ARCADIS

Infrastructure, environment, buildings

ARCADIS G&M, Inc.
175 Cabot Street
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Lowell
Massachusetts 01854
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ENVIRONMENTAL

US Environmental Protection Agency
RGP-NOC Processing
Municipal Assistance Unit (CMU)
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Subject:
Notice of Intent
Remediation General Permit
Roadway Express Terminal
95 Concord Street
North Reading, Massachusetts 01864
Release Tracking Number 3-2363
NPDES Exclusion Reference #00-053

Date:
27 January 2006

Contact:
Dave Knox

Phone:
X 322

Email:
dknox@arcadis-us.com

Our ref:
MA000547.0073

To Whom It May Concern:

On behalf of Roadway Express, ARCADIS is submitting this Notice of Intent for the Remediation General Permit for the Roadway Express Terminal located at 95 Concord Street in North Reading, Massachusetts. There is currently a vacuum enhanced groundwater extraction remedial system located on the above property. The discharge is operated in accordance with 310 CMR 40.0000 and was under National Pollution Discharge Elimination System Exclusion Reference #00-053.

Thank you and please contact me if you have any further question regarding this matter.

Sincerely,
ARCADIS G&M, Inc.

David P. Knox

David Knox, PE
Project Manager

Cc: Bob Zimmermann

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

1. General site information. Please provide the following information about the site:

<table>
<tr><td colspan="2">a) Name of facility/site:
Roadway Express Terminal</td><td colspan="4">Facility/site address:</td></tr>
<tr><td>Location of facility/site:
longitude:_____ latitude:_____
71° 07' 58" 42° 33' 34"</td><td>Facility SIC code(s):
4213</td><td colspan="4">Street:
95 Concord Street</td></tr>
<tr><td colspan="2">b) Name of facility/site owner: YRC Enterprise Services, Inc.</td><td colspan="4">Town: North Reading</td></tr>
<tr><td colspan="2" rowspan="2">Email address of owner:

Telephone no.of facility/site owner: (913) 344-3615</td><td>State:
MA</td><td>Zip:
01864</td><td colspan="2">County:
Middlesex</td></tr>
<tr><td colspan="3">Owner is (check one): 1. Federal____ 2. State/Tribal_____
3. Private ✓ 4. other, if so, describe:</td></tr>
<tr><td colspan="2">Fax no. of facility/site owner: (913) 344-3614
Address of owner (if different from site):</td><td colspan="4"></td></tr>
<tr><td colspan="6">Street: 10990 Roe Avenue</td></tr>
<tr><td colspan="2">Town: Overland Park</td><td>State: KS</td><td>Zip: 66211</td><td colspan="2">County: Johnson</td></tr>
<tr><td colspan="2" rowspan="2">c) Legal name of operator:
ARCADIS G&M, Inc.</td><td colspan="4">Operator telephone no: (978) 937-9999</td></tr>
<tr><td colspan="2">Operator fax no.: (978) 937-7555</td><td colspan="2">Operator email:
dknox@arcadis-us.com</td></tr>
<tr><td colspan="6">Operator contact name and title: David Knox, Project Manager</td></tr>
</table>

Address of **operator** (if different from owner):	Street: 175 Cabot Street, Suite 400		
Town: Lowell	State: MA	Zip: 01854	County: Middlesex

d) Check "yes" or "no" for the following:
1. Has a prior NPDES permit exclusion been granted for the discharge? Yes ✓ No___, if "yes," number: 00-053
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Yes___ No ✓, if "yes," date and tracking #:
3. Is the discharge a "new discharge"as defined by 40 CFR 122.2? Yes No ✓
4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes ✓ No__

e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes___ No ✓
If "yes," please list:
1. site identification # assigned by the state of NH or MA:
2. permit or license # assigned:
3. state agency contact information: name, location, and telephone number:

f) Is the site/facility covered by any other EPA permit, including:
1. multi-sector storm water general permit? Y ✓ N___, if Y, number: MAR05B805
2. phase I or II construction storm water general permit? Y___ N ✓,
if Y, number:
3. individual NPDES permit? Y___ N ✓, if Y, number:
4. any other water quality related permit? Y___ N ✓, if Y, number:

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:

Coverage is sought for discharge related to the operation of a vacuum enhanced recovery (VER) groundwater remediation system performed in compliance with the MCP. The VER system extracts groundwater from up to 4 extraction wells. Extracted groundwater is treated through bag filters, an air stripper, and granular activated carbon (GAC) prior to discharge to a storm water catch basin located on the Site. Recovered vapors are treated through GAC. See attached Process and Instrumentation Diagram.

b) Provide the following information about each discharge:	1) Number of discharge points: 1	2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft^3/s)? Max. flow .067 Average flow .033 Is maximum flow a **design value**? Y ✓ N___ For average flow, include the units and appropriate notation if this value is a design value or estimate if not available. Average flow is estimate.

3) Latitude and longitude of each discharge within 100 feet: pt.1:long. 71°08'60" lat. 42°33'36"; pt.2: long.____ lat.____; pt.3: long.____ lat.____; pt.4:long.____ lat.____; pt.5: long.____ lat.____; pt.6:long.____ lat.____; pt.7: long.____ lat.____; pt.8:long.____ lat.____; etc.

4) If hydrostatic testing, total volume of the discharge (gals): N/A	5) Is the discharge intermittent_____ or seasonal_____? Is discharge ongoing Yes ✓ No_____?
c) Expected dates of discharge (mm/dd/yy): start 04/26/00 end 12/31/10	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only ✓	Primarily Metals	Urban Fill Sites	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites ✓	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		✓	1	Grab	160.2	5000	33000	5.4	33000	2.7
2. Total Residual Chlorine	✓		1	Grab	4500	50				
3. Total Petroleum Hydrocarbons	✓		1	Grab	1664A	2400				
4. Cyanide	✓		1	Grab	9012A	10				
5. Benzene	✓		1	Grab	8260B	50				
6. Toluene	✓		1	Grab	8260B	50				
7. Ethylbenzene	✓		1	Grab	8260B	50				
8. (m,p,o) Xylenes	✓		1	Grab	8260B	50				
9. Total BTEX[4]	✓		1	Grab	8260B	50				

[4] BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)	✓		1	Grab	8260B	50				
11. Methyl-tert-Butyl Ether (MtBE)	✓		1	Grab	8260B	50				
12. tert-Butyl Alcohol (TBA)	✓		1	Grab	8260B	2500				
13. tert-Amyl Methyl Ether (TAME)	✓		1	Grab	8260B	250				
14. Naphthalene	✓		1	Grab	8260B	50				
15. Carbon Tetra-chloride	✓		1	Grab	8260B	50				
16. 1,4 Dichlorobenzene		✓	1	Grab	8260B	50	550	0.09	550	0.045
17. 1,2 Dichlorobenzene		✓	1	Grab	8260B	50	610	0.10	610	0.05
18. 1,3 Dichlorobenzene		✓	1	Grab	8260B	50	570	0.09	570	0.09
19. 1,1 Dichloroethane	✓		1	Grab	8260B	50				
20. 1,2 Dichloroethane	✓		1	Grab	8260B	50				
21. 1,1 Dichloroethylene	✓		1	Grab	8260B	50				
22. cis-1,2 Dichloro-ethylene	✓		1	Grab	8260B	50				
23. Dichloromethane (Methylene Chloride)	✓		1	Grab	8260B	100				
24. Tetrachloroethylene		✓	1	Grab	8260B	50	1500	0.25	1500	0.12

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane	✓		1	Grab	8260B	50				
26. 1,1,2 Trichloroethane	✓		1	Grab	8260B	50				
27. Trichloroethylene		✓	1	Grab	8260B	50	28	0.005	28	0.002
28. Vinyl Chloride	✓		1	Grab	8260B	50				
29. Acetone	✓		1	Grab	8260B	2500				
30. 1,4 Dioxane	✓		1	Grab	8260B	2500				
31. Total Phenols	✓		1	Grab	8270C	5				
32. Pentachlorophenol	✓		1	Grab	8270C	0.3				
33. Total Phthalates [5] (Phthalate esthers)	✓		1	Grab	8270C	5				
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	✓		1	Grab	8270C	5				
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	✓		1	Grab	8270C					
a. Benzo(a) Anthracene	✓		1	Grab	8270C	0.3				
b. Benzo(a) Pyrene	✓		1	Grab	8270C	0.2				
c. Benzo(b)Fluoranthene	✓		1	Grab	8270C	0.3				
d. Benzo(k) Fluoranthene	✓		1	Grab	8270C	0.3				
e. Chrysene	✓		1	Grab	8270C	1				

[5]The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h) anthracene	✓		1	Grab	8270C	0.5				
g. Indeno(1,2,3-cd) Pyrene	✓		1	Grab	8270C	0.5				
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	✓		1	Grab	8270C					
h. Acenaphthene	✓		1	Grab	8270C	1				
i. Acenaphthylene	✓		1	Grab	8270C	0.3				
j. Anthracene	✓		1	Grab	8270C	1				
k. Benzo(ghi) Perylene	✓		1	Grab	8270C	0.5				
l. Fluoranthene	✓		1	Grab	8270C	1				
m. Fluorene	✓		1	Grab	8270C	1				
n. Naphthalene-	✓		1	Grab	8270C	1				
o. Phenanthrene	✓		1	Grab	8270C	0.2				
p. Pyrene	✓		1	Grab	8270C	1				
37. Total Polychlorinated Biphenyls (PCBs)	✓		1	Grab	608	1				
38. Antimony	✓		1	Grab	6010B	6				
39. Arsenic	✓		1	Grab	6010B	1				
40. Cadmium	✓		1	Grab	6010B	1				
41. Chromium III	✓		1	Grab	3500D	10				
42. Chromium VI	✓		1	Grab	7196A	5				

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper		✓	1	Grab	6010B	10	840	0.14	840	0.07
44. Lead		✓	1	Grab	6010B	5	77	0.01	77	0.006
45. Mercury	✓									
46. Nickel		✓	1	Grab	6010B	10	20	0.003	20	.0015
47. Selenium	✓		1	Grab	6010B	10				
48. Silver	✓		1	Grab	6010B	5				
49. Zinc		✓	1	Grab	6010B	50	310	0.05	310	0.025
50. Iron		✓	1	Grab	6010B	50	4000	0.66	4000	0.33
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

Step 1: Do any of the metals in the influent have a **reasonable potential** to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y ✓ N___	If yes, which metals? Iron, Zinc, Nickel, Lead, Copper
Step 2: For any metals which have **reasonable potential** to exceed the **Appendix III** limits, calculate the **dilution factor (DF)** using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: Iron, Zinc, Nickel, Lead, Copper DF: 17.2	Look up the limit calculated at the corresponding dilution factor in **Appendix IV.** Do any of the metals in the **influent** have the potential to exceed the corresponding **effluent** limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y ✓ N___ If "Yes," list which metals: Lead, Copper

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:

See Attached P&ID

b) Identify each applicable treatment unit (check all that apply):	Frac. tank	Air stripper ✓	Oil/water separator	Equalization tanks ✓	Bag filter ✓	GAC filter ✓
	Chlorination	Dechlorination	Other (please describe):			

c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate**(s) (gallons per minute) of the treatment system:
Average flow rate of discharge 15 gpm Maximum flow rate of treatment system 30 gpm Design flow rate of treatment system 30 gpm

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):

None

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct____	Within facility__	Storm drain ✓	River/brook ✓	Wetlands____	Other (describe):

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:

Treated extracted groundwater is discharged to storm sewer on 95 Concord Street. Storm water from sewer flows under Concord Street and discharges to the Ipswich River via an unnamed stream/brook.

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:
1. For multiple discharges, number the discharges sequentially.
2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water
The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water B,

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 1.08 cfs
Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Yes ✓ No____ If yes, for which pollutant(s)?
Nutriants, Organic Enrichment/Low D0, Flow Alteration

Is there a TMDL? Yes____ No ✓ If yes, for which pollutant(s)?

6. Results of Consultation with Federal Services: Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes____ No ✓
Has any consultation with the federal services been completed ? No ✓ or is consultation underway? Yes____ No ✓
What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (~~check~~ one):
a "no jeopardy" opinion? _____or written concurrence____ on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?

b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge?
Yes_____ No ✓ Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes_____ No ✓

7. Supplemental information. :

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name: Roadway Express, 95 Concord Street, North Reading, Massachusetts

Operator signature: David P. Knox

Title: Project Manager

Date: 1/27/2006

Streamflow Statistics Report

Date: Mon Dec 05 14:27:18 2005
Latitude: 42.5594
Longitude: -71.1216
Measured Basin Characteristics:
Drainage Area (square miles): 17.07
Stratified Drift Area (square miles): 11.42
Stream Length (miles): 24.49
Slope (percent): 0.90
Region: 0

Statistic	Estimated streamflow, ft^3/s	90% Prediction interval	
		Minimum	Maximum
99-percent duration flow	1.15	0.26	4.66
98-percent duration flow	1.53	0.39	5.70
95-percent duration flow	2.22	0.63	7.55
90-percent duration flow	3.86	1.30	11.23
85-percent duration flow	4.98	1.70	14.35
80-percent duration flow	6.79	2.41	18.83
75-percent duration flow	8.53	3.24	22.20
70-percent duration flow	10.32	3.74	28.15
60-percent duration flow	13.99	4.45	43.68
50-percent duration flow	17.25	10.39	28.51
7-day, 2-year low flow	2.55	0.69	9.04
7-day, 10-year low flow	1.08	0.24	4.57
August median flow	5.76	1.91	17.04

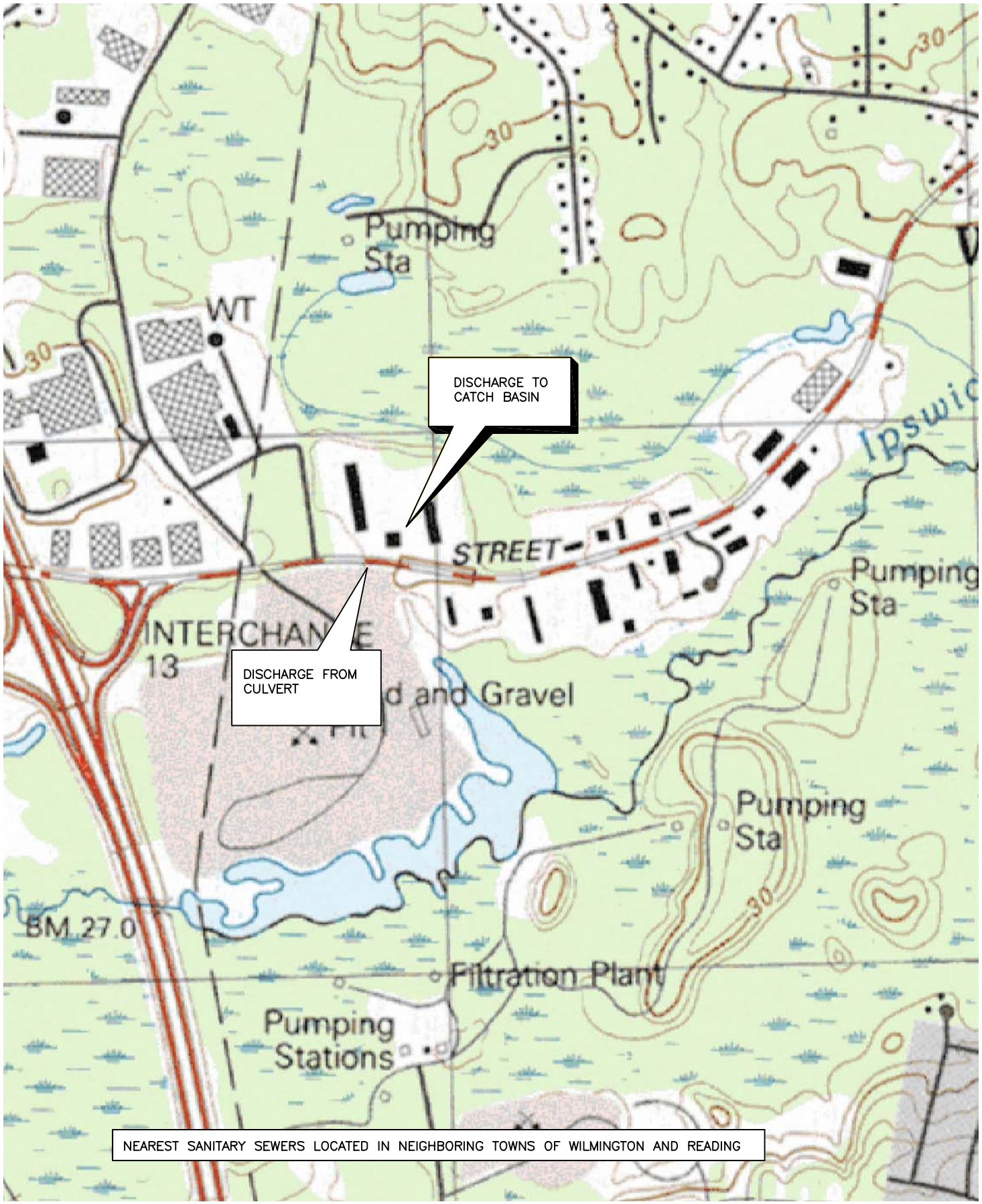
U.S. Department of the Interior, U.S. Geological Survey
10 Bearfoot Road
Northborough, MA 01532
(508) 490-5000

Maintainer: webmaster@mass1.er.usgs.gov

Dilution Factor
NPDES RGP

Roadway Express
95 Concord Street
North Reading, Massachusetts

Qd (gpm)	Qd (cfs)	Qs (7Q10)	Dilution Factor
30	0.067	1.08	17.2



PROJECT MANAGER: D. KNOX | CHECKED BY: D. KNOX | DRAWN BY: B. THERRIAULT | DATE DRAWN: 01/19/06 | DRAWING NUMBER: STLOC.DWG | PROJECT NUMBER: MA000547.0013

ARCADIS GERAGHTY & MILLER

DISCHARGE LOCATION NOTICE OF INTENT

ROADWAY EXPRESS, INCORPORATED
95 CONCORD STREET, NORTH READING, MASSACHUSETTS

FIGURE NUMBER

1

BTHERRIAULT, 05/12/2005, 13:22:59 | FILE: RW2-171.DWG

10 GPM
1.5" W PVC
PULSE OUTPUT
FM-131
PI 131
SP
5 GPM
1.5" W PVC
PULSE OUTPUT
FM-121
PI 121
PULSE OUTPUT
1.5" W PVC
FM-111
PI 111
10 GPM
SP
VI 111
1.5" A PVC
VI 121
1.5" A PVC
EW-2
VI 131
1.5" A PVC
EW-3
PT 111
INTERLOCK VFD OPERATION AND VFD SPEED TO PRESSURE TRANSDUCER IN WELL
YL 111 G
HS 111 H-O-A
VFD 111
SP-111
MANF: GRUNDFOS
MODEL: 25S15-9
W/ FRANKLIN 1.5-HP,
3-PHASE, 200V MOTOR
EW-1 (TYP)
PT 121
INTERLOCK VFD OPERATION AND VFD SPEED TO PRESSURE TRANSDUCER IN WELL
YL 121 G
HS 121 H-O-A
VFD 121
SP-121
MANF: GRUNDFOS
MODEL: 5S05-13
5GPM @ 195' HEAD
W/ FRANKLIN 1-HP,
3-PHASE, 200V MOTOR
EW-2
PT 131
INTERLOCK VFD OPERATION AND VFD SPEED TO PRESSURE TRANSDUCER IN WELL
YL 131 G
HS 131 H-O-A
VFD 131
SP-131
MANF: GRUNDFOS
MODEL: 25S15-9
W/ FRANKLIN 1.5-HP,
3-PHASE, 200V MOTOR
EW-3
1.5" W PVC
SP
PI 312
AS-311
AIR STRIPPER
MFG: NEEP
MODEL: 2341-P
40 GPM
HIGH PRESSURE
FL 316 R
LS 315
LS 314
LS 313
PS 316
LAHH 315 R
FL 321 R
HIGH AMPERAGE FAILURE
BL-201
BLOWER
300 SCFM @ 34" WC
7.5 HP, 208V
PI 201
TIS 201
TS 201 R
HS 201 H-O-A
YL 201 G
FL 201 R
HIGH AMPERAGE FAILURE
4" A PVC
SP
4" A PVC
4" A HOSE
YL 321 G
HS 321 H-O-A
1.5" W PVC
PI 321
SP
PI 331
BF-331 & BF-332
BAG FILTERS
MFG: ROSEDALE
TP-321
TRANSFER PUMP
50 GPM @ 100' HEAD
3 HP, 208V, 3-PHASE
PI 332
1.5" W PVC
4" A HOSE
VGAC-211
MFG: US FILTER
MODEL: VSC-1000
1,000 LB VESSEL
MAX FLOW = 500 CFM
4" A PVC
SP
PI 211
VGAC-212
MFG: US FILTER
MODEL: VSC-1000
1,000 LB VESSEL
MAX FLOW = 500 CFM
SP
PI 212
DISCHARGE
4" A PVC
3" A PVC
PI
0.25" A COPPER
COMPRESSED AIR SUPPLY
YL 301 G
HS 301 H-O-A
FL 301 R
HIGH AMPERAGE FAILURE
1" A PVC
VI 101
2" W/A PVC
2" W/A PVC
LRP-301
LIQUID RING PUMP
MGF: ATLANTIC FLUIDICS
MODEL: A130
10HP, 208V, 3-PHASE
KOT-340
MOISTURE KNOCKOUT TANK
100 GAL.
0.5" W PVC
IWS-1
LS 344
LS 343
LS 342
LS 341
LAHH 344 R
LALL 341 R
HIGH AMPERAGE FAILURE
FL 351 R
YL 351 G
HS 351 H-O-A
PULSE OUTPUT
FM-371
1.5" W PVC
TP-351
TRANSFER PUMP
MGF: GOULDS
MODEL: NPE- 1ST1C5E4
1/2 HP, 208V, 3-PHASE
1.5" W PVC
SP
PI
CF-361
CARTRIDGE FILTER
1.5" W PVC
PI
SP
1.5" W HOSE
LGAC-371
MFG: US FILTER
MODEL: PV-1000
1,000 LB VESSEL
MAX FLOW = 50 GPM
MAX PRES = 75 PSI
1.5" W PVC
1.5" W HOSE
LGAC-372
MFG: US FILTER
MODEL: PV-1000
1,000 LB VESSEL
MAX FLOW = 50 GPM
MAX PRES = 75 PSI
PI
SP
PULSE OUTPUT
1.5" W PVC
DISCHARGE
FM-391

NO.	DATE	REVISION DESCRIPTION	BY CKD

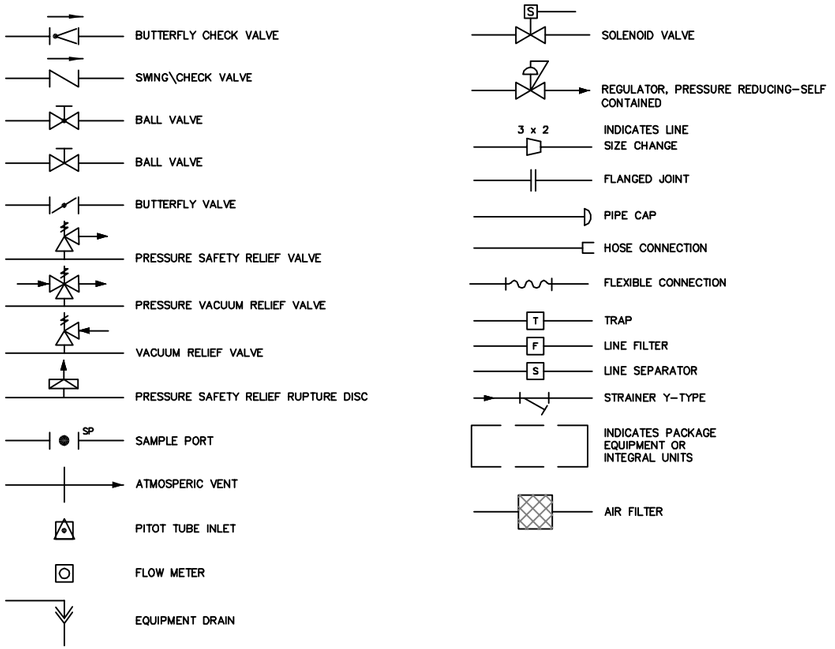
ARCADIS

VACUUM ENHANCED RECOVERY PIPING AND INSTRUMENTATION DIAGRAM

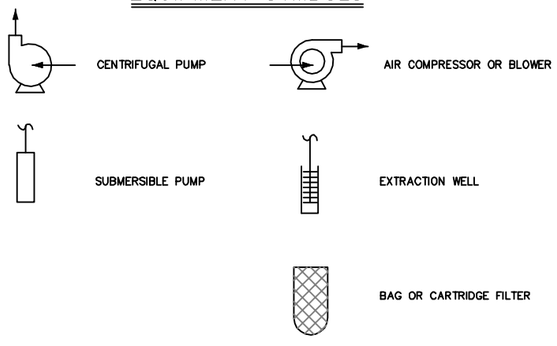
ROADWAY EXPRESS, INCORPORATED
95 CONCORD STREET – NORTH READING, MASSACHUSETTS

PROJECT MANAGER B. THERRIAULT	FILE NUMBER RW2-171
CHECKED BY G. GORDON	PROJECT NUMBER MA000547.0053
DRAWN BY R. BOWMAN	DRAWING NUMBER 2
DATE DRAWN 01/14/04	

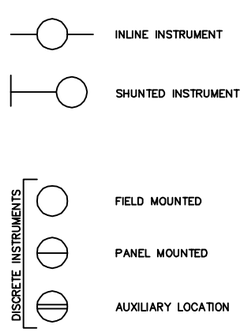
PIPING SYMBOLS



EQUIPMENT SYMBOLS



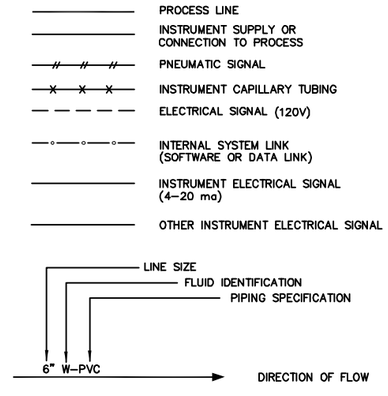
INSTRUMENT SYMBOLS



INSTRUMENT IDENTIFICATION

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B					
C			COUNTERS	CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G			GLASS VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME , TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M		MOMENTARY			MIDDLE, INTERMEDIATE
N					
O			ORIFICE, RESTRICTION		
P	PRESSURE , VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE , TOTALIZE			
R	RADIATION		RECORD		
S	SPEED , FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT , FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	PULSE	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

THIS TABLE, TOGETHER WITH ANSI/ISA-S5.1-1984 SECTION 5 MUST BE USED FOR PROPER COMPLIANCE WITH THE STANDARD.



ABBREVIATIONS

A	AIR
BS	BASKET STRAINER
BL	BATTERY LIMIT
BW	BACKWASH WATER
C	CONDENSATE
CC	COLD CONSERVATION INSULATION
CO	CLEAN OUT
CWR	COOLING WATER RETURN
CWS	COOLING WATER SUPPLY
D	DRAIN CONNECTION
DW	DOMESTIC WATER
ESD	EMERGENCY SHUTDOWN
ET	ELECTRIC TRACE
FC	FLUSH CONNECTION
FW	FILTERED WATER
F	FUEL
GW	GROUND WATER
HC	HEAT CONSERVATION INSULATION
HLL	HIGH LIQUID LEVEL
IA	INSTRUMENT AIR
LC	LOCK CLOSED
LLL	LOW LIQUID LEVEL
LO	LOCK OPENED
NLL	NORMAL LIQUID LEVEL
NW	NON-POTABLE WATER
PA	PLANT AIR
PS	PROCESS SEWER
PSE	PRESSURE SAFETY RELIEF RUPTURE DISC
PSV	PRESSURE SAFETY VALVE
PW	PROCESS WATER
RW	RAW WATER
SAN	SANITARY SEWER
SC	SAMPLE CONNECTION
SH	STEAM-HIGH PRESSURE
SL	STEAM-LOW PRESSURE
SO	STEAM OUT
SS	STORM SEWER
STL	STEEL
TW	TREATED WATER
V	VENT
W	WATER
WW	WASTE WATER
W/E	WITH EQUIPMENT

NO.	DATE	REVISION DESCRIPTION	BY CKD

ARCADIS

PIPING AND INSTRUMENTATION DIAGRAM LEGEND

95 CONCORD STREET - NORTH READING, MASSACHUSETTS

PROJECT MANAGER B. THERRIAULT	FILE NUMBER RW2-170
CHECKED BY G. GORDON	PROJECT NUMBER MA000547.0053
DRAWN BY R. BOWMAN	DRAWING NUMBER 3
DATE DRAWN 01/12/04	

SEVERN TRENT STL®

STL Westfield
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Tel: 413 572 4000 Fax: 413 572 3707
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Dave Knox
Arcadis Geraghty and Miller
175 Cabot Street
Suite 400
Lowell, MA 01852

01/13/2006

Report Number: 231286

Dear Dave Knox,

The analysis of your sample(s) submitted on 12/23/2005 is now complete and the appropriate analytical report is enclosed. The samples were prepared and analyzed according to established methodologies and protocols. All holding times were met for the methods performed on these samples, unless otherwise noted in the report's case narrative.

If you have any questions regarding this report, please contact your Project Manager, Rebecca C. Mason.

For questions, concerns or comments regarding our service, please do not hesitate to contact me directly. Thank you for selecting STL Westfield, and we look forward to working with you on future projects.

Steven C. Hartmann
Laboratory Director
STL WESTFIELD

Technical Review: Steven Hartmann 1.13.06

Total number of pages in this report: 45

CASE NARRATIVE FOR REPORT NUMBER: 231286

Client Name : Arcadis Geraghty and Miller

Project Name : Roadway N. Reading

Date : 1/13/06

231286-1 The Method 1664A Oil and Grease analyses were performed at STL-Chicago, 2417 Bond Street, University Park, IL 60466.

For method 8270 (low level), most analytes recovered outside method control limits in the LCS and LCD. In addition, the surrogate Phenol-d5 recovered low and outside method control limits (12.8%) in this sample and also in the Method Blank (10.3%) and the surrogate Nitrobenzene-d5 recovered high and outside control limits (169%) in this sample. The surrogate 2,4,6-Tribromophenol recovered high and outside method control limits in the LCS (114.8%). Additional sample was unavailable for re-extraction and all target compounds were non-detected.

For method 6010, Antimony recovered high and outside method control limits in the LCS and LCD. This element was not detected in the job's samples.

SAMPLE INFORMATION
Date: 01/13/2006

Job Number.: 231286
Customer...: Arcadis Geraghty and Miller
Attn.....: Dave Knox

Project Number.....: 20000016
Customer Project ID....: ROADWAY N. READING
Project Description....: Roadway N. Reading

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
231286-1	1W-1	Water	12/22/2005	15:40	12/23/2005	11:35
231286-2	Trip Blank	Lab Water	12/09/2005	14:00	12/23/2005	11:35

SEVERN TRENT STL

MADEP MA014
RIDOH57
CTDPH 0494
VT DECWSD
NH DES 253903-A

NELAP FL E87912 TOX
NELAP NJ MA008 TOX
NELAP NY 10843
NY DOH 10843

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148 Rangeway Rd.
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Tel: (978) 667-1400
Fax: (978) 667-7871

LABORATORY TEST RESULTS

Job Number: 231286 Date: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Customer Sample ID: 1W-1
Date Sampled.....: 12/22/2005
Time Sampled.....: 15:40
Sample Matrix.....: Water

Laboratory Sample ID: 231286-1
Date Received.....: 12/23/2005
Time Received.....: 11:35

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
SM18 4500-CL G	Chlorine, Tot. Residual	ND	U	0.050	mg/L	12/23/05	pjs
EPA 160.2	Solids, Total Suspended (TSS)	33.0		5.0	mg/L	12/27/05	rwe
SW846 7196A	Hexavalent Chromium	ND	U	0.0050	mg/L	12/23/05	kmm
SW846 9012A	Cyanide, Total	ND	U	0.010	mg/L	01/03/06	kmm
SW846 6010B	Metals Analysis (ICP)						
	Iron (Fe)	4000		50	ug/L	12/29/05	rac
SW846 6010B	Metals Analysis (ICP)						
	Antimony (Sb)	ND	U	6.0	ug/L	12/29/05	rac
	Arsenic (As)	ND	U	10	ug/L	12/29/05	rac
	Cadmium (Cd)	ND	U	1.0	ug/L	12/29/05	rac
	Copper (Cu)	840		10	ug/L	12/29/05	rac
	Lead (Pb)	77		5.0	ug/L	12/29/05	rac
	Nickel (Ni)	20		10	ug/L	12/29/05	rac
	Selenium (Se)	ND	U	10	ug/L	12/29/05	rac
	Silver (Ag)	ND	U	5.0	ug/L	12/29/05	rac
	Zinc (Zn)	310		50	ug/L	12/29/05	rac
SM18 3500D	Trivalent Chromium						
	Trivalent Chromium (Calc.)	ND	U	0.010	mg/L	01/13/06	cwb
SW846 8011	GC-Microextraction						
	Microextraction	Complete			Text	12/27/05	cdt
SW846 8270C	Semivolatile Organics (Low Level)						
	Naphthalene	ND	U	1.0	ug/L	01/12/06	jcs
	Pentachlorophenol	ND	U	5.0	ug/L	01/12/06	jcs
	Benzo(a)anthracene	ND	U	0.30	ug/L	01/12/06	jcs
	Bis(2-ethylhexyl)phthalate	ND	U	5.0	ug/L	01/12/06	jcs
	Benzo(b)fluoranthene	ND	U	0.30	ug/L	01/12/06	jcs
	Benzo(k)fluoranthene	ND	U	0.30	ug/L	01/12/06	jcs
	Benzo(a)pyrene	ND	U	0.20	ug/L	01/12/06	jcs
	Acenaphthylene	ND	U	0.30	ug/L	01/12/06	jcs
	Acenaphthene	ND	U	1.0	ug/L	01/12/06	jcs
	Fluorene	ND	U	1.0	ug/L	01/12/06	jcs
	Anthracene	ND	U	1.0	ug/L	01/12/06	jcs
	Fluoranthene	ND	U	1.0	ug/L	01/12/06	jcs
	Chrysene	ND	U	1.0	ug/L	01/12/06	jcs
	Indeno(1,2,3-cd)pyrene	ND	U	0.50	ug/L	01/12/06	jcs
	Dibenzo(a,h)anthracene	ND	U	0.50	ug/L	01/12/06	jcs
	Benzo(ghi)perylene	ND	U	0.50	ug/L	01/12/06	jcs
	Phenanthrene	ND	U	0.20	ug/L	01/12/06	jcs
	Pyrene	ND	U	1.0	ug/L	01/12/06	jcs
	Phenol	ND	U	5.0	ug/L	01/12/06	jcs

* In Description = Dry Wgt.

SEVERN TRENT STL

MADEP MA014
RIDOH57
CTDPH 0494
VT DECWSD
NH DES 253903-A

NELAP FL E87912 TOX
NELAP NJ MA008 TOX
NELAP NY 10843
NY DOH 10843

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Tel: (978) 667-1400
Fax: (978) 667-7871

LABORATORY TEST RESULTS

Job Number: 231286 Date: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Customer Sample ID: 1W-1
Date Sampled.....: 12/22/2005
Time Sampled.....: 15:40
Sample Matrix.....: Water

Laboratory Sample ID: 231286-1
Date Received.....: 12/23/2005
Time Received.....: 11:35

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
	2-Methylphenol (o-cresol)	ND	U	5.0	ug/L	01/12/06	jcs
	3&4-Methylphenol (m+p cresol)	ND	U	5.0	ug/L	01/12/06	jcs
	2,4-Dimethylphenol	ND	U	5.0	ug/L	01/12/06	jcs
	2,4-Dichlorophenol	ND	U	5.0	ug/L	01/12/06	jcs
	2,4,6-Trichlorophenol	ND	U	5.0	ug/L	01/12/06	jcs
	2,4,5-Trichlorophenol	ND	U	5.0	ug/L	01/12/06	jcs
	Dimethyl phthalate	ND	U	5.0	ug/L	01/12/06	jcs
	2,4-Dinitrophenol	ND	U	5.0	ug/L	01/12/06	jcs
	4-Nitrophenol	ND	U	5.0	ug/L	01/12/06	jcs
	Diethyl phthalate	ND	U	5.0	ug/L	01/12/06	jcs
	4,6-Dinitro-2-methylphenol	ND	U	5.0	ug/L	01/12/06	jcs
	4-Chloro-3-methylphenol	ND	U	5.0	ug/L	01/12/06	jcs
	Di-n-butyl phthalate	ND	U	5.0	ug/L	01/12/06	jcs
	Butyl benzyl phthalate	ND	U	5.0	ug/L	01/12/06	jcs
	Di-n-octyl phthalate	ND	U	5.0	ug/L	01/12/06	jcs
	2-Chlorophenol	ND	U	5.0	ug/L	01/12/06	jcs
	2-Nitrophenol	ND	U	5.0	ug/L	01/12/06	jcs
SW846 8011	GC Micro-Extractable Volatiles						
	1,2-Dibromoethane (EDB)	ND	U	0.018	ug/L	12/28/05	cdt
EPA 608	Pesticides/PCBs (Organochlorine)						
	Aroclor 1016	ND	U	1.0	ug/L	12/30/05	jcs
	Aroclor 1221	ND	U	1.0	ug/L	12/30/05	jcs
	Aroclor 1232	ND	U	1.0	ug/L	12/30/05	jcs
	Aroclor 1242	ND	U	1.0	ug/L	12/30/05	jcs
	Aroclor 1248	ND	U	1.0	ug/L	12/30/05	jcs
	Aroclor 1254	ND	U	1.0	ug/L	12/30/05	jcs
	Aroclor 1260	ND	U	1.0	ug/L	12/30/05	jcs
SW846 8260B	Volatile Organics						
	Benzene	ND	U	50	ug/L	12/28/05	caox
	Toluene	ND	U	50	ug/L	12/28/05	caox
	Ethylbenzene	ND	U	50	ug/L	12/28/05	caox
	m&p-Xylenes	ND	U	50	ug/L	12/28/05	caox
	o-Xylene	ND	U	50	ug/L	12/28/05	caox
	1,1-Dichloroethene	ND	U	50	ug/L	12/28/05	caox
	Methyl-tert-butyl-ether (MTBE)	ND	U	50	ug/L	12/28/05	caox
	1,1-Dichloroethane	ND	U	50	ug/L	12/28/05	caox
	cis-1,2-Dichloroethene	ND	U	50	ug/L	12/28/05	caox
	Carbon tetrachloride	ND	U	50	ug/L	12/28/05	caox
	1,2-Dichloroethane	ND	U	50	ug/L	12/28/05	caox
	1,3-Dichlorobenzene	570		50	ug/L	12/28/05	caox
	1,4-Dichlorobenzene	550		50	ug/L	12/28/05	caox
	1,2-Dichlorobenzene	610		50	ug/L	12/28/05	caox
	Naphthalene	ND	U	250	ug/L	12/28/05	caox
	tert-Butyl alcohol (TBA)	ND	U	2500	ug/L	12/28/05	caox
	tert-Amyl methyl ether (TAME)	ND	U	250	ug/L	12/28/05	caox
	Vinyl chloride	ND	U	50	ug/L	12/28/05	caox

* In Description = Dry Wgt.

SEVERN TRENT STL

MADEP MA014
RIDOH57
CTDPH 0494
VT DECWSD
NH DES 253903-A

NELAP FL E87912 TOX
NELAP NJ MA008 TOX
NELAP NY 10843
NY DOH 10843

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LABORATORY TEST RESULTS

Job Number: 231286 Date: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Customer Sample ID: 1W-1
Date Sampled.....: 12/22/2005
Time Sampled.....: 15:40
Sample Matrix.....: Water

Laboratory Sample ID: 231286-1
Date Received.....: 12/23/2005
Time Received.....: 11:35

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
	Acetone	ND	U	2500	ug/L	12/28/05	caox
	Methylene chloride	ND	U	100	ug/L	12/28/05	caox
	1,1,1-Trichloroethane	ND	U	50	ug/L	12/28/05	caox
	Trichloroethene (TCE)	28	J	50	ug/L	12/28/05	caox
	1,1,2-Trichloroethane	ND	U	50	ug/L	12/28/05	caox
	Tetrachloroethene	1500		50	ug/L	12/28/05	caox
	1,4-Dioxane	ND	U	2500	ug/L	12/28/05	caox

* In Description = Dry Wgt.

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LABORATORY TEST RESULTS

Job Number: 231286 Date: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Customer Sample ID: Trip Blank
Date Sampled.....: 12/09/2005
Time Sampled.....: 14:00
Sample Matrix.....: Lab Water

Laboratory Sample ID: 231286-2
Date Received.....: 12/23/2005
Time Received.....: 11:35

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
SW846 8260B	Volatile Organics						
	Benzene	ND	U	1.0	ug/L	12/28/05	caox
	Toluene	ND	U	1.0	ug/L	12/28/05	caox
	Ethylbenzene	ND	U	1.0	ug/L	12/28/05	caox
	m&p-Xylenes	ND	U	1.0	ug/L	12/28/05	caox
	o-Xylene	ND	U	1.0	ug/L	12/28/05	caox
	1,1-Dichloroethene	ND	U	1.0	ug/L	12/28/05	caox
	Methyl-tert-butyl-ether (MTBE)	ND	U	1.0	ug/L	12/28/05	caox
	1,1-Dichloroethane	ND	U	1.0	ug/L	12/28/05	caox
	cis-1,2-Dichloroethene	ND	U	1.0	ug/L	12/28/05	caox
	Carbon tetrachloride	ND	U	1.0	ug/L	12/28/05	caox
	1,2-Dichloroethane	ND	U	1.0	ug/L	12/28/05	caox
	1,3-Dichlorobenzene	ND	U	1.0	ug/L	12/28/05	caox
	1,4-Dichlorobenzene	ND	U	1.0	ug/L	12/28/05	caox
	1,2-Dichlorobenzene	ND	U	1.0	ug/L	12/28/05	caox
	Naphthalene	ND	U	5.0	ug/L	12/28/05	caox
	tert-Butyl alcohol (TBA)	ND	U	50	ug/L	12/28/05	caox
	tert-Amyl methyl ether (TAME)	ND	U	5.0	ug/L	12/28/05	caox
	Vinyl chloride	ND	U	1.0	ug/L	12/28/05	caox
	Acetone	ND	U	50	ug/L	12/28/05	caox
	Methylene chloride	ND	U	2.0	ug/L	12/28/05	caox
	1,1,1-Trichloroethane	ND	U	1.0	ug/L	12/28/05	caox
	Trichloroethene (TCE)	ND	U	1.0	ug/L	12/28/05	caox
	1,1,2-Trichloroethane	ND	U	1.0	ug/L	12/28/05	caox
	Tetrachloroethene	ND	U	1.0	ug/L	12/28/05	caox
	1,4-Dioxane	ND	U	50	ug/L	12/28/05	caox

* In Description = Dry Wgt.

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LABORATORY CHRONICLE

Job Number: 231286 Date: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Lab ID: 231286-1 Client ID: 1W-1 Date Recvd: 12/23/2005 Sample Date: 12/22/2005

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
3010A	Acid Digestion, Total (ICP)	1	53779		12/28/2005	0000	
SM18 4500-CL G	Chlorine, Total Residual (DPD)	1	53889		12/23/2005	0000	
SW846 9012A	Cyanide	1	53946		01/03/2006	0000	
SW846 3510C	Extraction Sep. Funnel (SVOC) Low Level	1	53861		12/29/2005	0000	
EPA 608 Extr.	Extraction Sep. Funnel Prep for EPA 608	1	53863		12/29/2005	0000	
SW846 8011	GC Micro-Extractable Volatiles	1	53829		12/28/2005	1704	
SW846 8011	GC-Microextraction	1	53830		12/27/2005	0000	
SW846 7196A	Hexavalent Chromium	1	53726		12/23/2005	1445	
SW846 6010B	Metals Analysis (ICP)	1	53893	53779	12/29/2005	1748	
SW846 6010B	Metals Analysis (ICP)	1	53869	53779	12/29/2005	1801	
SW846 6010B	Metals Analysis (ICP)	1	53870	53779	12/29/2005	1801	
EPA 608	Pesticides/PCBs (Organochlorine)	1	53896	53863	12/30/2005	1404	
SW846 8270C	Semivolatile Organics (Low Level)	1	54110	53861	01/12/2006	1756	
EPA 160.2	Solids, Total Suspended (TSS)	1	53855		12/27/2005	0000	
	Special Instructions	1	53932		01/03/2006	1541	
	Special Instructions	1	54196		01/13/2006	0000	
SM18 3500D	Trivalent Chromium	1	54183		01/13/2006	0000	
SW846 8260B	Volatile Organics	1	53934		12/28/2005	1133	50

Lab ID: 231286-2 Client ID: Trip Blank Date Recvd: 12/23/2005 Sample Date: 12/09/2005

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED		DILUTION
SW846 8260B	Volatile Organics	1	53934		12/28/2005	0442	1

SEVERN TRENT STL

MADEP MA014
RIDOH57
CTDPH 0494
VT DECWSD
NH DES 253903-A

NELAP FL E87912 TOX
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SURROGATE RECOVERIES REPORT

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Method.....: Pesticides/PCBs (Organochlorine) Method Code...: 608 Prep Batch....: 53863
Batch(s).....: 53896 Test Matrix...: Water Equipment Code:

Lab ID	DT	Sample ID	Date	DCB	TCX
231286- 1		1W-1	12/30/2005	45.7	54.7

Test	Test Description	Limits
DCB	Decachlorobiphenyl (surr)	30.0 - 150.
TCX	Tetrachloro-m-xylene (surr)	30.0 - 150.

SEVERN TRENT STL

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SURROGATE RECOVERIES REPORT

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Method.....: Volatile Organics Method Code...: 8260 Prep Batch....:
Batch(s).....: 53934 Test Matrix...: Water Equipment Code: VHPMS1

Lab ID	DT	Sample ID	Date	12DCED	BRFLBE	DBRFLM	TOLD8
LCD			12/28/2005	83.0	90.0	95.1	97.3
LCS			12/28/2005	83.0	89.4	94.0	97.0
MB			12/28/2005	87.0	87.6	102.0	97.7
231286- 1		1W-1	12/28/2005	82.1	89.0	95.8	95.8
231286- 2		Trip Blank	12/28/2005	84.0	87.3	98.6	96.7

Test	Test Description	Limits
12DCED	1,2-Dichloroethane-d4 (surr)	70.0 - 130.
BRFLBE	4-Bromofluorobenzene (surr)	70.0 - 130.
DBRFLM	Dibromofluoromethane (surr)	70.0 - 130.
TOLD8	Toluene-d8 (surr)	70.0 - 130.

SEVERN TRENT STL

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SURROGATE RECOVERIES REPORT

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Method.....: Semivolatile Organics (Low Level) Method Code...: 8270L Prep Batch....: 53861
Batch(s).....: 54110 Test Matrix...: Water Equipment Code: EHPGC1

Lab ID	DT	Sample ID	Date	246TBP	2FLUBP	2FLUPH	NITRD5	PHEND5	TERD14
LCD			01/12/2006	95.8	68.8	31.1	64.0	19.1	83.0
LCS			01/12/2006	114.8*	83.2	37.5	78.6	23.1	99.8
MB			01/12/2006	59.2	52.6	17.6	46.8	10.3*	62.2
231286- 1		1W-1	01/12/2006	96.0	72.0	21.1	169.0*	12.8*	61.6

Test	Test Description	Limits
246TBP	2,4,6-Tribromophenol (surr)	15.0 - 110.
2FLUBP	2-Fluorobiphenyl (surr)	30.0 - 130.
2FLUPH	2-Fluorophenol (surr)	15.0 - 110.
NITRD5	Nitrobenzene-d5 (surr)	30.0 - 130.
PHEND5	Phenol-d5 (surr)	15.0 - 110.
TERD14	Terphenyl-d14 (surr)	30.0 - 130.

SEVERN TRENT STL

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QUALITY CONTROL RESULTS

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: SW846 8270C Analyst...: jcs
Method Description.: Semivolatile Organics (Low Level) Batch.....: 54110

LCD	Laboratory Control Sample Duplicate	E05KSPK066	53861		01/12/2006	1728

Parameter/Test Description	Units	QC Result		QC Result		True Value	Orig. Value		QC Calc.	*	Limits	F
Phenol	ug/L	2.080	J	2.420	J	5.000	5.000	U	41.6 15.1		30.0-130.0 20.0	
2-Methylphenol (o-cresol)	ug/L	5.350		6.210		5.000	5.000	U	107.0 14.9		30.0-130.0 20.0	
3&4-Methylphenol (m+p cresol)	ug/L	4.770	J	5.520		5.000	5.000	U	95.4 14.6		30.0-130.0 20.0	
2-Chlorophenol	ug/L	6.070		7.060		5.000	5.000	U	121.4 15.1		30.0-130.0 20.0	
2,4-Dimethylphenol	ug/L	6.690		7.800		5.000	5.000	U	133.8 15.3		30.0-130.0 20.0	*
Naphthalene	ug/L	5.390		6.130		5.000	0.200	J	107.8 12.8		40.0-140.0 20.0	
2,4-Dichlorophenol	ug/L	7.140		8.280		5.000	5.000	U	142.8 14.8		30.0-130.0 20.0	*
2,4,6-Trichlorophenol	ug/L	8.390		9.720		5.000	5.000	U	167.8 14.7		30.0-130.0 20.0	*
2,4,5-Trichlorophenol	ug/L	8.390		9.710		5.000	5.000	U	167.8 14.6		30.0-130.0 20.0	*
2-Nitrophenol	ug/L	7.160		8.490		5.000	5.000	U	143.2 17.0		30.0-130.0 20.0	*
Dimethyl phthalate	ug/L	7.450		8.460		5.000	5.000	U	149.0 12.7		40.0-140.0 20.0	*
2,4-Dinitrophenol	ug/L	3.690	J	6.380		5.000	5.000	U	73.8 53.4		30.0-130.0 20.0	*
Acenaphthylene	ug/L	7.830		9.010		5.000	0.300	U	156.6 14.0		40.0-140.0 20.0	*
Acenaphthene	ug/L	6.400		7.360		5.000	1.000	U	128.0 14.0		40.0-140.0 20.0	
4-Nitrophenol	ug/L	4.250	J	4.330	J	5.000	5.000	U	85.0 1.9		30.0-130.0 20.0	
Fluorene	ug/L	7.200		8.150		5.000	1.000	U	144.0 12.4		40.0-140.0 20.0	*
Diethyl phthalate	ug/L	7.390		8.400		5.000	5.000	U	147.8 12.8		40.0-140.0 20.0	*
Pentachlorophenol	ug/L	6.630		8.630		5.000	5.000	U	132.6 26.2		30.0-130.0 20.0	*
Phenanthrene	ug/L	7.130		8.040		5.000	0.200	U	142.6 12.0		40.0-140.0 20.0	*
Anthracene	ug/L	7.660		8.640		5.000	1.000	U	153.2 12.0		40.0-140.0 20.0	*
Di-n-butyl phthalate	ug/L	8.710		9.670		5.000	0.800	J	174.2 10.4		40.0-140.0 20.0	*
Fluoranthene	ug/L	7.720		8.660		5.000	1.000	U	154.4 11.5		40.0-140.0 20.0	*
Pyrene	ug/L	7.610		8.620		5.000	1.000	U	152.2 12.4		40.0-140.0 20.0	*
Butyl benzyl phthalate	ug/L	9.540		10.710		5.000	5.000	U	190.8 11.6		40.0-140.0 20.0	*
Benzo(a)anthracene	ug/L	7.300		8.390		5.000	0.300	U	146.0 13.9		40.0-140.0 20.0	*

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

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NH DES 253903-A

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCD	Laboratory Control Sample Duplicate	E05KSPK066	53861		01/12/2006	1728

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value		QC Calc.	*	Limits	F
Chrysene	ug/L	7.560	8.450	5.000	1.000	U	151.2		40.0-140.0	*
							11.1		20.0	
Bis(2-ethylhexyl)phthalate	ug/L	10.350	11.740	5.000	5.000	U	207.0		40.0-140.0	*
							12.6		20.0	
Di-n-octyl phthalate	ug/L	7.690	8.950	5.000	5.000	U	153.8		40.0-140.0	*
							15.1		20.0	
Benzo(b)fluoranthene	ug/L	7.710	8.290	5.000	0.300	U	154.2		40.0-140.0	*
							7.2		20.0	
Benzo(k)fluoranthene	ug/L	8.190	10.040	5.000	0.300	U	163.8		40.0-140.0	*
							20.3		20.0	
Benzo(a)pyrene	ug/L	7.690	8.880	5.000	0.200	U	153.8		40.0-140.0	*
							14.4		20.0	
Indeno(1,2,3-cd)pyrene	ug/L	7.800	8.550	5.000	0.500	U	156.0		40.0-140.0	*
							9.2		20.0	
Dibenzo(a,h)anthracene	ug/L	7.940	8.400	5.000	0.500	U	158.8		40.0-140.0	*
							5.6		20.0	
Benzo(ghi)perylene	ug/L	7.530	8.370	5.000	0.500	U	150.6		40.0-140.0	*
							10.6		20.0	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	E05KSPK066	53861		01/12/2006	1700

Test Method.....: SW846 8270C
Method Description.: Semivolatile Organics (Low Level)
Batch.....: 54110
Analyst...: jcs

Parameter/Test Description	Units	QC Result		QC Result	True Value	Orig. Value		QC Calc.	*	Limits	F
Phenol	ug/L	2.420	J		5.000	5.000	U	48.4		30-130	
2-Methylphenol (o-cresol)	ug/L	6.210			5.000	5.000	U	124.2		30-130	
3&4-Methylphenol (m+p cresol)	ug/L	5.520			5.000	5.000	U	110.4		30-130	
2-Chlorophenol	ug/L	7.060			5.000	5.000	U	141.2		30-130	*
2,4-Dimethylphenol	ug/L	7.800			5.000	5.000	U	156.0		30-130	*
Naphthalene	ug/L	6.130			5.000	0.200	J	122.6		40-140	
2,4-Dichlorophenol	ug/L	8.280			5.000	5.000	U	165.6		30-130	*
2,4,6-Trichlorophenol	ug/L	9.720			5.000	5.000	U	194.4		30-130	*
2,4,5-Trichlorophenol	ug/L	9.710			5.000	5.000	U	194.2		30-130	*
2-Nitrophenol	ug/L	8.490			5.000	5.000	U	169.8		30-130	*
Dimethyl phthalate	ug/L	8.460			5.000	5.000	U	169.2		40-140	*
2,4-Dinitrophenol	ug/L	6.380			5.000	5.000	U	127.6		30-130	
Acenaphthylene	ug/L	9.010			5.000	0.300	U	180.2		40-140	*
Acenaphthene	ug/L	7.360			5.000	1.000	U	147.2		40-140	*
4-Nitrophenol	ug/L	4.330	J		5.000	5.000	U	86.6		30-130	
Fluorene	ug/L	8.150			5.000	1.000	U	163.0		40-140	*
Diethyl phthalate	ug/L	8.400			5.000	5.000	U	168.0		40-140	*
Pentachlorophenol	ug/L	8.630			5.000	5.000	U	172.6		30-130	*
Phenanthrene	ug/L	8.040			5.000	0.200	U	160.8		40-140	*
Anthracene	ug/L	8.640			5.000	1.000	U	172.8		40-140	*
Di-n-butyl phthalate	ug/L	9.670			5.000	0.800	J	193.4		40-140	*
Fluoranthene	ug/L	8.660			5.000	1.000	U	173.2		40-140	*
Pyrene	ug/L	8.620			5.000	1.000	U	172.4		40-140	*
Butyl benzyl phthalate	ug/L	10.710			5.000	5.000	U	214.2		40-140	*
Benzo(a)anthracene	ug/L	8.390			5.000	0.300	U	167.8		40-140	*
Chrysene	ug/L	8.450			5.000	1.000	U	169.0		40-140	*
Bis(2-ethylhexyl)phthalate	ug/L	11.740			5.000	5.000	U	234.8		40-140	*
Di-n-octyl phthalate	ug/L	8.950			5.000	5.000	U	179.0		40-140	*
Benzo(b)fluoranthene	ug/L	8.290			5.000	0.300	U	165.8		40-140	*
Benzo(k)fluoranthene	ug/L	10.040			5.000	0.300	U	200.8		40-140	*
Benzo(a)pyrene	ug/L	8.880			5.000	0.200	U	177.6		40-140	*
Indeno(1,2,3-cd)pyrene	ug/L	8.550			5.000	0.500	U	171.0		40-140	*
Dibenzo(a,h)anthracene	ug/L	8.400			5.000	0.500	U	168.0		40-140	*
Benzo(ghi)perylene	ug/L	8.370			5.000	0.500	U	167.4		40-140	*

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
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QUALITY CONTROL RESULTS

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank		53861		01/12/2006	1632

Test Method.....: SW846 8270C Analyst...: jcs
Method Description.: Semivolatile Organics (Low Level) Batch.....: 54110

Parameter/Test Description	Units	QC Result		QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Phenol	ug/L	5.000	U							
2-Methylphenol (o-cresol)	ug/L	5.000	U							
3&4-Methylphenol (m+p cresol)	ug/L	5.000	U							
2-Chlorophenol	ug/L	5.000	U							
2,4-Dimethylphenol	ug/L	5.000	U							
Naphthalene	ug/L	1.000	U							
2,4-Dichlorophenol	ug/L	5.000	U							
2,4,6-Trichlorophenol	ug/L	5.000	U							
2,4,5-Trichlorophenol	ug/L	5.000	U							
2-Nitrophenol	ug/L	5.000	U							
Dimethyl phthalate	ug/L	5.000	U							
2,4-Dinitrophenol	ug/L	5.000	U							
Acenaphthylene	ug/L	0.300	U							
Acenaphthene	ug/L	1.000	U							
4-Nitrophenol	ug/L	5.000	U							
Fluorene	ug/L	1.000	U							
Diethyl phthalate	ug/L	5.000	U							
Pentachlorophenol	ug/L	5.000	U							
Phenanthrene	ug/L	0.200	U							
Anthracene	ug/L	1.000	U							
Di-n-butyl phthalate	ug/L	5.000	U							
Fluoranthene	ug/L	1.000	U							
Pyrene	ug/L	1.000	U							
Butyl benzyl phthalate	ug/L	5.000	U							
Benzo(a)anthracene	ug/L	0.300	U							
Chrysene	ug/L	1.000	U							
Bis(2-ethylhexyl)phthalate	ug/L	5.000	U							
Di-n-octyl phthalate	ug/L	5.000	U							
Benzo(b)fluoranthene	ug/L	0.300	U							
Benzo(k)fluoranthene	ug/L	0.300	U							
Benzo(a)pyrene	ug/L	0.200	U							
Indeno(1,2,3-cd)pyrene	ug/L	0.500	U							
Dibenzo(a,h)anthracene	ug/L	0.500	U							
Benzo(ghi)perylene	ug/L	0.500	U							
4,6-Dinitro-2-methylphenol	ug/L	5.000	U							
4-Chloro-3-methylphenol	ug/L	5.000	U							

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

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QUALITY CONTROL RESULTS

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: SW846 8011 Analyst...: cdt
Method Description.: GC Micro-Extractable Volatiles Batch.....: 53829

LCD	Laboratory Control Sample Duplicate	S04HSPK303			12/28/2005	1136

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
1,2-Dibromoethane (EDB)	ug/L	0.246	0.201	0.251	0.020 U	98.0		70.0-130.0	
						20.1		20.0	

LCD	Laboratory Control Sample Duplicate	S04HSPK303			12/28/2005	1648

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
1,2-Dibromoethane (EDB)	ug/L	0.202	0.217	0.251	0.020 U	80.5		70.0-130.0	
						7.2		20.0	

SEVERN TRENT STL

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: SW846 8011 | Analyst...: cdt

Method Description.: GC Micro-Extractable Volatiles | Batch.....: 53829

LCS	Laboratory Control Sample	S04HSPK303			12/28/2005	1120

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
1,2-Dibromoethane (EDB)	ug/L	0.201		0.251	0.020 U	80.1		70-130	

LCS	Laboratory Control Sample	S04HSPK303			12/28/2005	1633

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
1,2-Dibromoethane (EDB)	ug/L	0.217		0.251	0.020 U	86.5		70-130	

SEVERN TRENT STL

MADEP MA014
RIDOH57
CTDPH 0494
VT DECWSD
NH DES 253903-A

NELAP FL E87912 TOX
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NELAP NY 10843
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QUALITY CONTROL RESULTS

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: SW846 8011 Analyst...: cdt
Method Description.: GC Micro-Extractable Volatiles Batch.....: 53829

MB	Method Blank				12/28/2005	1018

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
1,2-Dibromoethane (EDB)	ug/L	0.020	U						

MB	Method Blank				12/28/2005	1033

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
1,2-Dibromoethane (EDB)	ug/L	0.020	U						

SEVERN TRENT STL

MADEP MA014
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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCD	Laboratory Control Sample Duplicate	V04EWRK001			12/28/2005	0319

Test Method.....: SW846 8260B
Method Description.: Volatile Organics
Batch.....: 53934
Analyst...: caox

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value		QC Calc.	*	Limits	F
Vinyl chloride	ug/L	23.050	23.680	20.000	1.000	U	115.2		70.0-130.0	
							2.7		25.0	
1,1-Dichloroethene	ug/L	16.820	17.390	20.000	1.000	U	84.1		70.0-130.0	
							3.3		25.0	
Acetone	ug/L	144.780	143.970	200.000	50.000	U	72.4		70.0-130.0	
							0.6		25.0	
Methylene chloride	ug/L	20.730	20.910	20.000	2.000	U	103.7		70.0-130.0	
							0.9		25.0	
Methyl-tert-butyl-ether (MTBE)	ug/L	17.500	17.480	20.000	1.000	U	87.5		70.0-130.0	
							0.1		25.0	
1,1-Dichloroethane	ug/L	18.330	18.670	20.000	1.000	U	91.7		70.0-130.0	
							1.8		25.0	
cis-1,2-Dichloroethene	ug/L	18.410	18.790	20.000	1.000	U	92.0		70.0-130.0	
							2.0		25.0	
1,1,1-Trichloroethane	ug/L	17.410	17.650	20.000	1.000	U	87.0		70.0-130.0	
							1.4		25.0	
Carbon tetrachloride	ug/L	18.650	18.730	20.000	1.000	U	93.2		70.0-130.0	
							0.4		25.0	
Benzene	ug/L	20.260	20.650	20.000	1.000	U	101.3		70.0-130.0	
							1.9		25.0	
1,2-Dichloroethane	ug/L	16.840	16.760	20.000	1.000	U	84.2		70.0-130.0	
							0.5		25.0	
Trichloroethene (TCE)	ug/L	21.460	21.960	20.000	1.000	U	107.3		70.0-130.0	
							2.3		25.0	
Toluene	ug/L	18.790	19.140	20.000	1.000	U	94.0		70.0-130.0	
							1.8		25.0	
1,1,2-Trichloroethane	ug/L	21.970	21.990	20.000	1.000	U	109.8		70.0-130.0	
							0.1		25.0	
Tetrachloroethene	ug/L	20.060	20.500	20.000	1.000	U	100.3		70.0-130.0	
							2.2		25.0	
Ethylbenzene	ug/L	17.830	18.060	20.000	1.000	U	89.2		70.0-130.0	
							1.3		25.0	
m&p-Xylenes	ug/L	35.030	35.630	40.000	1.000	U	87.6		70.0-130.0	
							1.7		25.0	
o-Xylene	ug/L	17.240	17.600	20.000	1.000	U	86.2		70.0-130.0	
							2.1		25.0	
1,3-Dichlorobenzene	ug/L	19.370	19.350	20.000	1.000	U	96.8		70.0-130.0	
							0.1		25.0	
1,4-Dichlorobenzene	ug/L	19.620	19.880	20.000	1.000	U	98.1		70.0-130.0	
							1.3		25.0	
1,2-Dichlorobenzene	ug/L	20.090	19.930	20.000	1.000	U	100.5		70.0-130.0	
							0.8		25.0	
Naphthalene	ug/L	24.820	24.630	20.000	5.000	U	124.1		70.0-130.0	
							0.8		25.0	
tert-Butyl alcohol (TBA)	ug/L	207.770	209.320	200.000	50.000	U	103.9		70.0-130.0	
							0.7		25.0	
1,4-Dioxane	ug/L	271.250	265.940	200.000	50.000	U	135.6		70.0-130.0	*
							2.0		25.0	
tert-Amyl methyl ether (TAME)	ug/L	18.890	18.970	20.000	5.000	U	94.5		70.0-130.0	
							0.4		25.0	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

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NH DES 253903-A

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	V04EWRK001			12/28/2005	0252

Test Method.....: SW846 8260B
Method Description.: Volatile Organics
Batch.....: 53934
Analyst...: caox

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value		QC Calc.	*	Limits	F
Vinyl chloride	ug/L	23.680		20.000	1.000	U	118.4		70-130	
1,1-Dichloroethene	ug/L	17.390		20.000	1.000	U	87.0		70-130	
Acetone	ug/L	143.970		200.000	50.000	U	72.0		70-130	
Methylene chloride	ug/L	20.910		20.000	2.000	U	104.5		70-130	
Methyl-tert-butyl-ether (MTBE)	ug/L	17.480		20.000	1.000	U	87.4		70-130	
1,1-Dichloroethane	ug/L	18.670		20.000	1.000	U	93.3		70-130	
cis-1,2-Dichloroethene	ug/L	18.790		20.000	1.000	U	94.0		70-130	
1,1,1-Trichloroethane	ug/L	17.650		20.000	1.000	U	88.2		70-130	
Carbon tetrachloride	ug/L	18.730		20.000	1.000	U	93.7		70-130	
Benzene	ug/L	20.650		20.000	1.000	U	103.2		70-130	
1,2-Dichloroethane	ug/L	16.760		20.000	1.000	U	83.8		70-130	
Trichloroethene (TCE)	ug/L	21.960		20.000	1.000	U	109.8		70-130	
Toluene	ug/L	19.140		20.000	1.000	U	95.7		70-130	
1,1,2-Trichloroethane	ug/L	21.990		20.000	1.000	U	110.0		70-130	
Tetrachloroethene	ug/L	20.500		20.000	1.000	U	102.5		70-130	
Ethylbenzene	ug/L	18.060		20.000	1.000	U	90.3		70-130	
m&p-Xylenes	ug/L	35.630		40.000	1.000	U	89.1		70-130	
o-Xylene	ug/L	17.600		20.000	1.000	U	88.0		70-130	
1,3-Dichlorobenzene	ug/L	19.350		20.000	1.000	U	96.8		70-130	
1,4-Dichlorobenzene	ug/L	19.880		20.000	1.000	U	99.4		70-130	
1,2-Dichlorobenzene	ug/L	19.930		20.000	1.000	U	99.7		70-130	
Naphthalene	ug/L	24.630		20.000	5.000	U	123.2		70-130	
tert-Butyl alcohol (TBA)	ug/L	209.320		200.000	50.000	U	104.7		70-130	
1,4-Dioxane	ug/L	265.940		200.000	50.000	U	133.0		70-130	*
tert-Amyl methyl ether (TAME)	ug/L	18.970		20.000	5.000	U	94.8		70-130	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
RIDOH57
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NH DES 253903-A

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: SW846 8260B
Method Description.: Volatile Organics
Batch.....: 53934
Analyst...: caox

MB	Method Blank				12/28/2005	0414

Parameter/Test Description	Units	QC Result		QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Vinyl chloride	ug/L	1.000	U							
1,1-Dichloroethene	ug/L	1.000	U							
Acetone	ug/L	50.000	U							
Methylene chloride	ug/L	2.000	U							
Methyl-tert-butyl-ether (MTBE)	ug/L	1.000	U							
1,1-Dichloroethane	ug/L	1.000	U							
cis-1,2-Dichloroethene	ug/L	1.000	U							
1,1,1-Trichloroethane	ug/L	1.000	U							
Carbon tetrachloride	ug/L	1.000	U							
Benzene	ug/L	1.000	U							
1,2-Dichloroethane	ug/L	1.000	U							
Trichloroethene (TCE)	ug/L	1.000	U							
Toluene	ug/L	1.000	U							
1,1,2-Trichloroethane	ug/L	1.000	U							
Tetrachloroethene	ug/L	1.000	U							
Ethylbenzene	ug/L	1.000	U							
m&p-Xylenes	ug/L	1.000	U							
o-Xylene	ug/L	1.000	U							
1,3-Dichlorobenzene	ug/L	1.000	U							
1,4-Dichlorobenzene	ug/L	1.000	U							
1,2-Dichlorobenzene	ug/L	1.000	U							
Naphthalene	ug/L	5.000	U							
tert-Butyl alcohol (TBA)	ug/L	50.000	U							
1,4-Dioxane	ug/L	50.000	U							
tert-Amyl methyl ether (TAME)	ug/L	5.000	U							

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

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CTDPH 0494
VT DECWSD
NH DES 253903-A

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCD	Laboratory Control Sample Duplicate	M05LSPK006	53779		12/29/2005	1647

Test Method.....: SW846 6010B
Method Description.: Metals Analysis (ICP)
Batch.....: 53869
Analyst...: rac

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Copper (Cu)	ug/L	952.20	951.27	1000.00		95.2		85-115	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
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NH DES 253903-A

NELAP FL E87912 TOX
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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	M05LSPK006	53779		12/29/2005	1644

Test Method.....: SW846 6010B
Method Description.: Metals Analysis (ICP)
Batch.....: 53869
Analyst...: rac

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Copper (Cu)	ug/L	951.27		1000.00		95.1		85-115	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
RIDOH57
CTDPH 0494
VT DECWSD
NH DES 253903-A

NELAP FL E87912 TOX
NELAP NJ MA008 TOX
NELAP NY 10843
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QUALITY CONTROL RESULTS

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank		53779		12/29/2005	1708

Test Method.....: SW846 6010B Analyst...: rac
Method Description.: Metals Analysis (ICP) Batch.....: 53869

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Copper (Cu)	ug/L	10.00	U						

SEVERN TRENT STL

MADEP MA014
RIDOH57
CTDPH 0494
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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCD	Laboratory Control Sample Duplicate	M05LSPK006	53779		12/29/2005	1647

Test Method.....: SW846 6010B Analyst...: rac

Method Description.: Metals Analysis (ICP) Batch.....: 53870

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Iron (Fe)	ug/L	925.24	911.05	1000.00		92.5		85-115	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller | PROJECT: ROADWAY N. READING | ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	M05LSPK006	53779		12/29/2005	1644

Test Method.....: SW846 6010B
Method Description.: Metals Analysis (ICP)
Batch.....: 53870
Analyst...: rac

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Iron (Fe)	ug/L	911.05		1000.00		91.1		85-115	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
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VT DECWSD
NH DES 253903-A

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NELAP NJ MA008 TOX
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QUALITY CONTROL RESULTS

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank		53779		12/29/2005	1708

Test Method.....: SW846 6010B Analyst...: rac
Method Description.: Metals Analysis (ICP) Batch.....: 53870

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Iron (Fe)	ug/L	50.00	U						

SEVERN TRENT STL

MADEP MA014
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QUALITY CONTROL RESULTS

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCD	Laboratory Control Sample Duplicate	M05LSPK006	53779		12/29/2005	1654

Test Method.....: SW846 6010B Analyst...: rac
Method Description.: Metals Analysis (ICP) Batch.....: 53893

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Antimony (Sb)	ug/L	1237.29		1000.00		123.7		85-115	*
Arsenic (As)	ug/L	942.02		1000.00		94.2		85-115	
Cadmium (Cd)	ug/L	970.06		1000.00		97.0		85-115	
Lead (Pb)	ug/L	963.21		1000.00		96.3		85-115	
Nickel (Ni)	ug/L	937.61		1000.00		93.8		85-115	
Selenium (Se)	ug/L	943.52		1000.00		94.4		85-115	
Silver (Ag)	ug/L	190.89		200.00		95.4		85-115	
Zinc (Zn)	ug/L	962.52		1000.00		96.3		85-115	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
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NH DES 253903-A

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	M05LSPK006	53779		12/29/2005	1647

Test Method.....: SW846 6010B
Method Description.: Metals Analysis (ICP)
Batch.....: 53893
Analyst...: rac

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Antimony (Sb)	ug/L	1273.08		1000.00		127.3		85-115	*
Arsenic (As)	ug/L	960.31		1000.00		96.0		85-115	
Cadmium (Cd)	ug/L	999.57		1000.00		100.0		85-115	
Lead (Pb)	ug/L	992.73		1000.00		99.3		85-115	
Nickel (Ni)	ug/L	965.46		1000.00		96.5		85-115	
Selenium (Se)	ug/L	944.78		1000.00		94.5		85-115	
Silver (Ag)	ug/L	196.12		200.00		98.1		85-115	
Zinc (Zn)	ug/L	995.43		1000.00		99.5		85-115	

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

MADEP MA014
RIDOH57
CTDPH 0494
VT DECWSD
NH DES 253903-A

NELAP FL E87912 TOX
NELAP NJ MA008 TOX
NELAP NY 10843
NY DOH 10843

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank		53779		12/29/2005	1707

Test Method.....: SW846 6010B Analyst...: rac

Method Description.: Metals Analysis (ICP) Batch.....: 53893

Parameter/Test Description	Units	QC Result		QC Result	True Value	Orig. Value	QC Calc.	*	Limits	F
Antimony (Sb)	ug/L	10.00	U							
Arsenic (As)	ug/L	10.00	U							
Cadmium (Cd)	ug/L	1.00	U							
Lead (Pb)	ug/L	5.00	U							
Nickel (Ni)	ug/L	10.00	U							
Selenium (Se)	ug/L	10.00	U							
Silver (Ag)	ug/L	5.00	U							
Zinc (Zn)	ug/L	50.00	U							

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller

PROJECT: ROADWAY N. READING

ATTN: Dave Knox

Test Method.....: SW846 9012A
Method Description.: Cyanide
Parameter.....: Cyanide, Total

Batch.....: 53946

Analyst...: kmm
Test Code.: CN

QC	Lab ID	Reagent	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	F	*	Limits	Date	Time
LCS		W05LINT005	mg/L	0.09950		0.10000		99.5			85-115	01/03/2006	0000
LCD		W05LINT005	mg/L	0.10370	0.09950	0.10000		103.7			85-115	01/03/2006	0000
								4.1			20		
MB			mg/L	0.01000 U								01/03/2006	0000

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

SEVERN TRENT STL

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QUALITY CONTROL RESULTS

Job Number.: 231286

Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller

PROJECT: ROADWAY N. READING

ATTN: Dave Knox

Test Method.....: SW846 7196A
Method Description.: Hexavalent Chromium
Parameter.....: Hexavalent Chromium

Batch.....: 53726

Analyst...: kmm
Test Code.: CR6

QC	Lab ID	Reagent	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	F	*	Limits	Date	Time
LCS		W04KLCS001	mg/L	0.05010		0.05000		100.2			80-120	12/23/2005	1445
MB			mg/L	0.00500 U								12/23/2005	1445
LCD		W04KLCS001	mg/L	0.04890	0.05010	0.05000		97.8			80.0-120.	12/23/2005	1445
								2.4			20.0		

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 231286 Report Date.: 01/13/2006

CUSTOMER: Arcadis Geraghty and Miller PROJECT: ROADWAY N. READING ATTN: Dave Knox

Test Method.....: EPA 160.2 Batch.....: 53855 Analyst...: rwe
Method Description.: Solids, Total Suspended (TSS) Test Code.: TSS
Parameter.....: Solids, Total Suspended (TSS)

QC	Lab ID	Reagent	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	F	*	Limits	Date	Time
LCS		W05LRGT029	mg/L	468.00000	452.00000	500.00000		93.6			85-115	12/27/2005	0000
LCS		W05LRGT029	mg/L	452.00000		500.00000		90.4			85-115	12/27/2005	0000
MB			mg/L	5.00000 U								12/27/2005	0000

SEVERN TRENT STL

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LABORATORY CERTIFICATIONS:

MADEP MA014, NY NELAC 10843, NJ NELAC MA008 (TOX), FL NELAC E87912 (TOX), CT DPH 0494, NY DOH 10843, NH DES 253901-A, VT DECWSD, RI DOH 57.

LOCATION:

STL Westfield: 53 Southampton Rd, Westfield, MA 01085. Phone: (413) 572-4000 Fax: (413) 572-3707

STL Service Center: 148 Rangeway Rd. N. Billerica, MA 01862. Phone: (978) 667-1400 Fax: (978) 667-7871

DATA REPORTING QUALIFIERS AND TERMINOLOGY:

A number of data qualifiers are widely used within the environmental testing industry and may be utilized in our data reports. The majority of the qualifiers have evolved from the EPA Contract Laboratory Program (CLP).

REPORT COMMENTS:

All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

Soil, sediment and sludge sample results are reported on a "dry weight" basis.

Reporting limits are adjusted for sample size used, dilutions and moisture content, if applicable.

The test results for the noted analytical method(s) meet the requirements of NELAC. Lab Cert.ID# 10843.

According to 40CFR Part 136.3, pH, Total Residual Chlorine and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field analyses, they were not analyzed immediately, but as soon as possible on laboratory receipt.

Analytical result(s) reported as "ND" and/or "U", indicates the analyte was analyzed for but "Not Detected."
Analytical result(s) reported as "TNTC" indicates that the microbiological test was "Too Numerous To Count."

GLOSSARY OF QUALIFIERS:

Inorganic Qualifiers (Q-column):

U Indicates that the analyte was analyzed for but not detected.
E Indicates an estimated value due to the presence of interference. When applied to GFAA analysis, indicates the one-point method of addition recovered between 40-85 percent.
B Indicates an estimated result value. The result was measured between the reporting limit and the method detection limit (MDL).
H Indicates the compound/element was found in both the sample and its associated laboratory blank. Indicates possible/probable blank contamination.

Organic Qualifiers (Q-column):

U Indicates that the compound was analyzed for but not detected.
J Indicates an estimated result value. This qualifier is used when mass spectral data indicated the presence of a compound that meets the identification criteria and the result is less than the specified quantitation limit, but greater than the method detection limit (MDL).
B Indicates that the compound was found in both the sample and its associated laboratory blank. Indicates possible/probable blank contamination and warns the data user to exercise caution when applying the results to this compound.
D Indicates all compounds identified in an analysis at a secondary dilution factor.
E Indicates that the compound in an analysis has exceeded the instrument linear calibration range.

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GLOSSARY OF TERMS:

Surrogates (Surrogate Standards): An organic compound, which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but are not normally found in environmental samples. For semi-volatiles and pesticides/Arochlors, surrogate compounds are added to every blank, sample, matrix spike, matrix spiked duplicate, matrix spike blank (LCS), and standard. These compounds are used to evaluate analytical efficiency by measuring recovery. Poor surrogate recovery may indicate a problem with the sample composition.

Internal Standard: An organic compound, which is similar to the target analyte(s) in chemical composition and behavior in the analytical process. For GC/MS semi-volatiles and volatiles, internal standards are added to every blank, sample, matrix spike, matrix spike duplicate, matrix spike blank (LCS), and standard. Internal standard responses outside of established limits will adversely affect the quantitation and final concentration of target compounds.

Matrix Spike (MS): An aliquot of a sample (water or soil) fortified (spiked) with known quantities of specific compounds (target analytes) and subjected to the entire analytical procedure in order to indicate the appropriateness of the method for matrix interference by measuring recovery. The spiking occurs prior to sample preparation and analysis. Poor spike recovery may indicate a problem with the sample composition.

Laboratory Control Sample (LCS): An aliquot of analyte-free reagent water or sand fortifed (spiked) with known quantities of specific compounds (target analytes) and subjected to the entire analytical procedure in order to indicate the appropriateness of the method efficiency.

Blank: An artificial sample of analyte-free water or solvent, designed to monitor the introduction of contaminates into the analytical process.

Method Dectection Limit (MDL): The minimum concentration of an analyte or compound that can be measured and reported with 99% confidence that the result concentration is greater than zero.

Petroleum Hydrocarbon Comments:

The following comments are specific to Diesel Range Organics (DRO), by GC/FID:

Results for DRO are based on chromatographable portions of the petroleum product. The Carbon Range refers to the approximate chromatographic region covered by the specified petroleum product in straight-chain carbon units between C9-C36.

Quantitation is based on the average response factors for a series of hydrocarbons standards. The sample result from the DRO fraction is independent of the target compound assignment.

Samples yielding chromatographic patterns that do not agree with any of the method targets are reported as "unmatched".

SEVERN TRENT STL

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SUBCONTRACTED DATA

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SEVERN TRENT LABORATORIES
ANALYTICAL REPORT

JOB NUMBER: 243176

Prepared For:

Severn Trent Laboratories
Westfield Executive Park
53 Southampton Road
Westfield, MA 01085

Project: Westfield

Attention: Becky Mason

Date: 01/10/2006

Bonnie Stadelmann
Signature

01/10/06
Date

Name: Bonnie M. Stadelmann

Title: Project Manager

E-Mail: bstadelmann@stl-inc.com

STL Chicago
2417 Bond Street
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PHONE: (708) 534-5200
FAX..: (708) 534-5211

This Report Contains (7) Pages

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SAMPLE INFORMATION
Date: 01/10/2006

Job Number.: 243176
Customer...: Severn Trent Laboratories
Attn.....: Becky Mason

Project Number.....: 20000230
Customer Project ID....: WESTFIELD 231286
Project Description....: Westfield

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
243176-1	231286-1	Water	12/22/2005	15:40	12/28/2005	10:00

STL Chicago is part of Severn Trent Laboratories, Inc.

Job Number: 243176

LABORATORY TEST RESULTS

Date:01/10/2006

CUSTOMER: Severn Trent Laboratories PROJECT: WESTFIELD 231286 ATTN: Becky Mason

Customer Sample ID: 231286-1
Date Sampled.....: 12/22/2005
Time Sampled.....: 15:40
Sample Matrix.....: Water

Laboratory Sample ID: 243176-1
Date Received.....: 12/28/2005
Time Received.....: 10:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
1664A	O&G/TPH Gravimetric (HEM) TPH, Recoverable (SGT-HEM)	5.2	U		2.4	5.2	1	mg/L	170076		01/10/06 1531	nrp

* In Description = Dry Wgt.

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LABORATORY CHRONICLE

Job Number: 243176

Date: 01/10/2006

CUSTOMER: Severn Trent Laboratories PROJECT: WESTFIELD 231286 ATTN: Becky Mason

Lab ID: 243176-1 Client ID: 231286-1

Date Rcvd: 12/28/2005 Sample Date: 12/22/2005

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
1664A	O&G/TPH Gravimetric (HEM)	1	170076	✓	01/10/2006 1531	
PKG IND (WC)	PKG IND (WET CHEMISTRY)	1				

REPORT COMMENTS

1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.
2) Soil, sediment and sludge sample results are reported on a "dry weight" basis except when analyzed for landfill disposal or incineration parameters. All other solid matrix samples are reported on an "as received" basis unless noted differently.
3) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.
4) The test results for the noted analytical method(s) meet the requirements of NELAC. Lab Cert. ID# 100201
5) According to 40CFR Part 136.3, pH, Chlorine Residual and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field (e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.

Glossary of flags, qualifiers and abbreviations (any number of which may appear in the report)

Inorganic Qualifiers (Q-Column)

U	Analyte was not detected at or above the stated limit.
<	Not detected at or above the reporting limit.
J	Result is less than the RL, but greater than or equal to the method detection limit.
B	Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.
S	Result was determined by the Method of Standard Additions.
F	AFCEE: Result is less than the RL, but greater than or equal to the method detection limit.

Inorganic Flags (Flag Column)

'	ICV,CCV,ICB,CCB,ISA,ISB,CRI,CRA,MRL: Instrument related QC exceed the upper or lower control limits.
*	LCS, LCD, MD: Batch QC exceeds the upper or lower control limits.
+	MSA correlation coefficient is less than 0.995.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
E	SD: Serial dilution exceeds the control limits.
H	MB, EB1, EB2, EB3: Batch QC is greater than reporting limit or had a negative instrument reading lower than the absolute value of the reporting limit.
N	MS, MSD: Spike recovery exceeds the upper or lower control limits.
W	AS(GFAA) Post-digestion spike was outside 85-115% control limits.

Organic Qualifiers (Q - Column)

U	Analyte was not detected at or above the stated limit.
ND	Compound not detected.
J	Result is an estimated value below the reporting limit or a tentatively identified compound (TIC).
Q	Result was qualitatively confirmed, but not quantified.
C	Pesticide identification was confirmed by GC/MS.
Y	The chromatographic response resembles a typical fuel pattern.
Z	The chromatographic response does not resemble a typical fuel pattern.
E	Result exceeded calibration range, secondary dilution required.
F	AFCEE:Result is an estimated value below the reporting limit or a tentatively identified compound (TIC)

Organic Flags (Flags Column)

B	MB: Batch QC is greater than reporting limit.
*	LCS, LCD, ELC, ELD, CV, MS, MSD, Surrogate: Batch QC exceeds the upper or lower control limits.
'	EB1, EB2, EB3, MLE: Batch QC is greater than Reporting Limit
A	Concentration exceeds the instrument calibration range
a	Concentration is below the method Reporting Limit (RL)
B	Compound was found in the blank and sample.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
H	Alternate peak selection upon analytical review
I	Indicates the presence of an interfence, recovery is not calculated.
M	Manually integrated compound.
P	The lower of the two values is reported when the % difference between the results of two GC columns is

greater than 25%.

Abbreviations

AS	Post Digestion Spike (GFAA Samples - See Note 1 below)
Batch	Designation given to identify a specific extraction, digestion, preparation set, or analysis set
CAP	Capillary Column CCB Continuing Calibration Blank
CCV	Continuing Calibration Verification
CF	Confirmation analysis of original
C1	Confirmation analysis of A1 or D1
C2	Confirmation analysis of A2 or D2
C3	Confirmation analysis of A3 or D3
CRA	Low Level Standard Check - GFAA; Mercury
CRI	Low Level Standard Check - ICP
CV	Calibration Verification Standard
Dil Fac	Dilution Factor - Secondary dilution analysis
D1	Dilution 1
D2	Dilution 2
D3	Dilution 3
DLFac	Detection Limit Factor
DSH	Distilled Standard - High Level
DSL	Distilled Standard - Low Level
DSM	Distilled Standard - Medium Level
EB1	Extraction Blank 1
EB2	Extraction Blank 2
EB3	DI Blank
ELC	Method Extracted LCS
ELD	Method Extracted LCD
ICAL	Initial calibration
ICB	Initial Calibration Blank
ICV	Initial Calibration Verification
IDL	Instrument Detection Limit
ISA	Interference Check Sample A - ICAP
ISB	Interference Check Sample B - ICAP
Job No.	The first six digits of the sample ID which refers to a specific client, project and sample group
	Lab ID An 8 number unique laboratory identification
LCD	Laboratory Control Standard Duplicate
LCS	Laboratory Control Standard with reagent grade water or a matrix free from the analyte of interest
MB	Method Blank or (PB) Preparation Blank
MD	Method Duplicate
MDL	Method Detection Limit
MLE	Medium Level Extraction Blank
MRL	Method Reporting Limit Standard
MSA	Method of Standard Additions
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ND	Not Detected
PREPF	Preparation factor used by the Laboratory's Information Management System (LIMS)
PDS	Post Digestion Spike (ICAP)
RA	Re-analysis of original
A1	Re-analysis of D1
A2	Re-analysis of D2
A3	Re-analysis of D3
RD	Re-extraction of dilution
RE	Re-extraction of original
RC	Re-extraction Confirmation
RL	Reporting Limit
RPD	Relative Percent Difference of duplicate (unrounded) analyses
RRF	Relative Response Factor
RT	Retention Time

RTW	Retention Time Window Sample ID A 9 digit number unique for each sample, the first six digits are referred as the job number
SCB	Seeded Control Blank
SD	Serial Dilution (Calculated when sample concentration exceeds 50 times the MDL)
UCB	Unseeded Control Blank
SSV	Second Source Verification Standard
SLCS	Solid Laboratory Control Standard(LCS)
PHC	pH Calibration Check LCSP pH Laboratory Control Sample
LCDP	pH Laboratory Control Sample Duplicate
MDPH	pH Sample Duplicate
MDFP	Flashpoint Sample Duplicate
LCFP	Flashpoint LCS
G1	Gelex Check Standard Range 0-1
G2	Gelex Check Standard Range 1-10
G3	Gelex Check Standard Range 10-100
G4	Gelex Check Standard Range 100-1000

Note 1: The Post Spike Designation on Batch QC for GFAA is designated with an "S" added to the current abbreviation used. EX. LCS S=LCS Post Spike (GFAA); MSS=MS Post Spike (GFAA)
Note 2: The MD calculates an absolute difference (A) when the sample concentration is less than 5 times the reporting limit. The control limit is represented as +/- the RL.

12/23/2005

243176

STL Westfield
53 Southampton Rd.
Westfield, MA 01085

RE: Subcontracting Chain of Custody

STL WF PM:	Rebecca C. Mason
Telephone Number:	413-572-4000
PO/Job#:	231286
Client:	Arcadis Geraghty and Miller
Final Report Due Date:	01/10/2006 by 3pm
Report Type:	batch QC
EDD Type:	none
QC Billable:	N

Samp#	Sample I.D.	Sampled	Time
1	1W-1	12/22/2005	1540

Please run QC on sample:

Mthds	Method Description / Sample Distribution	#of	Analytical Mthd Unit Price	Extended
1664	TPH		Method 1664	
1		1	$55.00	$55.00
			Total Cost	$55.00

Matrix: groundwater
Bottle Type & Number: amber liter with HCL

Ship To: STL Chicago
Ship Date: 12/27/05

Special Instructions:

Relinquished By:
Signature: _____ Date: 12/27/5 Time: 1700
Received By:
Signature: _____ STL Date: 12/28/05 Time: 1400
Relinquished By:
Signature: Date: Time:
Received By:
Signature: Date: Time:

Please send a sample confirmation report upon sample receipt.

rpjsckl | Job Sample Receipt Checklist Report | V2

Job Number.: 231286 Location.: 57345 Check List Number.: 1 Description.:
Customer Job ID.....: Job Check List Date.: Date of the Report..: 12/23/2005
Project Number.: 20000016 Project Description.: Roadway N. Reading Project Manager.....: bcm
Customer.....: Arcadis Geraghty and Miller Contact.: Dave Knox

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
...If "yes", completed properly?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?	N	
...If "yes", custody seal intact?		
Samples iced?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).	N	
...Temperature at receipt_____		0.0C
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	N	Sample 2 has 1 vial with large headspace
Is a Trip Blank required?		
Was a Trip Blank provided?		
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Comments		
If samples were shipped was there an air bill #?		FedEx 8560 7490 7223
Sample Custodian Signature/Date		jld 12/23/05

This is Page 1(A)

jld 12/23/05

Severn Trent Laboratories, Inc.
Chain of Custody Form

SEVERN TRENT STL

23032

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STL Billerica / Service Center

Job# 231260 891 | Quote# | PO#

Client: Arcadis
Address: 175 Cabot St Suite 400 Lowell MA 01854
Phone: 978-937-9999 Fax: 978-937-7555

Project #: MA000547
Project Manager: Dave Knox
Work ID: Roadway N. Reading
Contact:

Requested Turnaround Time (PLEASE SPECIFY)
STANDARD ✓ RUSH ___ *(Lab Approval Required)*

Regulatory Classification
NPDES ✓ Drinking Water ___
RCRA ___ MCP GW1/S1 ___
Other ___

Special Report Format
QA/QC Report ___
DQE (MCP) Rpt ___
DEP Form(s) ___

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water, NPDES
6000-series for groundwater, soil, waste
8000-series for groundwater, soil, waste
Use comments section to further define.

Comments (Special Instructions)

Please print legibility. If the analytical requests are not clearly defined on the chain-of-custody, the turnaround time will begin after all questions have been satisfactorily answered.

Sample Type Codes
WW-Wastewater DW-Drinking water SW-Surface water
LW-Lab water GW-Groundwater A-Air
S-Solid / Soil SL-Sludge O-Oil Z-Other

Sample ID	Sample Type	Sampler's Initials	Date Time Collected	Grab	Comp.	# Containers	Plastic(P) or Glass(G)	Preservative: NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Na2S2O3	(None) (4° C)	Volatiles 524 /624 /8260	Volatiles 601 /602 /8021	Semivoa 525 /625 /8270	PCB / Pest / Herbicide	EPH / VPH 8260	DRO / GRO / ETPH	Metals 6010 / 200.7	Mercury 245.1 / 7470-71	General Chemistry	Bacteriological Cyanide	Toxicity TCLP 16 Pest	Oil & Grease / TOC	Radchem / Other
IW-1	GW	DM/BT	12-22-05 1540	✓		18	9%		✓		✓	✓		✓	4		2	1	3		1			1	1		
Trip Blank	LW	—	12/9/05 1400												2												

Note Short Holding time on Cr6 1 vial w/ lg headspace

See Enclosed Appendix #3

call 978-937-4999 Brian T. ex 334 with any questions

Sampled by (print): DM/BT Signature:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
DM/BT	12/22/05	1700	Cindy Nichols	12/23/05	1135
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Cooler ? (Y) / N
MADEP Requirement Samples Iced? (Y) / N
Temp @ receipt: 0.0 °C
Preservation / pH checked? (Y) / N
By: EN Date: 12/23/05

STL WESTFIELD

FedEx 8560 7490 7223 Custody Seal Intact

White = Lab file Yellow = Report copy Pink = Customer copy

STL-8245 (1000)