUM, WAGLE & CLINE
engineering
420 MAIN STREET LAFAYETTE, INDIANA 47901
(765) 742-9700 FAX (765) 742-9701

Ralston Street Lagoon
Gary, Indiana

SOIL BORING PROFILES & PLAN

Attorney-Client Work Product
Privileged and Confidential

DRAWN BY WTP	JOB NUMBER 2004-238-B
CHECKED BY PED	
DATE 2005	
SCALE None	
SHEET EX4	

site survey

02 21 Surveys

02 21 13 – Site Surveys

		Crew	Daily Output	Labor-Hours	Unit	2007 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
02 21 13.09	**Topographical Surveys**									
0010	**TOPOGRAPHICAL SURVEYS**									
0020	Surveying conventional, topographical, minimum	A-7	3.30	7.273	Acre	17	294	17.60	328.60	495
0100	Maximum	A-6	.60	53.333	"	52	2,100	97	2,249	3,400
02 21 13.13	**Boundary and Survey Markers**									
0010	**BOUNDARY AND SURVEY MARKERS**									
0300	Lot location and lines, minimum, for large quantities	A-7	2	12	Acre	30	485	29	544	810
0320	Average	"	1.25	19.200		48	775	46.50	869.50	1,300
0400	Maximum, for small quantities	A-8	1	32		64	1,250	58	1,372	2,050
0600	Monuments, 3' long	A-7	10	2.400	Ea.	30	97	5.80	132.80	188
0800	Property lines, perimeter, cleared land	"	1000	.024	L.F.	.03	.97	.06	1.06	1.58
02 21 13.16	**Aerial Surveys**									
0010	**AERIAL SURVEYS**									
1500	Aerial surveying, including ground control, minimum fee, 10 acres				Total					5,700
1510	100 acres									9,500
1550	From existing photography, deduct									1,370
1600	2' contours, 10 acres				Acre					460
1650	20 acres									315
1800	50 acres									95
1850	100 acres									85
2150	For 1' contours and									40%
2160	dense urban areas, add to above				Acre					4,000
3000	Inertial guidance system for									
3010	locating coordinates, rent per day				Ea.					

02 32 Geotechnical Investigations

02 32 13 – Subsurface Drilling and Sampling

		Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Total Incl O&P
02 32 13.10	**Boring and Exploratory Drilling**									
0010	**BORING AND EXPLORATORY DRILLING**									
0020	Borings, initial field stake out & determination of elevations	A-6	1	16	Day		590	58	648	975
0100	Drawings showing boring details				Total		222		222	324
0200	Report and recommendations from P.E.						500		500	730
0300	Mobilization and demobilization, minimum	B-55	4	6			172	215	387	505
0350	For over 100 miles, per added mile		450	.053	Mile		1.53	1.91	3.44	4.47
0600	Auger holes in earth, no samples, 2-1/2" diameter		78.60	.305	L.F.		8.75	10.95	19.70	25.50
0650	4" diameter		67.50	.356			10.20	12.75	22.95	30
0800	Cased borings in earth, with samples, 2-1/2" diameter		55.50	.432		16.55	12.40	15.50	44.45	54.50
0850	4" diameter		32.60	.736		26	21	26.50	73.50	90.50
1000	Drilling in rock, "BX" core, no sampling	B-56	34.90	.458			15.05	34.50	49.55	61
1050	With casing & sampling		31.70	.505		16.55	16.55	38	71.10	85
1200	"NX" core, no sampling		25.92	.617			20.50	46.50	67	82
1250	With casing and sampling		25	.640		20	21	48	89	108
1400	Drill rig and crew with truck mounted auger	B-55	1	24	Day		690	860	1,550	2,025
1450	With crawler type drill	B-56	1	16	"		525	1,200	1,725	2,125
1500	For inner city borings add, minimum									10%
1510	Maximum									20%

02 32 19 – Exploratory Excavations

		Crew	Daily Output	Labor-Hours	Unit	Material	Labor	Equipment	Total	Total Incl O&P
02 32 19.10	**Test Pits**									
0010	**TEST PITS**									
0020	Hand digging, light soil	1 Clab	4.50	1.778	C.Y.		51		51	79.50
0100	Heavy soil	"	2.50	3.200			92		92	143

99 01 Prime Contractor Field Office Staff

99 01 01	Site Project Manager	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0101	**Site Project Manager - Minimum Cost**	**MWK**				**1,471**	**0.00**	**0.00**	**1,471**
01050 0106	Project Manager - Minimum Cost	WK	0.025	XYBBG	1.000	1,471	0.00	0.00	1,471
99 01 0102	**Site Project Manager - Average Cost**	**MWK**				**1,647**	**0.00**	**0.00**	**1,647**
01050 0107	Project Manager - Average Cost	WK	0.025	XYBBH	1.000	1,647	0.00	0.00	1,647
99 01 0103	**Site Project Manager - Maximum Cost**	**MWK**				**1,861**	**0.00**	**0.00**	**1,861**
01050 0108	Project Manager - Maximum Cost	WK	0.025	XYBBI	1.000	1,861	0.00	0.00	1,861
99 01 02	**Superintendent**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0201	**Superintendent - Minimum Cost**	**MWK**				**1,450**	**0.00**	**0.00**	**1,450**
01050 0109	Field Superintendent - Minimum Cost	WK	0.025	XYBBJ	1.000	1,450	0.00	0.00	1,450
99 01 0202	**Superintendent - Average Cost**	**MWK**				**1,575**	**0.00**	**0.00**	**1,575**
01050 0110	Field Superintendent - Average Cost	WK	0.025	XYBBK	1.000	1,575	0.00	0.00	1,575
99 01 0203	**Superintendent - Maximum Cost**	**MWK**				**1,800**	**0.00**	**0.00**	**1,800**
01050 0111	Field Superintendent - Maximum Cost	WK	0.025	XYBBL	1.000	1,800	0.00	0.00	1,800
99 01 03	**Clerk**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0301	**Clerk - Average Cost**	**MWK**				**335.00**	**0.00**	**0.00**	**335.00**
01050 0101	Field Office Clerk	WK	0.025	XYBBA	1.000	335.00	0.00	0.00	335.00
99 01 04	**Field Engineer**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0401	**Field Engineer - Minimum Cost**	**MWK**				**800.00**	**0.00**	**0.00**	**800.00**
01050 0102	Field Engineer (Minimum Cost)	WK	0.025	XYBBC	1.000	800.00	0.00	0.00	800.00
99 01 0402	**Field Engineer - Average Cost**	**MWK**				**1,040**	**0.00**	**0.00**	**1,040**
01050 0103	Field Engineer (Average Cost)	WK	0.025	XYBBD	1.000	1,040	0.00	0.00	1,040
99 01 0403	**Field Engineer - Maximum Cost**	**MWK**				**1,200**	**0.00**	**0.00**	**1,200**
01050 0104	Field Engineer - Maximum Cost	WK	0.025	XYBBE	1.000	1,200	0.00	0.00	1,200
99 01 05	**Timekeeper**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0501	**Timekeeper - Average Cost**	**MWK**				**930.00**	**0.00**	**0.00**	**930.00**
01050 0112	Timekeeper - Average Cost	WK	0.025	XYBBM	1.000	930.00	0.00	0.00	930.00
99 01 06	**General Purpose Laborer**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0601	**General-purpose Laborer**	**MWK**				**1,096**	**0.00**	**0.00**	**1,096**
01050 0105	General Purpose Laborer	WK	0.025	XYBBF	1.000	1,096	0.00	0.00	1,096
99 01 07	**Safety Engineer**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0701	**Safety Engineer - Minimum Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0121	Safety Engineer - Minimum Cost	WK	0.025	XYBBQ	1.000	1,595	0.00	0.00	1,595

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99 01 07	Safety Engineer	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0702	**Safety Engineer - Average Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0122	Safety Engineer - Average Cost	WK	0.025	XYBBR	1.000	1,595	0.00	0.00	1,595
99 01 0703	**Safety Engineer - Maximum Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0123	Safety Engineer - Maximum Cost	WK	0.025	XYBBS	1.000	1,595	0.00	0.00	1,595
99 01 08	**Quality Control**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 01 0801	**Quality Control - Minimum Cost**	**MWK**				**1,264**	**0.00**	**0.00**	**1,264**
01050 0124	Quality Control - Minimum Cost	WK	0.025	XYBBT	1.000	1,264	0.00	0.00	1,264
99 01 0802	**Quality Control - Average Cost**	**MWK**				**1,448**	**0.00**	**0.00**	**1,448**
01050 0125	Quality Control - Average Cost	WK	0.025	XYBBU	1.000	1,448	0.00	0.00	1,448
99 01 0803	**Quality Control - Maximum Cost**	**MWK**				**1,333**	**0.00**	**0.00**	**1,333**
01050 0126	Quality Control - Maximum Cost	WK	0.025	XYBBV	1.000	1,333	0.00	0.00	1,333
99 04 01	**Temporary Offices**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0101	**Temporary Office 20' x 8'**	**MO**				**0.00**	**0.00**	**220.17**	**220.17**
01500 0209	Temporary Office Trailer 20' x 8' without Hookup	MO	0	N/A	1.000	0.00	0.00	178.35	178.35
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 04 0102	**Temporary Office 32' x 8'**	**MO**				**0.00**	**0.00**	**263.22**	**263.22**
01500 0210	Temporary Office Trailer 32' x 8' without Hookup	MO	0	N/A	1.000	0.00	0.00	221.40	221.40
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 04 0103	**Temporary Office 50' x 10'**	**MO**				**0.00**	**0.00**	**386.22**	**386.22**
01500 0211	Temporary Office Trailer 50' x 10' without Hookup	MO	0	N/A	1.000	0.00	0.00	344.40	344.40
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 04 0104	**Temporary Office 50' x 12'**	**MO**				**0.00**	**0.00**	**442.80**	**442.80**
01500 0212	Temporary Office Trailer 50' x 12' without Hookup	MO	0	N/A	1.000	0.00	0.00	400.98	400.98
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 04 02	**Temporary Storage Facilities**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0201	**Temporary Storage Trailer 16' x 8'**	**MO**				**0.00**	**0.00**	**86.10**	**86.10**
01500 0214	Temporary Construction Storage Van 16' x 8'	MO	0	N/A	1.000	0.00	0.00	86.10	86.10
99 04 0202	**Temporary Storage Trailer 28' x 10'**	**MO**				**0.00**	**0.00**	**116.85**	**116.85**
01500 0215	Temporary Construction Storage Van 28' x 10'	MO	0	N/A	1.000	0.00	0.00	116.85	116.85
99 04 03	**Security Fencing**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0301	**Security Fencing 5' Chain-Link**	**LF**				**1.94**	**0.00**	**4.88**	**6.82**
01500 0201	Construction Fence Chain Link 5'	LF	50	ULABC	1.000	1.94	0.00	4.88	6.82

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99 04 Prime Contractor Field Expenses

99 04 03	Security Fencing	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0302	**Security Fencing 6' Chain-Link**	**LF**				**2.15**	**0.00**	**5.06**	**7.21**
01500 0202	Construction Fence Chain Link 6'	LF	45	ULABC	1.000	2.15	0.00	5.06	7.21
99 04 04	**Construction Signs**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0401	**Construction Signs**	**SF**				**0.00**	**0.00**	**12.44**	**12.44**
01500 0102	Temporary Construction Sign	SF	0	N/A	1.000	0.00	0.00	12.44	12.44
99 04 05	**Portable Toilets**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0501	**Portable Toilets - Chemical**	**MO**				**0.00**	**0.00**	**88.15**	**88.15**
01500 0216	Toilet Portable Chemical	MO	0	N/A	1.000	0.00	0.00	88.15	88.15
99 04 06	**Temporary Heat**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0601	**Temporary Heat - Buildings (12 Hours/Day)**	**CSF*W**				**0.00**	**0.00**	**1.57**	**1.57**
01500 0203	Temporary Construction Heat (12 Hours/Day)	CSF	0	N/A	1.000	0.00	0.00	1.57	1.57
99 04 0602	**Temporary Heat - Buildings (24 Hours/Day)**	**CSF*W**				**0.00**	**0.00**	**2.35**	**2.35**
01500 0204	Temporary Construction Heat/Week (24 Hours/Day)	CSF	0	N/A	1.000	0.00	0.00	2.35	2.35
99 04 07	**Temporary Lighting**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0701	**Temporary Lighting - Minimum**	**CSF**				**10.78**	**0.00**	**2.50**	**13.28**
01500 0205	Temporary Construction Lighting with Service - Minimum	CSF	10	EELEC	1.000	10.78	0.00	2.50	13.28
99 04 0702	**Temporary Lighting - Maximum**	**CSF**				**21.56**	**0.00**	**5.44**	**27.00**
01500 0206	Temporary Construction Lighting with Service - Maximum	CSF	5	EELEC	1.000	21.56	0.00	5.44	27.00
99 04 08	**Temporary Electrical Power**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 0801	**Temporary Electric Power - Average**	**CSF**				**0.00**	**0.00**	**96.55**	**96.55**
01500 0207	Temporary Power and Lighting per Month Average	CSF	0	N/A	1.000	0.00	0.00	96.55	96.55
99 04 0802	**Temporary Electric Power - Maximum**	**CSF**				**0.00**	**0.00**	**135.30**	**135.30**
01500 0208	Temporary Power and Lighting per Month Maximum	CSF	0	N/A	1.000	0.00	0.00	135.30	135.30
99 04 11	**Photographs**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 1101	**Construction Photographs**	**SET**				**335.00**	**0.00**	**0.00**	**335.00**
01050 0101	Field Office Clerk	WK	0.025	XYBBA	1.000	335.00	0.00	0.00	335.00
99 04 1102	**Time Lapse Video Equipment & Tapes, Per Month**	**MO**				**5.30**	**0.00**	**380.13**	**385.43**
01953 2113	Time Lapse Recorder, S-VHS/VHS Compatible, High Performance	EA	1.63	EELEA	0.163	32.52	0.00	2,330	385.43

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99 04 Prime Contractor Field Expenses

99 04 12	Surveying Expenses	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 1201	**Surveying - 2-man Crew**	**DAY**				**692.40**	**222.10**	**0.00**	**914.50**
01050 1001	2-person Crew	DAY	0.125	XYABC	1.000	692.40	222.10	0.00	914.50
99 04 1202	**Surveying - 3-man Crew**	**DAY**				**966.40**	**222.10**	**0.00**	**1,188**
01050 1002	3-person Crew	DAY	0.125	XYABD	1.000	966.40	222.10	0.00	1,188
99 04 1203	**Surveying - 4-man Crew**	**DAY**				**1,240**	**222.10**	**0.00**	**1,462**
01050 1003	4-person Crew	DAY	0.125	XYABE	1.000	1,240	222.10	0.00	1,462
99 04 1204	**Hand Held GPS Unit, Battery Powered**	**EA**				**0.00**	**0.00**	**584.24**	**584.24**
01953 3301	Hand Held GPS Unit, Battery Powered	EA	0	N/A	1.000	0.00	0.00	584.24	584.24
99 04 1205	**Portable GPS Set with Mapping, 5 cm Accuracy**	**MO**				**0.00**	**0.00**	**676.49**	**676.49**
01953 3302	Portable, Differential GPS Surveying Set with Map Output	MO	0	N/A	1.000	0.00	0.00	676.49	676.49
99 04 1206	**Data Automation System (Computer)**	**MO**				**0.00**	**0.00**	**246.00**	**246.00**
01953 3303	Pentium Computer with Windows	MO	0	N/A	1.000	0.00	0.00	246.00	246.00
99 04 13	**Watchmen**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 1301	**Uniformed Watchman - Minimum**	**HR**				**9.19**	**0.00**	**0.00**	**9.19**
01050 0113	Uniformed Watchman - Minimum	HR	1	XYBBN	1.000	9.19	0.00	0.00	9.19
99 04 1302	**Uniformed Watchman - Maximum**	**HR**				**16.66**	**0.00**	**0.00**	**16.66**
01050 0114	Uniformed Watchman - Maximum	HR	1	XYBBO	1.000	16.66	0.00	0.00	16.66
99 04 14	**Continuous Cleanup**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 04 1401	**Continuous Cleanup**	**MWK**				**1,096**	**0.00**	**0.00**	**1,096**
01050 0105	General Purpose Laborer	WK	0.025	XYBBF	1.000	1,096	0.00	0.00	1,096
99 11 01	**Site Project Manager**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0101	**Site Project Manager - Minimum Cost**	**MWK**				**1,471**	**0.00**	**0.00**	**1,471**
01050 0106	Project Manager - Minimum Cost	WK	0.025	XYBBG	1.000	1,471	0.00	0.00	1,471
99 11 0102	**Site Project Manager - Average Cost**	**MWK**				**1,647**	**0.00**	**0.00**	**1,647**
01050 0107	Project Manager - Average Cost	WK	0.025	XYBBH	1.000	1,647	0.00	0.00	1,647
99 11 0103	**Site Project Manager - Maximum Cost**	**MWK**				**1,861**	**0.00**	**0.00**	**1,861**
01050 0108	Project Manager - Maximum Cost	WK	0.025	XYBBI	1.000	1,861	0.00	0.00	1,861
99 11 02	**Superintendent**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0201	**Superintendent - Minimum Cost**	**MWK**				**1,450**	**0.00**	**0.00**	**1,450**
01050 0109	Field Superintendent - Minimum Cost	WK	0.025	XYBBJ	1.000	1,450	0.00	0.00	1,450

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99 11 02	Superintendent	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0202	**Superintendent - Average Cost**	**MWK**				**1,575**	**0.00**	**0.00**	**1,575**
01050 0110	Field Superintendent - Average Cost	WK	0.025	XYBBK	1.000	1,575	0.00	0.00	1,575
99 11 0203	**Superintendent - Maximum Cost**	**MWK**				**1,800**	**0.00**	**0.00**	**1,800**
01050 0111	Field Superintendent - Maximum Cost	WK	0.025	XYBBL	1.000	1,800	0.00	0.00	1,800
99 11 03	**Clerk**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0301	**Clerk - Average Cost**	**MWK**				**335.00**	**0.00**	**0.00**	**335.00**
01050 0101	Field Office Clerk	WK	0.025	XYBBA	1.000	335.00	0.00	0.00	335.00
99 11 04	**Field Engineer**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0401	**Field Engineer - Minimum Cost**	**MWK**				**800.00**	**0.00**	**0.00**	**800.00**
01050 0102	Field Engineer (Minimum Cost)	WK	0.025	XYBBC	1.000	800.00	0.00	0.00	800.00
99 11 0402	**Field Engineer - Average Cost**	**MWK**				**1,040**	**0.00**	**0.00**	**1,040**
01050 0103	Field Engineer (Average Cost)	WK	0.025	XYBBD	1.000	1,040	0.00	0.00	1,040
99 11 0403	**Field Engineer - Maximum Cost**	**MWK**				**1,200**	**0.00**	**0.00**	**1,200**
01050 0104	Field Engineer - Maximum Cost	WK	0.025	XYBBE	1.000	1,200	0.00	0.00	1,200
99 11 05	**Timekeeper**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0501	**Timekeeper - Average Cost**	**MWK**				**930.00**	**0.00**	**0.00**	**930.00**
01050 0112	Timekeeper - Average Cost	WK	0.025	XYBBM	1.000	930.00	0.00	0.00	930.00
99 11 06	**General Purpose Laborer**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0601	**General-purpose Laborer**	**MWK**				**1,096**	**0.00**	**0.00**	**1,096**
01050 0105	General Purpose Laborer	WK	0.025	XYBBF	1.000	1,096	0.00	0.00	1,096
99 11 07	**Safety Engineer**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0701	**Safety Engineer - Minimum Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0121	Safety Engineer - Minimum Cost	WK	0.025	XYBBQ	1.000	1,595	0.00	0.00	1,595
99 11 0702	**Safety Engineer - Average Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0122	Safety Engineer - Average Cost	WK	0.025	XYBBR	1.000	1,595	0.00	0.00	1,595
99 11 0703	**Safety Engineer - Maximum Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0123	Safety Engineer - Maximum Cost	WK	0.025	XYBBS	1.000	1,595	0.00	0.00	1,595
99 11 08	**Quality Control**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0801	**Quality Control - Minimum Cost**	**MWK**				**1,264**	**0.00**	**0.00**	**1,264**
01050 0124	Quality Control - Minimum Cost	WK	0.025	XYBBT	1.000	1,264	0.00	0.00	1,264
99 11 0802	**Quality Control - Average Cost**	**MWK**				**1,448**	**0.00**	**0.00**	**1,448**
01050 0125	Quality Control - Average Cost	WK	0.025	XYBBU	1.000	1,448	0.00	0.00	1,448

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99 11 Major Subcontractor Field Office Staff

99 11 08	Quality Control	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 11 0803	**Quality Control - Maximum Cost**	**MWK**				**1,333**	**0.00**	**0.00**	**1,333**
01050 0126	Quality Control - Maximum Cost	WK	0.025	XYBBV	1.000	1,333	0.00	0.00	1,333
99 14 01	**Temporary Offices**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 0101	**Temporary Office 20' x 8'**	**MO**				**0.00**	**0.00**	**220.17**	**220.17**
01500 0209	Temporary Office Trailer 20' x 8' without Hookup	MO	0	N/A	1.000	0.00	0.00	178.35	178.35
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 14 0102	**Temporary Office 32' x 8'**	**MO**				**0.00**	**0.00**	**263.22**	**263.22**
01500 0210	Temporary Office Trailer 32' x 8' without Hookup	MO	0	N/A	1.000	0.00	0.00	221.40	221.40
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 14 0103	**Temporary Office 50' x 10'**	**MO**				**0.00**	**0.00**	**386.22**	**386.22**
01500 0211	Temporary Office Trailer 50' x 10' without Hookup	MO	0	N/A	1.000	0.00	0.00	344.40	344.40
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 14 0104	**Temporary Office 50' x 12'**	**MO**				**0.00**	**0.00**	**442.80**	**442.80**
01500 0212	Temporary Office Trailer 50' x 12' without Hookup	MO	0	N/A	1.000	0.00	0.00	400.98	400.98
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 14 02	**Temporary Storage Facilities**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 0201	**Temporary Storage Trailer 16' x 8'**	**MO**				**0.00**	**0.00**	**86.10**	**86.10**
01500 0214	Temporary Construction Storage Van 16' x 8'	MO	0	N/A	1.000	0.00	0.00	86.10	86.10
99 14 0202	**Temporary Storage Trailer 28' x 10'**	**MO**				**0.00**	**0.00**	**116.85**	**116.85**
01500 0215	Temporary Construction Storage Van 28' x 10'	MO	0	N/A	1.000	0.00	0.00	116.85	116.85
99 14 03	**Security Fencing**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 0301	**Security Fencing 5' Chain-Link**	**LF**				**1.94**	**0.00**	**4.88**	**6.82**
01500 0201	Construction Fence Chain Link 5'	LF	50	ULABC	1.000	1.94	0.00	4.88	6.82
99 14 0302	**Security Fencing 6' Chain-Link**	**LF**				**2.15**	**0.00**	**5.06**	**7.21**
01500 0202	Construction Fence Chain Link 6'	LF	45	ULABC	1.000	2.15	0.00	5.06	7.21
99 14 04	**Construction Signs**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 0401	**Construction Signs**	**SF**				**0.00**	**0.00**	**12.44**	**12.44**
01500 0102	Temporary Construction Sign	SF	0	N/A	1.000	0.00	0.00	12.44	12.44
99 14 05	**Portable Toilets**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 0501	**Portable Toilets - Chemical**	**MO**				**0.00**	**0.00**	**88.15**	**88.15**
01500 0216	Toilet Portable Chemical	MO	0	N/A	1.000	0.00	0.00	88.15	88.15
99 14 06	**Temporary Heat**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total

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99 14 Major Subcontractor Field Expenses

99 14 06	Temporary Heat	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 0601	**Temporary Heat - Buildings (12 Hours/Day)**	**CSF*W**				**0.00**	**0.00**	**1.57**	**1.57**
01500 0203	Temporary Construction Heat (12 Hours/Day)	CSF	0	N/A	1.000	0.00	0.00	1.57	1.57
99 14 0602	**Temporary Heat - Buildings (24 Hours/Day)**	**CSF*W**				**0.00**	**0.00**	**2.35**	**2.35**
01500 0204	Temporary Construction Heat/Week (24 Hours/Day)	CSF	0	N/A	1.000	0.00	0.00	2.35	2.35
99 14 07	**Temporary Lighting**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 0701	**Temporary Lighting - Minimum**	**CSF**				**10.78**	**0.00**	**2.50**	**13.28**
01500 0205	Temporary Construction Lighting with Service - Minimum	CSF	10	EELEC	1.000	10.78	0.00	2.50	13.28
99 14 0702	**Temporary Lighting - Maximum**	**CSF**				**21.56**	**0.00**	**5.44**	**27.00**
01500 0206	Temporary Construction Lighting with Service - Maximum	CSF	5	EELEC	1.000	21.56	0.00	5.44	27.00
99 14 08	**Temporary Electrical Power**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 0801	**Temporary Electric Power - Average**	**CSF**				**0.00**	**0.00**	**96.55**	**96.55**
01500 0207	Temporary Power and Lighting per Month Average	CSF	0	N/A	1.000	0.00	0.00	96.55	96.55
99 14 0802	**Temporary Electric Power - Maximum**	**CSF**				**0.00**	**0.00**	**135.30**	**135.30**
01500 0208	Temporary Power and Lighting per Month Maximum	CSF	0	N/A	1.000	0.00	0.00	135.30	135.30
99 14 11	**Photographs**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 1101	**Construction Photographs**	**SET**				**335.00**	**0.00**	**0.00**	**335.00**
01050 0101	Field Office Clerk	WK	0.025	XYBBA	1.000	335.00	0.00	0.00	335.00
99 14 1102	**Time Lapse Video Equipment & Tapes, Per Month**	**MO**				**5.30**	**0.00**	**380.13**	**385.43**
01953 2113	Time Lapse Recorder, S-VHS/VHS Compatible, High Performance	EA	1.63	EELEA	0.163	32.52	0.00	2,330	385.43
99 14 12	**Surveying Expenses**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 1201	**Surveying - 2-man Crew**	**DAY**				**692.40**	**222.10**	**0.00**	**914.50**
01050 1001	2-person Crew	DAY	0.125	XYABC	1.000	692.40	222.10	0.00	914.50
99 14 1202	**Surveying - 3-man Crew**	**DAY**				**966.40**	**222.10**	**0.00**	**1,188**
01050 1002	3-person Crew	DAY	0.125	XYABD	1.000	966.40	222.10	0.00	1,188
99 14 1203	**Surveying - 4-man Crew**	**DAY**				**1,240**	**222.10**	**0.00**	**1,462**
01050 1003	4-person Crew	DAY	0.125	XYABE	1.000	1,240	222.10	0.00	1,462
99 14 13	**Watchmen**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total

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99 14 Major Subcontractor Field Expenses

99 14 13 Watchmen		Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 1301	**Uniformed Watchman - Minimum**	**HR**				**9.19**	**0.00**	**0.00**	**9.19**
01050 0113	Uniformed Watchman - Minimum	HR	1	XYBBN	1.000	9.19	0.00	0.00	9.19
99 14 1302	**Uniformed Watchman - Maximum**	**HR**				**16.66**	**0.00**	**0.00**	**16.66**
01050 0114	Uniformed Watchman - Maximum	HR	1	XYBBO	1.000	16.66	0.00	0.00	16.66
99 14 14 Continuous Cleanup		Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 14 1401	**Continuous Cleanup**	**MWK**				**1,096**	**0.00**	**0.00**	**1,096**
01050 0105	General Purpose Laborer	WK	0.025	XYBBF	1.000	1,096	0.00	0.00	1,096
99 21 01 Site Project Manager		Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 21 0101	**Site Project Manager - Minimum Cost**	**MWK**				**1,471**	**0.00**	**0.00**	**1,471**
01050 0106	Project Manager - Minimum Cost	WK	0.025	XYBBG	1.000	1,471	0.00	0.00	1,471
99 21 0102	**Site Project Manager - Average Cost**	**MWK**				**1,647**	**0.00**	**0.00**	**1,647**
01050 0107	Project Manager - Average Cost	WK	0.025	XYBBH	1.000	1,647	0.00	0.00	1,647
99 21 0103	**Site Project Manager - Maximum Cost**	**MWK**				**1,861**	**0.00**	**0.00**	**1,861**
01050 0108	Project Manager - Maximum Cost	WK	0.025	XYBBI	1.000	1,861	0.00	0.00	1,861
99 21 02 Superintendent		Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 21 0201	**Superintendent - Minimum Cost**	**MWK**				**1,450**	**0.00**	**0.00**	**1,450**
01050 0109	Field Superintendent - Minimum Cost	WK	0.025	XYBBJ	1.000	1,450	0.00	0.00	1,450
99 21 0202	**Superintendent - Average Cost**	**MWK**				**1,575**	**0.00**	**0.00**	**1,575**
01050 0110	Field Superintendent - Average Cost	WK	0.025	XYBBK	1.000	1,575	0.00	0.00	1,575
99 21 0203	**Superintendent - Maximum Cost**	**MWK**				**1,800**	**0.00**	**0.00**	**1,800**
01050 0111	Field Superintendent - Maximum Cost	WK	0.025	XYBBL	1.000	1,800	0.00	0.00	1,800
99 21 03 Clerk		Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 21 0301	**Clerk - Average Cost**	**MWK**				**335.00**	**0.00**	**0.00**	**335.00**
01050 0101	Field Office Clerk	WK	0.025	XYBBA	1.000	335.00	0.00	0.00	335.00
99 21 04 Field Engineer		Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 21 0401	**Field Engineer - Minimum Cost**	**MWK**				**800.00**	**0.00**	**0.00**	**800.00**
01050 0102	Field Engineer (Minimum Cost)	WK	0.025	XYBBC	1.000	800.00	0.00	0.00	800.00
99 21 0402	**Field Engineer - Average Cost**	**MWK**				**1,040**	**0.00**	**0.00**	**1,040**
01050 0103	Field Engineer (Average Cost)	WK	0.025	XYBBD	1.000	1,040	0.00	0.00	1,040
99 21 0403	**Field Engineer - Maximum Cost**	**MWK**				**1,200**	**0.00**	**0.00**	**1,200**
01050 0104	Field Engineer - Maximum Cost	WK	0.025	XYBBE	1.000	1,200	0.00	0.00	1,200
99 21 05 Timekeeper		Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total

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99 21 Minor Subcontractor Field Office Staff

99 21 05	Timekeeper	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 21 0501	**Timekeeper - Average Cost**	**MWK**				**930.00**	**0.00**	**0.00**	**930.00**
01050 0112	Timekeeper - Average Cost	WK	0.025	XYBBM	1.000	930.00	0.00	0.00	930.00

99 21 06	General Purpose Laborer	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 21 0601	**General-purpose Laborer**	**MWK**				**1,096**	**0.00**	**0.00**	**1,096**
01050 0105	General Purpose Laborer	WK	0.025	XYBBF	1.000	1,096	0.00	0.00	1,096

99 21 07	Safety Engineer	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 21 0701	**Safety Engineer - Minimum Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0121	Safety Engineer - Minimum Cost	WK	0.025	XYBBQ	1.000	1,595	0.00	0.00	1,595
99 21 0702	**Safety Engineer - Average Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0122	Safety Engineer - Average Cost	WK	0.025	XYBBR	1.000	1,595	0.00	0.00	1,595
99 21 0703	**Safety Engineer - Maximum Cost**	**MWK**				**1,595**	**0.00**	**0.00**	**1,595**
01050 0123	Safety Engineer - Maximum Cost	WK	0.025	XYBBS	1.000	1,595	0.00	0.00	1,595

99 21 08	Quality Control	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 21 0801	**Quality Control - Minimum Cost**	**MWK**				**1,264**	**0.00**	**0.00**	**1,264**
01050 0124	Quality Control - Minimum Cost	WK	0.025	XYBBT	1.000	1,264	0.00	0.00	1,264
99 21 0802	**Quality Control - Average Cost**	**MWK**				**1,448**	**0.00**	**0.00**	**1,448**
01050 0125	Quality Control - Average Cost	WK	0.025	XYBBU	1.000	1,448	0.00	0.00	1,448
99 21 0803	**Quality Control - Maximum Cost**	**MWK**				**1,333**	**0.00**	**0.00**	**1,333**
01050 0126	Quality Control - Maximum Cost	WK	0.025	XYBBV	1.000	1,333	0.00	0.00	1,333

99 24 01	Temporary Offices	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0101	**Temporary Office 20' x 8'**	**MO**				**0.00**	**0.00**	**220.17**	**220.17**
01500 0209	Temporary Office Trailer 20' x 8' without Hookup	MO	0	N/A	1.000	0.00	0.00	178.35	178.35
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 24 0102	**Temporary Office 32' x 8'**	**MO**				**0.00**	**0.00**	**263.22**	**263.22**
01500 0210	Temporary Office Trailer 32' x 8' without Hookup	MO	0	N/A	1.000	0.00	0.00	221.40	221.40
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 24 0103	**Temporary Office 50' x 10'**	**MO**				**0.00**	**0.00**	**386.22**	**386.22**
01500 0211	Temporary Office Trailer 50' x 10' without Hookup	MO	0	N/A	1.000	0.00	0.00	344.40	344.40
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82
99 24 0104	**Temporary Office 50' x 12'**	**MO**				**0.00**	**0.00**	**442.80**	**442.80**
01500 0212	Temporary Office Trailer 50' x 12' without Hookup	MO	0	N/A	1.000	0.00	0.00	400.98	400.98
01500 0213	Temporary Construction Office Air Conditioner	MO	0	N/A	1.000	0.00	0.00	41.82	41.82

99 24 02	Temporary Storage Facilities	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total

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99 24 Minor Subcontractor Field Expenses

99 24 02	Temporary Storage Facilities	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0201	**Temporary Storage Trailer 16' x 8'**	**MO**				**0.00**	**0.00**	**86.10**	**86.10**
01500 0214	Temporary Construction Storage Van 16' x 8'	MO	0	N/A	1.000	0.00	0.00	86.10	86.10
99 24 0202	**Temporary Storage Trailer 28' x 10'**	**MO**				**0.00**	**0.00**	**116.85**	**116.85**
01500 0215	Temporary Construction Storage Van 28' x 10'	MO	0	N/A	1.000	0.00	0.00	116.85	116.85
99 24 03	**Security Fencing**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0301	**Security Fencing 5' Chain-Link**	**LF**				**1.94**	**0.00**	**4.88**	**6.82**
01500 0201	Construction Fence Chain Link 5'	LF	50	ULABC	1.000	1.94	0.00	4.88	6.82
99 24 0302	**Security Fencing 6' Chain-Link**	**LF**				**2.15**	**0.00**	**5.06**	**7.21**
01500 0202	Construction Fence Chain Link 6'	LF	45	ULABC	1.000	2.15	0.00	5.06	7.21
99 24 04	**Construction Signs**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0401	**Construction Signs**	**SF**				**0.00**	**0.00**	**12.44**	**12.44**
01500 0102	Temporary Construction Sign	SF	0	N/A	1.000	0.00	0.00	12.44	12.44
99 24 05	**Portable Toilets**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0501	**Portable Toilets - Chemical**	**MO**				**0.00**	**0.00**	**88.15**	**88.15**
01500 0216	Toilet Portable Chemical	MO	0	N/A	1.000	0.00	0.00	88.15	88.15
99 24 06	**Temporary Heat**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0601	**Temporary Heat - Buildings (12 Hours/Day)**	**CSF*W**				**0.00**	**0.00**	**1.57**	**1.57**
01500 0203	Temporary Construction Heat (12 Hours/Day)	CSF	0	N/A	1.000	0.00	0.00	1.57	1.57
99 24 0602	**Temporary Heat - Buildings (24 Hours/Day)**	**CSF*W**				**0.00**	**0.00**	**2.35**	**2.35**
01500 0204	Temporary Construction Heat/Week (24 Hours/Day)	CSF	0	N/A	1.000	0.00	0.00	2.35	2.35
99 24 07	**Temporary Lighting**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0701	**Temporary Lighting - Minimum**	**CSF**				**10.78**	**0.00**	**2.50**	**13.28**
01500 0205	Temporary Construction Lighting with Service - Minimum	CSF	10	EELEC	1.000	10.78	0.00	2.50	13.28
99 24 0702	**Temporary Lighting - Maximum**	**CSF**				**21.56**	**0.00**	**5.44**	**27.00**
01500 0206	Temporary Construction Lighting with Service - Maximum	CSF	5	EELEC	1.000	21.56	0.00	5.44	27.00
99 24 08	**Temporary Electrical Power**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0801	**Temporary Electric Power - Average**	**CSF**				**0.00**	**0.00**	**96.55**	**96.55**
01500 0207	Temporary Power and Lighting per Month Average	CSF	0	N/A	1.000	0.00	0.00	96.55	96.55

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99 24 Minor Subcontractor Field Expenses

99 24 08	Temporary Electrical Power	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 0802	**Temporary Electric Power - Maximum**	**CSF**				**0.00**	**0.00**	**135.30**	**135.30**
01500 0208	Temporary Power and Lighting per Month Maximum	CSF	0	N/A	1.000	0.00	0.00	135.30	135.30
99 24 11	**Photographs**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 1101	**Construction Photographs**	**SET**				**335.00**	**0.00**	**0.00**	**335.00**
01050 0101	Field Office Clerk	WK	0.025	XYBBA	1.000	335.00	0.00	0.00	335.00
99 24 12	**Surveying Expenses**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 1201	**Surveying - 2-man Crew**	**DAY**				**692.40**	**222.10**	**0.00**	**914.50**
01050 1001	2-person Crew	DAY	0.125	XYABC	1.000	692.40	222.10	0.00	914.50
99 24 1202	**Surveying - 3-man Crew**	**DAY**				**966.40**	**222.10**	**0.00**	**1,188**
01050 1002	3-person Crew	DAY	0.125	XYABD	1.000	966.40	222.10	0.00	1,188
99 24 1203	**Surveying - 4-man Crew**	**DAY**				**1,240**	**222.10**	**0.00**	**1,462**
01050 1003	4-person Crew	DAY	0.125	XYABE	1.000	1,240	222.10	0.00	1,462
99 24 13	**Watchmen**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 1301	**Uniformed Watchman - Minimum**	**HR**				**9.19**	**0.00**	**0.00**	**9.19**
01050 0113	Uniformed Watchman - Minimum	HR	1	XYBBN	1.000	9.19	0.00	0.00	9.19
99 24 1302	**Uniformed Watchman - Maximum**	**HR**				**16.66**	**0.00**	**0.00**	**16.66**
01050 0114	Uniformed Watchman - Maximum	HR	1	XYBBO	1.000	16.66	0.00	0.00	16.66
99 24 14	**Continuous Cleanup**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
99 24 1401	**Continuous Cleanup**	**MWK**				**1,096**	**0.00**	**0.00**	**1,096**
01050 0105	General Purpose Laborer	WK	0.025	XYBBF	1.000	1,096	0.00	0.00	1,096

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erosion control matting

	31 23 23.23 Compaction	Crew	Daily Output	Labor-Hours	Unit	2007 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
9030	6000 gal. wagon, 3 mile haul	B-59	2000	.004	E.C.Y.	1.12	.12	.18	1.42	1.62
9040	6 mile haul	"	1600	.005		1.12	.15	.22	1.49	1.72
	31 23 23.25 Compaction, Airports									
0010	**COMPACTION, AIRPORTS**									
0100	Airport subgrade, compaction									
0110	non cohesive soils, 85% proctor, 12" depth	B-10G	15600	.001	S.Y.		.03	.06	.09	.11
0200	24" depth		7800	.002			.05	.12	.17	.22
0300	36" depth		5200	.002			.08	.18	.26	.32
0400	48" depth		3900	.003			.11	.25	.36	.43
0500	60" depth		3120	.004			.14	.31	.45	.55
0600	90% proctor, 12" depth		7200	.002			.06	.13	.19	.24
0700	24" depth		3600	.003			.12	.27	.39	.47
0800	36" depth		2400	.005			.18	.40	.58	.71
0900	48" depth		1800	.007			.23	.53	.76	.94
1000	60" depth		1440	.008			.29	.66	.95	1.18
1100	95% proctor, 12" depth	B-10D	6000	.002			.07	.23	.30	.36
1200	24" depth		3000	.004			.14	.45	.59	.71
1300	36" depth		2000	.006			.21	.68	.89	1.07
1400	42" depth		1715	.007			.25	.80	1.05	1.25
1500	100% proctor, 12" depth		4500	.003			.09	.30	.39	.47
1550	18" depth		3000	.004			.14	.45	.59	.71
1600	24" depth		2250	.005			.19	.61	.80	.96
1700	cohesive soils, 80% proctor, 12" depth	B-10G	7200	.002			.06	.13	.19	.24
1800	24" depth	B-10D	15000	.001			.03	.09	.12	.14
1900	36" depth		10000	.001			.04	.14	.18	.21
2000	85% proctor, 12" depth		6000	.002			.07	.23	.30	.36
2100	18" depth		4000	.003			.11	.34	.45	.54
2200	24" depth		3000	.004			.14	.45	.59	.71
2300	27" depth		2670	.004			.16	.51	.67	.80
2400	90% proctor, 6" depth		10400	.001			.04	.13	.17	.20
2500	9" depth		6935	.002			.06	.20	.26	.31
2600	12" depth		5200	.002			.08	.26	.34	.41
2700	15" depth		4160	.003			.10	.33	.43	.51
2800	18" depth		3470	.003			.12	.39	.51	.62
2900	95% proctor, 6" depth		1500	.008			.28	.91	1.19	1.43
3000	7" depth		1285	.009			.33	1.06	1.39	1.67
3100	8" depth		1125	.011			.38	1.21	1.59	1.90
3200	9" depth		1000	.012			.42	1.36	1.78	2.14

31 25 Erosion and Sedimentation Controls

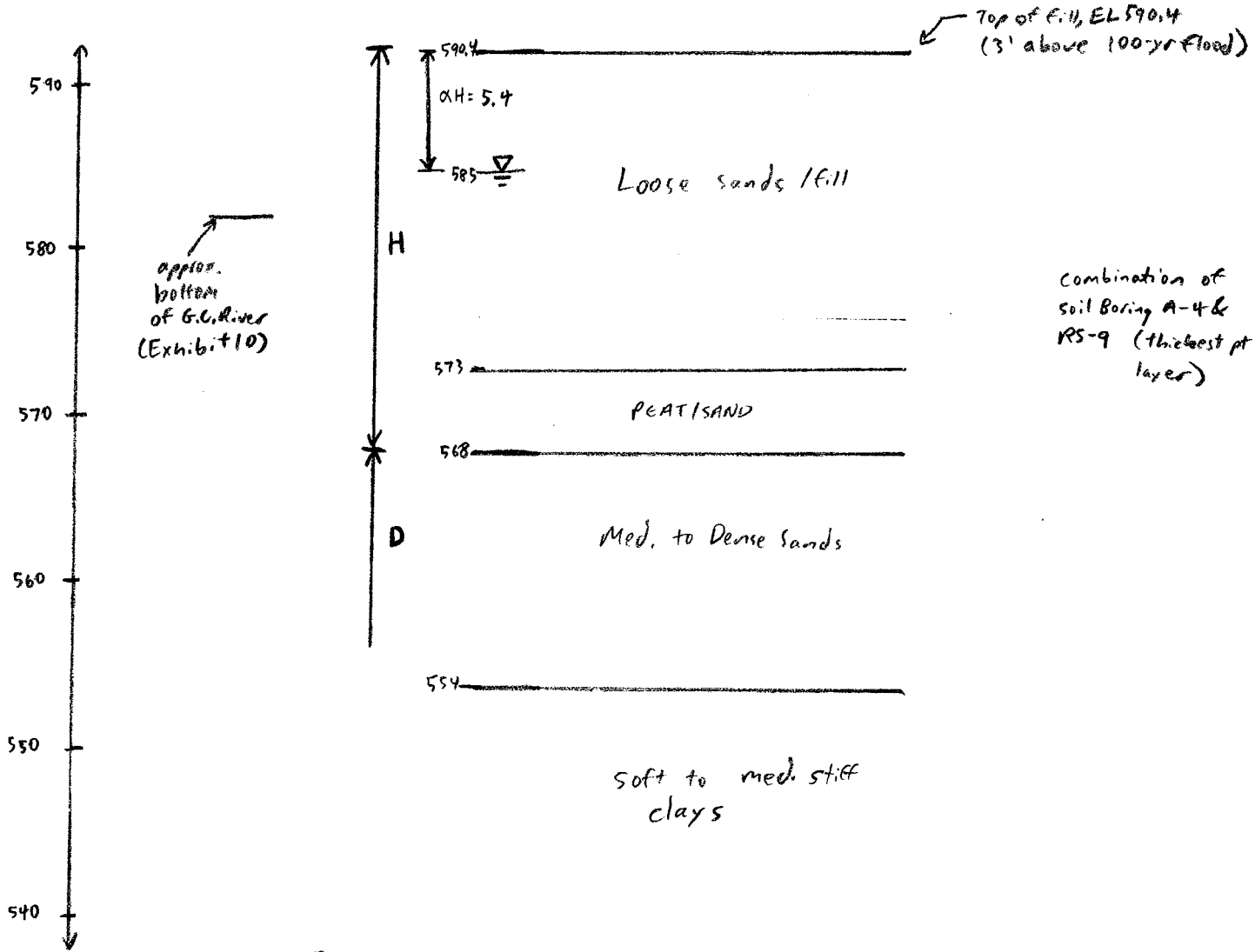
31 25 13 – Erosion Controls

	31 25 13.10 Synthetic Erosion Control									
0010	**SYNTHETIC EROSION CONTROL**									
0020	Jute mesh, 100 SY per roll, 4' wide, stapled	B-80A	2400	.010	S.Y.	.94	.29	.08	1.31	1.56
0060	Nylon, 3 dimensional geomatrix, 9 mil thick		700	.034		4.37	.99	.26	5.62	6.65
0062	12 mil thick		515	.047		5.95	1.34	.36	7.65	9
0064	18 mil thick		460	.052		6.25	1.50	.40	8.15	9.60
0070	Paper biodegradable mesh	B-1	2500	.010		.09	.28		.37	.54
0080	Paper mulch	B-64	20000	.001		.06	.02	.01	.09	.12
0100	Plastic netting, stapled, 2" x 1" mesh, 20 mil	B-1	2500	.010		.71	.28		.99	1.22
0120	Revegetation mat, webbed	2 Clab	1000	.016		5.70	.46		6.16	7

CDM

CLIENT		JOB NO.		COMPUTED BY	GBS
PROJECT	RSL	DATE CHECKED		DATE	
DETAIL	sheeting on northern berm	CHECKED BY		PAGE NO.	1/2

Objective: Determine appropriate depth of sheeting to support northern berm @ RSL



αH = EL 590.4 − 585 = 5.4

H = EL 590.4 − 568 = 22.4

(a) Assuming cantilever steel sheet pile wall in homogeneous granular soil

Soln.: Using DM-7.2, Figure 24 for this level of analysis (assume uniform granular soil)

$\alpha = \frac{5.4}{22.4} = 0.24$

for $\phi = 34°$, $K_a = 0.283$, $K_p = 3.537$; $K_p/K_a \approx 12.5$

for $\phi = 32°$, $K_a = 0.3333$, $K_p = 3.254$; $K_p/K_a = 9.8$

using Figure 24, with $\alpha = 0.24$ & $K_p/K_a = 12.5 \rightarrow D/H \approx 0.9$

$K_p/K_a = 9.8 \rightarrow D/H = 1.15$

For FS = 1.75, increase D by 30% +/- ; say $D/H = 1.15$

$D = (1.15)(H)(1.3) = 22.4(1.3)(1.15) = 33.5'$

total depth = 22.4 + 33.5 = 55.9 say **56'**

Cost Indexes

Construction Cost Index

With the labor cost component holding steady, a 0.2% decrease in materials costs was able to pull the CCI down.

20-CITY: 1913=100	JUNE 2007 INDEX VALUE	% CHG. MONTH	% CHG. YEAR
CONSTRUCTION COST	7938.58	–0.1	+3.1
COMMON LABOR	16693.95	0.0	+4.0
WAGE $/HR.	31.72	0.0	+4.0

Building Cost Index

The BCI followed the CCI's trend with a slight decline in the materials cost component and no change in labor costs.

20-CITY: 1913=100	JUNE 2007 INDEX VALUE	% CHG. MONTH	% CHG. YEAR
BUILDING COST	4471.23	–0.1	+3.0
SKILLED LABOR	7579.13	0.0	+5.1
WAGE $/HR.	42.06	0.0	+5.1

Materials Cost Index

A 1% decline in lumber prices was enough to offset increases of 0.2% for cement and 0.1% for steel prices.

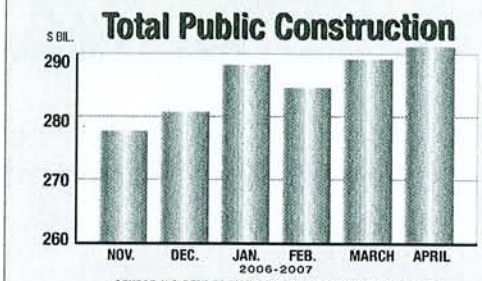
20-CITY: 1913=100	JUNE 2007 INDEX VALUE	% CHG. MONTH	% CHG. YEAR
MATERIALS	2572.39	–0.2	–0.5
CEMENT $/TON	99.66	+0.2	+6.5
STEEL $/CUT	40.32	+0.1	+7.0
LUMBER $/MBF	436.08	–1.0	–14.5

Public Works Continues to Gain Strength

The growth rate for total public construction rebounded for the second consecutive month, with the seasonally adjusted annual rate of construction put-in-place climbing 9% above April 2006's pace, according to the U.S. Dept. of Commerce (see chart). On a year-to-date basis, public construction in April jumped 12% above March's level and through the first four months of the year the market totaled $80 billion, which was 11% above the same period a year ago.

The highest growth rate in the public sector was a 24% increase for health-care work over the first four months of last year. Other key public markets posting double-digit growth over 2006 included a 16% increase for public safety, which includes prisons and court houses, and a 12% increase for the highway market, which accounts for 23% of all public construction.

Perhaps the most significant gain in the public sector was an 8% jump in public school building, which accounts for 27% of all public construction put-in-place.



SOURCE: U.S. DEPT OF COMMERCE. CONSTRUCTION PUT-IN-PLACE. SEASONALLY ADJUSTED RATE IN CURRENT DOLLARS.

Public Construction

MARKET: YEAR-TO-DATE $ BIL	2007 APRIL	2006 APRIL	% CHG. MONTH	% CHG. YEAR
TOTAL PUBLIC CONSTRUCTION	80.44	72.51	+11.7	+10.9
Residential	2.94	2.78	+8.1	+5.8
Office	3.63	3.38	+5.0	+7.4
Commercial	1.48	1.32	–1.1	+12.1
Health care	3.62	2.92	+12.3	+24.0
Educational	21.49	19.83	+8.0	+8.4
Public safety	3.80	3.27	+6.0	+16.2
Amusement and recreation	4.24	3.73	+9.2	+13.7
Transportation	6.36	5.66	+13.0	+12.4
Power	2.54	2.42	+18.3	+5.0
Highway and street	18.37	16.42	+23.3	+11.9
Sewage and waste disposal	5.69	5.30	+7.9	+7.4
Water supply	3.88	3.60	+1.8	+7.8
Conservation and development	1.83	1.70	+2.4	+7.7

SOURCE: DEPT. OF COMMERCE. CONSTRUCTION PUT-IN-PLACE.

Structural Steel, Rebar, Building Sheet, Piling

ITEM	UNIT	ATLANTA	BALTIMORE	BIRMINGHAM	BOSTON	CHICAGO	CINCINNATI	CLEVELAND	DALLAS	DENVER	DETROIT	KANSAS CITY
STANDARD STRUCTURAL SHAPES: AVERAGE	CUT	35.68	48.33	+46.08	42.13	34.53	45.67	+48.18	38.60	+37.99	+37.84	42.88
Channel beams, 6" DEEP, 8.2 LB/LF	CUT	35.97	47.00	+42.18	40.12	34.72	41.00	+50.55	37.00	+35.70	+40.78	40.55
I-beams, 6" DEEP, 12.5 lb/lf	CUT	37.80	50.50	+50.17	43.70	33.80	48.00	+46.00	36.90	40.00	+36.73	45.55
Wide-flange, 8" DEEP, 31 LB/LF	CUT	33.27	47.50	+45.90	42.58	35.08	48.00	+48.00	41.89	38.27	+36.00	42.55
REINFORCING BARS:												
Grade 60, #4	CUT	35.00	38.00	25.00	37.00	37.00	–	+36.00	+35.48	+35.07	+38.00	38.00
Epoxy-coated	CUT	–	–	–	53.20	–	–	–60.00	–	+40.28	68.00	–
HOT-ROLLED CARBON STEEL PLATE:												
12 gauge, 48" x 10'	CUT	+37.50	–	44.95	34.78	37.89	50.00	+74.80	37.84	+39.97	42.00	28.50
EXPANDED METAL LATH:												
Std diamond mesh, 3.4 LB/SY, GALVANIZED	CUT	+189.28	247.00	150.00	172.90	187.00	222.30	–	194.30	+192.94	–	–
Flat-ribbed, 3.4 lb/sy	CUT	+217.24	–	200.00	202.10	213.20	–	–	221.04	+196.80	–	–
BUILDING SHEET & PLATE:												
Aluminum sheet, 3003H14, 36" x 96"	CUT	+195.30	179.00	125.40	182.40	179.20	155.98	+220.90	192.40	+192.88	–220.00	–
STAINLESS STEEL SHEET:												
14 gauge	CUT	+154.54	250.00	+293.00	+138.25	144.27	264.21	+190.90	138.70	+154.15	+242.00	287.00
16 gauge	CUT	+159.98	251.00	+293.00	+141.00	145.88	266.21	+230.30	143.02	+157.74	+240.00	288.00
20 gauge	CUT	+164.73	257.00	+296.00	+149.00	152.00	268.21	+228.23	147.00	+170.08	+240.00	274.00
STAINLESS STEEL PLATE:												
304, 1/4", 72" x 240"	CUT	+168.42	–	267.67	142.80	193.90	323.60	+152.50	171.54	+171.02	+250.00	275.00
316, 1/4", 96" x 140"	CUT	+237.02	–	–	274.00	211.00	361.00	–290.00	193.75	+228.07	+285.00	295.00
STEEL PILING: H-PILE												
HP10 x 42	CUT	+26.92	48.00	47.80	25.00	+25.00	45.00	+24.75	25.10	25.45	+25.20	–

+ or – denotes price has risen or fallen since previous report. Monthly market quotations by ENR field reporters as of June 15, 2007. All prices are spot prices quoted from a single source. All prices are FOB warehouse except metal lath, which is FOB city. Stainless steel sheet prices are for type 304, 2B finish, 48 x 120-in. Steel piles are high-strength A572. Some prices may include taxes or discounts for prompt payment, etc. Product specifications may vary depending on what is most

DIVISION		IDAHO			ILLINOIS														
		TWIN FALLS			CHICAGO			DECATUR			EAST ST. LOUIS			JOLIET			PEORIA		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
01543	CONTRACTOR EQUIPMENT	.0	101.1	101.1	.0	90.7	90.7	.0	102.2	102.2	.0	108.7	108.7	.0	88.5	88.5	.0	101.3	101.3
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	86.2	99.1	95.4	97.9	90.7	92.7	87.5	95.9	93.6	104.2	96.4	98.6	97.7	88.8	91.4	96.5	94.8	95.3
0310	CONCRETE FORMING & ACCESSORIES	99.4	34.1	43.3	100.7	146.5	140.0	96.9	99.3	99.0	91.1	110.4	107.7	101.5	134.2	129.5	95.3	101.8	100.9
0310	CONCRETE REINFORCING	109.9	74.3	92.5	97.3	148.9	122.5	95.3	96.2	95.7	97.2	105.2	101.1	97.3	129.7	113.1	95.3	100.2	97.7
0330	CAST-IN-PLACE CONCRETE	102.2	43.2	80.0	108.5	137.4	119.4	99.5	100.2	99.7	93.1	102.5	96.6	108.4	124.6	114.5	97.2	100.6	98.5
03	CONCRETE	114.8	45.9	82.2	106.4	142.8	123.6	96.6	99.5	98.0	88.1	107.6	97.3	106.4	129.2	117.2	95.4	101.5	98.3
04	MASONRY	130.4	36.3	74.0	96.0	138.4	121.4	70.0	103.8	90.2	73.7	109.4	95.1	99.0	122.2	112.9	111.0	109.7	110.2
05	METALS	112.1	71.7	99.8	98.3	127.7	107.2	99.0	104.6	100.7	96.7	120.4	103.9	96.1	115.9	102.1	99.0	107.5	101.5
06	WOOD, PLASTICS & COMPOSITES	95.1	33.1	62.3	102.8	146.7	126.0	99.4	95.9	97.6	95.1	111.4	103.7	104.4	137.1	121.7	99.4	98.0	98.7
07	THERMAL & MOISTURE PROTECTION	93.2	44.0	73.4	100.2	134.4	113.9	96.2	98.8	97.2	90.7	106.4	97.0	99.6	123.8	109.3	96.3	100.8	98.1
08	OPENINGS	97.6	41.0	82.9	102.6	149.7	114.8	97.0	97.4	97.1	86.5	115.7	94.1	100.6	139.4	110.6	97.2	97.7	97.3
0920	PLASTER & GYPSUM BOARD	86.7	31.1	53.6	94.1	147.9	126.1	101.5	95.7	98.0	98.4	111.6	106.2	91.9	138.1	119.4	101.5	97.8	99.3
0950,0980	CEILINGS & ACOUSTIC TREATMENT	104.2	31.1	60.2	100.0	147.9	128.8	94.8	95.7	95.3	88.1	111.6	102.2	100.0	138.1	122.9	94.8	97.8	96.6
0960	FLOORING	100.3	51.9	87.4	84.0	132.3	96.9	98.0	102.2	99.1	106.5	118.3	109.7	83.5	123.4	94.2	98.0	103.7	99.5
0990	WALL FINISHES & PAINTING/COATING	99.6	29.9	57.9	83.0	141.5	118.0	91.5	98.5	95.7	99.3	98.7	98.9	81.0	127.9	109.0	91.5	90.1	90.7
09	FINISHES	98.0	36.0	66.0	90.6	144.0	118.1	95.6	99.9	97.8	94.4	109.4	102.1	90.0	132.6	112.0	95.7	100.9	98.4
COVERS	DIVS. 10 - 14,25,28,41,43,44	100.0	43.3	88.3	100.0	124.6	105.1	100.0	84.7	96.9	100.0	102.1	100.4	100.0	119.2	104.0	100.0	98.5	99.7
22, 23	PLUMBING & HVAC	99.9	60.2	83.7	99.9	129.7	112.0	100.0	102.0	100.8	99.9	96.7	98.6	100.0	113.2	105.4	100.0	94.2	97.6
26, 27, 3370	ELECTRICAL COMMUNICATIONS & UTIL.	84.1	67.9	76.4	96.3	131.9	113.4	97.0	88.3	92.9	94.1	99.5	96.7	94.9	99.4	97.0	96.1	82.9	89.8
MF2004	WEIGHTED AVERAGE	102.3	56.2	82.4	99.2	131.9	113.3	96.4	98.5	97.3	94.1	105.0	98.8	98.6	116.8	106.4	98.5	97.8	98.2

DIVISION		ILLINOIS						INDIANA											
		ROCKFORD			SPRINGFIELD			ANDERSON			BLOOMINGTON			EVANSVILLE			FORT WAYNE		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
01543	CONTRACTOR EQUIPMENT	.0	101.3	101.3	.0	102.2	102.2	.0	96.3	96.3	.0	85.6	85.6	.0	120.9	120.9	.0	96.3	96.3
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	95.6	95.7	95.7	93.2	95.8	95.1	85.3	94.7	92.0	74.5	94.7	89.0	79.1	128.8	114.8	86.1	94.7	92.3
0310	CONCRETE FORMING & ACCESSORIES	99.2	119.4	116.6	98.6	99.0	99.0	93.8	77.5	79.8	99.0	78.1	81.1	92.2	79.6	81.4	92.5	75.5	77.9
0310	CONCRETE REINFORCING	90.2	119.7	104.6	95.3	92.4	93.9	96.6	77.1	87.1	86.7	82.3	84.5	95.0	78.9	87.1	96.6	78.9	88.0
0330	CAST-IN-PLACE CONCRETE	99.5	118.3	106.6	88.0	99.8	92.4	94.1	80.2	88.9	96.9	77.3	89.5	92.5	89.5	91.4	100.0	78.6	92.0
03	CONCRETE	96.0	119.2	106.9	90.9	98.5	94.5	91.7	78.9	85.6	99.4	78.4	89.5	99.5	83.1	91.8	94.6	77.8	86.7
04	MASONRY	86.2	108.7	99.7	74.0	103.1	91.4	89.6	81.4	84.7	88.0	77.4	81.7	84.1	82.9	83.4	93.2	82.6	86.9
05	METALS	99.0	118.9	105.0	101.5	102.6	101.8	92.4	87.1	90.8	95.4	76.3	89.6	88.2	85.2	87.3	92.4	87.6	90.9
06	WOOD, PLASTICS & COMPOSITES	99.4	118.3	109.4	102.0	95.9	98.8	112.1	76.8	93.5	117.0	77.3	96.0	96.4	77.4	86.4	111.9	73.9	91.8
07	THERMAL & MOISTURE PROTECTION	99.2	113.2	104.8	95.8	100.0	97.5	99.0	80.2	91.5	90.9	81.6	87.1	94.9	85.6	91.2	98.8	83.6	92.7
08	OPENINGS	97.2	118.0	102.5	98.2	96.4	97.7	98.3	78.6	93.2	104.0	80.3	97.8	96.2	78.2	91.5	98.3	74.7	92.2
0920	PLASTER & GYPSUM BOARD	101.5	118.7	111.7	101.5	95.7	98.0	93.6	76.7	83.5	93.5	77.4	83.9	89.1	76.0	81.3	92.9	73.7	81.5
0950,0980	CEILINGS & ACOUSTIC TREATMENT	94.8	118.7	109.2	94.8	95.7	95.3	88.3	76.7	81.3	80.3	77.4	78.6	84.8	76.0	79.5	88.3	73.7	79.5
0960	FLOORING	98.0	86.1	94.8	98.2	101.8	99.2	92.8	89.4	91.9	105.3	90.3	101.3	98.7	85.5	95.2	92.8	77.9	88.8
0990	WALL FINISHES & PAINTING/COATING	91.5	117.1	106.9	91.5	98.5	95.7	95.5	74.6	83.0	92.1	86.3	88.6	98.7	88.1	92.4	95.5	77.6	84.8
09	FINISHES	95.7	113.0	104.6	95.7	99.7	97.8	90.1	79.3	84.5	94.0	81.1	87.4	92.4	81.3	86.7	89.8	76.0	82.7
COVERS	DIVS. 10 - 14,25,28,41,43,44	100.0	108.8	101.8	100.0	84.5	96.8	100.0	90.5	98.1	100.0	85.8	97.1	100.0	90.7	98.1	100.0	85.2	97.0
22, 23	PLUMBING & HVAC	100.0	111.1	104.5	100.0	97.2	98.8	99.9	75.2	89.8	99.7	81.9	92.4	99.9	83.7	93.3	99.9	77.6	90.8
26, 27, 3370	ELECTRICAL COMMUNICATIONS & UTIL.	96.6	102.8	99.6	97.7	83.2	90.8	84.6	91.5	87.9	99.8	84.2	92.3	94.4	83.8	89.4	85.7	79.4	82.6
MF2004	WEIGHTED AVERAGE	97.5	110.8	103.2	96.7	96.4	96.6	94.1	82.6	89.2	97.5	81.8	90.7	94.8	87.3	91.6	94.8	80.8	88.7

DIVISION		INDIANA															IOWA		
		GARY			INDIANAPOLIS			MUNCIE			SOUTH BEND			TERRE HAUTE			CEDAR RAPIDS		
		MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL	MAT.	INST.	TOTAL
01543	CONTRACTOR EQUIPMENT	.0	96.3	96.3	.0	91.3	91.3	.0	95.7	95.7	.0	106.2	106.2	.0	120.9	120.9	.0	96.0	96.0
0241, 31 - 34	SITE & INFRASTRUCTURE, DEMOLITION	85.9	97.4	94.1	85.4	98.6	94.9	74.4	94.8	89.0	85.1	95.1	92.3	80.6	128.6	115.0	92.8	95.8	94.9
0310	CONCRETE FORMING & ACCESSORIES	93.9	102.9	101.6	94.3	87.4	88.4	90.2	77.2	79.0	97.9	79.0	81.7	93.6	79.6	81.6	101.3	81.1	84.0
0310	CONCRETE REINFORCING	96.6	95.8	96.2	95.9	84.2	90.2	95.9	77.0	86.7	96.6	73.2	85.2	95.0	82.8	89.0	95.6	84.0	89.9
0330	CAST-IN-PLACE CONCRETE	98.3	108.3	102.0	90.5	88.0	89.6	101.8	79.2	93.3	89.4	83.2	87.1	89.6	88.8	89.3	104.1	77.7	94.2
03	CONCRETE	93.8	103.5	98.4	93.3	86.6	90.1	98.8	78.4	89.2	85.9	80.7	83.5	101.9	83.6	93.2	99.3	81.1	90.7
04	MASONRY	90.9	103.3	98.3	97.7	85.1	90.2	90.0	81.3	84.8	88.1	81.0	83.9	91.0	82.0	85.6	103.1	80.8	89.7
05	METALS	92.4	101.4	95.1	94.3	79.7	89.8	97.1	86.9	94.0	92.4	99.0	94.4	88.9	87.5	88.5	89.4	92.8	90.5
06	WOOD, PLASTICS & COMPOSITES	110.0	103.0	106.3	109.1	87.2	97.5	109.5	76.6	92.1	112.0	77.9	94.0	98.7	78.7	88.1	108.4	80.0	93.4
07	THERMAL & MOISTURE PROTECTION	98.1	102.7	100.0	97.2	86.9	93.0	93.2	80.2	88.0	96.7	84.5	91.8	95.0	82.4	89.9	99.3	81.5	92.1
08	OPENINGS	98.3	100.8	99.0	106.1	86.1	100.9	98.9	78.5	93.6	91.7	77.9	88.1	96.7	81.1	92.7	98.6	84.0	94.8
0920	PLASTER & GYPSUM BOARD	89.1	103.5	97.7	92.1	87.1	89.1	88.9	76.7	81.7	93.2	77.8	84.1	89.1	77.4	82.2	99.2	79.8	87.7
0950,0980	CEILINGS & ACOUSTIC TREATMENT	88.3	103.5	97.4	92.5	87.1	89.3	81.1	76.7	78.5	88.3	77.8	82.0	84.8	77.4	80.4	114.0	79.8	93.4
0960	FLOORING	92.8	115.6	98.9	92.6	92.0	92.4	97.8	89.4	95.6	91.4	82.3	88.9	98.7	93.7	97.3	125.6	53.6	106.4
0990	WALL FINISHES & PAINTING/COATING	95.5	104.5	100.9	95.5	92.0	93.4	92.1	74.6	81.7	94.9	81.2	86.7	98.7	90.4	93.8	105.3	74.1	86.6
09	FINISHES	89.2	105.7	97.7	91.1	88.9	90.0	91.0	79.1	84.9	89.5	79.8	84.5	92.4	83.3	87.7	112.0	74.3	92.5
COVERS	DIVS. 10 - 14,25,28,41,43,44	100.0	89.9	97.9	100.0	93.8	98.7	100.0	89.9	97.9	100.0	86.1	97.1	100.0	93.8	98.7	100.0	87.5	97.4
22, 23	PLUMBING & HVAC	99.9	98.6	99.4	99.9	87.0	94.6	99.6	75.1	89.7	99.9	79.0	91.4	99.9	73.4	89.1	100.3	85.6	94.3
26, 27, 3370	ELECTRICAL COMMUNICATIONS & UTIL.	98.0	99.7	98.8	101.6	91.4	96.7	89.7	82.2	86.1	96.7	84.9	91.0	92.9	84.3	88.8	95.5	83.9	89.9
MF2004	WEIGHTED AVERAGE	95.9	100.9	98.1	97.7	88.1	93.6	95.9	81.2	89.5	94.1	83.9	89.7	95.5	85.8	91.3	98.8	84.2	92.5

temporary sheet pile

31 36 Gabions

31 36 13 – Gabion Boxes

31 36 13.10 Gabion Boxes

		Crew	Daily Output	Labor-Hours	Unit	2007 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**GABION BOXES**									
0400	Gabions, galvanized steel mesh mats or boxes, stone filled, 6" deep	B-13	200	.280	S.Y.	20.50	8.80	3.70	33	40
0500	9" deep		163	.344		31.50	10.75	4.54	46.79	56.50
0600	12" deep		153	.366		33	11.45	4.84	49.29	59.50
0700	18" deep		102	.549		41.50	17.20	7.25	65.95	80.50
0800	36" deep		60	.933		70	29.50	12.35	111.85	136

31 37 Riprap

31 37 13 – Machined Riprap

31 37 13.10 Rip-Rap and Rock Lining

0010	**RIP-RAP AND ROCK LINING,** Random, broken stone									
0100	Machine placed for slope protection	B-12G	62	.258	L.C.Y.	25.50	8.85	9.85	44.20	52.50
0110	3/8 to 1/4 C.Y. pieces, grouted	B-13	80	.700	S.Y.	60.50	22	9.25	91.75	111
0200	18" minimum thickness, not grouted	"	53	1.057	"	15.85	33	13.95	62.80	84
0300	Dumped, 50 lb. average	B-11A	800	.020	Ton	23	.67	1.24	24.91	28
0350	100 lb. average		700	.023		33	.77	1.41	35.18	38.50
0370	300 lb. average		600	.027		38.50	.90	1.65	41.05	45

31 41 Shoring

31 41 13 – Timber Shoring

31 41 13.10 Shoring

0010	**SHORING**									
0020	Shoring, existing building, with timber, no salvage allowance	B-51	2.20	21.818	M.B.F.	715	635	64.50	1,414.50	1,850
1000	On cribbing with 35 ton screw jacks, per box and jack	"	3.60	13.333	Jack	52	385	39.50	476.50	700
1100	Masonry openings in walls, see div. 02 41 19.16									

31 41 16 – Sheet Piling

31 41 16.10 Sheet Piling

0010	**SHEET PILING**									
0020	Sheet piling steel, not incl. wales, 22 psf, 15' excav., left in place	B-40	10.81	5.920	Ton	1,000	218	275	1,493	1,750
0100	Drive, extract & salvage		6	10.667		450	395	495	1,340	1,675
0300	20' deep excavation, 27 psf, left in place		12.95	4.942		1,000	182	230	1,412	1,650
0400	Drive, extract & salvage		6.55	9.771		450	360	455	1,265	1,575
0600	25' deep excavation, 38 psf, left in place		19	3.368		1,000	124	157	1,281	1,475
0700	Drive, extract & salvage		10.50	6.095		450	225	284	959	1,150
0900	40' deep excavation, 38 psf, left in place		21.20	3.019		1,000	111	140	1,251	1,425
1000	Drive, extract & salvage		12.25	5.224		450	193	243	886	1,075
1200	15' deep excavation, 22 psf, left in place		983	.065	S.F.	11.75	2.40	3.03	17.18	20
1300	Drive, extract & salvage		545	.117		5.05	4.33	5.45	14.83	18.40
1500	20' deep excavation, 27 psf, left in place		960	.067		14.75	2.46	3.10	20.31	23.50
1600	Drive, extract & salvage		485	.132		6.55	4.87	6.15	17.57	21.50
1800	25' deep excavation, 38 psf, left in place		1000	.064		21.50	2.36	2.98	26.84	31
1900	Drive, extract & salvage		553	.116		8.95	4.27	5.40	18.62	22.50
2100	Rent steel sheet piling and wales, first month				Ton	240			240	264
2200	Per added month					24			24	26.50
2300	Rental piling left in place, add to rental					800			800	880
2500	Wales, connections & struts, 2/3 salvage					245			245	269
2700	High strength piling, 50,000 psi, add					54.50			54.50	60
2800	55,000 psi, add					57.50			57.50	63.50
3000	Tie rod, not upset, 1-1/2" to 4" diameter with turnbuckle					1,775			1,775	1,975

permanent sheet pile

31 36 Gabions

31 36 13 – Gabion Boxes

31 36 13.10 Gabion Boxes

		Crew	Daily Output	Labor-Hours	Unit	2007 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**GABION BOXES**									
0400	Gabions, galvanized steel mesh mats or boxes, stone filled, 6" deep	B-13	200	.280	S.Y.	20.50	8.80	3.70	33	40
0500	9" deep		163	.344		31.50	10.75	4.54	46.79	56.50
0600	12" deep		153	.366		33	11.45	4.84	49.29	59.50
0700	18" deep		102	.549		41.50	17.20	7.25	65.95	80.50
0800	36" deep		60	.933		70	29.50	12.35	111.85	136

31 37 Riprap

31 37 13 – Machined Riprap

31 37 13.10 Rip-Rap and Rock Lining

0010	**RIP-RAP AND ROCK LINING,** Random, broken stone									
0100	Machine placed for slope protection	B-12G	62	.258	L.C.Y.	25.50	8.85	9.85	44.20	52.50
0110	3/8 to 1/4 C.Y. pieces, grouted	B-13	80	.700	S.Y.	60.50	22	9.25	91.75	111
0200	18" minimum thickness, not grouted	"	53	1.057	"	15.85	33	13.95	62.80	84
0300	Dumped, 50 lb. average	B-11A	800	.020	Ton	23	.67	1.24	24.91	28
0350	100 lb. average		700	.023		33	.77	1.41	35.18	38.50
0370	300 lb. average		600	.027		38.50	.90	1.65	41.05	45

31 41 Shoring

31 41 13 – Timber Shoring

31 41 13.10 Shoring

0010	**SHORING**									
0020	Shoring, existing building, with timber, no salvage allowance	B-51	2.20	21.818	M.B.F.	715	635	64.50	1,414.50	1,850
1000	On cribbing with 35 ton screw jacks, per box and jack	"	3.60	13.333	Jack	52	385	39.50	476.50	700
1100	Masonry openings in walls, see div. 02 41 19.16									

31 41 16 – Sheet Piling

31 41 16.10 Sheet Piling

0010	**SHEET PILING**									
0020	Sheet piling steel, not incl. wales, 22 psf, 15' excav., left in place	B-40	10.81	5.920	Ton	1,000	218	275	1,493	1,750
0100	Drive, extract & salvage		6	10.667		450	395	495	1,340	1,675
0300	20' deep excavation, 27 psf, left in place		12.95	4.942		1,000	182	230	1,412	1,650
0400	Drive, extract & salvage		6.55	9.771		450	360	455	1,265	1,575
0600	25' deep excavation, 38 psf, left in place		19	3.368		1,000	124	157	1,281	1,475
0700	Drive, extract & salvage		10.50	6.095		450	225	284	959	1,150
0900	40' deep excavation, 38 psf, left in place		21.20	3.019		1,000	111	140	1,251	1,425
1000	Drive, extract & salvage		12.25	5.224		450	193	243	886	1,075
1200	15' deep excavation, 22 psf, left in place		983	.065	S.F.	11.75	2.40	3.03	17.18	20
1300	Drive, extract & salvage		545	.117		5.05	4.33	5.45	14.83	18.40
1500	20' deep excavation, 27 psf, left in place		960	.067		14.75	2.46	3.10	20.31	23.50
1600	Drive, extract & salvage		485	.132		6.55	4.87	6.15	17.57	21.50
1800	25' deep excavation, 38 psf, left in place		1000	.064		21.50	2.36	2.98	26.84	31
1900	Drive, extract & salvage		553	.116		8.95	4.27	5.40	18.62	22.50
2100	Rent steel sheet piling and wales, first month				Ton	240			240	264
2200	Per added month					24			24	26.50
2300	Rental piling left in place, add to rental					800			800	880
2500	Wales, connections & struts, 2/3 salvage					245			245	269
2700	High strength piling, 50,000 psi, add					54.50			54.50	60
2800	55,000 psi, add					57.50			57.50	63.50
3000	Tie rod, not upset, 1-1/2" to 4" diameter with turnbuckle					1,775			1,775	1,975

- **Purchasing Adjacent Land (Gary Department of Revenue, July 2007)**
    - Acquisition
    - Relocation
    - Demolition

Figure 2-4. Parcels East of the Ralston Street Lagoon

PARCELS EAST OF THE RALSTON STREET LAGOON PROJECT

KEY NUMBER	ADDRESS	OWNER NAME	STRUCTURE STATUS	ESTIMATED APPRAISED VALUE	ACQUISITION COST	RELOCATION COST	DEMOLITION COST
46-0252-0017	138-42 MOUNT STREET	N G LAND	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0252-0018	144-48 MOUNT STREET	N G LAND	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0252-0019	150-54 MOUNT STREET	N G LAND	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0252-0027	156-60 MOUNT STREET	JOSE & MARIA FLORES-reta	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0252-0001	5027 RIVERSIDE DRIVE	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
46-0252-0002	5021-25 RIVERSIDE DRI	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
46-0252-0003	5015-19 RIVERSIDE DRI	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
46-0252-0004	5009-13 RIVERSIDE DRI	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
46-0252-0005	5001 RIVERSIDE DRIVE	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
46-0252-0006	121 DURBIN STREET	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
46-0252-0007	127-31 DURBIN STREET	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
46-0252-0008	133 DURBIN STREET	GUADALUPE ACEVEDO	OCCUPIED STRU	$20,000.00	$15,000.00	$22,500.00	$3,000.00
46-0252-0009	139 DURBIN STREET	RUMALDO & GUADALUPE A	OCCUPIED STRU	$20,000.00	$15,000.00	$22,500.00	$3,000.00
46-0252-0010	149 DURBIN STREET	RUMALDO & GUADALUPE A	OCCUPIED STRU	$20,000.00	$20,000.00	$22,500.00	$3,000.00
46-0252-0011	155 DURBIN STREET	ROSA SIERRA	OCCUPIED STRU	$20,000.00	$20,000.00	$22,500.00	$3,000.00
46-0252-0012	157 DURBIN STREET	JOSE & MARIA FLORES-RET	OCCUPIED STRU	$25,000.00	$20,000.00	$22,500.00	$3,000.00
46-0252-0013	163 DURBIN STREET	INDIANA TOLL ROAD	VACANT LAND	$10,000.00	$0.00	$0.00	$0.00
46-0252-0014	120-24 MOUNT STREET	NG LAND	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0252-0015	126-30 MOUNT STREET	NG LAND	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0252-0016	132-36 MOUNT STREET	NG LAND	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0001	5131 RIVERSIDE DRIVE	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0002	5125-29 RIVERSIDE DRI	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0003	5119 RIVERSIDE DRIVE	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0004	5113-17 RIVERSIDE DRI	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0005	5107 RIVERSIDE DRIVE	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0006	5101 RIVERSIDE DRIVE	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0007	121-25 HANLEY STREET	MANUEL & YOLANDA MEDI	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0008	127-31 HANLEY STREET	MANUEL & YOLANDA MEDI	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0009	133 HANLEY STREET	MANUEL MEDINA	OCCUPIED STRU	$25,000.00	$25,000.00	$22,500.00	$3,000.00
25-46-0251-0010	139-49 HANLEY STREET	MANUEL MEDINA	VACANT LAND	$6,000.00	$0.00	$0.00	$0.00
25-46-0251-0011	145 HANLEY STREET	DON AND JOAN DONALD	OCCUPIED STRU	$20,000.00	$25,000.00	$22,500.00	$3,000.00
25-46-0251-0012	151 HANLEY STREET	MANUEL MEDINA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0013	157-61 HANLEY STREET	DON AND JOAN DONALD	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0014	155 HANLEY STREET	DON AND JOAN DONALD	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0015	120 DURBIN STREET	CHICAGO PLANK AND PINE	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0016	126 DURBIN STREET	CHICAGO PLANK AND PINE	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0017	134 DURBIN STREET	GARY REGIONAL AIRPORT	VACANT LAND	$10,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0018	138-42 DURBIN STREET	PRINCELLA ASKEW	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0019	144-48 DURBIN STREET	PRINCELLA ASKEW	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0020	150 DURBIN STREET	ESPERANAZA RAMIREZ	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0021	156-60 DURBIN STREET	CHICAGO PLANK AND PINE	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0251-0029	162-66 DURBIN STREET	PORFERIO AND LONGORIA T	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
25-46-0250-0001	5235-31 RIVERSIDE DRI	JOSE AND MARGIE GARZA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00

25-46-0250-0002	5225 RIVERSIDE DRIVE	JOSE AND MARGIE GARZA	OCCUPIED STRU	$25,000.00	$30,000.00	$22,500.00	$3,000.00
25-46-0250-0003	5219 RIVERSIDE DRIVE	IRMA OCHA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0004	5213-17 RIVERSIDE DRI	IRMA OCHA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0005	5207-11 RIVERSIDE DRI	IRMA OCHA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0006	5201-05 RIVERSIDE DRI	IRMA OCHA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0007	125 RALSTON STREET	MARTHA MEDINA	OCCUPIED STRU	$35,000.00	$30,000.00	$22,500.00	$3,000.00
46-0250-0008	127 RALSTON STREET	MARTHA MEDINA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0009	133 RALSTON STREET	JOSE & EMILIA DIAZ	OCCUPIED STRU	$20,000.00	$25,000.00	$22,500.00	$3,000.00
46-0250-0010	139-43 RALSTON STREE	JOSE DIAZ	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0011	145-49 RALSTON STREE	JOSE DIAZ	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0012	151-55 RALSTON STREE	IRIS JUNE MARKS	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0013	157-61 RALSTON STREE	IRIS JUNE MARKS	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0014	163-67 RALSTON STREE	IRIS JUNE MARKS	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0015	120-24 HANLEY STREET	IRMA OCHA	VACANT LAND	$6,000.00	$0.00	$0.00	$0.00
46-0250-0016	128 HANLEY STREET	IRMA OCHA	OCCUPIED STRU	$20,000.00	$20,000.00	$22,500.00	$3,000.00
46-0250-0017	132-36 HANLEY STREET	ADELE G. FREVILLE	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0018	138 HANLEY STREET	CARMEN BENITEZ & IRMA S. OCHOA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0019	144-48 HANLEY STREET	CARMEN BENITEZ & IRMA S. OCHOA	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0020	154 HANLEY STREET	CARMEN BENITEZ & IRMA SALAS	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
46-0250-0021	150 HANLEY STREET	CARMEN BENITEZ & IRMA SALAS	OCCUPIED STRU	$20,000.00	$20,000.00	$22,500.00	$3,000.00
46-0250-0029	162-66 HANLEY STREET	CARMEN BENITEZ & IRMA SALAS	VACANT LAND	$6,000.00	$3,000.00	$0.00	$0.00
Total Cost					$412,000.00	$270,000.00	$36,000.00

- **Cap Placement**
  - HDPE Liner
  - GCL
  - Drainage Layer
  - Common Fill Layer
  - Top Soil Layer (6 inches)
  - Compression Cap

ALTERNATIVE 5

OBJECTIVES

(1) Calculating the volume of fill required to bulk dewatered sludge from 15% solids --> 50% solids
(2) Calculate volume of bulked sludge (at 50% solids)

Step 1: Initial Volumes and Masses (sludge with 15% solids)

V sludge (15% solids)	107,686,020	gal	(Fluor Daniel, 1996)
=	533,169	CY	
=	14,395,564	ft3	
Bulk Density of sludge at 15% solids	67.5	pcf (Earth Tech, 2004)	
Density Water	62.4	pcf	
Mass Sludge at 15% Solids	971,700,602	lbs	(= Volume sludge x Bulk Density of sludge at 15% solids)
% Solids	15%		
% Water	85%		
Mass Solids at 15% Solids	145,755,090	lbs	(= Mass Sludge x % Solids)
Mass Water at 15% Solids	825,945,511	lbs	(= Mass Sludge x % Water)
Total (M Sludge - CHECK)	971,700,602	lbs	(=M Solids + M Water)
V Sludge	14,395,564	ft3	GIVEN
V Water	13,236,306	ft3	(= M water / Density Water)
V Solids	1,159,258	ft3	(= V sludge - V water, assuming 100% saturation)

Step 2: Calculate Volume of Fill to bulk from 15% ---> 50% solids (BY MASS)

Mass Solids at 15% Solids	145,755,090	lbs
Mass Water at 15% Solids	825,945,511	lbs

Add enough Fill w/ 15% moisture content (Mass water/Mass solids = 15%) to get 70% solids

Bulk Density of imported fill:	110	pcf (assumption)
Fill Moisture Content	15%	(= Mass water / Mass solids)
Substitute for Mass solids	Mass solids	(= Mass water / 15%)

Mass Solids at 50% Solids	(= Sludge Mass Solids at 15% Solids + Fill Mass Solids)	=50%
=	(= Sludge Mass Solids at 15% Solids + Fill Mass water / 15%)	
Mass Water at 50% Solids	(= Sludge Mass Water at 15% Solids + Fill Mass Water)	=50%

Mass Solids/Mass Water = 50% / 50% = 1.00

Use GOAL SEEK to solve for Mass Solids and Mass Water

Fill Mass solids:	800,217,379	lbs solids	1	
Fill Mass water:	120,032,607	lbs water	1.00	0.15

Fill Mass total	920,249,985	lbs	(=Fill Mass solids + Fill Mass water)
Volume Fill	8,365,909	ft3	(= Fill Mass total / Density Fill, assuming Density fill = 110 pcf)
=	309,848	CY	of Fill required to bulk from 15% solids --> 50% solids

Step 3: Calculate Volume of sludge in lagoon after bulking to 50% solids (BY MASS)

Mass Sludge at 15% Solids	971,700,602	lbs	
Mass Fill	920,249,985	lbs	
Bulk Density of sludge at 50% solids:	95	pcf (assumption)	
Total Mass	1,891,950,586.87	lbs	(=mass sludge + mass fill)
Total Volume	19,915,269	ft3	(=total mass/bulked density of sludge at 50% solids)
=	737,603	CY	of bulked sludge
	19,915,269	ft3	
	148,976,172	gal	

Step 4: Calculate Volume of bulked sludge in lagoon after In-situ S/S (BY MASS)

Volume of bulked sludge (50% solids) in lagoon	737,603	CY	
Assumed dosage of pozzalonic for In-situ S/S	30.0%		
Volume of sludge after S/S	958,883	CY	(=vol*(1+0.3), assuming volume increases by dosage of pozzalonic)
	25,889,850.14	ft3	
	193,669,023.94	gal	

ALTERNATIVE 8

OBJECTIVES

(1) Calculating the volume of fill required to bulk dewatered sludge from 15% solids --> 70% solids
(2) Calculate volume of bulked sludge (at 70% solids)

Step 1: Initial Volumes and Masses (sludge with 15% solids)

V sludge (15% solids)	107,686,020	gal	(Fluor Daniel, 1996)
=	533,169	CY	
=	14,395,564	ft3	
Bulk Density of sludge at 15% solids	67.5	pcf (Earth Tech, 2004)	
Density Water	62.4	pcf	
Mass Sludge at 15% Solids	971,700,602	lbs	(= Volume sludge x Bulk Density of sludge at 15% solids)
% Solids	15%		
% Water	85%		
Mass Solids at 15% Solids	145,755,090	lbs	(= Mass Sludge x % Solids)
Mass Water at 15% Solids	825,945,511	lbs	(= Mass Sludge x % Water)
Total (M Sludge - CHECK)	971,700,602	lbs	(=M Solids + M Water)
V Sludge	14,395,564	ft3	GIVEN
V Water	13,236,306	ft3	(= M water / Density Water)
V Solids	1,159,258	ft3	(= V sludge - V water, assuming 100% saturation)

Step 2: Calculate Volume of Fill to bulk from 15% ---> 70% solids (BY MASS)

Mass Solids at 15% Solids	145,755,090	lbs	
Mass Water at 15% Solids	825,945,511	lbs	

Add enough Fill w/ 15% moisture content (Mass water/Mass solids = 15%) to get 70% solids

Bulk Density of imported fill:	110	pcf (assumption)	
Fill Moisture Content	15%	(= Mass water / Mass solids)	
Substitute for Mass solids	Mass solids	(= Mass water / 15%)	
Mass Solids at 70% Solids	(= Sludge Mass Solids at 15% Solids + Fill Mass Solids)		=70%
	(= Sludge Mass Solids at 15% Solids + Fill Mass water / 15%)		
Mass Water at 30% Solids	(= Sludge Mass Water at 15% Solids + Fill Mass Water)		=30%

Mass Solids/Mass Water = 70% / 30% = 2.33

Use GOAL SEEK to solve for Mass Solids and Mass Water				
Fill Mass solids:	2,740,534,223	lbs solids	2.333333	
Fill Mass water:	411,080,133	lbs water	2.33	0.15

Fill Mass total	3,151,614,357	lbs	(=Fill Mass solids + Fill Mass water)
Volume Fill	28,651,040	ft3	(= Fill Mass total / Density Fill, assuming Density fill = 110 pcf)
=	1,061,150	CY	of Fill required to bulk from 15% solids --> 70% solids

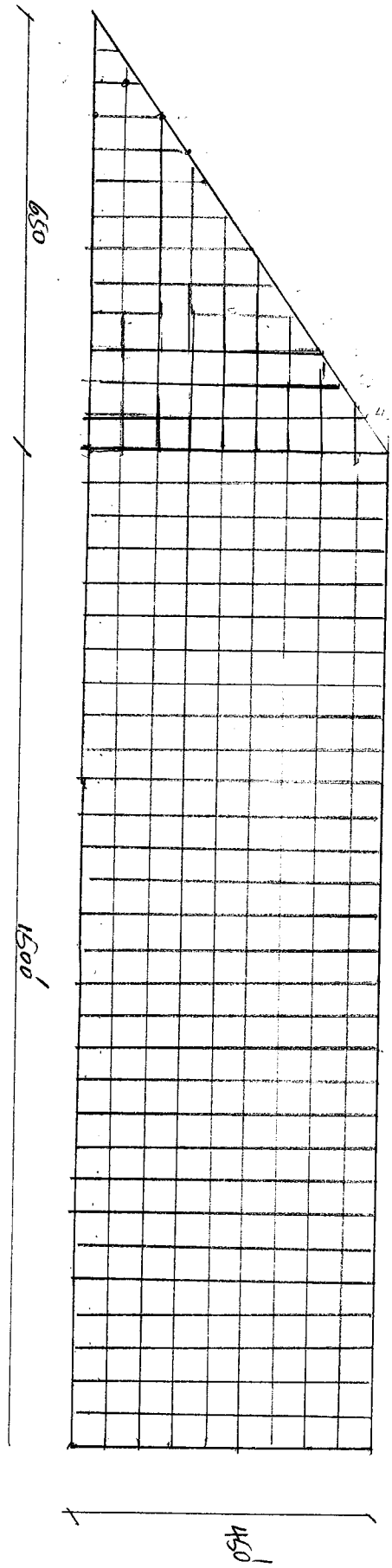
Step 3: Calculate Volume of sludge in lagoon after bulking to 70% solids (BY MASS)

Mass Sludge at 15% Solids	971,700,602	lbs	
Mass Fill	3,151,614,357	lbs	
Bulk Density of sludge at 70% solids:	110	pcf (assumption)	
Total Mass	4,123,314,958.07	lbs	(=mass sludge + mass fill)
Total Volume	37,484,681	ft3	(=total mass/bulked density of sludge at 70% solids)
=	1,388,322	CY	of bulked sludge
	37,484,681	ft3	
	280,404,159	gal	

CDM

CLIENT		JOB NO.		COMPUTED BY	MAH
PROJECT		DATE CHECKED	7/13/07	DATE	7/11/07
DETAIL	Alt 7 HDPE	CHECKED BY	GES	PAGE NO.	

calculate HDPE pipe 6" diameter 50' o.c spacing



- $\frac{1500}{50} = 30$
- $\frac{650}{50} = 13$
- $\frac{450}{50} = 9$

$\Rightarrow 9(1500) + (30)(450)$

$+ 5500$

$= 32500$

33 08 05	Capping of Contaminated Area/Waste Pile	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 08 0501	**Site Inspections/Reporting, Quarterly**	**EA**				**501.50**	**0.00**	**0.00**	**501.50**
01050 0101	Field Office Clerk	WK	0.025	XYBBA	0.100	335.00	0.00	0.00	33.50
01050 0103	Field Engineer (Average Cost)	WK	0.025	XYBBD	0.450	1,040	0.00	0.00	468.00
33 08 0502	**Post-Closure Administrative**	**YR**				**30,127**	**0.00**	**0.00**	**30,127**
01050 0101	Field Office Clerk	WK	0.025	XYBBA	26.000	335.00	0.00	0.00	8,710
01050 0107	Project Manager - Average Cost	WK	0.025	XYBBH	13.000	1,647	0.00	0.00	21,417
33 08 0503	**Polymeric Liner Anchor Trench, 3' x 1.5'**	**LF**				**0.56**	**0.22**	**0.06**	**0.84**
02215 0500	Compaction, 6" Layers with Air Tamper by Hand, (15 cm) Layers	CY	50	CLACA	0.167	2.78	0.19	0.00	0.49
02215 1215	Backfill Trench with 200HP Dozer without Compaction	CY	284	CODTG	0.167	0.16	0.43	0.00	0.10
02223 1001	Compaction Water Price $.005/Gallon ($0.454/100 Liters)	CY	174.3	COFWK	0.167	0.31	0.33	0.36	0.17
02230 0870	Trench, FW Trencher, Medium Soil 24" Wide x 9' Deep	CY	498	CODBG	0.167	0.08	0.40	0.00	0.08
33 08 0504	**Herbicide Application**	**ACRE**				**110.25**	**137.03**	**68.73**	**316.01**
02280 3100	Herbicide Application from Truck	SY	2420	COFWI	4840.000	0.02	0.03	0.01	316.01
33 08 0505	**Soil/Bentonite Liner - 6" Lifts**	**SF**				**0.03**	**0.00**	**1.45**	**1.48**
02081 2228	Liner/Cap Installed - Cost per 6 Lift-4 Lb/SF Bentonite @ $243/Ton	SF	1250	CODTF	1.000	0.03	0.00	1.45	1.48
33 08 0506	**Clay 10E-7, 6" Lifts, On-Site**	**CY**				**6.30**	**10.82**	**1.04**	**18.17**
01418 4405	Soil testing, Atterberg limits, liquid & plastic limits	EA	0.429	USKCA	0.001	107.57	0.00	65.00	0.15
01418 4605	Grain Size (No. 200 Sieve) ASTM D421	EA	0.64	USKCA	0.001	72.07	0.00	62.49	0.13
01418 4620	Grain Size (2 Micron)	EA	0.64	USKCA	0.001	72.07	0.00	99.03	0.11
01418 4736	Soil Density Test, Nuclear Method ASTM D2922-71	EA	2	USKCB	0.004	46.13	0.00	42.37	0.35
01418 4751	Moisture Content	EA	0.471	USKCA	0.004	98.03	0.00	5.81	0.42
01418 4755	Soil testing, moisture content	EA	3.393	USKCA	0.001	13.60	0.00	10.59	0.02
01418 4760	Moisture Content Undisturbed Sample	EA	0.848	USKCA	0.001	54.42	0.00	10.59	0.04
01418 4770	Dry Density (Undisturbed Sample)	EA	0.369	USKCA	0.001	125.07	0.00	34.95	0.11
01418 4810	Undisturbed Permeability	EA	0.089	USKCA	0.001	519.43	0.00	260.55	0.52
01418 4855	Laboratory Permeability (Remolded Sample)	EA	0.081	USKCA	0.000	567.34	0.00	275.00	0.08
01418 4970	Moisture Density, Relative Moisture Content of Soils ASTM D1557-70	EA	0.5	USKCA	0.000	92.25	0.00	152.51	0.10
02212 3106	By 654 HP Sheepsfoot Roller, 6 Passes	CY	37.5	COFCQ	1.000	2.58	4.01	0.00	6.59
02215 2360	Spread Dumped Fill/Gravel, 6" Layers, without Compaction	SY	448.5	CODTG	6.000	0.10	0.27	0.00	2.26
02223 1001	Compaction Water Price $.005/Gallon ($0.454/100 Liters)	CY	174.3	COFWK	1.000	0.31	0.33	0.36	1.01
02232 0325	Excavate & Load, 2-3/4 CY Track Loader, Medium Material, 100 CY/Hour (76 m3)	CY	100	CODLD	1.000	0.50	1.39	0.00	1.89
02234 1115	Haul, 16.5 CY (12.6 m3) Truck, 6 Miles (10 km), 40 MPH (60 km/Hour), 2.1 Cycles/Hour	CY	34.25	COETH	1.000	0.83	3.33	0.00	4.16
13273 9112	Till Soil with D4 Dozer & Disc Attachment	HR	1	CODTW	0.003	36.70	47.94	0.00	0.21

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33 08 05	Capping of Contaminated Area/Waste Pile	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 08 0507	**Clay 10E-7, 6" Lifts, Off-Site**	**CY**				**5.62**	**9.43**	**8.01**	**23.06**
01418 4405	Soil testing, Atterberg limits, liquid & plastic limits	EA	0.429	USKCA	0.001	107.57	0.00	65.00	0.12
01418 4620	Grain Size (2 Micron)	EA	0.64	USKCA	0.001	72.07	0.00	99.03	0.11
01418 4736	Soil Density Test, Nuclear Method ASTM D2922-71	EA	2	USKCB	0.004	46.13	0.00	42.37	0.35
01418 4751	Moisture Content	EA	0.471	USKCA	0.004	98.03	0.00	5.81	0.42
01418 4760	Moisture Content Undisturbed Sample	EA	0.848	USKCA	0.001	54.42	0.00	10.59	0.04
01418 4770	Dry Density (Undisturbed Sample)	EA	0.369	USKCA	0.001	125.07	0.00	34.95	0.11
01418 4810	Undisturbed Permeability	EA	0.089	USKCA	0.001	519.43	0.00	260.55	0.52
01418 4970	Moisture Density, Relative Moisture Content of Soils ASTM D1557-70	EA	0.5	USKCA	0.000	92.25	0.00	152.51	0.05
02081 2241	Clay Backfill	CY	0	N/A	1.000	0.00	0.00	7.11	7.11
02212 3106	By 654 HP Sheepsfoot Roller, 6 Passes	CY	37.5	COFCQ	1.000	2.58	4.01	0.00	6.59
02215 2360	Spread Dumped Fill/Gravel, 6" Layers, without Compaction	SY	448.5	CODTG	6.000	0.10	0.27	0.00	2.26
02223 1001	Compaction Water Price $.005/Gallon ($0.454/100 Liters)	CY	174.3	COFWK	1.000	0.31	0.33	0.36	1.01
02234 1115	Haul, 16.5 CY (12.6 m3) Truck, 6 Miles (10 km), 40 MPH (60 km/Hour), 2.1 Cycles/Hour	CY	34.25	COETH	1.000	0.83	3.33	0.00	4.16
13273 9112	Till Soil with D4 Dozer & Disc Attachment	HR	1	CODTW	0.003	36.70	47.94	0.00	0.21
33 08 0508	**Fabric Membrane Liner/Bentonite Liner**	**SF**				**0.10**	**0.07**	**0.77**	**0.94**
02081 2311	1/4" Thick Geocomposite Installed on Soil Or Aggregate Base	SF	1250	CODEZ	1.000	0.10	0.07	0.77	0.94
33 08 0511	**Drainage Netting, 1/4" Thick High-density Polyethylene**	**SF**				**0.04**	**0.01**	**0.21**	**0.26**
02082 2111	Drainage Net - 1/4" Thick High-density Polyethylene	SF	6250	USKCF	1.000	0.04	0.01	0.21	0.26
33 08 0512	**Drainage Netting, Geotextile Fabric Heat-bonded 1 Side**	**SF**				**0.04**	**0.01**	**0.46**	**0.51**
02082 2112	Drainage Net with Geotextile Fabric Heat-bonded to One Side	SF	5625	USKCF	1.000	0.04	0.01	0.46	0.51
33 08 0513	**Drainage Netting, Geotextile Fabric Heat-bonded 2 Sides**	**SF**				**0.05**	**0.01**	**0.51**	**0.57**
02082 2113	Drainage Net with Geotextile Fabric Heat-bonded to Both Sides	SF	5000	USKCF	1.000	0.05	0.01	0.51	0.57
33 08 0520	**Geosynthetic Clay Liner**	**SF**				**0.00**	**0.00**	**0.40**	**0.40**
01001 0081	Geosynthetic Clay Liner	SF	0	N/A	1.000	0.00	0.00	0.40	0.40
33 08 0521	**Geogrid, Biaxial 9.8' x 164' Roll, TM = 14,000 PSF**	**SF**				**0.03**	**0.00**	**0.20**	**0.23**
02081 2411	Biaxial, 9.8' x 164' Rolls Tensile Modulus = 14,000 Lb/SF	SF	9375	USKCF	1.000	0.03	0.00	0.20	0.23

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33 08 05	Capping of Contaminated Area/Waste Pile	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 08 0522	**Geogrid, Biaxial 9.8' x 164' Roll, TM = 18,500 PSF**	**SF**				**0.03**	**0.01**	**0.35**	**0.39**
02081 2413	Biaxial, 9.8' x 164' Rolls Tensile Modulus = 18,500 Lb/SF	SF	6875	USKCF	1.000	0.03	0.01	0.35	0.39
33 08 0523	**Geogrid, Uniaxial 4.3' x 98' Roll, TM = 50,000 PSF**	**SF**				**0.04**	**0.01**	**0.62**	**0.66**
02081 2415	Uniaxial, 4.3' x 98' Rolls Tensile Modulus = 50,000 Lb/SF	SF	6250	USKCF	1.000	0.04	0.01	0.62	0.66
33 08 0524	**Geogrid, Uniaxial 4.3' x 98' Roll, TM = 130,000 PSF**	**SF**				**0.05**	**0.01**	**1.26**	**1.33**
02081 2418	Uniaxial, 4.3' x 98' Rolls Tensile Modulus = 130,000 Lb/SF	SF	4375	USKCF	1.000	0.05	0.01	1.26	1.33
33 08 0525	**Geogrid, Nylon Geomatrix/PVC-coated Polyester**	**SF**				**0.04**	**0.01**	**1.14**	**1.19**
02081 2419	Composite Grip Layer Material - Nylon Geometric/PVC Coated Polyester	SF	5625	USKCF	1.000	0.04	0.01	1.14	1.19
33 08 0531	**6 oz/sy Geotextile, Non-Woven (60 Mil)**	**SY**				**0.45**	**0.02**	**0.79**	**1.26**
02250 2130	Geotextile Fabric, 60 Mil Thick Non-Woven Polypropylene	SY	187.5	ULABJ	1.000	0.45	0.02	0.79	1.26
33 08 0532	**8 oz/sy Erosion Control/Drainage Filter Fabric (80 Mil)**	**SY**				**0.45**	**0.02**	**0.83**	**1.30**
02535 1014	Geotextile Fabric, 80 Mil Thick Non-Woven Polypropylene	SY	187.5	ULABJ	1.000	0.45	0.02	0.84	1.30
33 08 0533	**105 Mil Geotextile, Nonwoven**	**SY**				**0.56**	**0.03**	**0.99**	**1.58**
02535 1016	Geotextile Fabric, 105 Mil Thick Non-Woven Polypropylene	SY	150	ULABJ	1.000	0.56	0.03	0.99	1.58
33 08 0534	**12 oz/sy Geotextile/Drainage Fabric (130 Mil)**	**SY**				**0.75**	**0.03**	**1.32**	**2.11**
02535 1018	Geotextile Fabric, 130 Mil Thick Non-Woven Polypropylene	SY	112.5	ULABJ	1.000	0.75	0.03	1.32	2.11
33 08 0535	**16 oz/sy Geotextile/Drainage Fabric (170 Mil)**	**SY**				**0.75**	**0.03**	**1.88**	**2.66**
02535 1021	Geotextile Fabric, 170 Mil Thick Non-Woven Polypropylene	SY	112.5	ULABJ	1.000	0.75	0.03	1.88	2.66
33 08 0541	**20 Mil Polymeric Liner, Very Low Density Polyethylene**	**SF**				**0.48**	**0.09**	**0.30**	**0.86**
02081 2111	20 Mil Very Low Density Polyethylene	SF	501	USKCF	1.000	0.48	0.09	0.30	0.86
33 08 0542	**30 Mil Polymeric Liner, Very Low Density Polyethylene**	**SF**				**0.80**	**0.15**	**0.37**	**1.32**
02081 2112	30 Mil Very Low Density Polyethylene	SF	300.6	USKCF	1.000	0.80	0.15	0.37	1.32
33 08 0543	**40 Mil Polymeric Liner, Very Low Density Polyethylene**	**SF**				**0.96**	**0.18**	**0.30**	**1.43**
02081 2113	40 Mil Very Low Density Polyethylene	SF	250.5	USKCF	1.000	0.96	0.18	0.30	1.43

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33 08 05	Capping of Contaminated Area/Waste Pile	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 08 0544	**60 Mil Polymeric Liner, Very Low Density Polyethylene**	**SF**				**1.43**	**0.27**	**0.48**	**2.18**
02081 2115	60 Mil Very Low Density Polyethylene	SF	167	USKCF	1.000	1.43	0.27	0.48	2.18
33 08 0545	**80 Mil Polymeric Liner, Very Low Density Polyethylene**	**SF**				**1.75**	**0.32**	**0.64**	**2.71**
02081 2117	80 Mil Very Low Density Polyethylene	SF	136.6	USKCF	1.000	1.75	0.32	0.64	2.71
33 08 0546	**100 Mil Polymeric Liner, Very Low Density Polyethylene**	**SF**				**2.23**	**0.41**	**0.79**	**3.43**
02081 2119	100 Mil Very Low Density Polyethylene	SF	107.4	USKCF	1.000	2.23	0.41	0.79	3.43
33 08 0551	**36 Mil Polymeric Liner, Chlorosulfanated Polyethylene**	**SF**				**0.80**	**0.15**	**1.03**	**1.97**
02081 2133	36 Mil Hypalon	SF	300.6	USKCF	1.000	0.80	0.15	1.03	1.97
33 08 0552	**45 Mil Polymeric Liner, Chlorosulfanated Polyethylene**	**SF**				**0.96**	**0.18**	**1.10**	**2.24**
02081 2135	45 Mil Hypalon	SF	250.5	USKCF	1.000	0.96	0.18	1.10	2.24
33 08 0561	**20 Mil Polymeric Liner, PVC**	**SF**				**0.48**	**0.09**	**0.24**	**0.81**
02081 2141	20 Mil PVC	SF	501	USKCF	1.000	0.48	0.09	0.24	0.81
33 08 0562	**30 Mil Polymeric Liner, PVC**	**SF**				**0.80**	**0.15**	**0.33**	**1.27**
02081 2142	30 Mil PVC	SF	300.6	USKCF	1.000	0.80	0.15	0.33	1.27
33 08 0563	**40 Mil Polymeric Liner, PVC**	**SF**				**0.96**	**0.18**	**0.37**	**1.50**
02081 2143	40 Mil PVC	SF	250.5	USKCF	1.000	0.96	0.18	0.37	1.50
33 08 0564	**60 Mil Polymeric Liner, PVC**	**SF**				**1.43**	**0.27**	**0.65**	**2.35**
02081 2145	60 Mil PVC	SF	167	USKCF	1.000	1.43	0.27	0.65	2.35
33 08 0565	**80 Mil Polymeric Liner, PVC**	**SF**				**1.75**	**0.32**	**1.22**	**3.30**
02081 2147	80 Mil PVC	SF	136.6	USKCF	1.000	1.75	0.32	1.22	3.30
33 08 0566	**100 Mil Polymeric Liner, PVC**	**SF**				**2.23**	**0.41**	**1.83**	**4.47**
02081 2149	100 Mil PVC	SF	107.4	USKCF	1.000	2.23	0.41	1.83	4.47
33 08 0571	**40 Mil Polymeric Liner, High-density Polyethylene**	**SF**				**0.96**	**0.18**	**0.34**	**1.47**
02081 2151	40 Mil High-density Polyethylene	SF	250	USKCF	1.000	0.96	0.18	0.34	1.47
33 08 0572	**60 Mil Polymeric Liner, High-density Polyethylene**	**SF**				**1.42**	**0.26**	**0.49**	**2.17**
02081 2152	60 Mil High-density Polyethylene	SF	168.8	USKCF	1.000	1.42	0.26	0.49	2.17
33 08 0573	**80 Mil Polymeric Liner, High-density Polyethylene**	**SF**				**1.74**	**0.32**	**0.66**	**2.72**
02081 2153	80 Mil High-density Polyethylene	SF	137.5	USKCF	1.000	1.74	0.32	0.66	2.72

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33 08 05	Capping of Contaminated Area/Waste Pile	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 08 0574	**Treesap-based, Overall Dust Suppressant**	**SY**				**0.89**	**0.82**	**0.36**	**2.06**
02082 7101	Overall Dust Suppression and Erosion Control, Treesap Based	SY	125	COKBD	1.000	0.89	0.82	0.36	2.06
33 08 0575	**Chloride-based, Overall Dust Suppressant**	**SY**				**0.89**	**0.82**	**0.34**	**2.04**
02082 7105	Overall Dust Suppression and Erosion Control, Chloride Based	SY	125	COKBD	1.000	0.89	0.82	0.34	2.04
33 08 0576	**Oil Emulsion-based, Overall Dust Suppressant**	**SY**				**0.89**	**0.82**	**0.24**	**1.95**
02082 7109	Overall Dust Suppression and Erosion Control, Oil Emulsion	SY	125	COKBD	1.000	0.89	0.82	0.24	1.95
33 08 0577	**Asphalt Emulsion-based, Overall Dust Suppressant**	**SY**				**0.98**	**0.91**	**0.34**	**2.23**
02082 7114	Overall Dust Suppression and Erosion Control, Asphalt	SY	112.5	COKBD	1.000	0.98	0.91	0.34	2.23
33 08 0578	**Lignosulphonate-based, Overall Dust Suppressant**	**SY**				**0.89**	**0.82**	**0.28**	**1.98**
02082 7118	Overall Dust Suppression and Erosion Control, Lignosulphonate	SY	125	COKBD	1.000	0.89	0.82	0.28	1.98
33 08 0579	**Treesap-based, Stockpile Dust Suppressant**	**SY**				**0.89**	**0.82**	**0.41**	**2.12**
02082 7103	Stockpile Dust Suppression Treesap-Based Dust Suppressant	SY	125	COKBD	1.000	0.89	0.82	0.41	2.12
33 08 0580	**Chloride-based, Stockpile Dust Suppressant**	**SY**				**0.89**	**0.82**	**0.39**	**2.10**
02082 7107	Stockpile Dust Suppression, Chloride-Based Sprayed Dust	SY	125	COKBD	1.000	0.89	0.82	0.39	2.10
33 08 0581	**Oil Emulsion-based, Stockpile Dust Suppressant**	**SY**				**0.89**	**0.82**	**0.33**	**2.03**
02082 7112	Stockpile Dust Suppression, Oil Emulsion Sprayed Dust	SY	125	COKBD	1.000	0.89	0.82	0.33	2.03
33 08 0582	**Asphalt Emulsion-based, Stockpile Dust Suppressant**	**SY**				**0.98**	**0.91**	**0.39**	**2.28**
02082 7116	Stockpile Dust Suppression, Asphalt Emulsion Sprayed Dust	SY	112.5	COKBD	1.000	0.98	0.91	0.39	2.28
33 08 0583	**Lignosulphonate-based, Stockpile Dust Suppressant**	**SY**				**0.89**	**0.82**	**0.34**	**2.04**
02082 7121	Stockpile Dust Suppression, Lignosulphonate Sprayed Dust	SY	125	COKBD	1.000	0.89	0.82	0.34	2.04
33 08 0584	**Plastic Laminate Waste Pile Cover**	**SF**				**0.02**	**0.00**	**0.13**	**0.15**
02082 7211	Plastic Laminate Waste Pile Cover, 130 Lb Tear Strength	SF	5000	ULABC	1.000	0.02	0.00	0.13	0.15
33 08 0585	**Sprayed Water Dust Suppressant**	**SY**				**0.01**	**0.01**	**0.00**	**0.01**
02976 4930	Watering by Truck	MSF	87.12	COFWI	0.009	0.63	0.79	0.02	0.01

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33 08 05	Capping of Contaminated Area/Waste Pile	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 08 0590	**Waste Pile Cover, 135 Lb Tear, 2 - 2.5 Year Life**	**SY**				**0.20**	**0.00**	**1.72**	**1.92**
02082 7212	Plastic Laminate Waste Pile Cover, 135 Lb Tear Strength	SF	4375	ULABC	9.000	0.02	0.00	0.19	1.92
33 08 0591	**Waste Pile Cover, 185 Lb Tear, 3 - 4 Year Life**	**SY**				**0.20**	**0.00**	**2.67**	**2.87**
02082 7213	Plastic Laminate Waste Pile Cover, 185 Lb Tear Strength	SF	4375	ULABC	9.000	0.02	0.00	0.30	2.87
33 08 0592	**Waste Pile Cover, 250 Lb Tear, 4 - 5 Year Life**	**SY**				**0.23**	**0.00**	**3.73**	**3.96**
02082 7214	Plastic Laminate Waste Pile Cover, 250 Lb Tear Strength	SF	3750	ULABC	9.000	0.03	0.00	0.41	3.96

33 09 07	Lagoons/Basins/Tanks/Dikes	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 09 0701	**CIP Reinforced Concrete Containment Wall**	**CY**				**62.97**	**23.87**	**134.03**	**220.87**
03210 1011	Wall Rebar, #3-#7	TON	0.375	SIWRF	0.055	503.47	232.27	685.52	78.17
03372 5200	Pour Concrete Wall, 12" Thick, Crane & Bucket (31 cm) 3,000 PSI Concrete	CY	11.25	ALABG	1.000	24.12	11.10	89.20	124.41
07174 0100	Silicone Retarder, 1 Coat on Concrete, Sprayed	CSF	1.875	ARFCD	0.540	20.67	0.00	13.20	18.29
33 09 0702	**CIP, Reinforced Concrete Containment Wall, Including Forms**	**CY**				**376.04**	**0.28**	**175.74**	**552.05**
03170 2150	Slab Curb Forms, 6" to 12" High, 4 Uses	SF	34.38	ACARI	108.000	3.14	0.00	0.56	399.53
03217 0600	Grade 60 Rebar, Footings & Slabs, #3-#6	TON	0.313	SIWRC	0.036	512.00	0.00	645.92	41.77
03372 4600	Pour Slab on Grade, >= 6", Direct Chute >= (15 cm) Place 3,000 PSI Concrete	CY	21.88	ALABE	1.030	7.93	0.27	89.20	100.31
03396 0010	Concrete Floor Finishes, Screed	SF	112.5	ACMAA	27.000	0.39	0.00	0.00	10.44

33 10 01	Drum Removal	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 10 0101	**Transfer Drums to Staging Area with Grappler**	**EA**				**14.66**	**17.49**	**0.00**	**32.14**
02083 6153	Drum Staging	EA	5	HLABN	1.000	14.66	17.49	0.00	32.14
33 10 0102	**Consolidate Drums into Tanker Truck**	**GAL**				**0.32**	**0.12**	**0.00**	**0.43**
02083 6154	Drummed Liquid Waste	GAL	220	HLACA	1.000	0.32	0.12	0.00	0.43
33 10 0103	**Consolidate Drums into Dump Truck**	**CY**				**51.00**	**20.19**	**0.00**	**71.19**
02083 6155	Drummed Solid Waste Consolidation, per Cubic Yard	CY	1.362	HLACB	1.000	51.00	20.19	0.00	71.19
33 10 0104	**Drum Crushing, per Individual Drum**	**EA**				**1.07**	**0.50**	**0.00**	**1.56**
02083 6162	Drum Crushing, per Individual Drum	EA	60	HLABK	1.000	1.07	0.50	0.00	1.56
33 10 0105	**Polyethylene Spill Pallet, 4 55-Gallon Drum Capacity, 85 Gallon Sump**	**EA**				**0.00**	**0.00**	**376.81**	**376.81**
02083 6111	Polyethylene Spill Pallet, 4 55-Gallon Drum Capacity, 85 Gallon Sump, Liftable	EA	0	N/A	1.000	0.00	0.00	376.81	376.81

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geotextile

31 32 Soil Stabilization

31 32 13 – Soil Mixing Stabilization

31 32 13.19 Lime Soil Stabilization

		Crew	Daily Output	Labor-Hours	Unit	2007 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**LIME SOIL STABILIZATION** Including scarifying and compaction									
2020	Hydrated lime, for base, 2% mix by weight, 6" deep	B-74	1800	.036	S.Y.	3.14	1.21	2.37	6.72	7.90
2030	8" deep		1700	.038		4.19	1.28	2.51	7.98	9.30
2060	12" deep		1550	.041		2.73	1.41	2.75	6.89	8.15
2100	4% mix, 6" deep		1800	.036		2.77	1.21	2.37	6.35	7.50
2120	8" deep		1700	.038		3.75	1.28	2.51	7.54	8.85
2160	12" deep		1550	.041		5.60	1.41	2.75	9.76	11.30
2200	6% mix, 6" deep		1800	.036		4.20	1.21	2.37	7.78	9.10
2220	8" deep		1700	.038		5.60	1.28	2.51	9.39	10.85
2260	12" deep		1550	.041		8.35	1.41	2.75	12.51	14.30

31 32 13.30 Calcium Chloride

0010	**CALCIUM CHLORIDE**									
0020	Calcium chloride delivered, 100 LB bags, truckload lots				Ton	535			535	590
0030	Solution, 4 lb. flake per gallon, tank truck delivery				Gal.	1.14			1.14	1.25

31 32 19 – Geosynthetic Soil Stabilization and Layer Separation

31 32 19.16 Geotextile Soil Stabilization

0010	**GEOTEXTILE SOIL STABILIZATION**									
1500	Geotextile fabric, woven, 200 lb. tensile strength	2 Clab	2500	.006	S.Y.	2.07	.18		2.25	2.57
1510	Heavy Duty, 600 lb. tensile strength		2400	.007		1.85	.19		2.04	2.34
1550	Non-woven, 120 lb. tensile strength		2500	.006		1.05	.18		1.23	1.45

31 32 36 – Soil Nailing

31 32 36.16 Grouted Soil Nailing

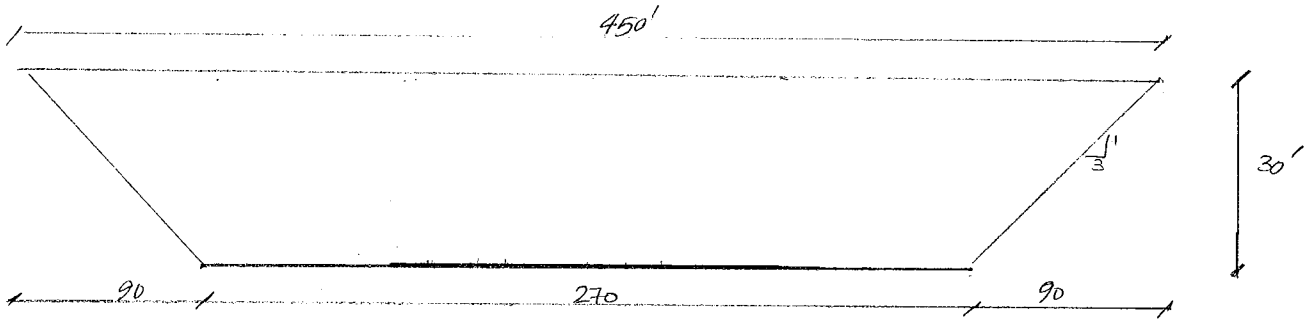
0010	**GROUTED SOIL NAILING**									
0020	Soil nailing does not include guniting of surfaces									
0030	See 03 37 for guniting of surfaces									
0035	Layout and vertical and horizontal control per day	A-6	1	16	Day		590	58	648	975
0038	Layout and vertical and horizontal control average holes per day	"	60	.267	Ea.		9.85	.97	10.82	16.20
0050	For Grade 150 soil nail add $ 1.37/ LF to base material cost									
0060	Material delivery add $ 1.83 to $ 2.00 per truck mile for shipping									
0090	Average Soil nailing, grade 75, 15 min setup per hole & 80'/hr drilling									
0100	Soil nailing , drill hole, install # 8 nail, grout 20' depth average	B-47G	16	2	Ea.	129	62.50	84.50	276	330
0110	25' depth average		14.20	2.254		161	70.50	95.50	327	390
0120	30' depth average		12.80	2.500		248	78	106	432	510
0130	35' depth average		11.60	2.759		289	86.50	117	492.50	580
0140	40' depth average		10.70	2.991		330	93.50	126	549.50	650
0150	45' depth average		9.90	3.232		370	101	137	608	715
0160	50' depth average		9.10	3.516		450	110	149	709	830
0170	55' depth average		8.50	3.765		490	118	159	767	895
0180	60' depth average		8	4		535	125	169	829	965
0190	65' depth average		7.50	4.267		575	133	180	888	1,025
0200	70' depth average		7.10	4.507		615	141	191	947	1,100
0210	75' depth average		6.70	4.776		655	149	202	1,006	1,175
0290	Average Soil nailing, grade 75, 15 min setup per hole & 90'/hr drilling									
0300	Soil nailing , drill hole, install # 8 nail, grout 20' depth average	B-47G	16.60	1.928	Ea.	129	60.50	81.50	271	325
0310	25' depth average		15	2.133		161	66.50	90	317.50	380
0320	30' depth average		13.70	2.336		248	73	99	420	495
0330	35' depth average		12.30	2.602		289	81.50	110	480.50	565
0340	40' depth average		11.40	2.807		330	88	119	537	630
0350	45' depth average		10.70	2.991		370	93.50	126	589.50	695
0360	50' depth average		9.80	3.265		450	102	138	690	805
0370	55' depth average		9.20	3.478		490	109	147	746	870

CDM

CLIENT		JOB NO.		COMPUTED BY	HAH
PROJECT	RSL	DATE CHECKED	7/13/07	DATE	7/10/07
DETAIL	AH6 DRY CELL	CHECKED BY	GBS	PAGE NO.	1

- 24" sand (fine)
- 6" PVC pipe @ 50' o.c.

Vol of sludge = @ 70% = 260,000 CY
= 7020000 ft^3



$$\text{Area} = 270(30) + \tfrac{1}{2}(90)(30)(2) = 10800\ ft^2/LF$$

$$L = \frac{7020,000\ ft^3}{10800\ ft^2} = 650\ ft$$

$$\Rightarrow \text{Area of Cap} = (650)(450) = 292500\ ft^2$$

$$= 6.7\ \text{Acre}$$

- vol. of venting layer = $\frac{(6.7\ \text{Acre})(1')}{\text{Acre}}(43560\ ft^2) = 291852\ ft^3$
  = 10809 CY
- Gas venting (1 per acre) ≈ 6
- GCL = 6.7 Acre
- HDPE = 6.7 Acre
- Drainage layer (1') = 10809 CY
- common Fill layer (1') = 10809 CY
- Top soil 6" = $291852\ ft^2 * \frac{6''}{12''}(1') = 145926\ ft^3$
  = 5405 CY

CDM

CLIENT		JOB NO.		COMPUTED BY	MAH
PROJECT	RSL	DATE CHECKED	7/13/07	DATE	
DETAIL	Alt 6 Dry cell	CHECKED BY	GBS	PAGE NO.	2/2

under drain

- installation of 24" fines and sand drainage layer

$W = 270'$ $L = 650'$

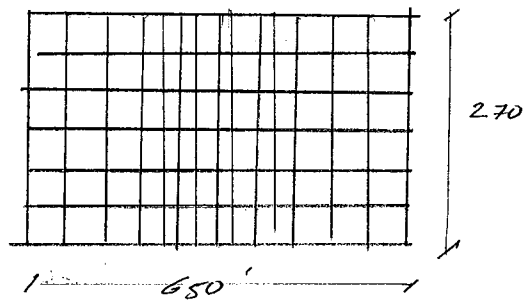
$\Rightarrow$ Area $= (270')(650') = 175{,}500\ ft^2 = 19\,500\ SY$

Volume $= 175500\ ft^2 \times 2\ ft = 351000\ ft^3 = 13{,}000\ CY$

- installation of 6" PVC pipe @ 50' o.c.

$(13)(270) + (15)(650)$

$= 6760\ LF$



CDM

CLIENT Gary Sanitary District
PROJECT Ralstoon St. Lagoon Remediation
DETAIL

JOB NO. 29021-44113
DATE CHECKED
CHECKED BY

COMPUTED BY M. Cronin
DATE 7/11/07
PAGE NO.

GSE Lining Technology Inc.

Spoke with Patty Beaubien (Senior Customer Service Rep), she gave a Quote on a Bentofix NSL GCL (Geosynthetic Clay liner) on 7/11/07

Product: Bentofix NSL GCL
Size = 186,000
Cost = $0.40

TOTAL = $74,400

Loose Bentonite
Amount = 80 bags
Cost = $5/bag

TOTAL = $400

Transportation: Approx. 5 Trucks
Cost = $1,221/truck

TOTAL = $6,105

TOTAL COST = $80,905
(Installation not included)

GSE Lining Technology, Inc
North American Sales
19103 Gundle Road
Houston, Texas 77073
(281) 443-8564 phone
(281) 230-8650 fax

Sales Quotation

Quotation Date:
Quote Validity Days: 30
Quote Expiration: 1/30/1900
GSE Customer Number:

Quote To: CDM
Attn: Micheal Cronin
1 Cambridge Place/ 50 Hampshire St
Cambridge
MA

Ship To: Gary, Indiana
Attn:
Gary
IN

Phone: 617-452-6419
Fax: 617-452-6419

Payment Terms: 30 days
Shipping Terms: FOB Factory
Quotation Number: PB 71445 Revision 1

Special Conditions: Budget Pricing

Item #	Product Code	Product Description (Ship Method / Print Message)	Estimated Quantity	Roll Size	U/M	Unit Price	Extended Price
1	XL4000N004	HyperNet, 200 mil Geonet	157,500	15.0'x300'	SF	$0.1638	$25,798.50
	Freight	*Van*	2.0		EA	$1,743.00	$3,486.00
2	BFIX230NSL	Bentofix NSL	186,000	15.5'x150'	SF	$0.4000	$74,400.00
	Freight	*Flatbed*	5.0		EA	$1,221.00	$6,105.00
3	BENTGRAN00	Loose Bentonite Clay ($/bag)	80		BG	$5.0000	$400.00
	Freight				EA		
4	Freight				EA		
5	Freight				EA		
6	Freight				EA		
7	Freight				EA		
8	Freight	-			EA		
9	Freight	-			EA		
10	Freight	-			EA		
11	Freight	-			EA		
12	Freight	-			EA		
13	Freight	-			EA		
14	Freight	-			EA		
			Quote Total US $				$110,189.50

Special Conditions:

1. **Delivery & Price Escalation:** Unless otherwise noted above, prices are firm for 30 days from date of quotation. A Purchase Order from the Customer must be received within the 30 day period and customer must agree to take delivery of products within 30 days of issuance of a GSE Order Acknowledgement, or the prices for those products will escalate according to changes in the price of resin as published in *Plastics News*.
2. **Material Quote:** **PRICES QUOTED ARE FOB FACTORY WITH FREIGHT ALLOWED**
3. **Material Warranty:** Unless otherwise noted above, GSE manufactured productsare sold with GSE's Standard Limited Material Warranty. GSE will pass through the original manufacturer's warranty for all products not manufactured by GSE.
4. **Shipping:** Unless noted otherwise, all geonets, geocomposites and geotextiles are shipped in enclosed vans and stacked horizontally.
5. **Quantities:** Any change in products, specifications or quantities by Customer will require a revised quotation and Order Acknowledgement. If Customer elects to purchase only a portion of the products, GSE shall have the right to adjust its pricing to reflect the impact of such election.
6. **Roll Sizes:** All roll sizes are approximate. Invoicing will be based on actual roll length shipped. On occasion, GSE reserves the right to ship no more than one (1) short roll per truckload, with a minimum allowance of (1) short roll per order for inventory control purposes. The definition of a short roll is one in which the length is equal to or is greater than 50% of the standard length for a particular product.
7. **Terms and Conditions:** GSE General Terms and Conditions of Sale shall apply to all transactions.
8. **Material Specifications**: Unless otherwise agreed in writing by a GSE authorized representative, GSE's standard property values, quality control testing procedures, and documentation apply to the products quoted.

GSE® General Terms and Conditions of Sale

1. **NOTICE:** The offer, order acknowledgment, order acceptance, or sale of any products is conditioned upon the terms contained herein. Any additional or different terms proposed by the Purchaser are objected to and will not be binding upon GSE Lining Technology, Inc. unless specifically assented to in writing by GSE.

2. **TAXES:** The prices QUOTED ARE WITHOUT SALES TAX. Purchaser must provide GSE with a sales tax exemption certificate in order to avoid payment of sales tax imposed by law. Purchaser agrees it will reimburse GSE for the amount of all governmental taxes, exise and/or other charges (except taxes on or measured by net income) that GSE may be required to pay with respect to (a) the sale of any material delivered hereunder, and (b) the production or transportation of any material delivered hereunder.

3. **SHIPMENTS:** Purchaser shall order Products from GSE within a reasonable time in advance of each shipment hereunder (if more than one shipment). Such order shall identify the Products being ordered and shall include the quantity of Products, the shipping instructions, and the date on which delivery is desired. Any time stated for delivery by GSE is an estimate only and shall not form part of the contract. Any failure by GSE to deliver the Product by such time shall not be a breach or repudiation, and GSE shall not be liable for any loss or damage suffered by the Purchaser as a result of such failure. Title and Risk of Loss shall pass to Purchaser at the point of loading if Purchaser is providing the Carrier or upon delivery if GSE is providing the Carrier. Freight charges will be paid in accordance with GSE's published freight schedules or as reflected in the quotation. Where delivery of Product is delayed for any reason outside of the reasonable control of GSE, GSE reserves the right to amend the prices for the Product to those current at the date when delivery is made.

4. **PAYMENT:** Terms of payment shall be net thirty (30) days after the date of GSE's shipment, subject to change by written notice to Purchaser (except where otherwise provided on attached schedules). Any payment not received when due shall bear interest at the rate of 1 1/2% per month, eighteen percent per annum from the original due date, or the highest rate allowed by law, on the unpaid balance until paid in full. Any sale to Purchaser of GSE's Products is subject to GSE's approval of the credit worthiness of Purchaser.

5. **LIMITED MATERIAL WARRANTIES:** GSE warrants that the Products delivered meet the written specifications stated in the GSE Order Acknowledgment and to be free from material manufacturing defects at the time of sale for a period of 90 days. Should any defects occur within the warranty period, GSE will replace the Products at no cost to the Purchaser. GSE shall not be liable for any indirect, special, consequential, or incidental damages resulting from a breach of this warranty. GSE's liability under this warranty shall in no event exceed the replacement cost of the Products sold to Purchaser. THIS LIMITED MANUFACTURER'S WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED OR FITNESS FOR A PARTICULAR PURPOSE. BY ACCEPTING DELIVERY OF THE PRODUCTS, PURCHASER WAIVES ALL OTHER POSSIBLE WARRANTIES.

6. **CONTINGENCIES:** Neither Purchaser or GSE shall be liable for its failure to perform hereunder if performance is made impracticable due to any occurrence beyond its reasonable control, including acts of God, fires, floods, wars, sabotage, accidents, labor disputes, inability to obtain economic materials, governmental laws, ordinances, rules, regulations, standards or decrees, inability to obtain raw material, equipment or transportation, and any other similar or different occurrence.

7. **NON-WAIVER:** Failure of Purchaser or GSE to exercise any right hereunder upon one or more occasions shall not waive the right to exercise the same on another occasion.

8. **INSPECTION AND CONDITION OF THE PRODUCT:** The Purchaser shall carefully examine the Products on receipt of same. If Purchaser receives goods which it considers damaged, nonconforming, not within specifications, or otherwise unacceptable, Purchaser must so notify GSE in writing not later than ten (10) business days after receipt of the goods. Failure of such notice, or installation prior to GSE having the opportunity to respond, shall be deemed acceptance of goods as received. Goods may be returned only upon GSE's written consent after rejection by Purchaser in accordance herewith. GSE's liability shall in no event exceed the difference between the purchase price and the value as delivered.

9. **LIMITATION OF DAMAGE:** In no event shall GSE be liable for any special, indirect, consequential or incidental damages arising from this transaction. GSE's total liability is limited to amounts actually paid by Purchaser hereunder with respect to direct damages arising from Purchaser's lawful rejection of goods from GSE's breach of any applicable warranty, or at the option of GSE, replacement of the nonconforming Product with a conforming Product.

10. **RETURNS:** Goods may be returned only upon GSE's written consent. A restocking charge of 20% plus any freight costs incurred by GSE will be applied to offset any credits allowed for materials returned in acceptable resalable condition. All products must be returned in original packaging and with manufacturer's roll numbers.

11. **FORCE MAJEURE CLAUSE:** As used in this quotation, a Force Majeure Event means any act or event, whether foreseen or unforeseen, that (1) prevents GSE in whole or in part, from performing its obligations to manufacture products ordered by customer; or satisfying any conditions on shipping product to the customer; (2) is beyond the reasonable control of and not the fault of GSE; or (3) GSE has been unable to avoid or overcome by the exercise of due diligence. Suspension of Performance: Subject to the provisions of this Force Majeure Clause, if a Force Majeure Event occurs, GSE is excused from (1) whatever performance is prevented by the Force Majeure Event to the extent so prevented; and (2) satisfying whatever conditions precedent to the customer's obligations that cannot be satisfied to the extent they cannot be satisfied. Termination: If the suspension of performance continues for a period of one week as a result of a Force Majeure Event, either party is entitled to terminate the purchase agreement by giving a notice to the other party in writing which is the exclusive remedy available to both parties with respect to a Force Majeure E

12. **FUEL SURCHARGE CLAUSE:** The quoted price for GSE products includes the freight charges from the GSE manufacturing facility to the customer's facility or job site (FOB). The cost of freight has been determined as of the date of this quotation. Customer acknowledges and understands that if GSE receives notification of fuel surcharges from its carriers after the date of this quotation and prior to delivery, then that fuel surcharge will be passed on to customer for customer's account. If GSE's selected carriers refuse to deliver any products to the customer due to a Force Majeure Event, customer has the option of either arranging for shipment at its expense, receiving a credit from GSE for the freight charges in the quotation, or terminating the transaction under the provisions of the Force Majeure Clause.

13. **MISCELLANEOUS:** The validity, interpretation and performance of this Agreement shall be governed by the law of the State of Texas. These terms and conditions hereof constitute the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all previous communications, either oral or written, between the parties hereto. Neither course of performance nor course of dealing nor usage of trade shall be used to interpret, construe, qualify, modify, explain, or supplement any of the terms hereof.

CDM

CLIENT Gary Sanitary District
PROJECT Ralston St Lagoon Remediation
DETAIL

JOB NO. 29021-44113
DATE CHECKED
CHECKED BY

COMPUTED BY M. Cronin
DATE 7/11/07
PAGE NO.

GSE Lining Technology, Inc.

Spoke with Patty Beaubien about getting a quote on a HyperNet on 7/11/07

Product - 200 mil HyperNet:
Size: 157,500
Cost: $0.1638/sf

Total - $25,798.50

Transportation - 2 vans
cost - $1,743/van

TOTAL - $3,486

TOTAL COST - $29,284.50
(Does not Include Installation)

Patty Beaubien is a Senior Customer Service Rep from GSE lining Technology Inc.

GSE Lining Technology, Inc
North American Sales
19103 Gundle Road
Houston, Texas 77073
(281) 443-8564 phone
(281) 230-8650 fax

Sales Quotation

Quotation Date:
Quote Validity Days: 30
Quote Expiration: 1/30/1900
GSE Customer Number:

Quote To: CDM
Attn: Micheal Cronin
1 Cambridge Place/ 50 Hampshire St
Cambridge
MA

Ship To: Gary, Indiana
Attn:
Gary
IN

Phone: 617-452-6419
Fax: 617-452-6419

Payment Terms: 30 days
Shipping Terms: FOB Factory
Quotation Number: PB 71445

Special Conditions: Budget Pricing

Item #	Product Code	Product Description / Ship Method / Print Message	Estimated Quantity	Roll Size	U/M	Unit Price	Extended Price
1	XL4000N004	HyperNet, 200 mil Geonet	157,500	15.0'x300'	SF	$0.1638	$25,798.50
	Freight	*Van*	2.0		EA	$1,743.00	$3,486.00
2	Freight				EA		
3	Freight				EA		
4	Freight				EA		
5	Freight				EA		
6	Freight				EA		
7	Freight				EA		
8	Freight	-			EA		
9	Freight	-			EA		
10	Freight	-			EA		
11	Freight	-			EA		
12	Freight	-			EA		
13	Freight	-			EA		
14	Freight	-			EA		
			Quote Total US $				$29,284.50

Special Conditions:

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6. **CONTINGENCIES:** Neither Purchaser or GSE shall be liable for its failure to perform hereunder if performance is made impracticable due to any occurrence beyond its reasonable control, including acts of God, fires, floods, wars, sabotage, accidents, labor disputes, inability to obtain economic materials, governmental laws, ordinances, rules, regulations, standards or decrees, inability to obtain raw material, equipment or transportation, and any other similar or different occurrence.

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9. **LIMITATION OF DAMAGE:** In no event shall GSE be liable for any special, indirect, consequential or incidental damages arising from this transaction. GSE's total liability is limited to amounts actually paid by Purchaser hereunder with respect to direct damages arising from Purchaser's lawful rejection of goods from GSE's breach of any applicable warranty, or at the option of GSE, replacement of the nonconforming Product with a conforming Product.

10. **RETURNS:** Goods may be returned only upon GSE's written consent. A restocking charge of 20% plus any freight costs incurred by GSE will be applied to offset any credits allowed for materials returned in acceptable resalable condition. All products must be returned in original packaging and with manufacturer's roll numbers.

11. **FORCE MAJEURE CLAUSE:** As used in this quotation, a Force Majeure Event means any act or event, whether foreseen or unforeseen, that (1) prevents GSE in whole or in part, from performing its obligations to manufacture products ordered by customer; or satisfying any conditions on shipping product to the customer; (2) is beyond the reasonable control of and not the fault of GSE; or (3) GSE has been unable to avoid or overcome by the exercise of due diligence. Suspension of Performance: Subject to the provisions of this Force Majeure Clause, if a Force Majeure Event occurs, GSE is excused from (1) whatever performance is prevented by the Force Majeure Event to the extent so prevented; and (2) satisfying whatever conditions precedent to the customer's obligations that cannot be satisfied to the extent they cannot be satisfied. Termination: If the suspension of performance continues for a period of one week as a result of a Force Majeure Event, either party is entitled to terminate the purchase agreement by giving a notice to the other party in writing which is the exclusive remedy available to both parties with respect to a Force Majeure E

12. **FUEL SURCHARGE CLAUSE:** The quoted price for GSE products includes the freight charges from the GSE manufacturing facility to the customer's facility or job site (FOB). The cost of freight has been determined as of the date of this quotation. Customer acknowledges and understands that if GSE receives notification of fuel surcharges from its carriers after the date of this quotation and prior to delivery, then that fuel surcharge will be passed on to customer for customer's account. If GSE's selected carriers refuse to deliver any products to the customer due to a Force Majeure Event, customer has the option of either arranging for shipment at its expense, receiving a credit from GSE for the freight charges in the quotation, or terminating the transaction under the provisions of the Force Majeure Clause.

13. **MISCELLANEOUS:** The validity, interpretation and performance of this Agreement shall be governed by the law of the State of Texas. These terms and conditions hereof constitute the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all previous communications, either oral or written, between the parties hereto. Neither course of performance nor course of dealing nor usage of trade shall be used to interpret, construe, qualify, modify, explain, or supplement any of the terms hereof.

Plymouth Foam INCORPORATED

1800 Sunset Drive
P.O. Box 407
Plymouth, WI 53073
Phone 1-920-893-0535
Fax 1-920-892-4986

13900 Industry Avenue
Becker, MN 55308
Phone 1-612-261-4900
Fax 1-612-261-4905

126 New Pace Road
Newcomerstown, OH 43832
Phone 1-740-498-4181
Fax 1-740-498-4184

Quote Number: 27471

QUOTATION

Quote To:
GEOFFEY SCHWARTZ
CMD
CAMBRIDGE MA

Phone:
Fax: 617 452-8731

Date: 2/7/2006
Expires: 3/9/2006
Sample/Quote Req
Reference:
Quoted By: Randall Aschenbach

FOB:

Please contact the estimator with questions.
To place an order, please contact customer service.
Thank you for this opportunity to quote your needs!

Line	Part Number	Description	Revision	UM	Drawing #

1 DURAFILL 12

R123I274711
JOB GARY IN
BLOCK SIZE 41" X 49" X 96"
BLOCKS ARE UNTRIM

THIS IS BUDGET PRICE

PRICE PER CUBIC YARD DELV

Part Number:

Quantity	Unit Price
1.00	42.120

2 DURAFILL 15

R123I274712
JOB GARY IN
BLOCK SIZE 41" X 49" X 96"
BLOCKS ARE UNTRIM

THIS IS BUDGET PRICE

PRICE PER CUBIC YARD DELV

Part Number:

Quantity	Unit Price
1.00	48.600

3 DURAFILL 19

R123I274713
JOB GARY IN
BLOCK SIZE 41" X 49" X 96"
BLOCKS ARE UNTRIM

THIS IS BUDGET PRICE

PRICE PER CUBIC YARD DELV

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Line	Part Number	Description	Revision	UM	Drawing #

Part Number:

Quantity	Unit Price
1.00	51.840

4 DURAFILL 22

R123I274714
JOB GARY IN
BLOCK SIZE 41" X 49" X 96"
BLOCKS ARE UNTRIM

THIS IS BUDGET PRICE

PRICE PER CUBIC YARD DELV

Part Number:

Quantity	Unit Price
1.00	71.280

5 DURAFILL 29

R123I274715
JOB GARY IN
BLOCK SIZE 41" X 49" X 96"
BLOCKS ARE UNTRIM

THIS IS BUDGET PRICE

PRICE PER CUBIC YARD DELV

Part Number:

Quantity	Unit Price
1.00	93.960

Plymouth Foam INCORPORATED

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Quote Number: 27471

QUOTATION

Quote To:
GEOFFEY SCHWARTZ
CMD
CAMBRIDGE MA

Phone:
Fax: 617 452-8731

Date: 2/7/2006
Expires: 3/9/2006
Sample/Quote Req
Reference:
Quoted By: Randall Aschenbach

FOB:

Please contact the estimator with questions.
To place an order, please contact customer service.
Thank you for this opportunity to quote your needs!

Line	Part Number	Description	Revision	UM	Drawing #
6	R123I274716	DURAFILL 15 → 40?			

JOB GARY IN
BLOCK SIZE 41" X 49" X 96"
BLOCKS ARE UNTRIM

THIS IS BUDGET PRICE

PRICE PER CUBIC YARD DELV

Part Number:

Quantity	Unit Price
1.00	129.600

. Please include our quote number on your purchase order.
. Terms are NET 30 days based on approved credit.
. Prices are firm for 30 days, unless extended in writing.
. Prices are for the release / shipment quantities shown.
. Minimum order: $125.00 per part
. Standard tolerances on EPS are +/- 1/16" unless otherwise noted
. Tolerances on non-EPS materials are determined by the manufacturing process, unless otherwise specified by customer at the time of quote.
. This quote is based on shipping quantities which are "+ or -" 10% of ordered quantities.
. Prices include standard PFI packaging. If special packaging is required, additional costs may be incurred.
0. Standard material may not meet exact color matches and may contain a small amount of other color material.
1. Price(s) do not include sales tax,where applicable.

- **Dredging and Dewatering**
    - Dewater sludge
    - Water Management
    - Prepare Confining Cell

CDM

CLIENT
PROJECT 88L
DETAIL Dewatering cost

JOB NO.
DATE CHECKED
CHECKED BY

COMPUTED BY
DATE 7/11/07
PAGE NO.

	Quantity	unit cost	cost
- Polymer addition Assume 300 PPM concentration	64,612 lb	$ 1.45 /lb	$ 93,687.00
- Polymer Feed units	3 units	$ 15,000/unit	$ 45,000.00
- Geotube bags Assume each Bag is 36ft wid 8ft high, 200ft long capacity = 1800 CY	75 Bags	$ 5,775 / bag	$ 433125.00
- Potable water (Northwest Indiana Rate)	107,686,020 gal	$ 0.0015/gal	$ 161529
- 12" structural fill base Compacted (450ft x 350ft)	5833 CY	$ 12 / CYd	$ 46600
- 60 Mil HDPE Liner (450' x 350')	17500 SY	$0.44/SF	= $ 69,300.0
x Geonet (450 x 350)	17500 SY	$ 0.1638/SF	= $25800.0
B Transport	2 Van	$1743/Van	$ 3486
- 2 ft high Perimeter berm Common Fill	711 CY	$12/CY	$ 8532
- Misc. 4" dia HDPE pipe	4400 LF	$12 /LF	52,800

TOTAL cost = $ 939259

Vol = 107,686,000.00

⇒ unit cost ≈ $0.01/gallon

(not including labor, installations, pumps, etc)

CDM

CLIENT	GSD	JOB NO.		COMPUTED BY	GBS
PROJECT	RSL - TCA	DATE CHECKED		DATE	7/10/07
DETAIL	Dewatering - Conceptual layout of Geotubes / costs	CHECKED BY		PAGE NO.	1

Required: ① Conceptual layout of geotubes for dewatering at RSL
② cost components

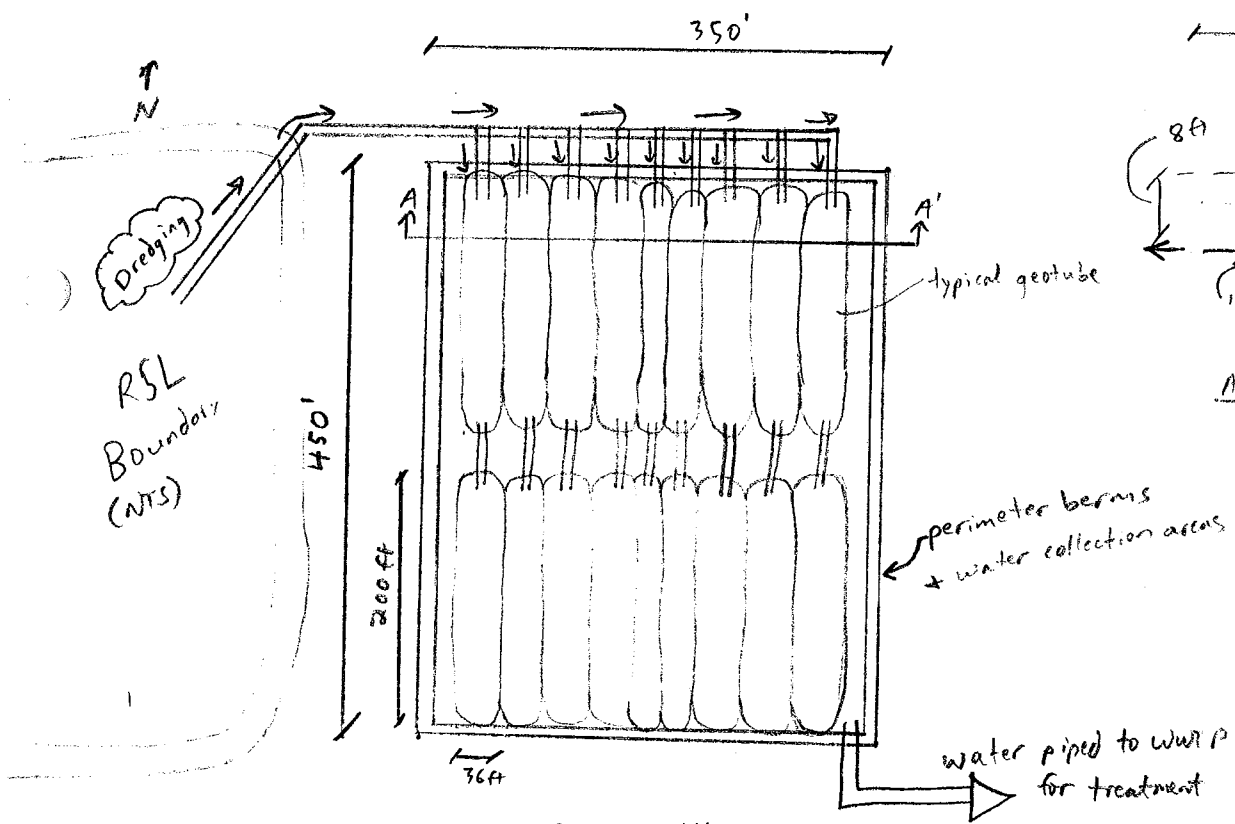
Solution: Source: Technical Support from WaterSolve, LLC Grand Rapids, MI
Phone call on 7/10/07

①

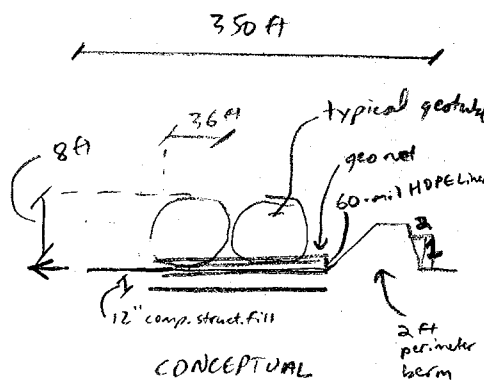
- largest circumference recommended is 80 ft, use 80 ft circ. × 200 ft long
capacity of bag = 1,800 CY dewatered material (90% capacity)
dimensions: 30 ft wide × 8 ft high × 200 ft long

- size of dewatering area: max. length: 450 or 500 LF (from geometry of E side of RSL/RS. Area)
use 450

available land: 6 Acres: Residential Area



CONCEPTUAL
Plan View (NTS)



CONCEPTUAL
A-A' X-Section (NTS)

Space = 450 × 350 / 43560 = 3.6 AC reqd. + polymer make down area → say 4 AC total

capacity = 18 bags × 1,800 CY/bag = 32,400 CY dewatered material

(2)

Cost components:

Dredging (to geotubes)

- mob/demob
- dredge unit cost

Polymer addition

- assume 300 ppm (300 gal polymer per 1,000,000 gal treated); 9.25 #/gal polymer, $1.45/# polymer delivered

$\frac{300 \text{ gal polymer}}{1{,}000{,}000 \text{ gal treated water}} \times 1{,}076{,}860{,}020 \text{ gal sludge} \times 2 \text{ (1:1 sludge : water mix)} \times \frac{9.25 \#}{1 \text{ gal pol.}}$

= 64,612 # polymer required @ $1.45/# polymer

- $ polymer = 64,612 # polymer × $1.45/# = $93,686.84 = cost of polymer

- Polymer feed unit (skid mounted, manual operator, 4 × 4 on pallets):

$15K per unit × 3 units (recommended) = $45,000 = cost of polymer feed units

- Geotube bags: 1 bag = 46 ft wide, 8 ft high, 200 ft long

need 135,000 CY sludge dewatered / × 1 bag / 1800 CY sludge dewatered = 75 Bags

75 bags × $5,775/bag delivered to site = $433,125 = geotube bags

Setup

- 12" gravel fill, compacted: 14 ft × 450 ft × 350 ft = 5,833 CY
- HDPE liner, 60-mil: 450 ft × 350 ft = 157,500 SY
- Geonet: 450 × 350 = 157,500 SF = 17,500 SY
- Perimeter berm

= [4 × 2 × ½ × 2 + 2 × 2] × [450 × 2 + 350 × 2] = 711 CY

- Misc piping and hosing (assume 4" dia HDPE pipe): 9 × 450 + 350 = 4,400 LF

ALTERNATIVES 4 AND 6

OBJECTIVES

(1) Calculating the volume of water that gets squeezed from the sludge while dewatering sludge from 15% solids --> 50% solids
(2) Calculate volume of bulked sludge (at 50% solids)
(3) Determining final bulked and solidified sludge volume after ex-situ S/S

Step 1: Initial Volumes and Masses (sludge with 15% solids)

V sludge (15% solids)	107,686,020	gal	(Fluor Daniel, 1996)
=	533,169	CY	
=	14,395,564	ft3	
Bulk Density of sludge at 15% solids	67.5	pcf (Earth Tech, 2004)	
Density Water	62.4	pcf	
Mass Sludge at 15% Solids	971,700,602	lbs	(= Volume sludge x Bulk Density of sludge at 15% solids)
% Solids	15%		
% Water	85%		
Mass Solids at 15% Solids	145,755,090	lbs	(= Mass Sludge x % Solids)
Mass Water at 15% Solids	825,945,511	lbs	(= Mass Sludge x % Water)
Total (M Sludge - CHECK)	971,700,602	lbs	(=M Solids + M Water)
V Sludge	14,395,564	ft3	GIVEN
V Water	13,236,306	ft3	(= M water / Density Water)
V Solids	1,159,258	ft3	(= V sludge - V water, assuming 100% saturation)

Step 2: Dewater from 15% solids to 50% solids (BY MASS)

Bulk Density of sludge at 50% solids:	95	pcf (assumption)	
Mass Solids at 50% Solids	145,755,090	lbs	(Mass Solids does not change)
Mass Water at 50% Solids	145,755,090	lbs	(Mass Solids / Mass Water = 50% / 50%, solve for Mass Water)
Mass Sludge at 50% Solids	291,510,180	lbs	(= Mass Solids + Mass Water)
Volume Sludge at 50% Solids	3,068,528	ft3	(= Mass Sludge / (Bulk density of sludge at 50% solids))
=	113,649	CY	volume of sludge at 50% solids
	3,068,528	ft3	
	22,954,125	gal	
Mass Water at 15% Solids	825,945,511	lbs	
Mass Water at 50% Solids	145,755,090	lbs	
Mass Water Lost	680,190,421	lbs	(=Mass Sludge 30% Solids - Mass Sludge 15% Solids)
Volume of water lost	10,900,488	ft3	(= Mass Water Lost / Density Water)
=	81,541,097	gal	water removed when dewatering sludge from 15% solids --> 50% solids

Step 3: Bulk from 50% ---> 70% solids using S/S, estimate volume of solidified sludge in lagoon or CDDF

Volume of bulked sludge (50% solids) in lagoon	113,649	CY	
Assumed dosage of pozzalonic for In-situ S/S	30.0%		
Volume of sludge after S/S	147,744	CY	(=vol*(1+0.3), assuming volume increases by dosage of pozzalonic)
	3,989,086.68	ft3	
	29,840,362.91	gal	

Client: Gary Sanitary District
Project: Ralston St. Lagoon Remediation
Detail: Bulking Volume Calculations

Job Number: 29021-44113
Computed by: M. McCarthy
Date: 6/27/07

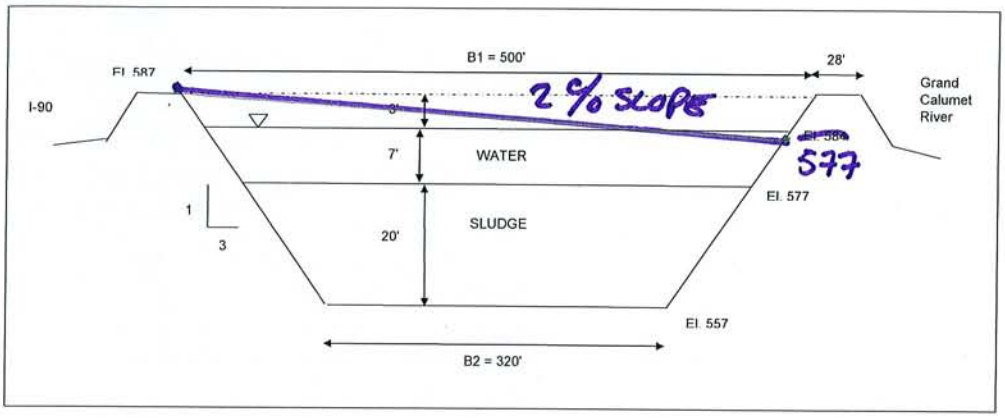
Checked by: GBS
Date: 7/13/07
Page:

Purpose: To calculate the volume potential height of the lagoon after bulking with various additives for any option requiring filling

Problem:
Calculate initial sludge, water, and total volume of RSL lagoon
Calculate amounts of bulking agents needed to bulk sludge
Calculate total volume of lagoon with sludge and bulking agents

References:
CDM. 2006. Supplemental Alternatives Evaluation Study, Ralston Street Lagoon, (October 2006).

Simplified Conditions at A1:



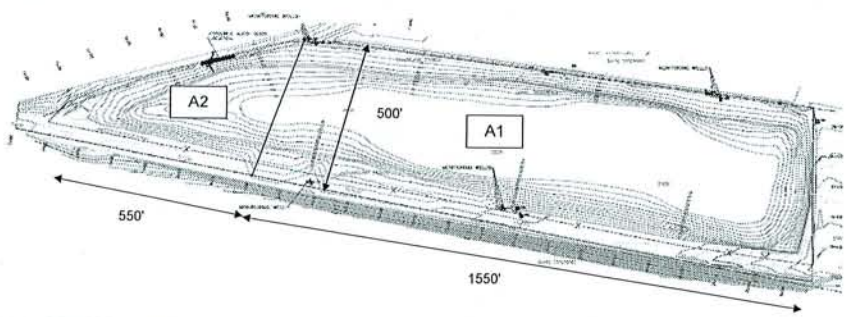
Step 1: Initial Volumes

1) Sludge			
Volume	107,686,020	gal	Estimated average from bathymetric survey
	533,168	cy	
Thickness	20	ft	Estimated average value from probing
2) Water			
Volume	42,000,000	gal	known value from TCA
	207,948	cy	
Thickness	7	ft	Estimated average value from probing
3) Air Space	92928	cy	(= 3 ft of air * 19.2 acres)
Total Volume	834,043	cy	(= Volume of sludge + volume of water + volume of air)
	168,455,050	gal	

AIR SPACE / V. FOOT → = 834,043 YD³ / 30' = 27,801 YD³ / V. FT

5%

Calculate volume of lagoon



Step 2: Simplfy/Normalize Lagoon Shape

Area of A1 cross section	12,300	ft^2	(= (320*30) + 2(.5*90*30))
Volume of A1	19,065,000	ft^3	(= area of A1 cross section * length of lagoon)
Area of A2 (plan view)	137,500	ft^2	(= .5 * 550 * 500)
Assume average depth of 17'			
Volume of A2	2,337,500	ft^3	(= area of A2 * average depth of A2)
Simplify A2 into A1 shape, maintaining volume			
A2 will have same cross section as A1			
Length of A2	190	ft	(= volume of A2 / area of A1 cross section)
Total length of simplified lagoon	1740	ft	(= length of A1 + length of A2)
	580	y	

CDM

CLIENT		JOB NO.		COMPUTED BY	M. BACHAND
PROJECT		DATE CHECKED	7/13/07	DATE	7/11/07
DETAIL		CHECKED BY	GBS	PAGE NO.	

ITEM 5 CALCULATION

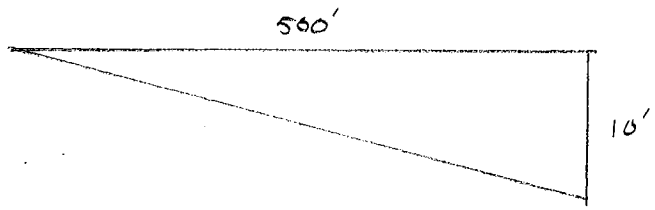
(1) TOTAL LAGOON VOLUME = 168,455,050 GAL = 834,043 YD^3

ADD 1' OVER CUT

1' = 27,801 YD^3 (SEE ATTACHED)

TOTAL FILL NEED = 861,844 YD^3

(2) VOLUME NOT NEEDED FROM ORIGINAL PROFILE (SIMPLE SHAPE)



$A = \frac{1}{2}(500)(10')^2 = 2{,}500\ FT^2$

$V = (1740')(2{,}500) = 161{,}111\ YD^3$

FILL NEED

$F_N = 861{,}844\ YD^3 - 161{,}111\ YD^3 = 700{,}000\ YD^3$

CDM

CLIENT		JOB NO.		COMPUTED BY	MB
PROJECT		DATE CHECKED	7/13/07	DATE	7/11/07
DETAIL		CHECKED BY	GBS	PAGE NO.	

STORM WATER MANAGEMENT

- 38"/YEAR IN GARY
- ASSUME 3 YR CONSTRUCTION SEASON
- WATER TREATMENT (SURFACE WATER) = $.02/GALLON

VOLUME OF STORMWATER

$$19\ \text{ACRE} \times \frac{43560\ \text{FT}^2}{1\ \text{ACRE}} \times \frac{3.17\ \text{FT}}{\text{YEAR}} \times \frac{3\ \text{YEARS}}{} \times \frac{7.49\ \text{GAL}}{1\ \text{FT}^3} \times \frac{.02}{\text{GALLON}}$$

$$= \$1{,}179{,}054$$

CDM

CLIENT		JOB NO.		COMPUTED BY	MAH
PROJECT	PSL	DATE CHECKED	7/13/07	DATE	7/9/07
DETAIL	AH4	CHECKED BY	GBS	PAGE NO.	1/1

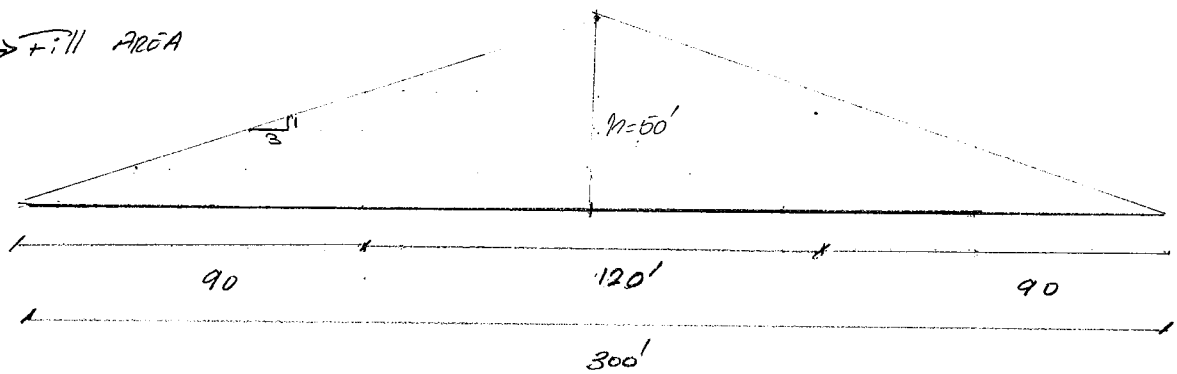
L+W of CDDF confining cell

V_d = 132500 CY (sludge) @ 50% solids
From S/S additive, assume 30% Pozzolamic

$$V_{s/s\ treated} = V_{dewater} \times (1 + 30\%)$$

$$= 132500\ (1.3) = 172{,}250\ CY = 4650750\ ft^3$$

→ Fill AREA



Assume h_{fill} = 50'

$$A = \frac{(300)(50)}{2} = 7500\ ft^2$$

$$\Rightarrow L_{Req} = \frac{4650750\ ft^3}{7500\ ft^2} = 620.1\ ft$$

$$A_{Req} = (620.1)(300) = 186030\ ft^2 = 4.2\ Acre$$

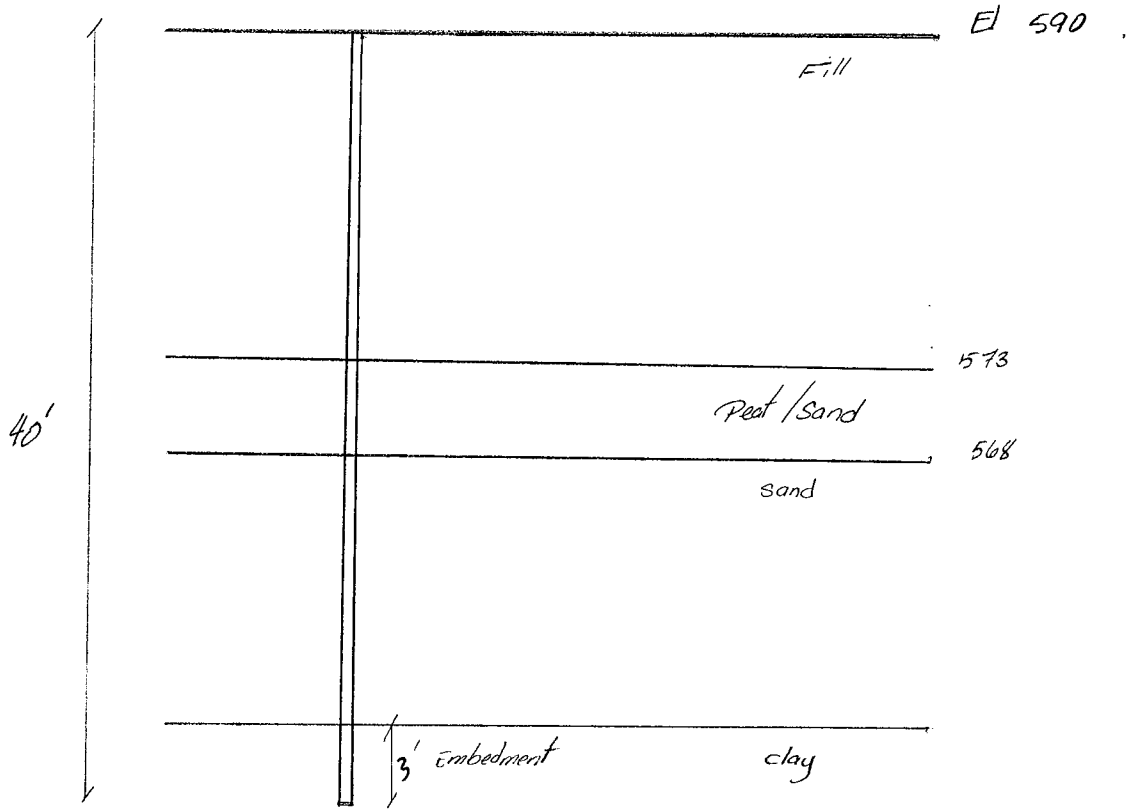
1ft subbase ⇒ $(186030)\ ft^2 * 1\ ft = 186030\ ft^3 = 6890\ CY$

3' thick compacted clay liner = $186030\ ft^2 * 3\ ft = 558090\ ft^3 = 20670\ CY$

- **Slurry Wall**

CDM

CLIENT		JOB NO.		COMPUTED BY	MAH
PROJECT	RSL	DATE CHECKED		DATE	7/10/07
DETAIL	slurry wall profile	CHECKED BY		PAGE NO.	1/1



33 06 03	Slurry Walls	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 06 0304	**Clay/Sand with Boulders, to 25', Slurry Wall Excavation**	**CY**				**0.87**	**1.76**	**0.00**	**2.63**
02228 0388	Trench, 2-1/2 CY Hydraulic Excavator, 113 CY/Hour (86 m3)/Hour)	CY	112.9	CODEU	1.000	0.87	1.76	0.00	2.63
33 06 0305	**Normal Soil, 26' - 75', Slurry Wall Excavation**	**CY**				**1.88**	**3.83**	**0.00**	**5.71**
02081 3003	Normal Soil - 26' - 75' Slurry Wall Excavation	CY	52	CODEU	1.000	1.88	3.83	0.00	5.71
33 06 0306	**Clay/Sand with Boulders, 26' - 75', Slurry Wall Excavation**	**CY**				**2.80**	**5.69**	**0.00**	**8.49**
02081 3004	Clay/Sand w/Boulders - 26' - 75' Slurry Wall Excavation	CY	35	CODEU	1.000	2.80	5.69	0.00	8.49
33 06 0307	**Normal Soil, 76' - 120', Slurry Wall Excavation**	**CY**				**4.05**	**8.23**	**0.00**	**12.28**
02081 3005	Normal Soil - 76' - 120' Slurry Wall Excavation	CY	24.16	UOEDW	1.000	4.05	8.23	0.00	12.28
33 06 0308	**Clay/Sand with Boulders, 76' - 120', Slurry Wall Excavation**	**CY**				**6.05**	**12.28**	**0.00**	**18.33**
02081 3006	Clay/Sand w/Boulders - 76' - 120' Slurry Wall Excavation	CY	16.19	UOEDW	1.000	6.05	12.28	0.00	18.33
33 06 0309	**Bentonite, Material Purchase Price per Ton**	**TON**				**0.00**	**0.00**	**61.56**	**61.56**
02081 2225	90 Barrel Yield Bentonite No Contamination Resistance	TON	0	N/A	1.000	0.00	0.00	61.56	61.56
33 06 0310	**Slurry Mixing, Hydration, and Placement, per Gallon**	**GAL**				**0.05**	**0.01**	**0.00**	**0.06**
02081 3007	Slurry Mixing, Hydration, and Placement, per Gallon	GAL	2188	ULABR	1.000	0.05	0.01	0.00	0.06
33 06 0311	**Soil-Bentonite Backfill Mixing, per Cubic Yard**	**CY**				**0.85**	**2.07**	**0.00**	**2.91**
02081 3008	Soil, Bentonite Backfill Mixing, per Cubic Yard	CY	145.7	CODTU	1.000	0.85	2.07	0.00	2.91
33 06 0312	**Backfill Slurry Wall Trench, 1,000' Average Haul Distance**	**CY**				**0.63**	**1.49**	**0.00**	**2.12**
02081 3009	Backfill Slurry Wall Trench, 1,000' Average Haul Distance	CY	58.67	CODLK	1.000	0.63	1.49	0.00	2.12
33 06 0313	**Demolish Mixing Basins and Regrade Working Surface**	**SF**				**0.04**	**0.04**	**0.00**	**0.08**
02081 3011	Cleanup and Regrade Working Surface	SF	3000	CODTT	1.000	0.04	0.04	0.00	0.08
33 06 10	**Permeable Barriers**	**Unit**	**Hourly Output**	**Crew**	**Factor**	**Labor**	**Equip.**	**Matl.**	**Total**
33 06 1011	**Temporary Medium Wall Sheet Piling**	**SF**				**4.52**	**6.38**	**10.30**	**21.20**
02086 1011	Temporary Medium Wall Sheet Piling	SF	59.74	CPIDV	1.000	4.52	6.38	10.30	21.20
33 06 1012	**Temporary Heavy Wall Sheet Piling**	**SF**				**6.40**	**9.02**	**13.01**	**28.43**
02086 1012	Temporary Heavy Wall Sheet Piling	SF	42.26	CPIDV	1.000	6.40	9.02	13.01	28.43
33 06 1013	**Permanent Medium Wall Sheet Piling**	**SF**				**4.52**	**6.38**	**3.34**	**14.24**
02086 1013	Permanent Medium Wall Sheet Piling	SF	59.74	CPIDV	1.000	4.52	6.38	3.34	14.24

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33 06 10	Permeable Barriers	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
33 06 1014	**Permanent Heavy Wall Sheet Piling**	**SF**				**6.40**	**9.02**	**13.01**	**28.43**
02086 1014	Permanent Heavy Wall Sheet Piling	SF	42.26	CPIDV	1.000	6.40	9.02	13.01	28.43
33 06 1021	**Trench - 2-1/2 CY Hydraulic Excavator -113 CY/Hr (86M3)/Hr**	**CY**				**0.87**	**1.76**	**0.00**	**2.63**
02228 0388	Trench, 2-1/2 CY Hydraulic Excavator, 113 CY/Hour (86 m3)/Hour)	CY	112.9	CODEU	1.000	0.87	1.76	0.00	2.63
33 06 1022	**Excavate Trench in Cobble to 25' Deep**	**CY**				**0.87**	**1.76**	**0.00**	**2.63**
02228 0388	Trench, 2-1/2 CY Hydraulic Excavator, 113 CY/Hour (86 m3)/Hour)	CY	112.9	CODEU	1.000	0.87	1.76	0.00	2.63
33 06 1023	**Normal Soil - 26' - 75' Slurry Wall Excavation**	**CY**				**1.88**	**3.83**	**0.00**	**5.71**
02081 3003	Normal Soil - 26' - 75' Slurry Wall Excavation	CY	52	CODEU	1.000	1.88	3.83	0.00	5.71
33 06 1024	**Clay/Sand w/Boulders - 26' - 75' Slurry Wall Excavation**	**CY**				**2.80**	**5.69**	**0.00**	**8.49**
02081 3004	Clay/Sand w/Boulders - 26' - 75' Slurry Wall Excavation	CY	35	CODEU	1.000	2.80	5.69	0.00	8.49
33 06 1025	**Normal Soil - 76' - 120' Slurry Wall Excavation**	**CY**				**4.05**	**8.23**	**0.00**	**12.28**
02081 3005	Normal Soil - 76' - 120' Slurry Wall Excavation	CY	24.16	UOEDW	1.000	4.05	8.23	0.00	12.28
33 06 1026	**Clay/Sand w/Boulders - 76' - 120' Slurry Wall Excavation**	**CY**				**6.05**	**12.28**	**0.00**	**18.33**
02081 3006	Clay/Sand w/Boulders - 76' - 120' Slurry Wall Excavation	CY	16.19	UOEDW	1.000	6.05	12.28	0.00	18.33
33 06 1027	**Key-in Treatment Wall**	**CY**				**41.86**	**24.97**	**34.97**	**101.79**
02221 0800	Rock Removal Drill for Pre-Splitting	LF	39.38	CLADH	2.679	2.00	3.69	0.17	15.71
02221 1605	Quarry Production Drill, 75 LF/Hour, (23m/Hour)	LF	75.5	CLADH	2.679	1.04	1.93	0.00	7.95
02223 3000	Blasting for Pre-Splitting, Load and Detonate	LF	59	CLADF	2.679	2.44	0.79	6.33	25.62
02223 3700	Ammonium Nitrite Explosives	LB	0	N/A	6.200	0.00	0.00	2.11	13.08
02223 3720	Detonator Wire	LF	0	N/A	5.000	0.00	0.00	0.03	0.16
02223 3740	Primacord (50 Grain)	MLF	0	N/A	0.003	0.00	0.00	413.96	1.28
02223 3762	Fuel Oil for Blasting	GAL	0	N/A	2.765	0.00	0.00	1.09	3.02
02232 0150	Excavate & Load, 2 CY Hydraulic Excavator, Blast Rock, 65 CY/Hour (49 m3)	CY	65	CODET	1.000	1.01	1.77	0.00	2.78
02238 0600	Break Rock with Air Hammer, Dense Rock	CY	2	CLADA	1.000	26.18	6.02	0.00	32.19
33 06 1028	**Level and Compact Working Surface**	**CY**				**1.88**	**4.30**	**0.00**	**6.18**
02081 3001	Level and Compact Working Surface	CY	106.4	COFCV	1.000	1.88	4.30	0.00	6.18
33 06 1031	**Iron Filings**	**CY**				**24.88**	**30.30**	**465.68**	**520.86**
02086 1031	Iron Filings	CY	4.8	ULABN	1.000	24.88	30.30	465.68	520.86
33 06 1032	**Activated Carbon - Coal Derived**	**CY**				**24.88**	**30.30**	**1,099**	**1,155**
02086 1032	Activated Carbon - Coal Derived	CY	4.8	ULABN	1.000	24.88	30.30	1,099	1,155

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- **Site Grading and Fencing**

Repair/replace fencing

32 18 Athletic and Recreational Surfacing

32 18 23 – Athletic Surfacing

	32 18 23.33 Running Track Surfacing	Crew	Daily Output	Labor-Hours	Unit	2007 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**RUNNING TRACK SURFACING**									
0020	Running track, asphalt, incl base, 3" thick	B-37	300	.160	S.Y.	16.60	4.87	.41	21.88	26.50
0100	Surface, latex rubber system, 3/8" thick, black	B-20	125	.192		7.45	6.25		13.70	17.90
0150	Colors		125	.192		13.25	6.25		19.50	24.50
0300	Urethane rubber system, 3/8" thick, black		120	.200		19.90	6.50		26.40	32
0400	Color coating		115	.209		23.50	6.80		30.30	36.50

32 31 Fences and Gates

32 31 13 – Chain Link Fences and Gates

32 31 13.20 Fence, Chain Link Industrial

0010	**FENCE, CHAIN LINK INDUSTRIAL**, schedule 40									
0020	3 strands barb wire, 2" post @ 10' O.C., set in concrete, 6' H									
0200	9 ga. wire, galv. steel	B-80C	240	.100	L.F.	14	2.87	.61	17.48	20.50
0300	Aluminized steel		240	.100		17.95	2.87	.61	21.43	25
0500	6 ga. wire, galv. steel		240	.100		22	2.87	.61	25.48	29
0600	Aluminized steel		240	.100		25	2.87	.61	28.48	32.50
0800	6 ga. wire, 6' high but omit barbed wire, galv. steel		250	.096		21	2.75	.59	24.34	28.50
0900	Aluminized steel		250	.096		29.50	2.75	.59	32.84	37.50
0920	8' H, 6 ga. wire, 2-1/2" line post, galv. steel		180	.133		34	3.82	.82	38.64	44
0940	Aluminized steel		180	.133		41.50	3.82	.82	46.14	52.50
1400	Gate for 6' high fence, 1-5/8" frame, 3' wide, galv. steel		10	2.400	Ea.	154	69	14.75	237.75	293
1500	Aluminized steel		10	2.400	"	190	69	14.75	273.75	330
2000	5'-0" high fence, 9 ga., no barbed wire, 2" line post,									
2010	10' O.C., 1-5/8" top rail									
2100	Galvanized steel	B-80C	300	.080	L.F.	12.20	2.29	.49	14.98	17.50
2200	Aluminized steel		300	.080	"	14.30	2.29	.49	17.08	19.85
2400	Gate, 4' wide, 5' high, 2" frame, galv. steel		10	2.400	Ea.	176	69	14.75	259.75	315
2500	Aluminized steel		10	2.400	"	197	69	14.75	280.75	340
3100	Overhead slide gate, chain link, 6' high, to 18' wide		38	.632	L.F.	155	18.10	3.88	176.98	202
3105	8' high	B-80	30	1.067		155	33.50	18.70	207.20	242
3108	10' high		24	1.333		157	41.50	23.50	222	263
3110	Cantilever type		48	.667		66.50	21	11.65	99.15	118
3120	8' high		24	1.333		96.50	41.50	23.50	161.50	196
3130	10' high		18	1.778		114	55.50	31	200.50	246
5000	Double swing gates, incl. posts & hardware									
5010	5' high, 12' opening	B-80C	3.40	7.059	Opng.	470	202	43.50	715.50	885
5020	20' opening		2.80	8.571		640	246	52.50	938.50	1,150
5060	6' high, 12' opening		3.20	7.500		795	215	46	1,056	1,250
5070	20' opening		2.60	9.231		1,100	265	56.50	1,421.50	1,675
5080	8' high, 12' opening	B-80	2.13	15.002		1,225	470	263	1,958	2,350
5090	20' opening		1.45	22.069		1,625	690	385	2,700	3,250
5100	10' high, 12' opening		1.31	24.427		1,400	765	430	2,595	3,200
5110	20' opening		1.03	31.068		2,100	970	545	3,615	4,425
5120	12' high, 12' opening		1.05	30.476		2,050	950	535	3,535	4,300
5130	20' opening		.85	37.647		2,625	1,175	660	4,460	5,425
5190	For aluminized steel add					20%				
7055	Braces, galv. steel	B-80A	960	.025	L.F.	1.95	.72	.19	2.86	3.48
7056	Aluminized steel	"	960	.025	"	2.34	.72	.19	3.25	3.91

32 31 13.25 Fence, Chain Link Residential

0010	**FENCE, CHAIN LINK RESIDENTIAL**, sch. 20, 11 ga. wire, 1-5/8" post									
0020	10' O.C., 1-3/8" top rail, 2" corner post, galv. stl. 3' high	B-80C	500	.048	L.F.	4.21	1.38	.29	5.88	7.10

18 04 Site Development

18 04 02	Retaining Walls	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
18 04 0201	**Continuous Footing, Edge Form, 4 Uses**	**SF**				**2.24**	**0.00**	**0.87**	**3.11**
03158 0150	Continuous Wall Footing Forms, 4 Uses Plywood Forms, Form & Strip with Accessories	SF	60.63	ACARJ	1.000	2.24	0.00	0.87	3.11
18 04 0202	**Footing, Rebar**	**LB**				**0.33**	**0.15**	**0.34**	**0.82**
03210 1007	Rebar #3-#7	TON	0.288	SIWRF	0.001	656.70	302.96	685.52	0.82
18 04 0203	**Pour & Cure Concrete, Continuous Footing**	**CY**				**24.58**	**7.48**	**92.76**	**124.82**
03372 2450	Pour Spread Footings, < 5 CY, Concrete Pump < (5 m3) Place 3,000 PSI Concrete Foundations	CY	12.5	ALABI	1.000	19.00	7.48	89.20	115.67
07174 0100	Silicone Retarder, 1 Coat on Concrete, Sprayed	CSF	1.875	ARFCD	0.270	20.67	0.00	13.20	9.15
18 04 0205	**CIP Walls Form & Strip (4 Uses)**	**SF**				**4.10**	**0.00**	**0.66**	**4.76**
03182 4750	Retaining Wall Forms - up to 8' 4 Uses (Below Grade) Plywood Forms Form and Strip	SF	40.63	ACARL	1.000	4.10	0.00	0.66	4.76
18 04 0206	**Reinforced Steel, Retaining Wall**	**LB**				**0.25**	**0.12**	**0.34**	**0.71**
03210 1011	Wall Rebar, #3-#7	TON	0.375	SIWRF	0.001	503.47	232.27	685.52	0.71
18 04 0207	**Pour & Cure Concrete, Retaining Wall**	**CY**				**35.28**	**11.10**	**96.33**	**142.70**
03372 5200	Pour Concrete Wall, 12" Thick, Crane & Bucket (31 cm) 3,000 PSI Concrete	CY	11.25	ALABG	1.000	24.12	11.10	89.20	124.41
07174 0100	Silicone Retarder, 1 Coat on Concrete, Sprayed	CSF	1.875	ARFCD	0.540	20.67	0.00	13.20	18.29
18 04 0208	**Bush Hammer Finish**	**SF**				**2.05**	**0.00**	**0.06**	**2.11**
03398 0300	Wall Finish, Bush Hammer Green Concrete	SF	21.25	ACMAA	1.000	2.05	0.00	0.06	2.11
18 04 0210	**Keyway**	**LF**				**0.68**	**0.00**	**0.26**	**0.93**
03158 1500	2x4 Keyway Forms, 4 Uses	LF	66.25	ACARA	1.000	0.68	0.00	0.26	0.93
18 04 05	**Signage**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total
18 04 0501	**Hazardous Waste Signing**	**EA**				**34.75**	**0.00**	**21.00**	**55.75**
02842 0590	Directional Sign, 12"x 18" with Post Reflectorized, OSHA Standard	EA	2	ULABB	1.000	34.75	0.00	21.00	55.75
18 04 07	**Playing Fields**	Unit	Hourly Output	Crew	Factor	Labor	Equip.	Matl.	Total

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- **TSCA Permitted Chemical Waste Landfill**

CDM

CLIENT Gary Sanitary District JOB NO. 29021-44113 COMPUTED BY M. Cronin
PROJECT Ralstoon St. Lagoon Remed. DATE CHECKED ~~7/11/07~~ DATE 7/11/07
DETAIL CHECKED BY PAGE NO.

Wayne Disposal Inc
- Hazardous Waste Disposal

Spoke with Brian Surane (Midwest Regional Sales manager) who quoted the following cost estimate on 7/11/07

Transportation: from Gary, IN to Michigan = $58/Ton (Includes fuel)

Waste Disposal = $70/Ton + $10/Ton (State tax)
Waste TOTAL = $80/Ton

TOTAL cost = $138/Ton

In Cubic Yards:

Transportation: $58/Ton x 1.5 = $87/CY

Waste Disposal: $80/Ton x 1.5 = $120/CY

TOTAL cost = $207/CY

Clean Harbors (PPM), LLC	Tucker, GA 30084	770-934-0902
Transformer Disposal Specialists, Inc.	P.O. Box 428 Tonkawa, OK 74653	580-628-5371 Fax: 580-628-2961
Clean Harbors (PPM), LLC	Route 3, Box 65 Highway 169 North Coffeyville, KS 67377	620-251-6380 800-248-0442 Fax: 620-251-2822
Safety Kleen Oil Recovery Co.	601 Riley Road East Chicago, IN 46312	219-397-1131

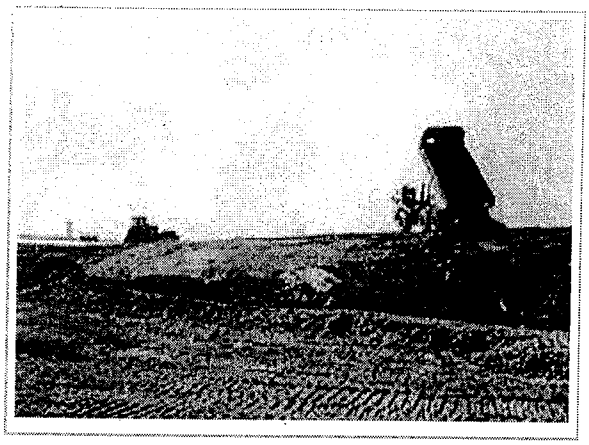
Chemical Waste Landfills

Company	Address	Phone Number
Chemical Waste Management	Alabama Inc. Box 55 Emelle, AL 35459	205-652-9721
Chemical Waste Management	Box 471 Kettleman City, CA 93239	559-386-9711
Chemical Waste Management of the Northwest	Star Route, Box 9 Arlington, OR 98712	503-454-2643
CWM Chemical Services, LLC	1550 Balmer Road Model City, NY 14107	716-754-8232 ?
US Ecology Idaho	P.O.Box 16217 Boise, ID 83715-6217	800-274-1516 ?
Clean Harbors Grassy Mountains, LLC	P.O. Box 22750 Salt Lake City, UT 84122	801-323-8900 Fax: 801-323-8990
U.S. Ecology, Inc.	Box 578 Beatty, NV 89003	
Waste Control Specialists, LLC	9998 West Hwy 176 Andrews, TX 79714 Mail - P.O. Box 1129 Andrews, TX 79714	Phone: 888-789-2783 Fax: 505-394-3427
Wayne Disposal Inc.	1349 Huron St. South Belleville, MI 48197	313-480-8085
Republic Waste Services of Texas Limited (A.K.A. CSC Landfill)	101 Republic Way P.O. Box 236 Avalon, TX 76623	Phone: 800-256-9278 Fax: 972-627-3461

Fluorescent Light Ballast Recycling

The Environmental Quality Company

Wayne Disposal, Inc. Landfill



Wayne Disposal, Inc. Offers...

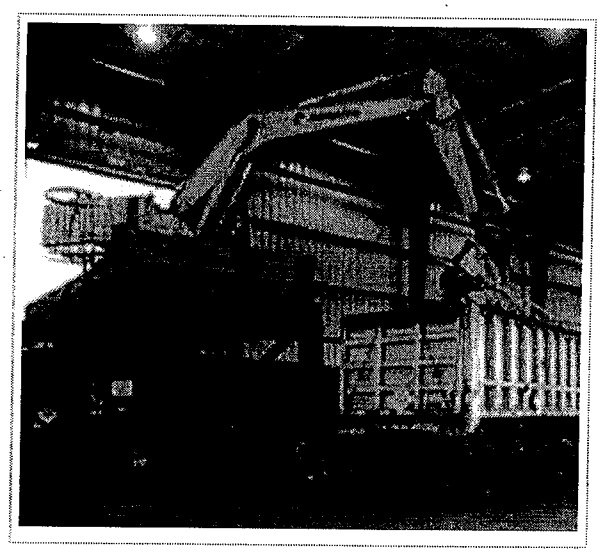
A permitted disposal facility providing secure landfill services. WDI operates the only commercial hazardous waste landfill in the state of Michigan and the only TSCA permitted landfill in the Midwestern United States. Because of WDI's exemplary safety and compliance record, the company was the first in the nation to secure environmental liability insurance for a hazardous waste landfill facility. An on-site commercial laboratory is available for your analytical needs.

Hazardous waste disposal is a vital concern for our customers. That is why environmentally safe and compliant methods of hazardous waste management are fundamental criteria for doing business at EQ.

ISO Certifications

- ISO 9001:2000
- ISO 14001:2004

In addition to accepting bulk and containerized material, WDI has the ability to accept material by rail.



On-Site Wastewater Treatment

Landfill leachate is treated on-site at our own dedicated waste water treatment plant.

Landfill Gas Recovery

WDI operates an on-site electrical generation plant that uses methane gas from on-site closed landfill cells to produce electricity. This electricity is then sold to the local utility. Wayne Energy Services has been in operation for over 20 years, making it one of the longest running landfill gas recovery systems in the nation.

Address

Wayne Disposal, Inc.
49350 North I-94 Service Drive
Belleville, Michigan 48111

Phone: (800) 592-5489
Fax: (800) 592-5329
EPA ID #: MID 048 090 633

Map & Directions
Email Customer Service

Permits and Documents

- ISO 14001:2004 Certification
- ISO 9001:2000 Certification
- Closure Financial Assurance
- Insurance Certificates
- NPDES Permit
- WWTP Discharge Permit
- Michigan Part 111 HW Facility Operating License
- RCRA Permit
- Air Permit
- TSCA PCB Approval
- List of Acceptable Waste Codes
- EQ Site 2 Informational Handout
- Forms

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Call EQ, Toll Free: 1-800-592-5489

APPENDIX N

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAR 26 2007

REPLY TO THE ATTENTION OF:

Via facsimile (219) 881-1362
Via first class mail

Hamilton Carmouche, Esq.
Corporation Counsel
City of Gary
401 Broadway
Gary, IN 46402

Dear Mr. Carmouche:

As discussed on November 3, 2006 and December 11, 2006, by this letter U.S. EPA is providing to the City of Gary and the Gary Sanitary District (the "Settling Defendants") its final comments to the Draft Technical and Cost Assessment ("TCA") submitted on November 15, 2005. Receipt of this letter begins the 60 day clock for revision and re-submittal of the TCA pursuant to paragraph 17 of the Modified Consent Decree and Judgment – 2002.

EPA received the Supplemental Alternatives Evaluation Study ("SAES") on October 10, 2006. No further studies are needed in order to begin preparing the Final TCA. No alternative is being rejected at this time.[1] The Settling Defendants may use what has been learned from the SAES to amend the Draft TCA and create any new alternatives as they see fit, making sure to remain within the parameters set out in the Consent Decree.

As discussed on November 3, the Settling Defendants must consider two new alternatives in the Final TCA. The first alternative would be to fill in the entire Ralston Street Lagoon ("RSL"), treat the displaced water, and cap the RSL. The second alternative would be to create a dry cell within the RSL boundaries, impound the sludge in the dry cell, and cap the dry cell. Both alternatives may include the use of geotube technology or any other method to dewater sludge or other materials. Filling and capping of the portion of the RSL that remains outside of the dry cell can also be considered as part of the second alternative.

EPA believes that, because of the unfavorable site location and the nature of the wastes, any alternative that leaves the PCBs in the RSL will require a slurry wall and, as appropriate, a sheet pile wall in order to isolate the sludge and satisfy 40 CFR Section 761.61(c). It will be difficult to show that anything less than a 360 degree cutoff will be adequately protective of human health and the environment. Therefore, the Settling Defendants should not expend effort attempting to prove via a risk-based analysis that anything less than a 360 degree cutoff can be adequate.

[1] Although nothing in this letter should be construed as an approval or rejection of any of the alternatives in the Draft or Final TCA, the off site disposal alternative is probably cost prohibitive and as such the Settling Defendants should not expend much effort trying to expand upon that alternative for the Final TCA.

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Some considerations for a slurry wall and sheet pile used as an impermeable barrier are included as an enclosure to this letter. In addition, because of the need to control seepage in a permanent way and the importance of achieving a good seal with the underlying clay pan, the Final TCA should also evaluate existing and expected groundwater seepage and contamination migration issues before, during, and after construction of a slurry wall and sheet pile wall and should include a cost out of an inward gradient system to ensure nothing is being pushed or moved out of the RSL, whether it be under or through the slurry wall and sheet pile wall.

In any alternative that uses the RSL as a disposal facility, one possible source of fill material can include dredged Grand Calumet River sediments. Should the RSL prove suitable to act as a disposal facility for Grand Calumet River sediments, Natural Resource Damage dollars may be available from the Indiana Department of Environmental Management ("IDEM"). It is also possible that Great Lakes Legacy Act funds may be available if the RSL becomes a disposal facility for Grand Calumet River sediments. However, the awarding of Great Lakes Legacy Act funds is competitive and Fiscal Year 2007 funds have yet to be appropriated by Congress. We encourage the Settling Defendants to continue discussions and coordination with IDEM to incorporate the necessary details on the use of the Grand Calumet River sediments in the Final TCA.

Any filling of the RSL will require the top five to nine feet of clean surface water to be drawn off and treated. It will also require isolation of the material remaining in the RSL through a slurry wall or sheet pile wall. In addition, the current PCB sludge may need to be separated from the fill material and compressed to better ensure the final cap is not compromised. This may be accomplished by using a liner or it may be accomplished by solidifying/stabilizing the sludge and then covering the sludge with a vegetative/soil cover.

In general, for the Final TCA, if the Settling Defendants think they are going to dewater or treat material for the RSL remedy, various treatment options should be considered (e.g. use of geotubes, on site filtration, or use of the wastewater treatment plant). The Settling Defendants should try to anticipate construction and constructability issues, particularly with any compacting or capping of material in the RSL. Long term containment (e.g. slurry wall and sheet pile wall), monitoring, and maintenance should be given more thought, particularly for those alternatives that call for leaving water or sludge in place. Any effects on groundwater during work should be considered. The Settling Defendants should anticipate any pathways for PCBs, including air. Last, more detail on costs and more information about how values were determined is necessary in the Final TCA.

If you have any questions, you should feel free to call me at (312) 353-2591.

Sincerely,

Mark J. Koller

Mark J. Koller
Associate Regional Counsel

cc: Steve Johnson, DT-8J
Ken Zolnierczyk, DT-8J
Wayne Ault, AUSA
Beth Admire, IDEM
Steve Henshaw, EnviroForensics
Susanne Davis, U.S. ACOE

Enclosure

Considerations for a slurry wall and/or sheet pile used as an impermeable barrier:

1) all parts of the slurry wall or sheet pile structure is and will remain compatible with the waste, leachate and/or leached constituents derived from the waste, and with local conditions (including effects due to corrosion or deformation) such as soil, water, currents, waves, air, loads or vibrations that it is or may come in contact with;
2) the slurry wall or sheet pile structure is designed, constructed, inspected and tested to show it has acceptable and effective hydraulic conductivity, gradient, and/or breakthrough times, if any;
3) the slurry wall or sheet pile structure is installed and keyed in or embedded into similarly impermeable materials to maintain the design, construction, and operating criteria identified in 1 and 2, above; and
4) ongoing monitoring shows that the slurry wall, sheet pile, or wall systems continues to serve as an impermeable barrier.

CDM

SANITARY DISTRICT
GARY
STORM WATER MANAGEMENT DISTRICT