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Superfund Records Center
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OTHER: 252321

PHASE II
LIMITED SUBSURFACE INVESTIGATION
PLAT 14, LOT 515
SMITH STREET
NORTH PROVIDENCE, RHODE ISLAND

June 3, 2002

Prepared for:

Cumberland Farms Inc.
777 Dedham Street
Canton, MA 02021

Prepared by:

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333 Washington Highway
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Lincoln Environmental, Inc. Job Number RCF 8338F
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1.0 INTRODUCTION

1.1 Background

Lincoln Environmental, Inc. (Lincoln) was retained by Cumberland Farms Inc. to complete a Limited Subsurface Investigation at a currently undeveloped parcel of land known as Plat 14, Lot 516 located on Smith Street in North Providence, Rhode Island. According to information reviewed at the North Providence Tax Assessor's Office, the site consists of 16,500 square feet of undeveloped land currently zoned for commercial use. The current owners are listed as Andreoni, Orlando, A. and Edward Ricci. In April of 2002 a comprehensive Phase I report was submitted. This investigation was conducted to assess the soil and groundwater quality of the site and to review the records available at the Rhode Island Department of Environmental Management (RIDEM) pertaining to oil and/or hazardous materials storage and releases at the site and in the nearby surrounding area. This report summarizes the findings.

1.2 Assessment Terms, Conditions and Limitations

The environmental services provided were performed under the approved scope of work as set forth in Lincoln Proposal No. 02R195, executed on April 18, 2002. All work is subject to the Terms and Conditions attached to the original authorized proposal. A **Limitations** section is also included as part of this assessment.

2.0 HISTORICAL PROPERTY USES

Lincoln reviewed historical sources in an attempt to develop a history of the previous uses of the site and surrounding properties to help identify past uses that could have led to recognized environmental conditions in connection with the site property.

The site property is located in an area identified as a Superfund site, known as the Centerdale Manor Restoration Project. Based on information reviewed by Lincoln, previous investigations of these

areas have identified the presence of organic and inorganic substances in soil, sediment, and surface water. The Centerdale Worsted Mills was located in the Brook Village area prior to 1936. Following the properties use as a woolen mill it was utilized as a chemical manufacturing facility until the early 1970's. Based on a review of historical fire insurance maps, the eastern portion of the former chemical manufacturing company was located in the vicinity of the site property.

Two sediment sample locations from a previous investigation are located on the western side of the subject site in a drainage channel. These sediment samples identified concentrations of Dioxins.

2.1 Sanborn™ Maps

Sanborn™ maps are historic maps that were drafted for fire insurance purposes and often are used for historic land use determinations. Lincoln requested that Environmental Data Resources, Inc. (EDR) review their historic map collection for Sanborn® and other historic maps of the site area. According to EDR, historic map coverage is available for the site area for the years 1965, 1956, 1951, and 1921. A description of the site as depicted in each map is provided below.

1965 – The majority of the site property appears to consist of undeveloped land. However, a furniture warehouse and restaurant is pictured on the western portion of the site. Immediately, west of the site is the Metro Atlantic Chemical Manufacturing facility. A filling station is also depicted on the property north of Smith Street and adjacent to the site.

1956 – The site and surrounding area appear unchanged from the depiction in the previous map.

1951 –The adjacent chemical manufacturing plant is identified as the Atlantic Chemical Company. Five gasoline tanks are depicted on the adjacent filling station property. The furniture warehouse and restaurant are depicted on the western portion of the site property.

1921 – The western portion of the site property maintains the Centerdale Worsted Mills, with a shipping, reeling and spooling building closest to the site property.

A second wool storage building is located at the rear of the site property.

The maps were provided in the Phase I report previously submitted in April 2002.

2.2 Preexisting Site or Surrounding Environmental Conditions

The above mentioned Centerdale Manor Superfund property is also identified as a historical known environmental condition. Past investigations conducted in the late 1970's and early 1980's identified "hundreds" of drums on the property in "various stages of deterioration". Stored in these drums were caustics, halogenated solvents, PCB's, ink wastes (heavy metals), and sulfuric acid. In addition, approximately one-hundred and fifty drums were observed scattered along the banks of the Woonasquatuckett River.

Based on a review of historical fire insurance maps a gasoline filling station occupied the property on the north side of Smith Street between at least 1951 and 1965. This former filling station maintained several underground storage tanks as depicted on the maps. No information as to removal of the tanks or conditions of soil and or groundwater in the vicinity of the former filling station could be identified. This property is located less then 200 feet from the northern terminus of the site property.

3.0 *Physical Setting*

Based on a review of the USGS topographical map of the site area, the elevation at the site is approximately 115 feet above mean sea level. Area topography slopes southwest towards the Woonasquatuckett River. Based on a review of the 1994 USGS Bedrock Geology map of Rhode Island, the site area is underlain by the Esmond Igneous Suite, which consists of gray, tan, greenish or pale-pink granite.

4.0 SUBSURFACE INVESTIGATION

4.1 Drilling Activities

On May 17, 2002 under the direction of Lincoln, Geosearch Inc. of Sterling, Massachusetts performed groundwater monitor well installation activities at the site. A Site Plan depicting the locations of the new monitor wells (MW-1 through MW-3) is included as **Figure 2**.

4.1.1 Monitor Well Construction

Three wells were installed using 4.25" ID hollow stem augers. Each monitor well was constructed of two-inch, screened sections of PVC pipe, flush threaded to solid PVC riser and brought to grade. The screened portion of the well was backfilled with #2 silica sand and capped with a subsurface annular, bentonite seal, approximately 1 foot above the screened section. Native backfill was used along the riser portion of the well. The wells were then finished with a flush mounted, watertight road box secured in concrete, to prevent surface run-off from entering the well. Monitor well construction logs are included as **Appendix 1**.

4.2 Field Screening

Field screening of the soil was performed at 0-2 feet and then at five-foot intervals during the soil borings, with a two-foot, stainless steel, split-spoon sampler. A 10.6 eV photoioniztion detector calibrated to an isobutylene standard was used to detect the presence of volatile organic compounds (VOCs) in the soil samples.

Well MW-3 recorded a reading of 4 ppm at approximately 11 feet below grade. Screening for all other locations and depth revealed that no VOCs were present above the instrument's detection limit of 1 part per million (ppm). Due to the relative absence of VOCs no soil was stored on site.

4.3 Soil Sampling and Analyses

A soil sample was retained from a depth of zero to two feet below grade at each boring for analysis of the RCRA 8 metals, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and dioxin. An additional soil sample from each of the borings, at approximately the water table interface, was retained for laboratory analysis for VOCs. All laboratory analyses were performed by Groundwater Analytical of Buzzards Bay, Massachusetts except for the dioxin analysis, which was performed by Triangle Laboratories Inc. of Durham, North Carolina.

Concentrations of arsenic, barium, lead and mercury were detected in the soil samples; however, only arsenic exceeded the RIDEM Industrial/Commercial Direct Exposure Criteria in MW-1 and MW-3 at 4.3 and 4.1 milligrams per kilograms (mg/kg), respectively. An established criterion for this element is 3.8 mg/kg. One or more PAH compounds were detected in all wells, but only benzo(A)pyrene and benzo(B)fluoranthene were above their respective criterion limits. PCBs were not detected above the laboratory detection limits, which were lower than the applicable standards. No VOC concentrations detected were above the applicable standards. Dioxins (primarily 2,3,7,8-TCDD) have been detected in the soil samples, however, all samples are below the applicable EPA Preliminary Remediation Goal of 1 part per billion (ppb). The highest recorded concentration was 0.16 ppb detected in MW-2.

The soil analytical results are summarized in **Tables 1** through **3**. Complete Soil Analytical laboratory analyses are included in **Appendix 2**. The Triangle Laboratory's dioxin analysis is presented in **Appendix 3**.

4.4 Groundwater Gauging and Sampling

On May 20, 2002 monitor wells MW-1 through MW-3 were surveyed to establish locations and top of casing elevations. Also on this date an ORS interface probe was used to gauge the depth to groundwater and to determine the presence of non-aqueous phase liquid (NAPL). NAPL was not detected in any of the wells. Gauging data is included as **Appendix 4**. Based on the May 20, 2002

gauging data, the Groundwater Contour Map, included as **Figure 3**, shows groundwater flowing beneath the site in a southwesterly direction at an average gradient of .001 feet per foot. This is consistent with the adjacent Cumberland Farms property.

Groundwater samples were collected from the newly installed monitor wells MW-1 through MW-3 on May 20, 2002. Prior to sampling, the wells were purged a minimum of three standing - water well volumes. Samples were submitted to Groundwater Analytical of Buzzards Bay, Massachusetts for analysis of VOCs and PAHs via EPA Methods 8260 and 8270 respectively.

All VOC analytes were below the detection limits or not above their respective standards. The RIDEM Groundwater Quality Regulations do not have a published GB groundwater standard for PAHs. The results of the laboratory analyses are summarized in **Table 4** and **5**. Complete groundwater laboratory data are included in **Appendix 5**.

5.0 SUMMARY OF FINDINGS

- On May17, 2002 three soil borings were completed as groundwater monitoring wells.

- Soils – Soil samples were obtained surficially (0-2 feet below grade) and at the groundwater interface depth. Lab analyticals at the groundwater interface were compared to the RIDEM leachability standards and all were found in compliance. The surficial soil lab analyticals indicated the metal, arsenic exceeding the RIDEM direct exposure criteria. Also, Benzo (A) Pyrene and Benzo (B) Fluoranthene (consistent with fuel oil) exceeded the direct exposure criteria. No PCBs were present in any of the samples. Dioxins were compliant with the EPA Preliminary Remediation Goal Standard.

- Groundwater – Analyticals received for groundwater indicate all compounds are in compliance with RIDEM GB groundwater requirements.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the soil laboratory analyses, compounds that exceeded their applicable Direct Exposure standards, (arsenic, benzo(A)pyrene and benzo(B)flouranrthen) constitutes a release in accordance with the RIDEM regulations.

Resolution to surficial soil releases typically consist of either excavating the effected soils with disposal or providing engineered controls such as a soil or asphalt cap along with an environmental land usage restriction (ELUR),

7.0 LIMITATIONS

Information obtained from public agencies, site inspections, limited sampling and laboratory chemical analysis was used to chara[illegible] the site. The accuracy o[illegible] nclusions derived from this information is based solely on [illegible] of the information [illegible] Events occurring on the site after the gauging event and re[illegible] ew are beyond the scope of [illegible] report. If information becomes available concerning the site that is not included in this report, it [illegible] uld be made available to Lin[illegible] so that conclusions and [illegible] mendations can be re[illegible] and modified where ap[illegible]

No attempt was made to determine th[illegible] compliance of present or form[illegible] ners or operators of the s[illegible] eral, state, [illegible] municipal environmental or land use laws or regulations. No atte[illegible] made t[illegible] valuate or as[illegible] he structural integrity of any [illegible] improveme[illegible] including ta[illegible] ment or oth[illegible] ures.

Due to [illegible] logical and s[illegible] formations are inherently ran[illegible] e and indeterminate (he[illegible] re, the pref[illegible] s and opinions p[illegible] n under this agreement are not guaranteed to be a representation of complete site conditions, which are subject to change with time as a result of natural or man-made processes. Although the services are extensive, findings and conclusions are limited to and by the information obtained. Lincoln makes no

expressed or implied representations or warranties regarding any changes in condition of the premises after the date of the on-site inspection(s). In addition, other subsurface investigatory methods are available that could further define the soil and groundwater conditions.

Photoionization detector (PID) field screening is not as sensitive as laboratory analysis and conclusions drawn from such screening are limited to those contaminants potentially detectable with a 10.0 electron volt lamp. No representation regarding the potential results of additional field screening, laboratory testing, or regarding the potential results or tests for materials not tested for is expressed or implied. Any qualitative or quantitative information regarding the site that was not available to Lincoln at the time of this assessment may result in a modification of the representations made in this report.

Lincoln has retained a copy of this report. No additions or deletions are permitted without the written consent of Lincoln. Use of this report in whole or in part by parties other than those authorized by Lincoln is prohibited.

Table 1

Soil Analytical Results RCRA 8 Metals
Plat 14, Lot 516
Smith Street
North Providence, Rhode Island

Sample ID	Date	Depth (feet)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
MW-1	05/17/2002	0-2	4.3	30	<.58	<12	<12	0.040	<12	<5.8
MW-2	05/17/2002	0-2	3.4	71	<.59	<12	100	0.074	<12	<5.9
MW-3	05/17/2002	0-2	4.1	50	<.58	<12	**160**	0.18	<12	<5.8
Residential Direct Exposure Criteria			*7.0*	*5,500*	*39*	*390*	*150*	*23*	*390*	*200*
Industrial/Commercial Direct Exposure			*7.0*	*10,000*	*1,000*	*10,000*	*500*	*610*	*10,000*	*10,000*

Notes:

1) mg/kg = milligrams per kilogram
2) samples analyzed for Trace Metals Via ICP-AES and CVAA
3) Values in **BOLD** exceed the standards **or** the laboratory detection limits were set above the standards

Table 2

Soil Analytical Results for Polynuclear Aromatic Hydrocarbons (0-2 feet)
Plat 14, Lot 516
Smith Street, North Providence, Rhode Island

MW No. Date	PAH Compounds							
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(K)Fluoranthene	Benzo(G,H,I)Perylene
MW-1								
05/17/2002	<.36	<.36	<.36	<.36	<.36	<.36	<.36	<.36
MW-2								
05/17/2002	<.39	0.7	1.3	**4.1**	**5.1**	**7.9**	**3.1**	**9.1**
MW-3								
05/17/2002	<.36	<.36	0.9	**2.1**	**2.3**	**3.5**	**1.4**	<.36
Residential Direct Exposure Criteria	43	23	35	0.9	0.4	0.9	0.9	0.8
Commercial Direct Exposure Criteria	10,000	10,000	10,000	7.8	0.8	7.8	78	10,000

MW No. Date	PAH Compounds Continued								
	Chrysene	Dibenzo(A,H)Anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-CD)Pyrene	Naphthalene	2-Methyl Naphthalene	Phenanthrene	Pyrene
MW-1									
05/17/2002	<.36	<.36	0.52	<.36	<.36	<.36	<.36	<.36	0.38
MW-2									
05/17/2002	**5**	<.39	12	0.49	**1.3**	<.39	<.39	8.8	7.5
MW-3									
05/17/2002	**2**	<.36	5	0.4	0.5	<.36	<.36	4.2	3.4
Residential Direct Exposure Criteria	0.4	0.4	20	28	0.9	54	123	40.0	13.0
Commercial Direct Exposure Criteria	780	0.8	10,000	10,000	7.8	10,000	10,000	10,000	10,000

All units in ug/kg: micrograms per kilogram
Analysis via EPA Method 8270C
Standards are the Direct Exposure Criteria for Industrial/Commercial Properties
Values in **BOLD** are above the standards **OR** the laboratory method dection limits were set above the standards

Table 3

Soil Analytical Results
Plat 14, Lot 516
Smith Street
North Providence, Rhode Island

Sample ID	Date	Depth (feet)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Xylenes (µg/kg)	MTBE (µg/kg)	Naphthalene (µg/kg)
MW-1	05/17/2002	10-12	<250	<250	<250	<250	<250	<250
MW-2	05/17/2002	10-12	<250	<250	<250	<250	<250	<250
MW-3	05/17/2002	7	<410	<410	<410	320	<410	300
GB Soil Leachability Criteria			*4,300*	*54,000*	*62,000*	*NE*	*100,000*	*NE*

Notes:

1) µg/kg = micrograms per kilogram
2) samples analyzed for VOCs via EPA Method 8260M
3) This table summarizes BTEX, naphthalene, and MTBE compounds, refer to laboratory report for complete analytical data and method detection limits
4) NE = criteria not established for this compound

Table 4

Groundwater Analytical Results
Plat 14, Lot 516
Smith Street
North Providence, Rhode Island

Well ID	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	MTBE
MW-1	05/20/2002	<.5	<.5	<.5	<.5	<.5	<.5
MW-2	05/20/2002	<.5	<.5	<.5	<.5	<.5	<.5
MW-3	05/20/2002	1	<.5	<.5	7	62	1
RIDEM GB Standards		*140*	*1,700*	*1,600*	*NE*	*NE*	*5,000*

Notes:

1) All results reported in µg/l = micrograms per liter

2) Monitor well samples analyzed via EPA Method 8260M.

3) This table summarizes BTEX compounds, Naphthalene & MTBE only. For a complete listing of analytes refer to the laboratory report.

Table 5

Groundwater Analytical Results for Polynuclear Aromatic Hydrocarbons
Plat 14, Lot 516
Smith Street, North Providence, Rhode Island

MW No. Date	PAH Compounds							
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(A)Anthracene	Benzo(A)Pyrene	Benzo(B)Fluoranthene	Benzo(K)Fluoranthene	Benzo(G,H,I)Perylene
MW-1								
05/20/2002	<10	<10	<10	<10	<10	<10	<10	<10
MW-2								
05/20/2002	<10	<10	<10	<10	<10	<10	<10	<10
MW-3								
05/20/2002	<10	<10	<10	<10	<10	<10	<10	<10

MW No. Date	PAH Compounds Continued								
	Chrysene	Dibenzo(A,H)Anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-CD)Pyrene	Naphthalene	2-Methyl Naphthalene	Phenanthrene	Pyrene
MW-1									
05/20/2002	<10	<10	<10	<10	<10	<10	<10	<10	<10
MW-2									
05/20/2002	<10	<10	<10	<10	<10	<10	<10	<10	<10
MW-3									
05/20/2002	<10	<10	23	<10	<10	18	<10	33	20

All units in ug/l: micrograms per liter
Analysis via EPA Method 8270
No criteria has been established for PAHs in a GB designated area

FIGURE 1

SITE LOCATION MAP
SOURCE: U.S.G.S.

DATE: 6/3/02 DWG: RCF8338FL
LE JOB NO. RCF8338F BY: TM

Lincoln Environmental, Inc.
Smithfield, Rhode Island (401)232-3353

PLAT 14, LOT 516
SMITH STREET
NORTH PROVIDENCE, RHODE ISLAND

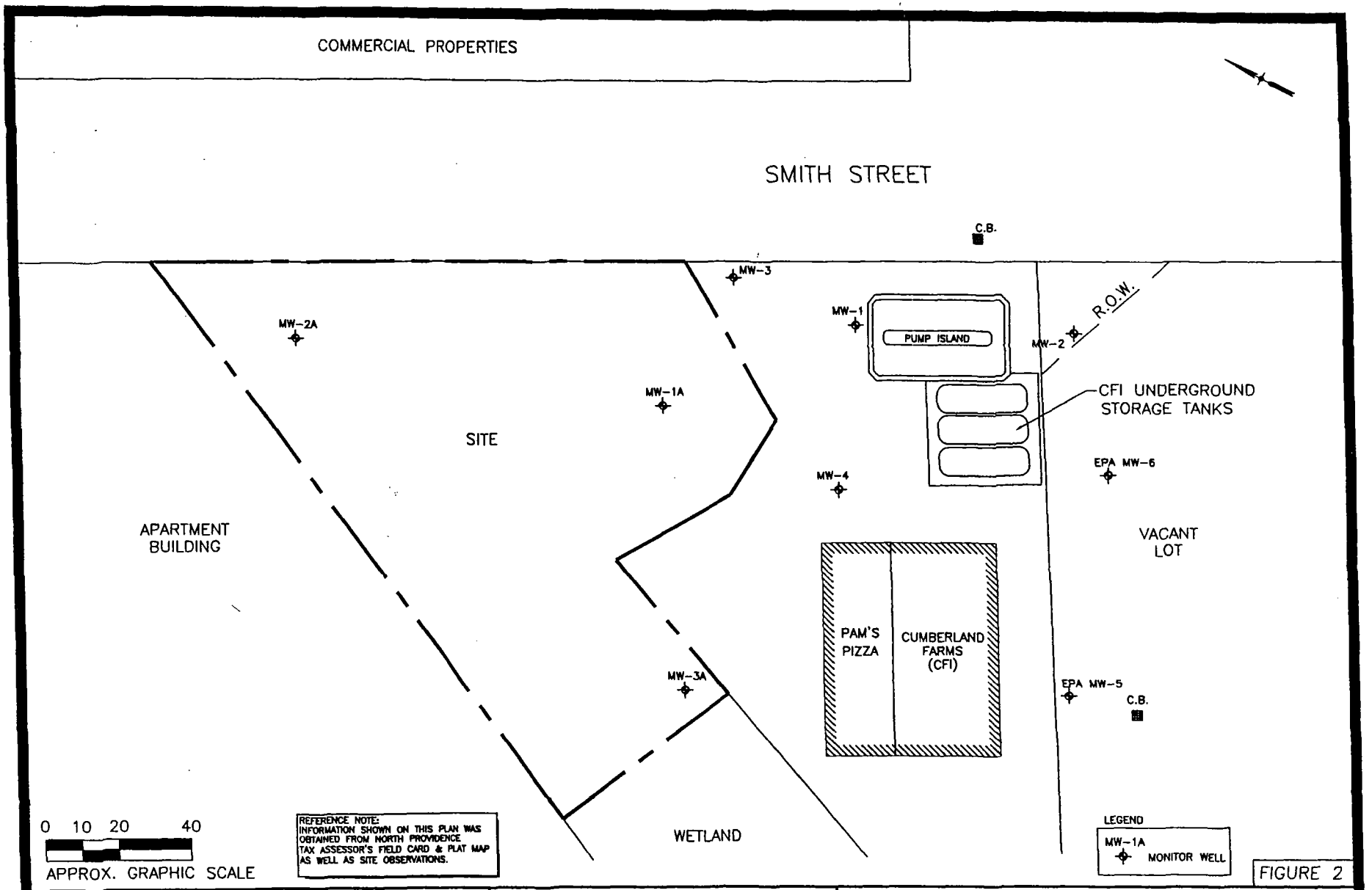

FIGURE 2

SITE PLAN

DATE: 4/9/02
LE JOB NO. RCF8338E

BY: TM
DWG: RCF8338ESP

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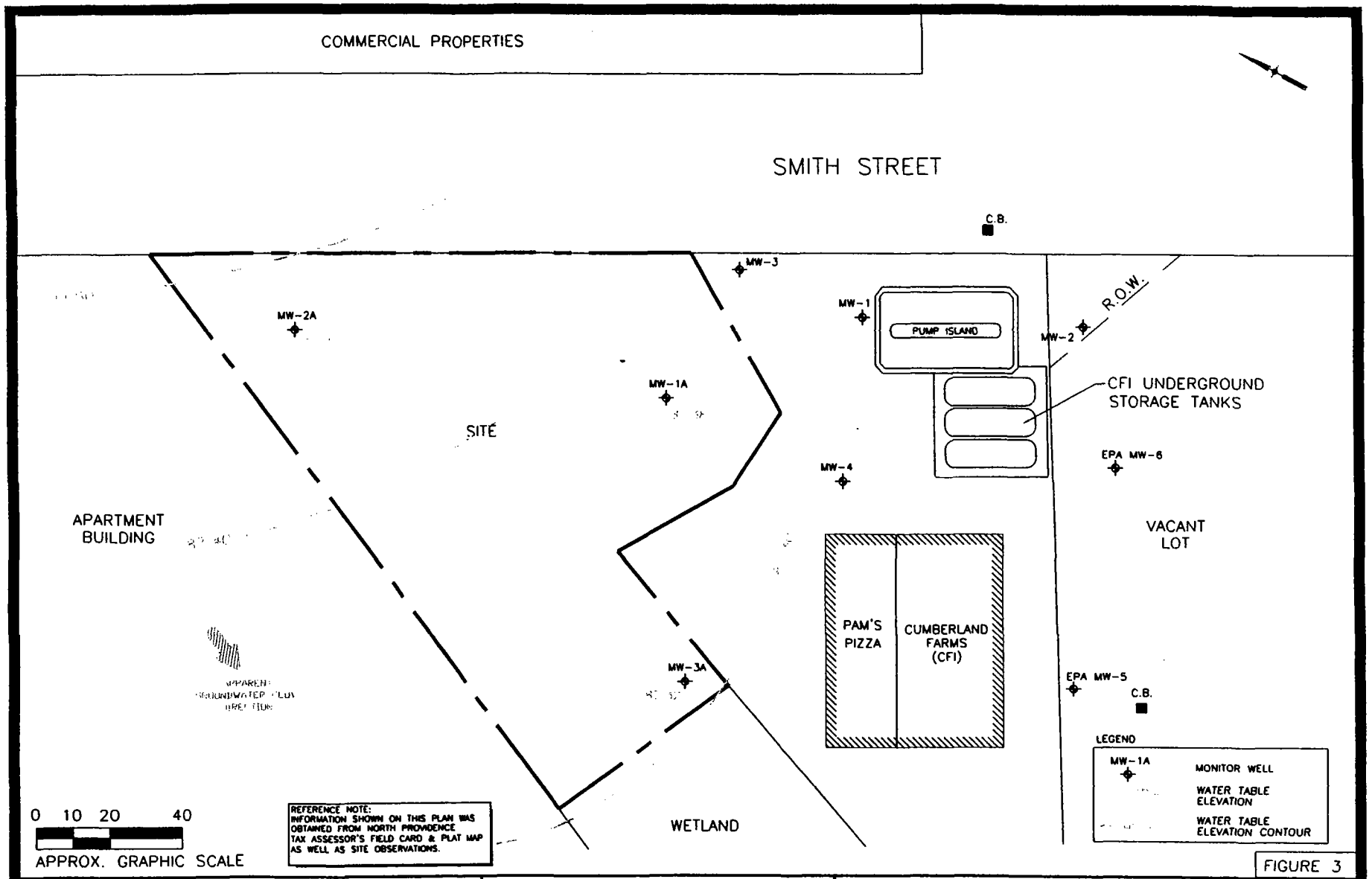
Smithfield, Rhode Island (401)232-3353

PLAT 14, LOT 516
SMITH STREET
NORTH PROVIDENCE, RHODE ISLAND



GROUNDWATER CONTOUR & QUALITY MAP
FOR DATE: 5/20/2002

DATE: 4/9/02
LE JOB NO. RCF8338E

BY: TM
DWG: RCF8338ESP

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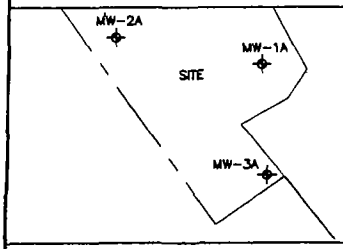
PLAT 14, LOT 516
SMITH STREET
NORTH PROVIDENCE, RHODE ISLAND

LINCOLN ENVIRONMENTAL, INC.

WELL LOG AND COMPLETION REPORT

SMITH STREET

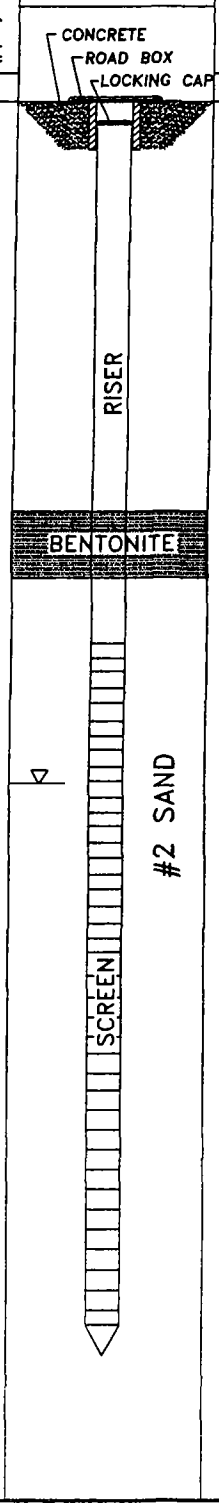


DRILLED BY:	GEOSEARCH	PROJECT NUMBER:	RCF8338F
DRILLING METHOD:	HOLLOW STEM AUGER	WELL NUMBER:	MW-1A
SAMPLING METHOD:	SPLIT SPOON	LOCATION:	LOT 516 SMITH STREET, N. PROV.
SCREENING INSTRUMENT:	PID	DATE:	5/17/02
DEPTH TO WATER:	~10'	LOGGED BY:	P.L.

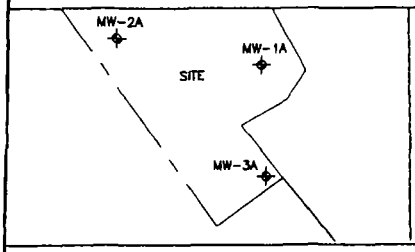
RISER:	TYPE PVC			DIAMETER	2"	LENGTH	8'	WELL SEAL: BENTONITE	HOLE DIA.: 7.25"
SCREEN:	TYPE PVC	SLOT .010		DIAMETER	2"	LENGTH	10'	SAND PACK: #2 SAND	TOTAL DEPTH: 18'

SAMPLE NO.	DEPTH	SAMPLE RECOVERY	BLOW COUNT PER 6"	MOISTURE CONTENT	SCREENING RESULTS (ppm)	LITHOLOGY / REMARKS
	0		4			
	1	20"	6, 10	D	ND	0–2': SILT, SAND AND PEBBLES, ORGANICS
	2		17			
	3					3'–5': CEMENT, BRICK, ROCK FRAGMENTS REFUSAL (RELOCATED HOLE 5' NORTH)
	4		10			
	5	24"	33, 55	D	ND	
	6		53			5'–7': SILT, SOME SAND, GRANITE FRAGMENTS
	7					
	8					
	9					
	10		19			
	11	18"	21, 21	W	ND	10'–12': SAND, MEDIUM TO COARSE, POORLY SORTED WITH SMALL PEBBLES
	12		24			
	13					
	14					
	15		10			
	16	24"	10, 10	W	ND	15'–17': SAND; MEDIUM TO COARSE, POORLY SORTED WITH SMALL PEBBLES
	17		10			
	18					
	19					
	20					

WELL COMPLETION



LINCOLN ENVIRONMENTAL, INC. — WELL LOG AND COMPLETION REPORT

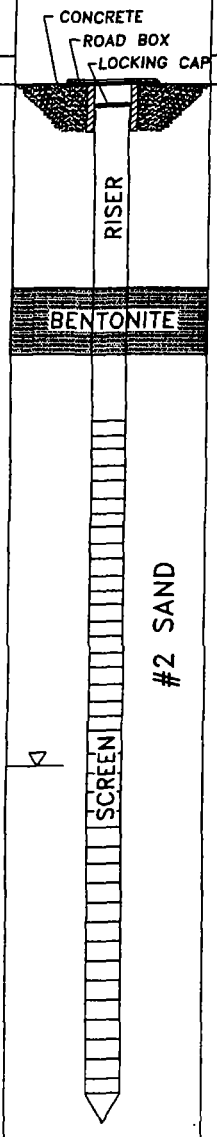


DRILLED BY:	GEOSEARCH	PROJECT NUMBER:	RCF8338F
DRILLING METHOD:	HOLLOW STEM AUGER	WELL NUMBER:	MW-2A
SAMPLING METHOD:	SPLIT SPOON	LOCATION:	LOT 516 SMITH STREET, N. PROV.
SCREENING INSTRUMENT:	PID	DATE:	5/17/02
DEPTH TO WATER:	~10'	LOGGED BY:	P.L.

RISER:	TYPE PVC			DIAMETER	2"	LENGTH	5'	WELL SEAL: BENTONITE	HOLE DIA.: 7.25"
SCREEN:	TYPE PVC	SLOT .010		DIAMETER	2"	LENGTH	10'	SAND PACK: #2 SAND	TOTAL DEPTH: 15'

SAMPLE NO.	DEPTH	SAMPLE RECOVERY	BLOW COUNT PER 6"	MOISTURE CONTENT	SCREENING RESULTS (ppm)	LITHOLOGY / REMARKS
	0		4			
	1	18"	7, 9	D	ND	0–2': SILT, FINE SAND AND ORGANCS
	2		9			
	3					
	4					
	5		7			
	6	12"	10, 11	D	ND	5'–7': SAND FINE TO MEDIUM, NOT SORTED SMALL PEBBLES, BLACK
	7		11			
	8					
	9					
	10		11			
	11	18"	33, 30	W	ND	10'–12': SAND, MEDIUM TO COARSE, NOT SORTED, PEBBLES
	12		30			
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					

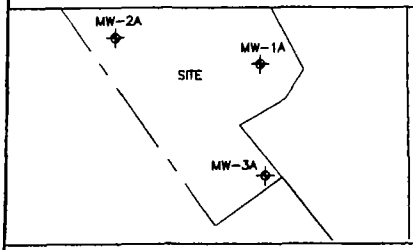
WELL COMPLETION



LINCOLN ENVIRONMENTAL, INC.

WELL LOG AND COMPLETION REPORT

SMITH STREET

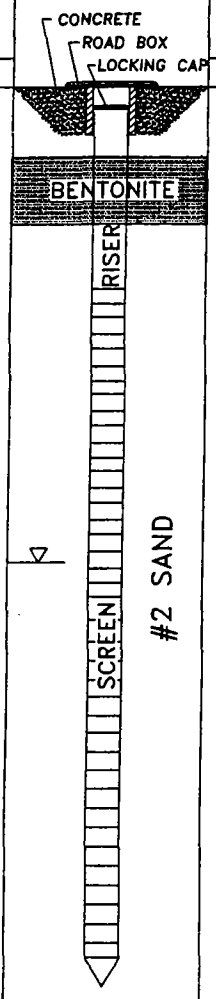


DRILLED BY:	GEOSEARCH	PROJECT NUMBER:	RCF8338F
DRILLING METHOD:	HOLLOW STEM AUGER	WELL NUMBER:	MW-3A
SAMPLING METHOD:	SPLIT SPOON	LOCATION:	LOT 516 SMITH STREET, N. PROV.
SCREENING INSTRUMENT:	PID	DATE:	5/17/02
DEPTH TO WATER:	~7'	LOGGED BY:	P.L.

RISER:	TYPE PVC		DIAMETER	2"	LENGTH	3'	WELL SEAL:	BENTONITE	HOLE DIA.: 7.25"
SCREEN:	TYPE PVC	SLOT .010	DIAMETER	2"	LENGTH	10'	SAND PACK:	#2 SAND	TOTAL DEPTH: 13'

SAMPLE NO.	DEPTH	SAMPLE RECOVERY	BLOW COUNT PER 6"	MOISTURE CONTENT	SCREENING RESULTS (ppm)	LITHOLOGY / REMARKS
	0		9			
	1	20"	11	D	ND	0-2': SILT, FINE, PEBBLES ORGANICS
			14			
	2		14			
	3					
	4		18			
	5	12"	21	M	ND	5'-7': SILT; SAND; FINE, PEBBLES, BRICK, CONCRETE, WOOD
			24			
	6		25			
	7					
	8					
	9					
	10					
	11	18"		W	4	10'-12': SAND, MEDIUM TO COARSE, NOT SORTED, SMALL PEBBLES, ORGANICS, BLACK
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					

WELL COMPLETION



GROUNDWATER ANALYTICAL

Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475

May 28, 2002

Mr. Paul Leclerc
Lincoln Environmental, Inc.
333 Washington Highway
Smithfield, RI 02917

Project: **Lot 516 Smith St. N. Prov./RCF 8338F**
Lab ID: **50958**
Sampled: **05-17-02**

Dear Paul:

Enclosed are the Volatile Organics, Semivolatile Organics, PCBs, Metals and Dioxin Analyses performed for the above referenced project. The Dioxin Analyses were subcontracted. This project was processed for Priority One Week turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a project narrative indicating project changes and non-conformances, a brief description of the Quality Assurance/Quality Control procedures employed by our laboratory, and a statement of our state certifications.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/pcl
Enclosures

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID:	MW-1 (0-2)	Laboratory ID:	50958-04
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	Sampled:	05-17-02
Client:	Lincoln Environmental, Inc.	Received:	05-20-02
Container:	250 mL Glass	% Solids	89
Preservation:	Cool		
Matrix:	Soil		

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	**4.3**	mg/Kg	1.2	05-23-02	MM-1612-S	6010B
7440-39-3	Barium, Total	**30**	mg/Kg	23	05-23-02	MM-1612-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.58	05-23-02	MM-1612-S	6010B
7440-47-3	Chromium, Total	BRL	mg/Kg	12	05-23-02	MM-1612-S	6010B
7439-92-1	Lead, Total	**35**	mg/Kg	12	05-23-02	MM-1612-S	6010B
7439-97-6	Mercury, Total	**0.040**	mg/Kg	0.037	05-22-02	MP-1228-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	12	05-23-02	MM-1612-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.8	05-23-02	MM-1612-S	6010B

Method Reference: *Test Methods for Evaluating Solid Waste*, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID:	MW-2 (0-2)	Laboratory ID:	50958-05
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	Sampled:	05-17-02
Client:	Lincoln Environmental, Inc.	Received:	05-20-02
Container:	250 mL Glass	% Solids	85
Preservation:	Cool		
Matrix:	Soil		

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	**3.4**	mg/Kg	1.2	05-23-02	MM-1612-S	6010B
7440-39-3	Barium, Total	**71**	mg/Kg	24	05-28-02	MM-1612-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.59	05-23-02	MM-1612-S	6010B
7440-47-3	Chromium, Total	BRL	mg/Kg	12	05-28-02	MM-1612-S	6010B
7439-92-1	Lead, Total	**100**	mg/Kg	12	05-28-02	MM-1612-S	6010B
7439-97-6	Mercury, Total	**0.074**	mg/Kg	0.039	05-22-02	MP-1228-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	12	05-23-02	MM-1612-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.9	05-23-02	MM-1612-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID:	MW-3 (0-2)	Laboratory ID:	50958-06
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	Sampled:	05-17-02
Client:	Lincoln Environmental, Inc.	Received:	05-20-02
Container:	250 mL Glass	% Solids	87
Preservation:	Cool		
Matrix:	Soil		

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	4.1	mg/Kg	1.2	05-23-02	MM-1612-S	6010B
7440-39-3	Barium, Total	50	mg/Kg	23	05-23-02	MM-1612-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.58	05-23-02	MM-1612-S	6010B
7440-47-3	Chromium, Total	BRL	mg/Kg	12	05-23-02	MM-1612-S	6010B
7439-92-1	Lead, Total	160	mg/Kg	12	05-23-02	MM-1612-S	6010B
7439-97-6	Mercury, Total	0.18	mg/Kg	0.038	05-22-02	MP-1228-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	12	05-23-02	MM-1612-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.8	05-23-02	MM-1612-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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GROUNDWATER ANALYTICAL

EPA Method 8270C
Polynuclear Aromatic Hydrocarbons by GC/MS

Field ID:	MW-1 (0-2)	Laboratory ID:	50958-04
Project:	Lot 516 Smith St. N. Prov. /RCF 8338F	QC Batch ID:	SV-1140-M
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	250 mL Glass	Received:	05-20-02
Preservation:	Cool	Extracted:	05-22-02
Matrix:	Soil	Analyzed:	05-23-02
% Moisture:	11	Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	ug/Kg	360
91-57-6	2-Methylnaphthalene	BRL	ug/Kg	360
208-96-8	Acenaphthylene	BRL	ug/Kg	360
83-32-9	Acenaphthene	BRL	ug/Kg	360
86-73-7	Fluorene	BRL	ug/Kg	360
85-01-8	Phenanthrene	BRL	ug/Kg	360
120-12-7	Anthracene	BRL	ug/Kg	360
206-44-0	Fluoranthene	520	ug/Kg	360
129-00-0	Pyrene	380	ug/Kg	360
56-55-3	Benzo[a]anthracene	BRL	ug/Kg	360
218-01-9	Chrysene	BRL	ug/Kg	360
205-99-2	Benzo[b]fluoranthene	BRL	ug/Kg	360
207-08-9	Benzo[k]fluoranthene	BRL	ug/Kg	360
50-32-8	Benzo[a]pyrene	BRL	ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL	ug/Kg	360

QC Surrogate Compounds	Recovery	QC Limits
Nitrobenzene-d_5	65 %	23 - 120 %
2-Fluorobiphenyl	73 %	30 - 115 %
Terphenyl-d_{14}	73 %	18 - 137 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as selected from the Polynuclear Aromatic Hydrocarbon analytes specified by the Target Compound List (TCL) of the US EPA Contract Laboratory Program. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Polynuclear Aromatic Hydrocarbons by GC/MS

Field ID:	MW-2 (0-2)	Laboratory ID:	50958-05
Project:	Lot 516 Smith St. N. Prov. /RCF 8338F	QC Batch ID:	SV-1140-M
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	250 mL Glass	Received:	05-20-02
Preservation:	Cool	Extracted:	05-22-02
Matrix:	Soil	Analyzed:	05-23-02
% Moisture:	15	Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	ug/Kg	390
91-57-6	2-Methylnaphthalene	BRL	ug/Kg	390
208-96-8	Acenaphthylene	700	ug/Kg	390
83-32-9	Acenaphthene	BRL	ug/Kg	390
86-73-7	Fluorene	490	ug/Kg	390
85-01-8	Phenanthrene	8,800	ug/Kg	390
120-12-7	Anthracene	1,300	ug/Kg	390
206-44-0	Fluoranthene	12,000	ug/Kg	390
129-00-0	Pyrene	7,500	ug/Kg	390
56-55-3	Benzo[a]anthracene	4,100	ug/Kg	390
218-01-9	Chrysene	5,000	ug/Kg	390
205-99-2	Benzo[b]fluoranthene	7,900	ug/Kg	390
207-08-9	Benzo[k]fluoranthene	3,100	ug/Kg	390
50-32-8	Benzo[a]pyrene	5,100	ug/Kg	390
193-39-5	Indeno[1,2,3-c,d]pyrene	1,300	ug/Kg	390
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/Kg	390
191-24-2	Benzo[g,h,i]perylene	910	ug/Kg	390

QC Surrogate Compounds	Recovery	QC Limits
Nitrobenzene-d_5	62 %	23 - 120 %
2-Fluorobiphenyl	70 %	30 - 115 %
Terphenyl-d_{14}	61 %	18 - 137 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as selected from the Polynuclear Aromatic Hydrocarbon analytes specified by the Target Compound List (TCL) of the US EPA Contract Laboratory Program. Results are reported on a dry weight basis.

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GROUNDWATER ANALYTICAL

EPA Method 8270C
Polynuclear Aromatic Hydrocarbons by GC/MS

Field ID:	MW-3 (0-2)	Laboratory ID:	50958-06
Project:	Lot 516 Smith St. N. Prov. /RCF 8338F	QC Batch ID:	SV-1140-M
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	250 mL Glass	Received:	05-20-02
Preservation:	Cool	Extracted:	05-22-02
Matrix:	Soil	Analyzed:	05-23-02
% Moisture:	13	Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	ug/Kg	360
91-57-6	2-Methylnaphthalene	BRL	ug/Kg	360
208-96-8	Acenaphthylene	BRL	ug/Kg	360
83-32-9	Acenaphthene	360	ug/Kg	360
86-73-7	Fluorene	400	ug/Kg	360
85-01-8	Phenanthrene	4,200	ug/Kg	360
120-12-7	Anthracene	900	ug/Kg	360
206-44-0	Fluoranthene	5,400	ug/Kg	360
129-00-0	Pyrene	3,400	ug/Kg	360
56-55-3	Benzo[a]anthracene	2,100	ug/Kg	360
218-01-9	Chrysene	2,000	ug/Kg	360
205-99-2	Benzo[b]fluoranthene	3,500	ug/Kg	360
207-08-9	Benzo[k]fluoranthene	1,400	ug/Kg	360
50-32-8	Benzo[a]pyrene	2,300	ug/Kg	360
193-39-5	Indeno[1,2,3-c,d]pyrene	500	ug/Kg	360
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/Kg	360
191-24-2	Benzo[g,h,i]perylene	BRL	ug/Kg	360

QC Surrogate Compounds	Recovery	QC Limits
Nitrobenzene-d_5	62 %	23 - 120 %
2-Fluorobiphenyl	70 %	30 - 115 %
Terphenyl-d_{14}	56 %	18 - 137 %

Method Reference: Test Methods for Evaluating Solid Waste. US EPA, SW-846, Third Edition, Update III (1996). Analyte list as selected from the Polynuclear Aromatic Hydrocarbon analytes specified by the Target Compound List (TCL) of the US EPA Contract Laboratory Program. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8082
Polychlorinated Biphenyls (PCBs) by GC/ECD

Field ID:	MW-1 (0-2)	Laboratory ID:	50958-04
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	PB-1563-M
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	250 mL Glass	Received:	05-20-02
Preservation:	Cool	Extracted:	05-28-02
Matrix:	Soil	Analyzed:	05-28-02
% Moisture:	11	Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL	ug/Kg	87
11104-28-2	Aroclor 1221	BRL	ug/Kg	87
11141-16-5	Aroclor 1232	BRL	ug/Kg	87
53469-21-9	Aroclor 1242	BRL	ug/Kg	87
12672-29-6	Aroclor 1248	BRL	ug/Kg	87
11097-69-1	Aroclor 1254	BRL	ug/Kg	87
11096-82-5	Aroclor 1260	BRL	ug/Kg	87

QC Surrogate Compound	Recovery	QC Limits
Tetrachloro-*m*-xylene	67 %	25 - 121 %
Decachlorobiphenyl	85 %	28 - 138 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as Aroclor analytes formerly specified by EPA Method 8080A. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8082
Polychlorinated Biphenyls (PCBs) by GC/ECD

Field ID:	MW-2 (0-2)	Laboratory ID:	50958-05
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	PB-1563-M
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	250 mL Glass	Received:	05-20-02
Preservation:	Cool	Extracted:	05-28-02
Matrix:	Soil	Analyzed:	05-28-02
% Moisture:	15	Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL	ug/Kg	92
11104-28-2	Aroclor 1221	BRL	ug/Kg	92
11141-16-5	Aroclor 1232	BRL	ug/Kg	92
53469-21-9	Aroclor 1242	BRL	ug/Kg	92
12672-29-6	Aroclor 1248	BRL	ug/Kg	92
11097-69-1	Aroclor 1254	BRL	ug/Kg	92
11096-82-5	Aroclor 1260	BRL	ug/Kg	92

QC Surrogate Compound	Recovery	QC Limits
Tetrachloro-*m*-xylene	66 %	25 - 121 %
Decachlorobiphenyl	84 %	28 - 138 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as Aroclor analytes formerly specified by EPA Method 8080A. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. *Reporting limits are adjusted for sample dilution, percent moisture and sample size.*

GROUNDWATER ANALYTICAL

EPA Method 8082
Polychlorinated Biphenyls (PCBs) by GC/ECD

Field ID:	MW-3 (0-2)	Laboratory ID:	50958-06
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	PB-1563-M
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	250 mL Glass	Received:	05-20-02
Preservation:	Cool	Extracted:	05-28-02
Matrix:	Soil	Analyzed:	05-28-02
% Moisture:	13	Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL	ug/Kg	89
11104-28-2	Aroclor 1221	BRL	ug/Kg	89
11141-16-5	Aroclor 1232	BRL	ug/Kg	89
53469-21-9	Aroclor 1242	BRL	ug/Kg	89
12672-29-6	Aroclor 1248	BRL	ug/Kg	89
11097-69-1	Aroclor 1254	BRL	ug/Kg	89
11096-82-5	Aroclor 1260	BRL	ug/Kg	89

QC Surrogate Compound	Recovery	QC Limits
Tetrachloro-*m*-xylene	64 %	25 - 121 %
Decachlorobiphenyl	74 %	28 - 138 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as Aroclor analytes formerly specified by EPA Method 8080A. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-1 (10-12)	Laboratory ID:	50958-01
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	VM1-1095-E
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	60 mL Glass	Received:	05-20-02
Preservation:	Methanol / Cool	Analyzed:	05-24-02
Matrix:	Soil	Dilution Factor:	1
% Moisture:	11	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	500
74-87-3	Chloromethane	BRL	ug/Kg	500
75-01-4	Vinyl Chloride	BRL	ug/Kg	500
74-83-9	Bromomethane	BRL	ug/Kg	500
75-00-3	Chloroethane	BRL	ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	500
60-29-7	Diethyl Ether	BRL	ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL	ug/Kg	2,500
67-64-1	Acetone	BRL	ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL	ug/Kg	2,500
75-09-2	Methylene Chloride	BRL	ug/Kg	1,000
156-60-5	*trans*- 1,2-Dichloroethene	BRL	ug/Kg	250
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL	ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	250
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	250
156-59-2	*cis*- 1,2-Dichloroethene	BRL	ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	2,500
74-97-5	Bromochloromethane	BRL	ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	2,500
67-66-3	Chloroform	BRL	ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	250
71-43-2	Benzene	BRL	ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	250
79-01-6	Trichloroethene	BRL	ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	250
74-95-3	Dibromomethane	BRL	ug/Kg	250
75-27-4	Bromodichloromethane	BRL	ug/Kg	250
10061-01-5	*cis*- 1,3-Dichloropropene	BRL	ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	2,500
108-88-3	Toluene	BRL	ug/Kg	250
10061-02-6	*trans*- 1,3-Dichloropropene	BRL	ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	250
127-18-4	Tetrachloroethene	BRL	ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	250
591-78-6	2-Hexanone	BRL	ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL	ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	250
108-90-7	Chlorobenzene	BRL	ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	250
100-41-4	Ethylbenzene	BRL	ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	MW-1 (10-12)	Laboratory ID:	50958-01
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	VM1-1095-E
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	60 mL Glass	Received:	05-20-02
Preservation:	Methanol / Cool	Analyzed:	05-24-02
Matrix:	Soil	Dilution Factor:	1
% Moisture:	11	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL	ug/Kg	250
95-47-6	*ortho*- Xylene	BRL	ug/Kg	250
100-42-5	Styrene	BRL	ug/Kg	250
75-25-2	Bromoform	BRL	ug/Kg	250
98-82-8	Isopropylbenzene	BRL	ug/Kg	250
108-86-1	Bromobenzene	BRL	ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	250
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	250
95-49-8	2-Chlorotoluene	BRL	ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	250
106-43-4	4-Chlorotoluene	BRL	ug/Kg	250
98-06-6	*tert*- Butylbenzene	BRL	ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	250
91-20-3	Naphthalene	BRL	ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	250

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	100 %	80 - 120 %
1,2-Dichloroethane-d_4	107 %	80 - 120 %
Toluene-d_8	101 %	81 - 117 %
4-Bromofluorobenzene	92 %	74 - 121 %

Method Reference: *Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).* Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis. Analysis performed utilizing methanol extraction technique.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-2 (10-12)	Laboratory ID:	50958-02
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	VM1-1095-E
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	60 mL Glass	Received:	05-20-02
Preservation:	Methanol / Cool	Analyzed:	05-24-02
Matrix:	Soil	Dilution Factor:	1
% Moisture:	12	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	500
74-87-3	Chloromethane	BRL	ug/Kg	500
75-01-4	Vinyl Chloride	BRL	ug/Kg	500
74-83-9	Bromomethane	BRL	ug/Kg	500
75-00-3	Chloroethane	BRL	ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	500
60-29-7	Diethyl Ether	BRL	ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL	ug/Kg	2,500
67-64-1	Acetone	BRL	ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL	ug/Kg	2,500
75-09-2	Methylene Chloride	BRL	ug/Kg	1,000
156-60-5	*trans*- 1,2-Dichloroethene	BRL	ug/Kg	250
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	250
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	250
156-59-2	*cis*- 1,2-Dichloroethene	BRL	ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	2,500
74-97-5	Bromochloromethane	BRL	ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	2,500
67-66-3	Chloroform	BRL	ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	250
71-43-2	Benzene	BRL	ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	250
79-01-6	Trichloroethene	BRL	ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	250
74-95-3	Dibromomethane	BRL	ug/Kg	250
75-27-4	Bromodichloromethane	BRL	ug/Kg	250
10061-01-5	*cis*- 1,3-Dichloropropene	BRL	ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	2,500
108-88-3	Toluene	BRL	ug/Kg	250
10061-02-6	*trans*- 1,3-Dichloropropene	BRL	ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	250
127-18-4	Tetrachloroethene	BRL	ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	250
591-78-6	2-Hexanone	BRL	ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL	ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	250
108-90-7	Chlorobenzene	BRL	ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	250
100-41-4	Ethylbenzene	BRL	ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	MW-2 (10-12)	Laboratory ID:	50958-02
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	VM1-1095-E
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	60 mL Glass	Received:	05-20-02
Preservation:	Methanol / Cool	Analyzed:	05-24-02
Matrix:	Soil	Dilution Factor:	1
% Moisture:	12	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL	ug/Kg	250
95-47-6	*ortho*- Xylene	BRL	ug/Kg	250
100-42-5	Styrene	BRL	ug/Kg	250
75-25-2	Bromoform	BRL	ug/Kg	250
98-82-8	Isopropylbenzene	BRL	ug/Kg	250
108-86-1	Bromobenzene	BRL	ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	250
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	250
95-49-8	2-Chlorotoluene	BRL	ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	250
106-43-4	4-Chlorotoluene	BRL	ug/Kg	250
98-06-6	*tert*- Butylbenzene	BRL	ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	250
91-20-3	Naphthalene	BRL	ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	250

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	100 %	80 - 120 %
1,2-Dichloroethane-d_4	105 %	80 - 120 %
Toluene-d_8	101 %	81 - 117 %
4-Bromofluorobenzene	95 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis. Analysis performed utilizing methanol extraction technique.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-3 (7)	Laboratory ID:	50958-03
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	VM1-1095-E
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	60 mL Glass	Received:	05-20-02
Preservation:	Methanol / Cool	Analyzed:	05-24-02
Matrix:	Soil	Dilution Factor:	1
% Moisture:	12	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	500
74-87-3	Chloromethane	BRL	ug/Kg	500
75-01-4	Vinyl Chloride	BRL	ug/Kg	500
74-83-9	Bromomethane	BRL	ug/Kg	500
75-00-3	Chloroethane	BRL	ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	500
60-29-7	Diethyl Ether	BRL	ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL	ug/Kg	2,500
67-64-1	Acetone	BRL	ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL	ug/Kg	2,500
75-09-2	Methylene Chloride	BRL	ug/Kg	1,000
156-60-5	*trans*- 1,2-Dichloroethene	BRL	ug/Kg	250
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL	ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	250
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	250
156-59-2	*cis*- 1,2-Dichloroethene	BRL	ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	2,500
74-97-5	Bromochloromethane	BRL	ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	2,500
67-66-3	Chloroform	BRL	ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	250
71-43-2	Benzene	BRL	ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	250
79-01-6	Trichloroethene	BRL	ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	250
74-95-3	Dibromomethane	BRL	ug/Kg	250
75-27-4	Bromodichloromethane	BRL	ug/Kg	250
10061-01-5	*cis*- 1,3-Dichloropropene	BRL	ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	2,500
108-88-3	Toluene	BRL	ug/Kg	250
10061-02-6	*trans*- 1,3-Dichloropropene	BRL	ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	250
127-18-4	Tetrachloroethene	BRL	ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	250
591-78-6	2-Hexanone	BRL	ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL	ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	250
108-90-7	Chlorobenzene	BRL	ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	250
100-41-4	Ethylbenzene	BRL	ug/Kg	250

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	MW-3 (7)	Laboratory ID:	50958-03
Project:	Lot 516 Smith St. N. Prov./RCF 8338F	QC Batch ID:	VM1-1095-E
Client:	Lincoln Environmental, Inc.	Sampled:	05-17-02
Container:	60 mL Glass	Received:	05-20-02
Preservation:	Methanol / Cool	Analyzed:	05-24-02
Matrix:	Soil	Dilution Factor:	1
% Moisture:	12	Page:	2 of 2

CAS Number	Analyte	Concentrations	Units	Reporting Limit
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	320	ug/Kg	250
95-47-6	*ortho*- Xylene	BRL	ug/Kg	250
100-42-5	Styrene	BRL	ug/Kg	250
75-25-2	Bromoform	BRL	ug/Kg	250
98-82-8	Isopropylbenzene	BRL	ug/Kg	250
108-86-1	Bromobenzene	BRL	ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	250
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	250
95-49-8	2-Chlorotoluene	BRL	ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	250
106-43-4	4-Chlorotoluene	BRL	ug/Kg	250
98-06-6	*tert*- Butylbenzene	BRL	ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	360	ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	250
91-20-3	Naphthalene	300	ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	250

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	96 %	80 - 120 %
1,2-Dichloroethane-d_4	108 %	80 - 120 %
Toluene-d_8	95 %	81 - 117 %
4-Bromofluorobenzene	99 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis. Analysis performed utilizing methanol extraction technique.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**Lot 516 Smith St. N. Prov./RCF 8338F**	Lab ID:	**50958**
Client:	**Lincoln Environmental, Inc.**	Received:	**05-20-02**

A. Physical Condition of Sample(s)

This project was received by the laboratory in satisfactory condition. The sample(s) were received undamaged in appropriate containers with the correct preservation.

B. Project Documentation

This project was accompanied by satisfactory Chain of Custody documentation. The sample container label(s) agreed with the Chain of Custody.

C. Analysis of Sample(s)

No analytical anomalies or non-conformances were noted by the laboratory during the processing of these sample(s). All data contained within this report are released without qualification.

GROUNDWATER ANALYTICAL

228 Main Street, P.O. Box 1200
Buzzards Bay, MA 02532
Telephone (508) 759-4441
FAX (508) 759-4475

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 053087

Project Name: SMITH ST. LOT 516 N. PROV

Firm: LINCOLN ENVIRONMENTAL INC.

Project Number: RCF 5338F

Address: 333 WASHINGTON HWY

Sampler Name: [illegible]

City / State / Zip: SMITHFIELD, RI 02917

Project Manager: PAUL LECLERC

Telephone: 401 232 3353

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- ☐ STANDARD (10 Business Days)
- ☒ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)

(Rush requires Rush Authorization Number)

Please FAX ☒ YES ☐ NO

FAX Number: 232-1120

BILLING

Purchase Order No.:

GWA Reference No.:

ANALYSIS REQUEST

Sampling Date	Sampling Time	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)	Volatiles	Semivolatiles	Pest/Herb/PCBs Extractable	Pest/Herb/PCBs Vol.	Metals	Petroleum Hydrocarbons Ext. TPH	Petroleum Hydrocarbons Vol. TPH	Haz. Waste	General Chemistry	Other
7/8/02		MW-1 (0-2)			1			4		X		X	X					
		MW-2 (0-2)			1			5		X		X	X					
		MW-3 (0-2)			1			6		X		X	X					
		MW-1 (0-2)			2	X		1	X									
		MW-2 (10-12)			2	X		2	X									
		MW-3 (0-2)			2	X		3	X									

REMARKS / SPECIAL INSTRUCTIONS

7PS

DATA QUALITY OBJECTIVES

Regulatory Program

- ☐ Safe Drinking Water Act
  - ☐ MA DEP Form
- ☐ NPDES/Clean Water Act
  - Specify State: _____
- ☐ RCRA/Haz Waste Char.
- ☐ MA MCP (310 CMR 40)
  - Reportable Concentrations
  - ☐ RCGW - 1 ☐ RCS - 1
  - ☐ RCGW - 2 ☐ RCS - 2
- ☐ MA Dredge Disposal
- ☐ NH ☒ RI ☐ CT ☐ ME
  - Specify Category: GB

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. For water samples, each MS, MSD and Sample Duplicate requires an additional sample aliquot.

Project Specific QC Required	Selection of QC Sample
☐ Sample Duplicate	☐ Selected by laboratory
☐ Matrix Spike	☐ Please use sample: _____
☐ Matrix Spike Duplicate	

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof.

Relinquished by Sampler:	Date	Time	Received by:	Receipt Temperature
[signature]	7/8/02	12:00	[signature]	[illegible]
Relinquished by: [signature]	**Date** 7/8/02	**Time** 2:15	**Received by:** [signature]	**Shipping/Airbill Number:**
Relinquished by	**Date**	**Time**	**Received by Laboratory:** [signature]	**Custody Seal/ Cooler Serial Number:**

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ _____

1720

GROUNDWATER ANALYTICAL

228 Main Street, P.O. Box 1200
Buzzards Bay, MA 02532
Telephone (508) 759-4441
FAX (508) 759-4475

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 053088

Project Name: LOT 516 SMITH ST N. PROV RI	Firm: LINCOLN ENVIRONMENTAL INC
Project Number: RCF8338F	Address: 333 WASHINGTON HWY
Sampler Name: Pat	City / State / Zip: SMITHFIELD RI 02917
Project Manager: Pat Lincoln	Telephone: 401-232-3353

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- ☐ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)

(Rush requires Rush Authorization Number)

Please FAX ☐ YES ☐ NO

FAX Number: 401-232-1130

BILLING

Purchase Order No.:

GWA Reference No.:

ANALYSIS REQUEST

OPTIONS: ☐ No Search

SDWA: ☐ 524.2 ☐ 524.2 MTBE

NPDES: ☐ 624/8260/GC ☐ 624/8260/GC MTBE

RCRA/CLP: ☐ 8260B/GC/MS ☐ 8260B/GC/MS MTBE

Volatiles: ☐ 8021 Aromatics ☐ 8021 MTBE ☐ 8021 Halocarbons

Semivolatiles: ☐ 8270/GC/MS ☐ 8270/GC/MS Only

Pest/Herb/PCBs Extractable: ☐ 608 Pesticides ☐ 608/PCB only

Pest/Herb/PCBs Vol.: ☐ 8015 ☐ 8015 ☐ 8015

Metals: ☐ 13 priority Pollutants ☐ RCRA ☐ 23 TAL ☐ Specify

Metals: Specify For Water Samples: ☐ Total ☐ Dissolved ☐ Lead and Copper

Petroleum Hydrocarbons Ext. TPH: ☐ 310.1 (TPH-IR) ☐ Diesel Range Organics (DRO) ☐ MA DEP EPH (aliphatics, aromatics) ☐ Hydrocarbons (Fingerprint) (DEC/EPA by ASTM D3328-98-MA) ☐ TPH by GC/FID (8100 Mod) Gasoline Only ☐ Gasoline Range Organics (GRO) ☐ MA DEP VPH (aliphatics, aromatics)

Petroleum Hydrocarbons Vol. TPH: ☐ TPH (GC/FID) ☐ MA Dept. Of Environmental Protection VPH (GC/FID) ☐ MA Dept. Of Environmental Protection EPH (GC/FID)

Haz. Waste: ☐ TCLP (Metals) ☐ TCLP (Volatiles) ☐ TCLP (Semivolatiles) ☐ Corrosivity (pH) ☐ Reactivity ☐ Ignitability (Flashpoint) ☐ Paint Filter ☐ MA Haz. Waste Criteria: TPH, GC/FID TCLP, SW846, Corrosivity, ignitability, Reactivity

General Chemistry: ☐ Nitrate ☐ Chloride ☐ SO4/PO4 ☐ TDS ☐ Nitrite ☐ Ammonia ☐ TKN ☐ Total Phosphorus ☐ Total Kjeldahl Nitrogen ☐ Alkalinity ☐ Oil & Grease ☐ TOC ☐ TOC ☐ Sulfide ☐ Cyanide ☐ Total Phenols ☐ Flash Point ☐ Chlorine ☐ Total Residual Chlorine ☐ Dissolved Oxygen ☐ Biochemical Oxygen Demand

Other: ☐ Total Dissolved Solids ☐ Total Suspended Solids ☐ TPC

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix: WATER	Matrix: SOIL	Type: COMPOSITE	Type: GRAB	Container(s): NUMBER	Container(s): 40mL VOA Vial	Container(s): 60mL/2 oz Glass	Container(s): 120mL/4 oz VOA Jar	Container(s): 125mL/4 oz Water Glass	Container(s): 250mL/8 oz Glass	Container(s): 500mL/16 oz Glass	Container(s): 1L/32 oz Amber Glass	Container(s): 250mL/8 oz Plastic	Container(s): 500mL/16 oz Plastic	Container(s): 1L/32 oz Plastic	Container(s): 120mL STERILE	Preservation: HCl	Preservation: HNO3	Preservation: H2SO4	Preservation: NaOH	Preservation: Methanol	Preservation: Sodium Bisulfate	Preservation: ICE	Filtered: YES	Filtered: NO	LABORATORY NUMBER (Lab Use Only)
																												SO958
																												7
																												8
																												9

REMARKS / SPECIAL INSTRUCTIONS

3 jars labled: MW-1 (0-2) PIONS
MW 2 (0-2) PIONS
MW-3 (0-2) PIONS
5/17/02
TO BE SENT TO TRIANGLE LABS
FOR ANALYSIS VIA 8290
EXPEDITING DELIVERY 5/22

DATA QUALITY OBJECTIVES

Regulatory Program

- ☐ Safe Drinking Water Act
  - ☐ MA DEP Form
- ☐ NPDES/Clean Water Act
  Specify State: _____
- ☐ RCRA/Haz. Waste Char.
- ☐ MA MCP (310 CMR 40)
  Reportable Concentrations
  - ☐ RCGW - 1 ☐ RCS - 1
  - ☐ RCGW - 2 ☐ RCS - 2
- ☐ MA Dredge Disposal
- ☐ NH ☐ RI ☐ CT ☐ ME
  Specify Category: _____

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. For water samples, each MS, MSD and Sample Duplicate requires an additional sample aliquot.

Project Specific QC Required	Selection of QC Sample
☐ Sample Duplicate	☐ Selected by laboratory
☐ Matrix Spike	☐ Please use sample: _____
☐ Matrix Spike Duplicate	

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof

Relinquished by Sampler:	Date	Time	Received by:	Receipt Temperature:
	5/17/02			6.0
Relinquished by:	Date	Time	Received by	Shipping/Airbill Number:
	5/17/02	5:15		
Relinquished by:	Date	Time	Received by Laboratory:	Custody Seal/ Cooler Serial Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express 1726 ☐ UPS ☐ Hand ☐ _____

CASE NARRATIVE

Analysis of Samples for the Presence of

2,3,7,8-Tetrachlorinated Dibenzo-*p*-Dioxin by

High-Resolution Chromatography / High-Resolution Mass Spectrometry

Method 8290 Rev. 0 (9/94)

Date:	May 28, 2002
Client ID:	Cumberland Farms
P.O. Number:	
TLI Project Number:	57452

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Overview

The samples and associated QC samples were extracted and analyzed according to procedures described in EPA Method 8290 Rev. 0 (9/94). Any particular difficulties encountered during the sample handling by Triangle Laboratories will be discussed in the QC Remarks section below. This report contains results from only the 8290 dioxin analyses of the soil samples.

Quality Control Samples

A laboratory method blank, identified as the TLI Blank, was prepared along with the samples.

Laboratory control spike (LCS) and laboratory control spike duplicate (LCSD) samples are extracted and analyzed along with each batch of samples. A report summarizing the analyte recoveries and relative percent differences for these samples is included in the data package.

A clean-up blank was processed along with the sample to prove that contamination was not introduced during the cleanup procedures. The results of this clean-up blank are included with the data package.

Quality Control Remarks

This release of this particular set of Cumberland Farms analytical data by Triangle Laboratories was authorized by the Quality Control Chemist who has reviewed each sample data package following a series of inspections/reviews. When applicable, general deviations from acceptable QC requirements are identified below and comments are made on the effect of these deviations upon the validity and reliability of the results. Specific QC issues associated with this particular project are:

Sample receipt: Three soil samples were received from Cumberland Farms at 10.0°C in good condition on May 22, 2002 and stored in a refrigerator at 4°C.

Sample Preparation Laboratory: None

Mass Spectrometry: None

Data Review: None

Other Comments: No 2,3,7,8-substituted target analytes were detected in the method blank above the target detection limit (TDL).

The analytical data presented in this report are consistent with the guidelines of EPA Method 8290 Rev. 0 (9/94). Any exceptions have been discussed in the QC Remarks section of this case narrative with emphasis on their effect on the data. Should Cumberland Farms have any questions or comments regarding this data package, please feel free to contact one of our Project Scientists at (919) 544-5729.

For Triangle Laboratories, Inc.,

Released by,

Kenneth Valley

Report Preparation Chemist

The total number of pages in the data package is : 80 .

Method 8290 Sample Calculations:

Analyte Concentration

The concentration or amount of any analyte is calculated using the following expression.

$$C_{(\sigma)} = \frac{A_\sigma * Q_\beta}{A_\beta * RRF_{(\sigma)} * W}$$

Where:

$C_{(\sigma)}$	=	concentration or amount of a given analyte
A_σ	=	integrated current for the characteristic ions of the analyte
A_β	=	integrated current of the characteristic ions of the corresponding internal standard
Q_β	=	amount of internal standard added to the sample before extraction
$RRF_{(\sigma)}$	=	mean analyte relative response factor from the initial calibration
W	=	sample weight or volume

Detection Limits

The detection limit reported for a target analyte that is not detected or presents an analyte response that is less than 2.5 times the background level is calculated by using the following expression. The area of the analyte is replaced by the noise level measured in a region of the chromatogram clear of genuine GC signals. The detection limits represent the maximum possible concentration of a target analyte that could be present without being detected.

$$DL_{(\sigma)} = \frac{2.5 * H * Q_\beta}{H_\beta * RRF_{(\sigma)} * W}$$

Where:

$DL_{(\sigma)}$	=	estimated detection limit for a target analyte
2.5	=	minimum response required for a GC signal
H	=	sum heights of the noise
H_β	=	sum of peak heights of the characteristic ions of the corresponding internal standard
Q_β	=	amount of internal standard added to the sample before extraction
$RRF_{(\sigma)}$	=	mean analyte relative response factor from the initial calibration
W	=	sample weight or volume

Data Flags

In order to assist with data interpretation, data qualifier flags are used on the final reports. Please note that all data qualifier flags are subjective and are applied as consistently as possible. Each flag has been reviewed by two independent Chemists and the impact of the data qualifier flag on the quality of the data discussed above. The most commonly used flags are:

A **'B'** flag is used to indicate that an analyte has been detected in the laboratory method blank as well as in an associated field sample. The 'B' flag is used only when the concentration of analyte found in the sample is less than 20 times that found in the associated blank. This flag denotes possible contribution of background laboratory contamination to the concentration or amount of that analyte detected in the field sample.

An **'E'** flag is used to indicate a concentration based on an analyte to internal standard ratio which exceeds the range of the calibration curve. Values which are outside the calibration curve are estimates only.

An **'I'** flag is used to indicate labeled standards have been interfered with on the GC column by coeluting, interferent peaks. The interference may have caused the standard's area to be overestimated. All quantitations relative to this standard, therefore, may be underestimated.

A **'J'** flag is used to indicate a concentration based on an analyte to internal standard ratio which is below the calibration curve. Values which are outside the calibration curve are estimates only.

A **'PR'** flag is used to indicate that a GC peak is poorly resolved. This resolution problem may be seen as two closely eluting peaks without a reasonable valley between the peak tops, overly broad peaks, or peaks whose shapes vary greatly from a normal distribution. The concentrations or amounts reported for such peaks are most likely overestimated.

A **'Q'** flag is used to indicate the presence of QC ion instabilities caused by quantitative interferences.

An **'RO'** flag is used to indicate that a labeled standard has an ion abundance ratio that is outside of the acceptable QC limits, most likely due to a coeluting interference. This may have caused the percent recovery of the standard to be overestimated. All quantitations versus this standard, therefore, may be underestimated.

An **'S'** flag indicates that the response of a specific PCDD/PCDF isomer has exceeded the normal dynamic range of the mass spectrometer detection system. The corresponding signal is saturated and the reported analyte concentration is a 'minimum estimate'. When the 'S' qualifier is used in the reporting of 'totals', there is saturation of one (not

necessarily from a specific isomer) or more saturated signals for a given class of compounds. Results for saturated analytes are reported as greater than the upper calibration limit.

A **'U'** flag is used to indicate that a specific isomer cannot be resolved from a large, co-eluting interferent GC peak. The specific isomer is reported as not detected as a valid concentration cannot be determined. The calculated detection limit, therefore, should be considered an underestimated value.

A **'V'** flag is used to indicate that, although the percent recovery of a labeled standard may be below a specific QC limit, the signal-to-noise ratio of the peak is greater than ten-to-one. The standard is considered reliably quantifiable. All quantitations derived from the standard are considered valid as well.

An **'X'** flag is used to indicate that a polychlorodibenzofuran (PCDF) peak has eluted at the same time as the associated diphenyl ether (DPE) and that the DPE peak intensity is at least ten percent of the total PCDF peak intensity. Total PCDF values are flagged 'X' if the total DPE contribution to the total PCDF value is greater than ten percent. All PCDF peaks that are significantly influenced by the presence of DPE peaks are either reported as "estimated maximum possible concentration (EMPC) values without regard to the isotopic abundance ratio, or are included in the detection limit value depending on the analytical method.

ACCREDITED IN ACCORDANCE WITH nelac

TRIANGLE LABORATORIES, INC.

LIST OF CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Primary NELAC Certificates: **Florida Department of Health, #E87769; SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 613, 2,3,7,8-TCDD AND Method 1613, PCDD/PCDF & totals; **RCRA/CERCLA**, Methods 8280/8290, PCDD/PCDF & totals; **CAA**, TO-9A, all dioxins/furans AND TO-13A, semi-volatiles. Expires June 30, 2002.

State of Alabama, Department of Environmental Management. Laboratory ID # 40950. 2,3,7,8 TCDD (Dioxin) in drinking water. Expires 31 July 2002.

State of Alaska, Department of Environmental Conservation. Lab ID #NC-06-00. Certificate number NC00140. 2,3,7,8- TCDD (Dioxin) in drinking water. Expires December 21, 2002.

State of Arizona, Department of Health Services. Certificate #AZ0423. Drinking Water for Dioxin, Dioxin in Waste Water and Solid or Hazardous Waste. Expires May 26, 2002.

State of Arkansas, Department of Environmental Quality. Pulp/paper, soil, water, and Hazardous Waste for Dioxin/Furans. Expires 8 January 2003.

NELAC Certificates: **State of California, Department of Health Services, Certificate No. 01167CA. SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 613, 2,3,7,8-TCDD AND Method 1613, PCDD/PCDF & totals; **RCRA/CERCLA**, Methods 8280/8290, PCDD/PCDF & totals; **CAA**, TO-9A, all dioxins/furans AND TO-13A, semi-volatiles. Expires October 31, 2002.

State of Colorado, Department of Public Health and Environment. SDWA, Dioxin by EPA 1613. Expires April 30, 2003.

State of Connecticut, Department of Health Services. Registration # PH-0117. **SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 1613, PCDD/PCDF & totals; **RCRA/CERCLA**, Methods 8280/8290, PCDD/PCDF & totals. Expires September 30, 2003.

Delaware Health and Social Services. Dioxin Certification waived for out-of-state laboratories; accept home-state Certifications.

Primary NELAC Certificates: **Florida Department of Health, #E87769; SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 613, 2,3,7,8-TCDD AND Method 1613, PCDD/PCDF & totals; **RCRA/CERCLA**, Methods 8280/8290, PCDD/PCDF & totals; **CAA**, TO-9A, all dioxins/furans AND TO-13A, semi-volatiles. Expires June 30, 2002.

Revised 5/15/02 nch

Y:\certific\administ\certlist.doc

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Georgia Department of Environmental Quality. Chemical Certification of Drinking Water for Dioxins, method 1613, reciprocity based on North Carolina Certification. **SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 613, 2,3,7,8-TCDD AND Method 1613, PCDD/PCDF & totals; **RCRA/CERCLA**, Methods 8280/8290, PCDD/PCDF & totals; **CAA**, TO-9A, all dioxins/furans AND TO-13A, semi-volatiles; reciprocity based on **FL-DOH NELAC Certificates**. Certificate # 953, expires June 30, 2002.

Hawaii Department of Health. Certified for Dioxin under the Safe Drinking Water Act. "Accepted" status for regulatory purposes. Expires June 30, 2002.

Idaho Department of Health and Welfare. Dioxin in drinking water, EPA Method 1613. Expires December 31, 2002.

NELAC Certificates: **Illinois Environmental Protection Agency.** Accreditation Number #200007, Certificate #000468; **Drinking Water**, Method 1613, 2,3,7,8-TCDD; **Wastewater, Organic**, Methods 1613 and 613; **Hazardous and Solid Waste, Organic**, Methods 8280A and 8290. Expires 30 September 2002.

Indiana Department of Health. Dioxin in drinking water, EPA method 1613. Lab ID # C-NC-01. Expires July 31, 2002.

NELAC Certificates: **State of Kansas, Department of Health and Environment.** Cert. # E-10215. **SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 1613, PCDD/PCDF; **RCRA/CERCLA**, Methods 8280/8290, PCDD/PCDF & totals. Expires 31 January 2003.

Commonwealth of Kentucky, Department for Environmental Protection. Lab ID #90060. 2,3,7,8 TCDD (Dioxin) in drinking water. Expires December 31, 2002.

NELAC Certificates: **State of Louisiana Department of Environmental Quality.** Certificate # 01979. **CAA**, TO-9A and TO-13A; **CWA**, Method 613 2,3,7,8-TCDD and Method 1613 PCDDs/PCDFs; **Solid and Hazardous Waste** Methods 8280A & 8290 PCDDs/PCDFs; **Misc**. Methods 1613, 8280A & 8290. Expires 30 June 2002.

NELAC Certificates: **State of Louisiana Department of Health & Hospitals.** Dioxin (2,3,7,8-TCDD) in Drinking Water. Certificate # LA020003. Expires December 31, 2002.

Maryland Department of Health and Mental Hygiene. Certification # 235, SOC 2 (Dioxin). Expires September 30, 2002.

Commonwealth of Massachusetts, Department of Environmental Protection, does not require Certification for Drinking Water Dioxin/Furan analysis.

State of Michigan, Department of Environmental Quality. 2,3,7,8 TCDD by Method 1613. Expires April 1, 2001. **Renewal pending.*

Minnesota Department of Health. The certification program in MN does not include dioxins/furans for CWA, SDWA of RCRA/CERCLA. See **U.S. EPA Region V.**

Mississippi State Department of Health. Dioxin in drinking water. No expiration date.

Montana Department of Health and Environmental Services. CERT0019. Dioxin in drinking water. Expires December 31, 2002.

State of Nebraska Department of Health. Reciprocal certification through the North Carolina Department of Health and Human services and Florida DOH NELAC Certification. **SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 613, 2,3,7,8-TCDD AND Method 1613, PCDD/PCDF & totals; **RCRA/CERCLA**, Methods 8280/8290, PCDD/PCDF & totals; **CAA**, TO-9A, all dioxins/furans AND TO-13A, semi-volatiles. Expires July 31, 2002.

State of Nevada, Department of Conservation and Natural Resources. Lab Certificate No. NC-00140-2002-73, expires July 31, 2002. **CWA**, Method 1613, PCDD/PCDF & totals, expires July 31, 2002.

State of Nevada, Department of Human Resources. Lab Certificate No. NC-00140-2002-73, expires July 31, 2002. **SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water, expires July 31, 2002.

NELAC Certificates: **State of New Jersey, Department of Environmental Protection.** ID #NC851. **SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 1613, PCDD/PCDF & totals; **RCRA/CERCLA**, Method 8290, PCDD/PCDF & totals; **CAA**, Methods 0023A and MM5 (Sampling Train). Expires June 30, 2002.

State of New Mexico, Environment Department. Safe Drinking Water Act; 2,3,7,8-TCDD by Method 1613. Expires 30 June 2002.

NELAC Certificates: **New York State Department of Health, LAB ID #11026.** Potable Water, 2,3,7,8-TCDD, EPA 1613, Serial # 14199; Non-Potable Water, 2,3,7,8-TCDD, EPA 613, Serial # 14200. Valid through 15 June 2002.

State of North Carolina, Department of Health and Human Services. Certificate # 37751. Dioxin in drinking water. Expires July 31, 2002.

North Dakota State Department of Health and Consolidated Laboratories. Certificate # R-076. Dioxin in drinking water. Expires June 30, 2002.

Ohio EPA. Ohio does not offer out-of-state lab certifications; certification by EPA Region 5 is honored.

Oklahoma Department of Environmental Quality. Laboratory #9612. 2,3,7,8 TCDD (Dioxin). Expires August 31, 2002.

NELAC Certificates: **Oregon Environmental Laboratory Accreditation Program.** Certificate No:-911918452. **SDWA**, Method 1613, 2,3,7,8-TCDD for Dioxin in Drinking Water; **CWA**, Method 613, 2,3,7,8-TCDD AND Method 1613, PCDD/PCDF & totals; **RCRA/CERCLA**, Methods 8280/8290, PCDD/PCDF & totals; **CAA**, TO-9A, all dioxins/furans AND TO-13A, semi-volatiles. Expires January 31, 2003.

DOCUMENT CONTROL

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Chain of Custody Record

Project Name/Number: Lot 516 Smith St. N. Providence RI

Firm: Lincoln

Lab Subcontrated To: Triangle Labs

Date	Time	Sample Identification	Number of Containers	Container Volume (mL)	Glass or Plastic (G\P)	Matrix (Water/Soil/Other)	Grab/Composite	Preservative (Type)	Filtered (Yes/No)	8290							Remarks	Lab ID #
5/17/02		MW-1 (0-2) Dioxins	1	250	G	S		cool		X								
↓		MW-2 (0-2) Dioxins	↓	↓	↓	↓		↓		X								
↓		MW-3 (0-2) Dioxins	↓	↓	↓	↓		↓		X								

Reporting and Billing Information

Groundwater Analytical
228 Main St., Buzzards Bay, MA 02532
Telephone: 508-759-4441 Fax: 508-759-4475
Contact Person: Eric Jensen

Purchase Order # _____

Please Fax Report Yes ☒ No ☐

Turnaround and Special Instructions

Results Due: priority turn

Special Instructions: For further info call Paul Leclerc @ 401-232-3353

☐ MA DEP Form Required

Custody Record

	Signature	Time	Date
Relinquished By:	[illegible]	15:45	5/21/02
Received By:	Donnie Joyce	9:30	5/22/02

Method of Shipment:
USPO Express Mail ☐ Federal Express ☒
Hand ☐ GWA Couner ☐ Other ☐
Shipping Label/Airbill:

TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Absent
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Absent
Container...: Intact

TLI Project Number 57452
Client: CUFO1 - Cumberland Farms
Project: Lot 516, Smith St.

Date Received 05/22/02

Carrier and Number FEDEX

Book 328

Page 38

Ice Chest ICE PACKS Temp 10.0 C

TLI Number.. mR/H:CPM.	Client Sample ID..... Client COC ID.....*	Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
326-36-1	MW-1(0-2) DIOXINS MW-1(0-2) DIOXINS	SOIL CO2	CGR 5/24/02	CGR 5/24/02	[illegible] 5/24/02	[illegible] 5/24/02					
326-36-2	MW-2(0-2) DIOXINS MW-2(0-2) DIOXINS	SOIL CO2									
326-36-3	MW-3(0-2) DIOXINS MW-3(0-2) DIOXINS	SOIL CO2	CGR 5/24/02	CGR 5/24/02							

Receiving Remarks: ICE PACKS ARRIVED THAWED. 05/22/02 DT

Archive Remarks:

Form Revised 05/27/1997 -- Page 1 OF 1

14

TRIANGLE LABORATORIES, INC.
SAMPLE TRACKING AND PROJECT MANAGEMENT FORM

----------ADMINISTRATIVE INFORMATION----------

TLI Proj#: 57452-	Samples: 3	TurnAround.: 7 Day(s)
Prod Code: D25011	Matrix.: Soil	Hold Time..: 30 Day(s)
DetectLim: 1 ppt	Type...: B	Start Date.: 05/22/02
	Recvd..: 05/22/02	Ship By....: 05/28/02
		DWL Due Dt.: 05/27/02

Analyte List.: 2378-TCDD

Method.....: Method 8290: 2,3,7,8-TCDD
Client Proj..: Lot 516, Smith St.
Client.....: Cumberland Farms (CUF01)
P.O. No.....:
Contact.....: Eric Jensen
Proj. Mgr....:

Collect Dt/Tm: 05/17/02
Phone.....: 508-759-4441
Fax.....: 508-759-4475
Sample Origin:

----------SPECIAL INSTRUCTIONS / QA REQUIREMENTS----------

Prespike Standard: n/a
Extraction Exp...: 06/16/02

----------REPORTING REQUIREMENTS----------

Reporting Format: Report Option II

See MILES for Instructions/Communications.

OK

Completed by: AC / [signature] DATE: 05-23-02

Reviewed by: BH / [signature] DATE: 052302 (PMGT0197

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Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 15:59 05/23/2002

Triangle Laboratories, Inc.

57452.XLS

Percent Moisture Data

Project # **57452**

	Target wt. (g)		Target wt. (g)		Target wt. (g)
Date/Time: 5/24/02 9:30 TLI ID: 326 36 1 Initial: 3.8734g Final: 3.4938g Moisture: 9.80%	10.01	Date/Time: TLI ID:		Date/Time: TLI ID:	
Date/Time: 5/24/02 9:43 TLI ID: 326 36 2 Initial: 5.7942g Final: 4.9679g Moisture: 14.26%	11.66	Date/Time: TLI ID:		Date/Time: TLI ID:	
Date/Time: 5/24/02 9:49 TLI ID: 326 36 3 Initial: 6.1951g Final: 5.4898g Moisture: 11.38%	11.28	Date/Time: TLI ID:		Date/Time: TLI ID:	
Date/Time: TLI ID:		Date/Time: TLI ID:		Date/Time: TLI ID:	
Date/Time: TLI ID:		Date/Time: TLI ID:		Date/Time: TLI ID:	
Date/Time: TLI ID:		Date/Time: TLI ID:		Date/Time: TLI ID:	
Date/Time: TLI ID:		Date/Time: TLI ID:		Date/Time: TLI ID:	
Date/Time: TLI ID:		Date/Time: TLI ID:		Date/Time: TLI ID:	

nalyst/Date: CGR 5/24/02

Extraction

Type: Soxhlet / Jar / Sep Funnel / Steam Dist / Cont LL / ASE / Waste Dilution / Solid Phase

S.O.P: 105 Version: 16

Time On: 1400
Time Off: 600

Solvents/Acids	Lot Numbers
Toluene	015708

Comments / Observations: Used Prepared sand Lot # 53-8-15E for Blank, LCS, LCSD (002) 57440 - soil, brown, no odor 57451 - 002 - soil, tan, no odor 57452 - soil, brown, no odor MMH 5/24/02

Concentration

Type: Rotovap / KD / Speedvac RM

S.O.P: 124 Version: 16 5/25/02

Tridecane Lot # FT-1-23-303 F

Solvent Exchange	Lot Number
Heptane	021381
Iso - Octane	N/A

Division: 20%/80% 50%/50% 5ml/20ml Other_____

Comments / Observations: _____

Cleanup

10 5/25/02 RM 5/25/02

S.O.P: 280D Version: L1
S.O.P: 260 Version: 14 JJ 5/26/02
S.O.P: _____ Version: _____

MeCl2/Hept	ID
1.5%	CUSPL-17-187-1
20%	CUSPL-17-187-2
6%	
Hept	021381

Comments / Observations: for 280, used 50g silica gel for clean-up blank and 100g for sample, -004 Silica gel 56A-7921 RM 5/25/02 57452

Transfers

S.O.P: DSP272 Version: 9 MK 5/26/02

Division: 90:10 ESP 010.1 MK 5/26

Solvents	Lot Numbers
Heptane	021381
~~NA~~	~~NA~~

Comments: Project 57440 + 57440, spl: 002 was spiked 90:10, Bore frach → to MS
TE MK 5/26/02 MK 5/26/02

*** Indicate the portion of any division that is processed or relinquished to mass spec.

Method: 8290
Matrix: Soil
Ext. Date: 5/24/02
Analyst: MAH

Project-Sample ID / TLI ID			Gross Weight Before	Gross Weight After	Sample Size g / mL					
						MAH	MAH	RU		Chemist
						8156 H	8162 F	8152L		Spike #
						WSF-A15	WSF-MK	USF-C		Spike ID
						4/29/03	4/29/03	4/11/03	/ /	" Exp.
						5/24/02	5/24/02	5/25/02	/ /	" Date
						13:00	13:00	10:52	:	" Time
						0.10 ug/mL	0.01 ug/mL	0.01 ug/mL	ug/mL	Concen.
						20 uL	40 uL	20 uL	uL	Volume
57440	0	TLI Blank			10.0	MAH		RU		Any Left Yes / No
57440	2	326-24-1	302.5	290.4	12.0					Yes / No
57440	3	TLI LCS			10.0		MAH			Yes / No
57440	4	TLI LCSD			10.0		MAH			Yes / No
57451	2	326-35-1	965.9	954.9	11.0					Yes / No
57452	2	326-36-1	480.7g	468.8g	11.0					Yes / No
57452	3	326-36-2	473.8g	461.7g	12.0					Yes / No
57452	4	326-36-3	460.8g	448.6g	12.0	MAH		RU		Yes / No
57452-005 [redacted] TLI Clean-Up			NA	NA	NA	RU	NA	RU		Yes / No
						RU 8133I USF-A15 5/12/03 5/25/02 0.10 ug/ml 16:30 20 ul		RU 8152L USF-C 4/11/03 5/25/02 16:37 0.01 ug/ml 20 ul		Yes / No
										Yes / No
										Yes / No
										Yes / No
										Yes / No

Sample Prep Extraction and Cleanup Tracking Form

57440.XLS

Project-Sample ID / TLI ID			1	2	3	4	7	8	8A	3/4	8B	9	9	
57440	0	TLI Blank	5/24/02	5/25/02	5/25/02	5/25/02	5/25/02		N/A	N/A	5/26/02	MK NA 5/26/02	M 5/26/02	
57440	2	326-24-1										MK 5/26/02		
57440	3	TLI LCS							N/A	N/A		NA MK 5/26/02		
57440	4	TLI LCSD						5/25/02	N/A	N/A				
57451	2	326-35-1							N/A	N/A				
57452	2	326-36-1												
57452	3	326-36-2												
57452	4	326-36-3	5/24/02	5/25/02	5/25/02	5/25/02	5/25/02		5/25/02 N/A	5/25/02 N/A 5/25/02				
57452-005 [redacted] TLI Clean-Up			MA	5/25/02	N/A	MA	MA		5/25/02	5/25/02	5/26/02	NA MK 5/26/02	MK 5/26/02	

1) Extraction (2) Spike after extraction (3) Add Tridecane (4) Concentrate (40mL / 10 mL / Tridecane) 5) Combine

(6) Divide / Lipid Determ. (7) Solvent Exchange 8) Cleanup (DSP260 / DSP280 / _____) 9) Transfer ( ) Other:

B A

10:10 MK TLI 5/26/02

5/24/02

19

Date: 05/24/02
Time: 15:06

TRIANGLE LABORATORIES, INC.
Wet Lab Extraction and Observations
Project: 57452

PRDPERC v4.03
Page: 1

Sample #	crd	TLI_Number..	Customer.Sample.Id.....	Init. pH...	NaOH Adj. mL..	pH.1.	H2SO4 Adj. mL...	pH.2.	Appearance.	Color.....	Odor...	Vol.	Entered.By.....	Date....	Time....	S
002		326-36-1	MW-1(0-2) DIOXINS	n/a	n/a	n/a	n/a	n/a	soil	brown	none	0	holland	05/24/02	15:06:40	F
003		326-36-2	MW-2(0-2) DIOXINS	n/a	n/a	n/a	n/a	n/a	soil	brown	none	0	holland	05/24/02	15:06:40	F
004		326-36-3	MW-3(0-2) DIOXINS	n/a	n/a	n/a	n/a	n/a	soil	brown	none	0	holland	05/24/02	15:06:40	F

*** End of Report ***

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 57452

Transfer From: DWLH5 To: DMS5

	Initials..	Date.....	Time...
Released by:	MK	5/26/02	10:30 pm
Accepted by:	COK	5/27/02	10:45

MILES.ID.....		TLI_No.....	Cust.Id.....
57452-	-002	326-36-1	MW-1(0-2) DIOXINS
57452-	-003	326-36-2	MW-2(0-2) DIOXINS
57452-	-004	326-36-3	MW-3(0-2) DIOXINS
57452-	-005	TLI Clean-Up	CleanUp Blk

XfrCOC (Rev 11/01/94)

Additional comments or instructions:

TRIANGLE LABORATORIES, INC.

Method: Method 8290: 2,3,7,8-TCDD

HR GC/HRMS ANALYSIS

Required Detection Limit: 1 ppt

PROJECT: 57452

SAMPLE INFORMATION

RS Conc 20 µl @ 100.0 PG/µl

S#.crd	TLI SAMPLE ID / CLIENT SAMPLE ID	GC/MS FILENAME COLUMN: DB-5	CONFIRM	CONFIRM FILENAME COLUMN:	USF-RS VOLUME SOLN ID	USF-RS INIT. DATE	ANALYSIS COMMENTS
002	326-36-1 MW-1(0-2) DIOXINS	S022158	NA		20µL 018.15	[illegible]	Batched w Native Project 57440
003	326-36-2 MW-2(0-2) DIOXINS	S022159					
004	326-36-3 MW-3(0-2) DIOXINS	S022140					
005	TLI Clean-Up CleanUp Blk	S022141			20µL	[illegible]	

Comments:

Type: B

Spike File: SPC2NF2S

Amt of Extract: 100%

REV 03/07/95 (PSTMF 6)

Triangle Laboratories, Inc.
Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
70T-101	DB5	1434113	T02	2.0µL	NDB5US	NDB5US

Jennifer L Demeter — Signature
26MAY02 — Date

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
T022464	5/26/02	20:51	57329r1	325-12-3A	4	AR030-B-052-2	AUTO	6.1 ES	JLD 5/26/02	
T022465	5/27/02	1002	—	8136A	—	Rtchk	Auto	12%	cok 5/27/02	
T022466	5/27/02	11:09	—	8146	-	8290/1613 CONCAL 10	AUTO	7.0 ES	JLD 5/27/02	Good Tetras Only. cok 5/27/02
T022467	5/27/02	12:28	—	8146	-	8290/1613 Concal 10	Auto	6.3 ES	cok 5/27/02	Good ~~tt~~ 8290 T-O. cok 5/27/02
T022468		13:43	57447	TLI Blank	1	TLI Blank	Auto	7.7 ES	cok 5/27/02	
T022469		14:30	57440	TLI Blank	0	TLI Blank		8.1 ES		
T022470		15:17	57440	326-24-1	2	S/EPA-4D/A.5-55.5/A		7.4 ES		
T022471		16:05	57451	326-25-1	2	Lab # 503041 Essroc Layonsport Ck		7.7 ES		
T022472		16:53	57447	326-31-1	2	3		9.5 ES		
T022473		17:41		326-31-2	3	4		9.2 ES		
T022474		18:29	57447	326-31-3	4	5		9.5 ES		
T022475		19:16	57460	326-44-1	2	4th Floor		9.3 ES		
T022476	5/27/02	20:04	57447	TLI LCS	5	TLI LCS	Auto	8.4 ES	cok 5/27/02	

* Transcribed from chromatographic data
** Dated Initials required

ConCal Due: _____
ConCal Due: _____

Triangle Laboratories, Inc.
Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
70T-101	DB5	1434113	TO2	2.0uL	NDB5US	NDB5US

Signature: [illegible]

Date: 5/27/02

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
TO22477	5/27/02	20:02	57447	TLI LCSD	6	TLI LCSD	Auto	9.4 ET	CGK 5/27/02	
TO22478	↓	21:40	57440	TLI LCS	3	TLI LCS	↓	8.1 ET	↓	
TO22479	↓	22:27	57440	TLI LCSD	4	TLI LCSD	↓	8.2 ET	↓	
TO22480	5/27/02	23:15	—	8146	—	8290/1613 Concal 10	Auto	9.9 ET	CGK 5/27/02	NCA RECPD L.O. 5/28/02
TO22481	5/28/02	00:31	—	8146	—	8290/1613 Concal 10	Auto	1.2 ET	5/28/02	Concal F/B 8290 T.O. 5/28/02
TO22482			—	8124	—	RTCHK	Auto		5/28/02	

* Transcribed from chromatographic data
** Dated Initials required

ConCal Due: _____
ConCal Due: _____

24

:rvr1/qa/forms/hrrunlog.doc (02/05/97)

Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inl. Vol.	Acquisition	G/C
70S-104	DB5	2111627	T02	2.0µL	NDB5US	NDB5US
				Jennifer L Demeter Signature		25MAY02 Date

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
S022142	5/25/02	22:06	57409r1	325-92-2	3	S020514A2	AUTO	1.6 E6	5/25/02	R
43	↓	22:54	57247Br1	TLI LCS	15	TLI LCS	↓	6.8 E6	↓	R
44	5/25/02	23:42	57247Br1	TLI LCSD	16	TLI LCSD	AUTO	6.2 E6	↓	R
S022145	5/26/02	00:29	—	8146	-	8290/1613 CONCAL10	AUTO	5.1 E6	5/25/02	Good 8290 T→O F/B Used Ending Only 5/26/02
S022146	5/26/02	12:29	—	8136A	-	RTCHK	AUTO	17%	5/26/02	
S022147	5/26/02	13:32	—	8146	—	8290/1613 Concal 10	Auto	3.0 E6	5/26/02	TCDF >20% 5/26/02
S022148	5/26/02	14:51	—	8146	—	8290/1613 Concal 10	Auto	2.5 E6	↓	123,78HxCDF >30% 5/26/02
S022149	5/26/02	—	—	8146	—	8290/1613 Concal 10	Auto	—	↓	↓
S022150	5/27/02	10:37	—	8136A	-	Rtchk	Auto	15%	5/27/02	
S022151	5/27/02	1157	—	8146	—	8290/1613 Concal 10	Auto	1.3E6	5/27/02	Good 8290 TETRAS 5/27/02
S022152	↓	13:43	—	8140Q	-	RS-100	↓	2.3 E6	5/27/02	Clean Injection
53	↓	14:30	57354	TLI BLANK	0	TLI BLANK	↓	2.1 E6	↓	
S022154	5/27/02	15:17	57354	325-37-1	2	AR030-SE-052-CLSLG	AUTO	5.0 E6	5/27/02	

* Transcribed from chromatographic data

** Dated initials required

ConCal Due: _____

ConCal Due: _____

Run Log

Instrument ID	Column Type	Column ID	Plot Name	Inj. Vol.	Acquisition	G/C
70S-104	DB5	211627	T02	2.0µL	NDB5US	NDB5US

Jennifer L. Demeter — Signature

27 MAY 02 — Date

Filename	Date*	Time*	Project #	Sample#	No.	Client Sample ID	Syr	332	Operator/Date	Comments**
S022155	5/27/02	14:05	57354	TLI LCS	3	TLI LCS	AUTO	2.5 CU	5/27/02	
56		14:53		TLI LCSD	4	TLI LCSD		3.4 CU		
57		17:42	57354	TLI Clean Up	5	CLEAN UP BLANK		3.0 CU		
58		18:28	57452	326-36-1	2	MW-1(0-2) Dioxins		2.7 CU		
59		19:16		326-36-2	3	MW-2(0-2) Dioxins		4.5 CU		
60		20:03		326-36-3	4	MW-3(0-2) Dioxins		5.0 CU		
61		20:51	57452	TLI Clean Up	5	CLEAN UP BLANK				
S022162	5/27/02	21:39	—	8146	—	8290/1613 Concal 10	AUTO	3.3 CU	5/27/02	Cond F10 [illegible]
S022163	5/28/02	00:11	—	8150	—	[illegible]	Auto		5/28/02	
S022164		01:01	—	8146	—	8290/1613 Concal 10	Auto		5/28/02	Cond 8290 T0

Transcribed from chromatographic data
Dated initials required

ConCal Due: _____
ConCal Due: _____

1/qa/forms/hrrunlog.doc (02/05/97)

SAMPLE DATA

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TRIANGLE LABORATORIES, INC.
LAB CONTROL SPIKE RECOVERY ANALYSIS AND COMPARISON

Project: 57452
Matrix: SAND
Method: 8290

Isomer	T022469 ID: TLI Blank Sample (pg/g)	T022478 ID: TLI LCS With Spike (pg/g)	Percent Recovery	T022479 ID: TLI LCSD Spike Dup (pg/g)	Percent Recovery	Relative Percent Difference
2378-TCDD	ND	38.8	97.0	39.5	98.7	1.74

ND: Not Detected
NA: Not Applicable
[..]: EMPC Value

MILES 4.22.16
GRY_PSUM v1.10

Processed By: _____ Date: 05/28/02

Percent Recovery QC Limits: 70 to 130 percent.
Relative Percent Difference QC Limits: +/- 20 percent.

Nominal Spike Levels:

TCDD/TCDF..:	0.4 ng
PeCDD/PeCDF:	2.0 ng
HxCDD/HxCDF:	2.0 ng
HpCDD/HpCDF:	2.0 ng
OCDD/OCDF..:	4.0 ng

TRIANGLE LABORATORIES, INC.
Sample Results for Project 57452
Method MIT3 Analysis (DB-5)

05/28/2002

Data File	T022469	S022158	S022159	S022160
Sample ID	TLI Blank	MW-1(0-2) DIOXI NS	MW-2(0-2) DIOXI NS	MW-3(0-2) DIOXI NS
Units	pg/g	pg/g	pg/g	pg/g
Extraction Date	05/24/2002	05/24/2002	05/24/2002	05/24/2002
Analysis Date	05/27/2002	05/27/2002	05/27/2002	05/27/2002
Instrument	T	S	S	S
Matrix	SAND	SOIL	SOIL	SOIL
Extraction Type				
Analytes				
2378-TCDD	(0.3)	17.8	160	0.76 J
Other Standards Percent Recovery Summary (% Rec)				
37Cl-TCDD	62.5	91.6	87.2	85.8
Internal Standards Percent Recovery Summary (% Rec)				
13C12-2378-TCDD	55.1	77.6	62.6	72.9

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Printed: 08:47 05/28/2002

Data File	S022161	T022478	T022479
Sample ID	CleanUp Blk	TLI LCS	TLI LCSD
Units	pg/g	pg/g	pg/g
Extraction Date	05/25/2002	05/24/2002	05/24/2002
Analysis Date	05/27/2002	05/27/2002	05/27/2002
Instrument	S	T	T
Matrix	SAND	SAND	SAND
Extraction Type			
Analytes			
2378-TCDD	(0.1)	38.8	39.5
Other Standards Percent Recovery Summary (% Rec)			
37Cl-TCDD	71.3	64.5	67.8
Internal Standards Percent Recovery Summary (% Rec)			
13C12-2378-TCDD	62.2	55.6	59.4

(Detection Limit).

Cumberland Farms

TLI Project: 57452 — Method 8290 TCDD Analysis (b)

Client Sample: TLI Blank — Analysis File: T022469

Client Project:	Lot 516, Smith St.				
Sample Matrix:	SAND	Date Received:	/ /	Spike File:	SPMIT32S
TLI ID:	TLI Blank	Date Extracted:	05/24/2002	ICal:	TF51212
		Date Analyzed:	05/27/2002	ConCal:	T022467
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T022469	% Lipid:	n/a
GC Column:	DB-5	Analyst:	CGK	% Solids:	n/a

Analytes	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.3				—

Internal Standard	Conc. (pg/g)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDD	110	55.1	40%-130%	0.81	26:40	—

Other Standard	Conc. (pg/g)	% Recovery	QC Limits	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	12.5	62.5	40%-130%	26:42	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	26:29	—

Data Reviewer: _____ 05/28/2002

MIT3_PSR v1.00. LARS 6.25.04

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Printed: 08:45 05/28/2002

Initial ....Date. .

Data Review By: [illegible] 5/28/02

Calculated Noise Height: 0.07

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

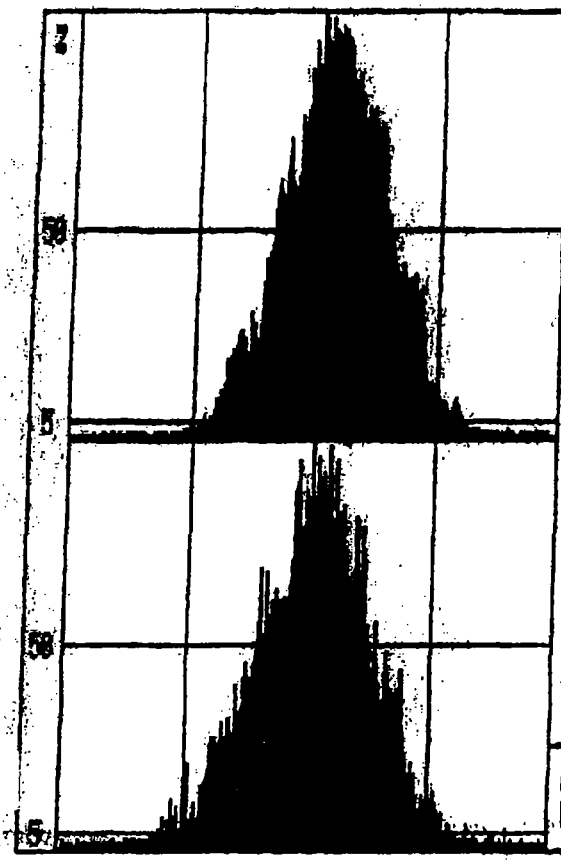
Page No. 1 Listing of T022469B.dbf
05/28/2002 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
TCDD						0.65-0.89				0.899-1.043			
320-322	DC	NL				Height	0.15	0.08	0.07				
	DC	SN		25:11	RO	0.39	0.16			0.944			
	DC	SN		25:16		0.67	0.20			0.948			
	DC	SN		25:30	RO	2.00	0.16			0.956			
	DC	SN		25:33	RO	2.75	0.07			0.958			
	DC	SN		26:04	RO	1.05	0.39			0.978			
	DC	SN		26:35	RO	1.75	0.21			0.997			
	DC	SN		27:26	RO	0.33	0.09			1.029			
	DC	SN		27:36		0.81	0.49			1.035			
320-322				0 Peaks			0.00						
37Cl-TCDD										0.925-1.075			
328	DC	NL				Height	0.06	0.06					
	DC	WL		24:02			0.18			0.901			
	DC	WL		24:07			0.15			0.904			
	DC	WL		24:09			0.15			0.906			
	DC	WL		24:17			0.09			0.911			
	DC	WL		24:22			0.07			0.914			
	DC	WL		24:24			0.21			0.915			
	DC	WL		24:34			0.13			0.921			
	DC	SN		24:42			0.13			0.926			
	DC	SN		24:54			0.25			0.934			
	DC	SN		25:18			0.24			0.949			
	DC	SN		25:34			0.27			0.959			
	DC	SN		25:44			0.08			0.965			
	DC	SN		25:49			0.12			0.968			
	DC	SN		25:56			0.24			0.973			
	DC	SN		26:10			0.21			0.981			
	DC	SN		26:15			0.12			0.984			
				26:42			40.24	40.24		1.001	37Cl-TCDD		CLS
				26:55			0.41	0.41		1.009			
				28:12			0.31	0.31		1.058			
328				3 Peaks			40.96						
13C12-TCDD						0.65-0.89				0.925-1.075			
332-334	DC	NL				Height	0.29	0.21	0.08				
				26:29		0.83	639.19	289.00	350.19	0.993	13C12-1234-TCDD		RS1
				26:40		0.81	403.43	180.39	223.04	1.000	13C12-2378-TCDD		IS1
						Height	112.91	50.50	62.41				
332-334				2 Peaks			1,042.62						

Compound/
M_Z.... QC.Log Omit Why ..RT OK Ratio Total.Area/Ht Area/Ht.Peak1 Area/Ht.Peak2 Rel.RT Compound.Name.. ID.. Flags.

Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		X-Ether Interference

*** End of Report ***



Channel I 330.9782 Peak top
Height .85 volts Span 200 ppm

System file name	NOBOUS
Data file name	A:T527821
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9885, 416.9768

A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9768 Peak top
Height .12 volts Span 200 ppm

Cumberland Farms

TLI Project: 57452 — Method 8290 TCDD Analysis (b)

Client Sample: MW-1(0-2) DIOXINS — Analysis File: S022158

Client Project:	Lot 516, Smith St.				
Sample Matrix:	SOIL	Date Received:	05/22/2002	Spike File:	SPMIT32S
TLI ID:	326-36-1	Date Extracted:	05/24/2002	ICal:	SF52012
		Date Analyzed:	05/27/2002	ConCal:	S022151
Sample Size:	11.000 g	Dilution Factor:	n/a	% Moisture:	9.8
Dry Weight:	9.922 g	Blank File:	T022469	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JLD	% Solids:	90.2

Analytes	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	17.8			0.74	27:05	—

Internal Standard	Conc. (pg/g)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDD	156	77.6	40%-130%	0.79	27:04	—

Other Standard	Conc. (pg/g)	% Recovery	QC Limits	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	18.5	91.6	40%-130%	27:06	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	26:50	—

Data Reviewer: _____ 05/28/2002

MIT3_PSR v1.00, LARS 6 25 04

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Printed: 08:45 05/28/2002

Initial ....Date...

Data Review By: JK 6/28/02

Channel specific noise levels computed from 'NL' heights.

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S022158B.dbf
05/28/2002 Matched GC Peaks / Ratio / Ret. Time

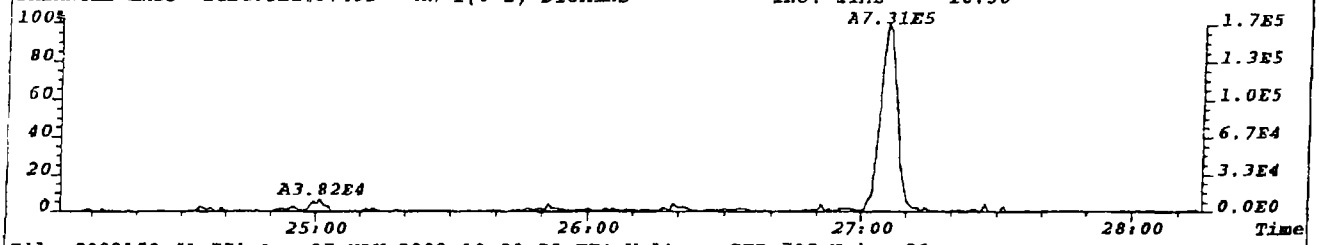
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
TCDD				0.65-0.89						0.899-1.043			
320-322	DC	NL			Height		0.04	0.02	0.02				
	DC	WL		24:09		0.73	0.83			0.892			
				24:26	RO	0.01	0.85	0.37	29.51	0.903			J
				24:55	RO	0.63	3.15	1.37	2.17	0.921	1379-TCDD	AN	J
				25:01	RO	0.92	8.78	3.82	4.17	0.924			J
				25:13	RO	0.41	1.61	0.70	1.71	0.932			J
				25:34	RO	0.47	0.18	0.08	0.17	0.945			J
				25:51		0.67	6.06	2.43	3.63	0.955			J
				26:00	RO	1.21	0.83	0.57	0.47	0.961			J
				26:19	RO	5.14	0.76	2.21	0.43	0.972			J
				26:34	RO	1.80	1.31	1.33	0.74	0.982			J
				26:55	RO	0.53	2.16	0.94	1.78	0.994			J
				27:05		0.74	172.12	73.10	99.02	1.001	2378-TCDD	AN	
320-322			11 Peaks				197.81						
37Cl-TCDD										0.925-1.075			
328	DC	NL			Height		0.03	0.03					
	DC	WL		24:08			1.83			0.892			
	DC	WL		24:39			0.17			0.911			
	DC	WL		25:02			0.75			0.925			
				25:08			0.52	0.52		0.929			
				25:36			6.74	6.74		0.946			
				25:49			0.97	0.97		0.954			
				25:56			0.22	0.22		0.958			
				26:05			0.43	0.43		0.964			
				26:13			0.26	0.26		0.969			
				26:17			2.25	2.25		0.971			
				26:32			0.78	0.78		0.980			
				26:41			0.40	0.40		0.986			
				26:51			0.75	0.75		0.992			
				27:06			207.81	207.81		1.001	37Cl-TCDD	CLS	
				27:19			1.34	1.34		1.009			
				27:30			22.68	22.68		1.016			
				27:55			1.09	1.09		1.031			
				28:03			0.18	0.18		1.036			
				28:09			0.14	0.14		1.040			
				28:14			1.07	1.07		1.043			
328			17 Peaks				247.63						
13C12-TCDD				0.65-0.89						0.925-1.075			
332-334	DC	NL			Height		0.21	0.18	0.03				
N				26:50		0.82	2,330.53	1,047.05	1,283.48	0.991	13C12-1234-TCDD	RS1	
				27:04		0.79	2,063.85	912.04	1,151.81	1.000	13C12-2378-TCDD	IS1	
					Height		456.37	203.44	252.93				

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
				27:32	RO	0.36	3.31	1.44	4.03	1.017			
				27:40	RO	0.41	1.91	0.83	2.03	1.022			
332-334				4 Peaks			4,399.60						

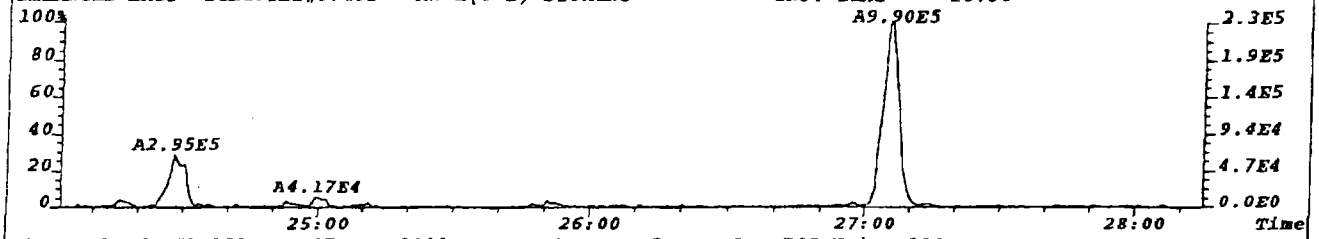
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		X-Ether Interference

*** End of Report ***

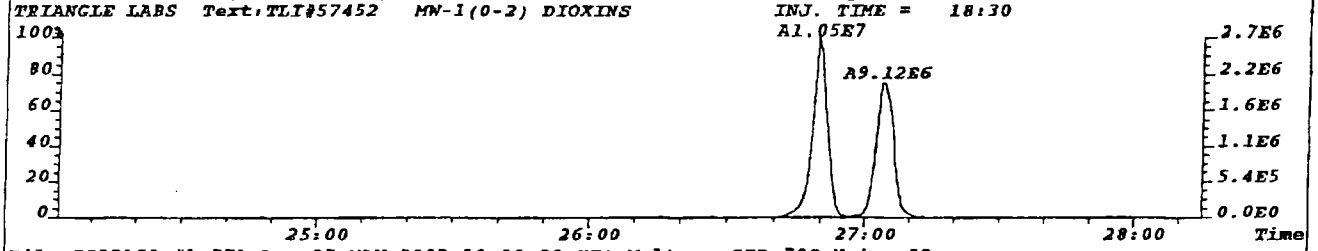
File:S022158 #1-771 Acq:27-MAY-2002 18:28:28 EI+ Voltage SIR 70S Noise:30
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-1(0-2) DIOXINS INJ. TIME = 18:30



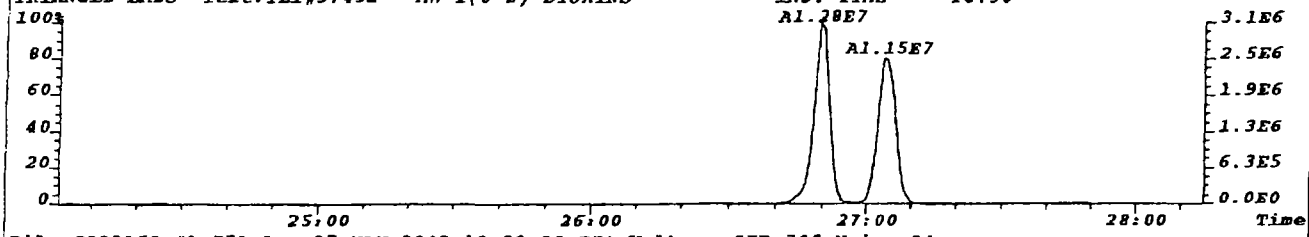
File:S022158 #1-771 Acq:27-MAY-2002 18:28:28 EI+ Voltage SIR 70S Noise:29
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,116.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-1(0-2) DIOXINS INJ. TIME = 18:30



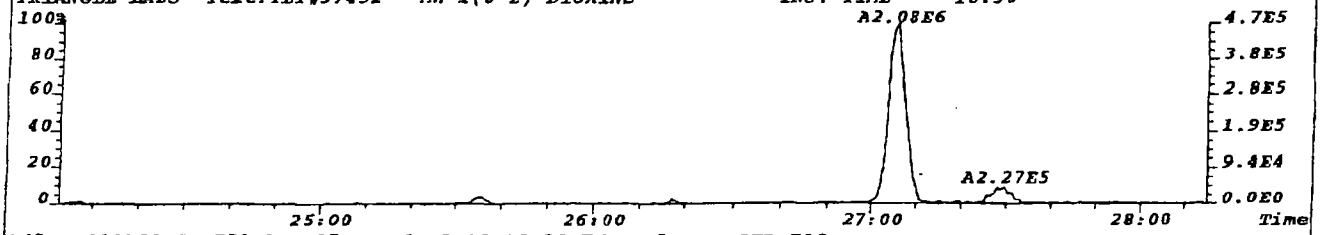
File:S022158 #1-771 Acq:27-MAY-2002 18:28:28 EI+ Voltage SIR 70S Noise:228
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,912.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-1(0-2) DIOXINS INJ. TIME = 18:30



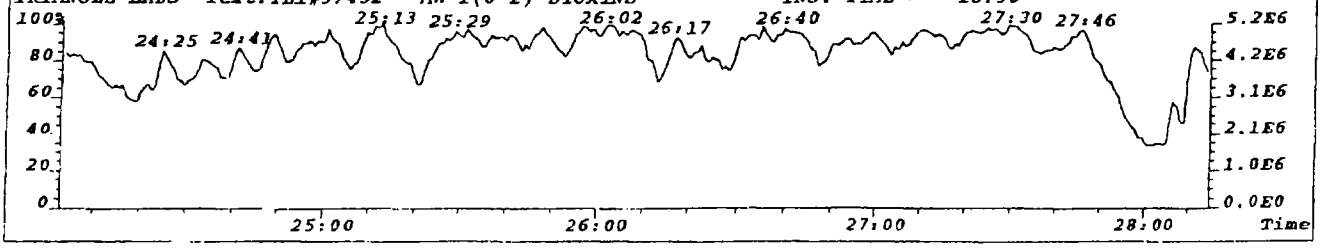
File:S022158 #1-771 Acq:27-MAY-2002 18:28:28 EI+ Voltage SIR 70S Noise:39
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,156.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-1(0-2) DIOXINS INJ. TIME = 18:30

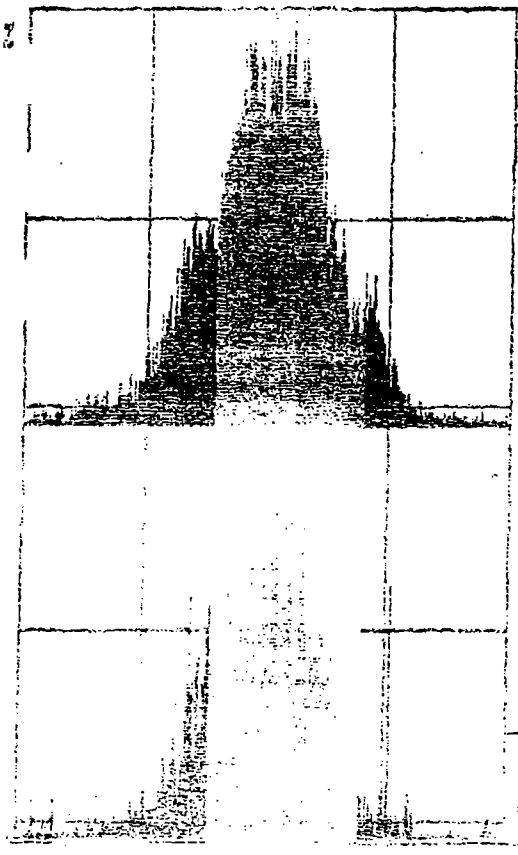


File:S022158 #1-771 Acq:27-MAY-2002 18:28:28 EI+ Voltage SIR 70S Noise:34
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,136.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-1(0-2) DIOXINS INJ. TIME = 18:30



File:S022158 #1-771 Acq:27-MAY-2002 18:28:28 EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-1(0-2) DIOXINS INJ. TIME = 18:30





Channel I 330.9792 Peak top
Height 1.00 volts Span 200 ppm

System file name	NDB5US
Data file name	A:S527021
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .13 volts Span 200 ppm

Cumberland Farms

TLI Project: 57452 — Method 8290 TCDD Analysis (b)

Client Sample: MW-2(0-2) DIOXINS — Analysis File: S022159

Client Project:	Lot 516, Smith St.				
Sample Matrix:	SOIL	Date Received:	05/22/2002	Spike File:	SPMIT32S
TLI ID:	326-36-2	Date Extracted:	05/24/2002	ICal:	SF52012
		Date Analyzed:	05/27/2002	ConCal:	S022151
Sample Size:	12.000 g	Dilution Factor:	n/a	% Moisture:	14.3
Dry Weight:	10.284 g	Blank File:	T022469	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JLD	% Solids:	85.7

Analytes	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	160			0.76	26:54	—

Internal Standard	Conc. (pg/g)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDD	122	62.6	40%-130%	0.80	26:53	—

Other Standard	Conc. (pg/g)	% Recovery	QC Limits	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	17.0	87.2	40%-130%	26:53	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	26:41	—

Data Reviewer: _____ 05/28/2002

MIT3_PSR v1.00, LARS 6.25.04

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Printed: 08:45 05/28/2002

Initial ....Date...

Data Review By: [illegible] 5/28/02 [illegible] Channel specific noise levels computed from 'NL' heights.

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S022159B.dbf
05/28/2002 Matched GC Peaks / Ratio / Ret. Time

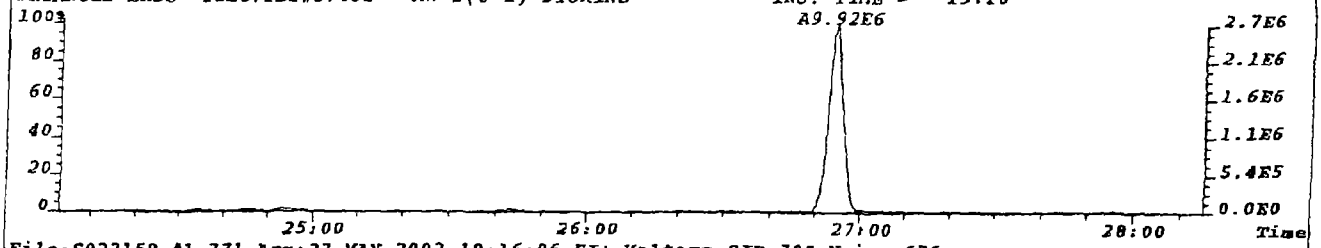
Compound/ M_Z....	OC	Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
TCDD					*0.65-0.89*						*0.899-1.043*			
320-322	DC	NL			Height			1.02	0.48	0.54				
	DC	WL			24:01	RO	0.57	26.30			0.893			
					24:34		0.71	28.89	11.95	16.94	0.914			
					24:46		0.82	30.90	13.96	16.94	0.921	1379-TCDD	AN	
					24:54		0.88	40.45	18.98	21.47	0.926			
					25:02	RO	0.54	15.49	6.74	12.46	0.931			
					25:26		0.89	3.56	1.68	1.88	0.946			J
					25:43		0.75	43.80	18.78	25.02	0.957			
					25:54	RO	1.41	4.25	3.39	2.40	0.963			J
					26:01	RO	0.20	4.60	2.00	9.99	0.968			J
					26:21	RO	0.61	13.72	5.97	9.82	0.980			J
					26:31	RO	1.08	8.23	5.03	4.65	0.986			J
					26:39		0.69	5.03	2.06	2.97	0.991			J
					26:54		0.76	2,291.68	992.15	1,299.53	1.001	2378-TCDD	AN	
320-322					12 Peaks			2,490.60						
37Cl-TCDD											0.925-1.075			
328	DC	NL			Height			0.22	0.22					
	DC	WL			23:57			39.01			0.891			
	DC	WL			24:14			2.42			0.901			
	DC	WL			24:20			0.68			0.905			
	DC	WL			24:26			2.25			0.909			
	DC	WL			24:37			3.55			0.916			
	DC	WL			24:44			4.65			0.920			
					25:03			1.81	1.81		0.932			
					25:11			1.05	1.05		0.937			
					25:29			306.60	306.60		0.948			
					25:44			3.91	3.91		0.957			
					25:53			0.71	0.71		0.963			
					26:01			2.23	2.23		0.968			
					26:13			9.40	9.40		0.975			
					26:23			0.87	0.87		0.981			
					26:30			1.84	1.84		0.986			
					26:53			351.68	351.68		1.000	37Cl-TCDD	CLS	
					27:08			7.07	7.07		1.009			
					27:18			558.46	558.46		1.015			
					27:31			7.68	7.68		1.024			
					27:44			3.53	3.53		1.032			
					27:52			3.23	3.23		1.037			
					28:11			15.60	15.60		1.048			
328					16 Peaks			1,275.67						

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
13C12-TCDD						0.65-0.89				0.925-1.075			
332-334	DC	NL				Height	0.32	0.29	0.03				
				26:41		0.80	4,144.13	1,841.32	2,302.81	0.993	13C12-1234-TCDD	RS1	
				26:53		0.80	2,959.72	1,313.73	1,645.99	1.000	13C12-2378-TCDD	IS1	
						Height	815.25	362.20	453.05				
				27:08		0.78	8.91	3.91	5.00	1.009			
				27:25	RO	1.63	9.49	8.71	5.36	1.020			
				27:35		0.81	5.81	2.60	3.21	1.026			
332-334			5 Peaks				7,128.06						

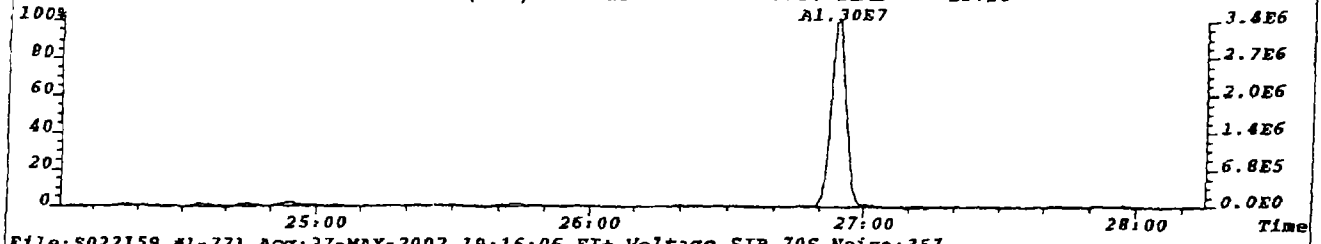
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		X-Ether Interference

*** End of Report ***

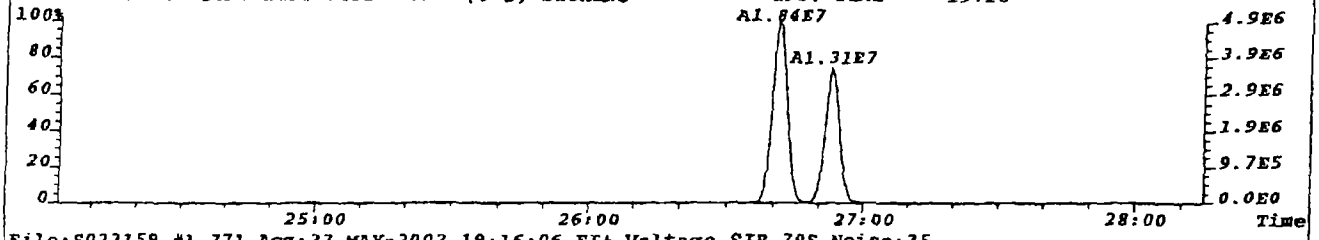
File:S022159 #1-771 Acq:27-MAY-2002 19:16:06 EI+ Voltage SIR 70S Noise:596
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2384.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-2(0-2) DIOXINS INJ. TIME = 19:18



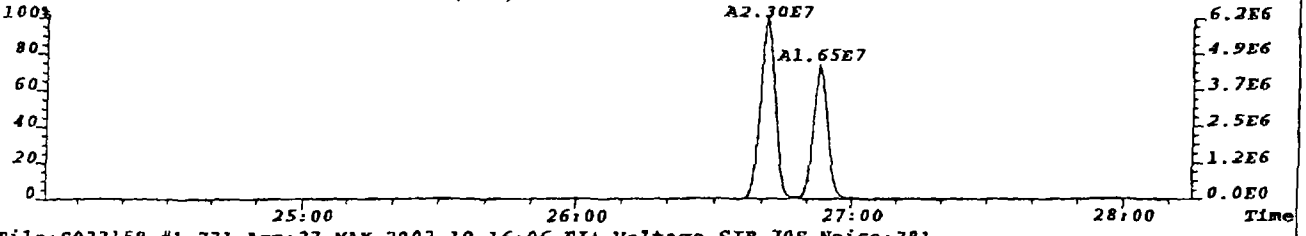
File:S022159 #1-771 Acq:27-MAY-2002 19:16:06 EI+ Voltage SIR 70S Noise:676
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,2704.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-2(0-2) DIOXINS INJ. TIME = 19:18



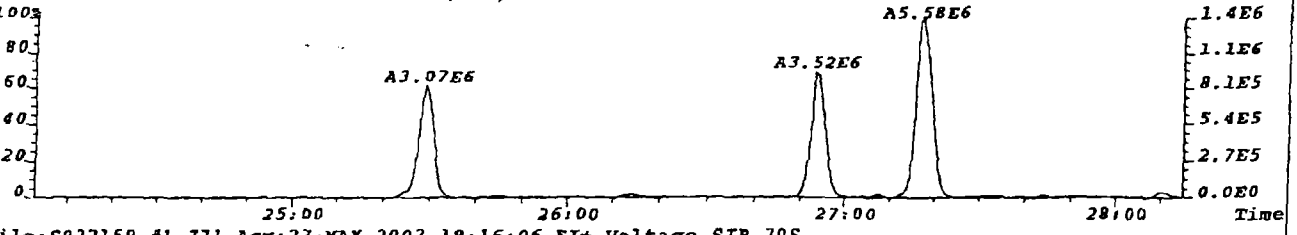
File:S022159 #1-771 Acq:27-MAY-2002 19:16:06 EI+ Voltage SIR 70S Noise:357
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1428.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-2(0-2) DIOXINS INJ. TIME = 19:18



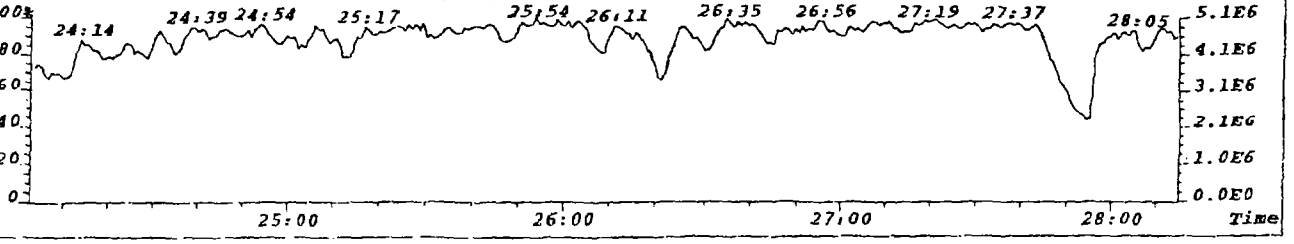
File:S022159 #1-771 Acq:27-MAY-2002 19:16:06 EI+ Voltage SIR 70S Noise:35
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,140.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-2(0-2) DIOXINS INJ. TIME = 19:18

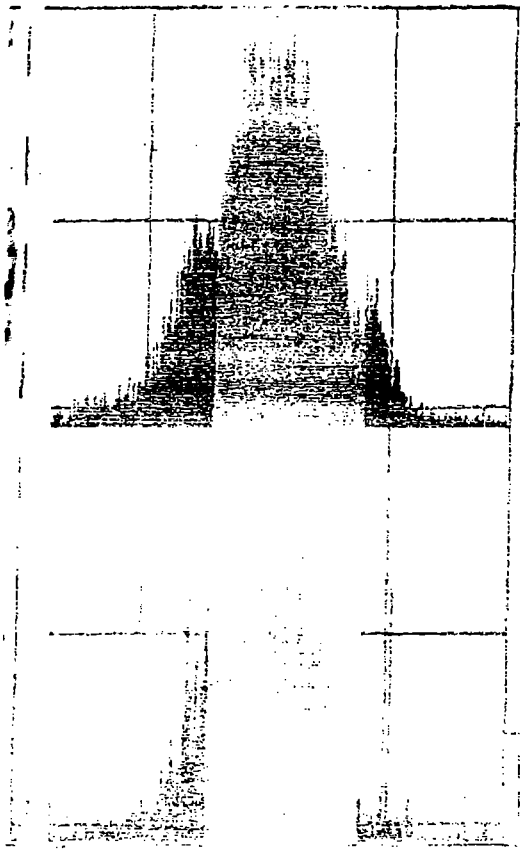


File:S022159 #1-771 Acq:27-MAY-2002 19:16:06 EI+ Voltage SIR 70S Noise:281
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,1124.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-2(0-2) DIOXINS INJ. TIME = 19:18



File:S022159 #1-771 Acq:27-MAY-2002 19:16:06 EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-2(0-2) DIOXINS INJ. TIME = 19:18





Channel I 330.9792 Peak top
Height 1.00 volts Span 200 ppm

System file name	ND85US
Data file name	A:S527021
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .10 volts Span 200 ppm

Cumberland Farms

TLI Project: 57452 — Method 8290 TCDD Analysis (b)

Client Sample: MW-3(0-2) DIOXINS — Analysis File: S022160

Client Project:	Lot 516, Smith St.				
Sample Matrix:	SOIL	Date Received:	05/22/2002	Spike File:	SPMIT32S
TLI ID:	326-36-3	Date Extracted:	05/24/2002	ICal:	SF52012
		Date Analyzed:	05/27/2002	ConCal:	S022151
Sample Size:	12.000 g	Dilution Factor:	n/a	% Moisture:	11.4
Dry Weight:	10.632 g	Blank File:	T022469	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JLD	% Solids:	88.6

Analytes	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	0.76			0.87	26:49	J__

Internal Standard	Conc. (pg/g)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDD	137	72.9	40%-130%	0.80	26:48	___

Other Standard	Conc. (pg/g)	% Recovery	QC Limits	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	16.1	85.8	40%-130%	26:49	___

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	26:37	___

Data Reviewer: _____ 05/28/2002

MTT3_PSR v1.00, LARS 6 25 04

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Printed: 08:45 05/28/2002

Initial ....Date...

Data Review By: [illegible] 5/28/02

Channel specific noise levels computed from 'NL' heights.

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S022160B.dbf
05/28/2002 Matched GC Peaks / Ratio / Ret. Time

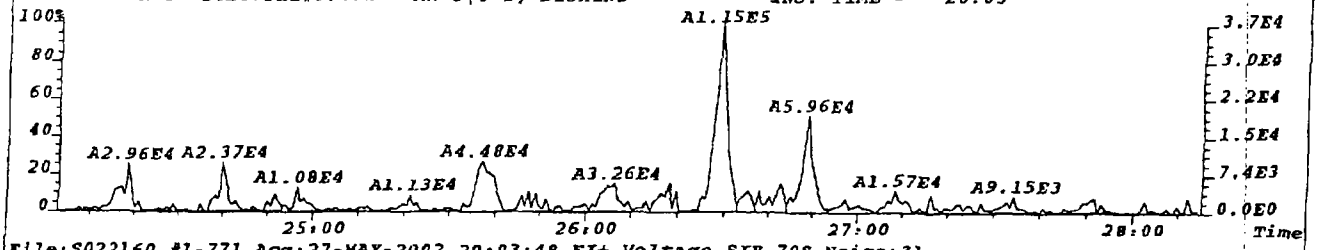
Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
TCDD				0.65-0.89					0.899-1.043				
320-322	DC	NL				Height	0.05	0.03	0.02				
				24:08	RO	0.03	0.18	0.08	3.09	0.900			J
				24:19		0.82	6.57	2.96	3.61	0.907	1368-TCDD	AN	J
				24:40	RO	0.60	5.45	2.37	3.98	0.920	1379-TCDD	AN	J
				25:22	RO	1.13	1.77	1.13	1.00	0.947			J
				25:37		0.70	10.90	4.48	6.42	0.956			J
				25:47	RO	0.99	3.10	1.35	1.37	0.962			J
				26:06	RO	3.75	1.54	3.26	0.87	0.974			J
				26:18	RO	0.60	4.00	1.74	2.90	0.981			J
				26:29		0.67	28.54	11.47	17.07	0.988			
				26:42	RO	0.98	4.46	1.94	1.97	0.996			J
				26:49		0.87	12.80	5.96	6.84	1.001	2378-TCDD	AN	J
				26:57	RO	0.91	2.44	1.06	1.16	1.006			J
				27:08	RO	0.61	3.61	1.57	2.58	1.012			J
				27:34	RO	1.02	1.58	0.91	0.89	1.029			J
				27:52		0.71	2.24	0.93	1.31	1.040			J
	DC	WH		28:03		0.81	1.25			1.047			
	DC	WH		28:12	RO	1.78	0.48			1.052			
320-322			15 Peaks				89.18						
37Cl-TCDD									0.925-1.075				
328	DC	NL				Height	0.02	0.02					
	DC	WL		24:24			0.17			0.910			
	DC	WL		24:41			0.41			0.921			
				24:59			0.73	0.73		0.932			
				25:05			0.28	0.28		0.936			
				25:27			14.45	14.45		0.950			
				25:37			0.53	0.53		0.956			
				25:55			0.40	0.40		0.967			
				26:01			0.22	0.22		0.971			
				26:20			0.17	0.17		0.983			
				26:29			0.61	0.61		0.988			
				26:49			338.47	338.47		1.001	37Cl-TCDD	CLS	
				27:01			1.72	1.72		1.008			
				27:13			18.17	18.17		1.016			
				27:27			0.89	0.89		1.024			
				27:39			0.37	0.37		1.032			
				27:47			0.62	0.62		1.037			
				27:59			1.16	1.16		1.044			
				28:09			4.81	4.81		1.050			
				28:18			1.57	1.57		1.056			
328			17 Peaks				385.17						

Compound/ M_z....	QC.Log	Omit	Why	..RT	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
13C12-TCDD						0.65-0.89				0.925-1.075			
332-334	DC	NL				Height	0.19	0.16	0.03				
				26:37		0.81	4,051.30	1,819.11	2,232.19	0.993	13C12-1234-TCDD	RS1	
				26:48		0.80	3,368.33	1,494.27	1,874.06	1.000	13C12-2378-TCDD	IS1	
						Height	930.89	413.33	517.56				
				27:11	RO	0.62	11.06	4.81	7.80	1.014			
				27:16	RO	0.40	7.61	3.31	8.29	1.017			
				27:39		0.79	5.06	2.23	2.83	1.032			
332-334			5 Peaks				7,443.36						

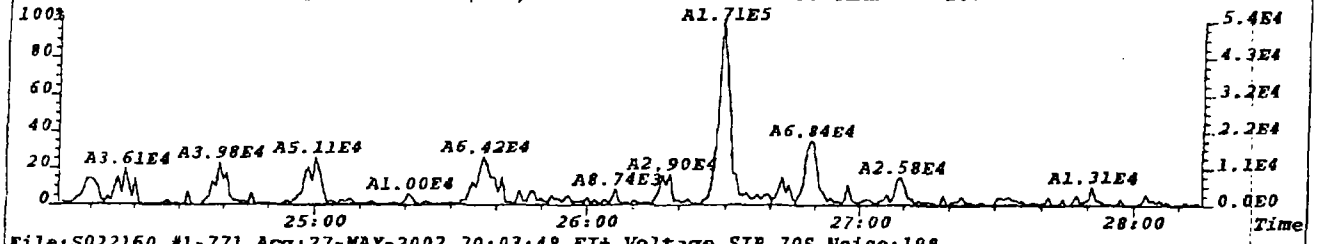
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		X-Ether Interference

*** End of Report ***

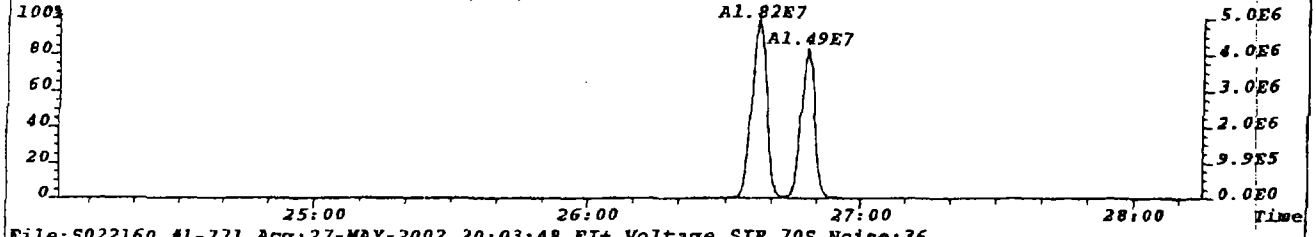
File:S022160 #1-771 Acq:27-MAY-2002 20:03:48 EI+ Voltage SIR 70S Noise:32
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-3(0-2) DIOXINS INJ. TIME = 20:05



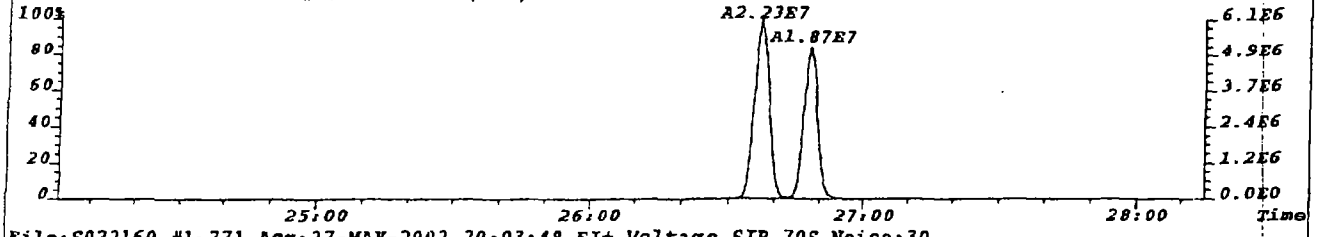
File:S022160 #1-771 Acq:27-MAY-2002 20:03:48 EI+ Voltage SIR 70S Noise:31
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-3(0-2) DIOXINS INJ. TIME = 20:05



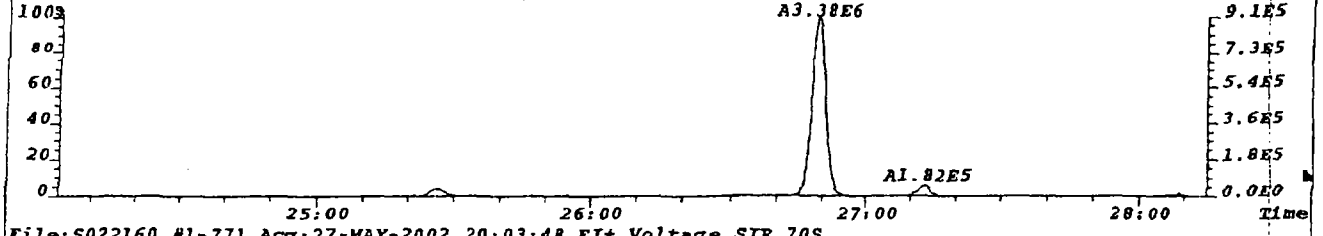
File:S022160 #1-771 Acq:27-MAY-2002 20:03:48 EI+ Voltage SIR 70S Noise:198
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,792.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-3(0-2) DIOXINS INJ. TIME = 20:05



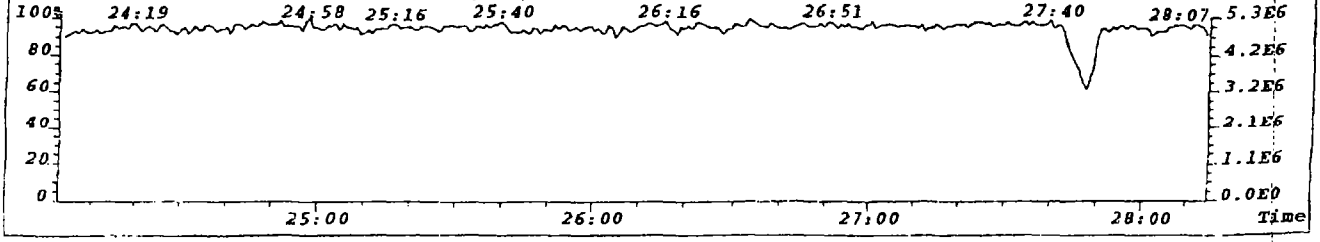
File:S022160 #1-771 Acq:27-MAY-2002 20:03:48 EI+ Voltage SIR 70S Noise:36
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,144.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-3(0-2) DIOXINS INJ. TIME = 20:05

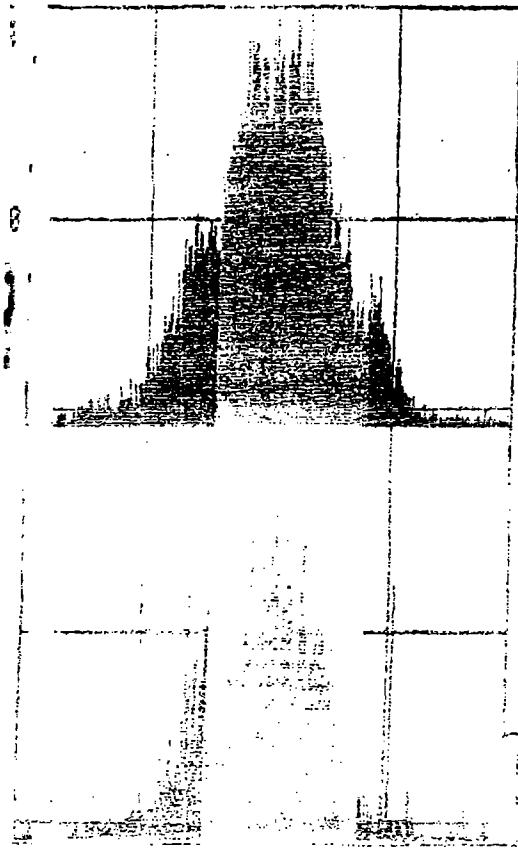


File:S022160 #1-771 Acq:27-MAY-2002 20:03:48 EI+ Voltage SIR 70S Noise:30
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,120.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-3(0-2) DIOXINS INJ. TIME = 20:05



File:S022160 #1-771 Acq:27-MAY-2002 20:03:48 EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 MW-3(0-2) DIOXINS INJ. TIME = 20:05





Channel I 330.9792 Peak top
Height 1.00 volts Span 200 ppm

System file name	ND85US
Data file name	A:S527021
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE

Ref. masses 292.9825, 416.9760

A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .18 volts Span 200 ppm

Cumberland Farms

TLI Project: 57452 — Method 8290 TCDD Analysis (b)

Client Sample: **CleanUp Blk** — Analysis File: **S022161**

Client Project:	Lot 516, Smith St.				
Sample Matrix:	SAND	Date Received:	05/22/2002	Spike File:	SPMIT32S
TLI ID:	TLI Clean-Up	Date Extracted:	05/25/2002	ICal:	SF52012
		Date Analyzed:	05/27/2002	ConCal:	S022151
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T022469	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JLD	% Solids:	n/a

Analytes	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.1				—

Internal Standard	Conc. (pg/g)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDD	124	62.2	40%-130%	0.80	26:45	—

Other Standard	Conc. (pg/g)	% Recovery	QC Limits	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	14.3	71.3	40%-130%	26:46	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	26:35	—

Data Reviewer: _____ 05/28/2002

MITS_PSR v1.00, LARS 6.25.04

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Printed: 08:45 05/28/2002

Initial ....Date...

Data Review By: [illegible] 5/28/02

Calculated Noise Height: 0.14

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

Page No. 1 Listing of S022161B.dbf
05/28/2002 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC	Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
TCDD					0.65-0.89						0.899-1.043			
320-322		DC	NL				Height	0.05	0.02	0.03				
		DC	SN		24:08	RO	0.42	0.44			0.902			
		DC	SN		24:16		0.83	0.53			0.907	1368-TCDD		AN
		DC	SN		25:13		0.68	0.42			0.943			
		DC	SN		25:23		0.67	0.10			0.949			
		DC	SN		25:37	RO	0.19	0.14			0.958			
		DC	SN		25:47	RO	8.00	0.11			0.964			
		DC	SN		26:01	RO	4.26	0.55			0.973			
		DC	SN		26:42	RO	0.90	0.55			0.998			
	D	D	SN		26:45	RO	0.91	0.94			1.000	2378-TCDD		AN
		DC	SN		27:03	RO	2.00	0.16			1.011			
		DC	SN		27:11	RO	1.00	0.23			1.016			
		DC	SN		27:26	RO	1.00	0.53			1.026			
		DC	SN		27:34	RO	0.57	0.37			1.031			
		DC	WH		27:59	RO	0.20	0.07			1.046			
		DC	WH		28:14	RO	5.67	0.05			1.055			
320-322				0	Peaks			0.00						
37Cl-TCDD											0.925-1.075			
328		DC	NL				Height	0.03	0.03					
		DC	WL		24:04			0.14			0.900			
		DC	WL		24:16			0.58			0.907			
		DC	WL		24:30			0.41			0.916			
		DC	WL		24:38			0.39			0.921			
		DC	SN		24:57			0.47			0.933			
					25:25			1.07	1.07		0.950			
		DC	SN		25:36			0.16			0.957			
		DC	SN		25:53			0.08			0.968			
		DC	SN		26:00			0.23			0.972			
		DC	SN		26:25			0.07			0.988			
		DC	SN		26:38			0.13			0.996			
					26:46			191.00	191.00		1.001	37Cl-TCDD		CLS
					27:01			0.92	0.92		1.010			
		DC	SN		27:04			0.78			1.012			
					27:23			0.85	0.85		1.024			
		DC	SN		27:41			0.53			1.035			
					27:59			0.43	0.43		1.046			
		DC	SN		28:06			0.36			1.050			
328				5	Peaks			194.27						
13C12-TCDD						0.65-0.89					0.925-1.075			
332-334		DC	NL				Height	0.21	0.18	0.03				
					26:35		0.81	2,751.20	1,228.21	1,522.99	0.994	13C12-1234-TCDD		RSI

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
				26:45		0.80	1,952.65	865.51	1,087.14	1.000	13C12-2378-TCDD	IS1	
						Height	532.98	237.71	295.27				
				27:04	RO	0.09	1.82	0.79	8.39	1.012			
				27:30	RO	0.51	6.00	2.61	5.12	1.028			
332-334				4 Peaks			4,711.67						

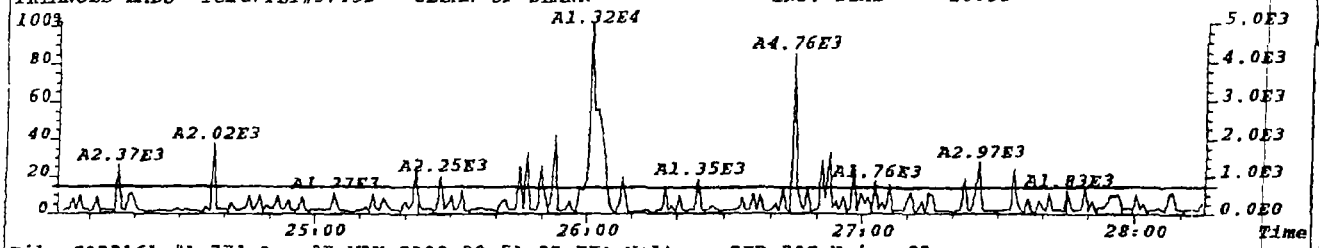
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		X-Ether Interference

*** End of Report ***

N = .075 + .066 = .14

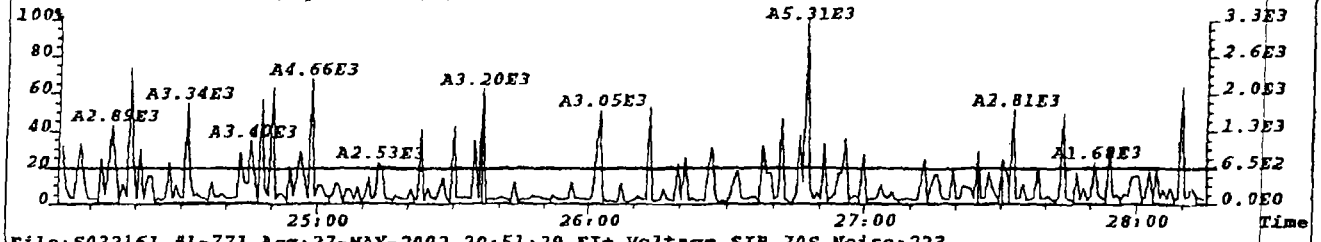
(.15)(.50) = .075

File:S022161 #1-771 Acq:27-MAY-2002 20:51:29 EI+ Voltage SIR 70S Noise:31
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,124.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 CLEAN UP BLANK INJ. TIME = 20:53

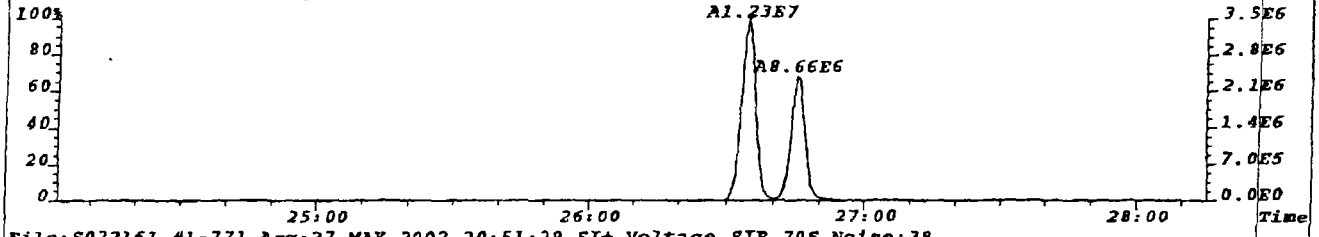


File:S022161 #1-771 Acq:27-MAY-2002 20:51:29 EI+ Voltage SIR 70S Noise:32
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,128.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 CLEAN UP BLANK INJ. TIME = 20:53

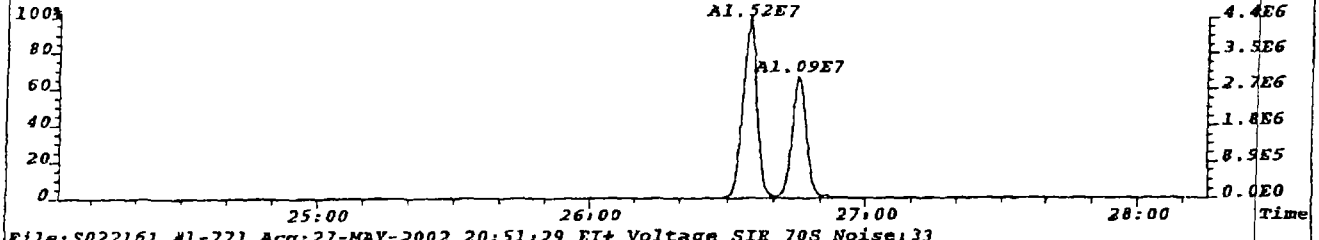
(.20)(.33) = .066



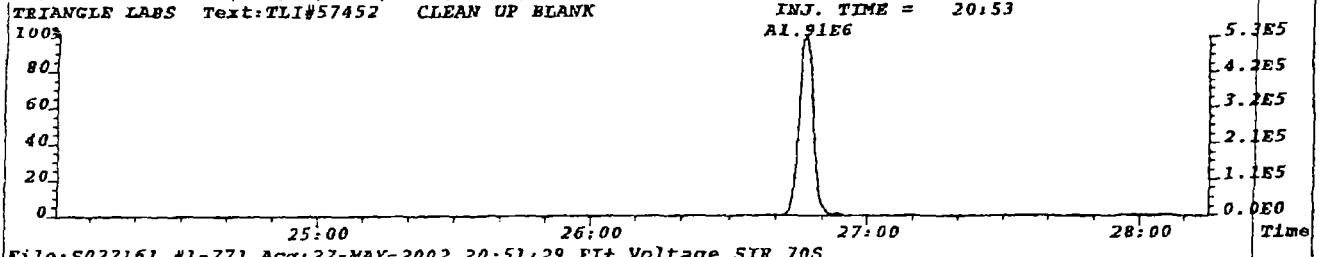
File:S022161 #1-771 Acq:27-MAY-2002 20:51:29 EI+ Voltage SIR 70S Noise:223
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,892.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 CLEAN UP BLANK INJ. TIME = 20:53



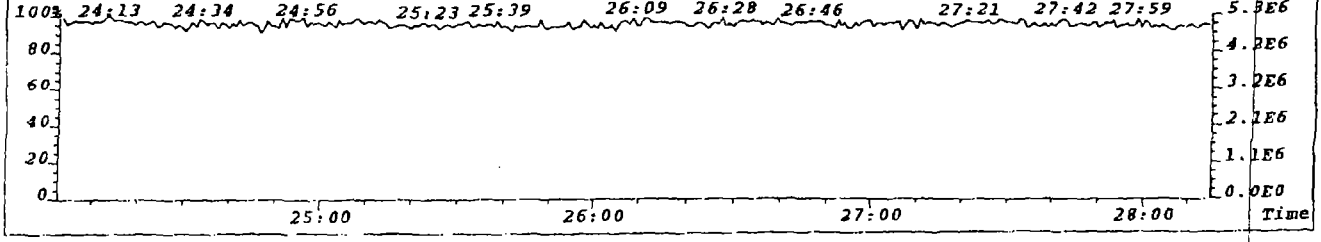
File:S022161 #1-771 Acq:27-MAY-2002 20:51:29 EI+ Voltage SIR 70S Noise:38
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,152.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 CLEAN UP BLANK INJ. TIME = 20:53



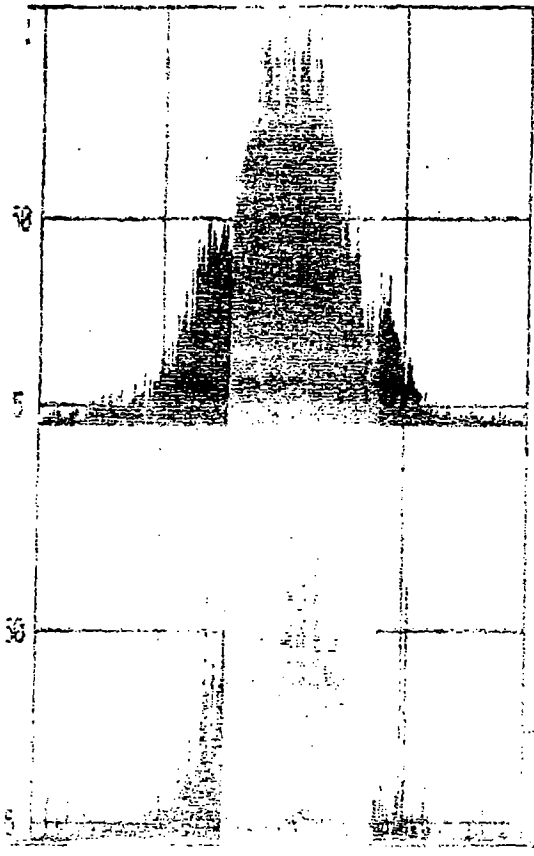
File:S022161 #1-771 Acq:27-MAY-2002 20:51:29 EI+ Voltage SIR 70S Noise:33
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,132.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 CLEAN UP BLANK INJ. TIME = 20:53



File:S022161 #1-771 Acq:27-MAY-2002 20:51:29 EI+ Voltage SIR 70S
330.9792 F:2 Exp:NDB5US
TRIANGLE LABS Text:TLI#57452 CLEAN UP BLANK INJ. TIME = 20:53



5



Channel I 330.9792 Peak top
Height 1.00 volts Span 200 ppm

System file name	N085US
Data file name	A:S527021
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	375
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .10 volts Span 200 ppm

Cumberland Farms

TLI Project: 57452
Client Sample: TLI LCS

Method 8290 TCDD Analysis (b)
Analysis File: T022478

Client Project:	*Lot 516, Smith St.*				
Sample Matrix:	SAND	Date Received:	/ /	Spike File:	SPMIT32S
TLI ID:	TLI LCS	Date Extracted:	05/24/2002	ICal:	TF51212
		Date Analyzed:	05/27/2002	ConCal:	T022467
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T022469	% Lipid:	n/a
GC Column:	DB-5	Analyst:	CGK	% Solids:	n/a

Analytes	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	38.8			0.81	26:41	—

Internal Standard	Conc. (pg/g)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDD	111	55.6	40%-130%	0.82	26:40	—

Other Standard	Conc. (pg/g)	% Recovery	QC Limits		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	12.9	64.5	40%-130%		26:41	—

Recovery Standard				Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD				0.82	26:29	—

Data Reviewer: _____ 05/28/2002

MIT3_PSR v1.00, LARS 6.25.04

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Printed: 08:45 05/28/2002

Initial ....Date...

Data Review By: [illegible] 5/28/02

Channel specific noise levels computed from 'NL' heights.

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

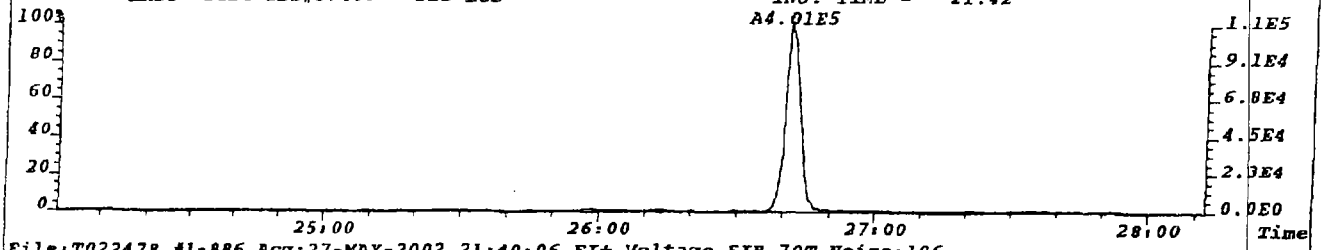
Page No. 1 Listing of T022478B.dbf
05/28/2002 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
TCDD				0.65-0.89						0.899-1.043			
320-322	DC	NL				Height	0.16	0.08	0.08				
	DC	SN		24:02	RO	0.10	0.11			0.901			
				26:41		0.81	89.46	40.12	49.34	1.001	2378-TCDD		AN
	DC	SN		27:09	RO	0.22	0.14			1.018			
320-322			1	Peak			89.46						
37Cl-TCDD										0.925-1.075			
328	DC	NL				Height	0.08	0.08					
	DC	WL		24:13			0.04			0.908			
	DC	WL		24:18			0.08			0.911			
	DC	WL		24:20			0.24			0.913			
	DC	WL		24:28			0.21			0.918			
	DC	SN		24:44			0.12			0.928			
	DC	SN		24:52			0.07			0.933			
	DC	SN		24:56			0.11			0.935			
	DC	SN		25:31			0.23			0.957			
				26:41			43.40	43.40		1.001	37Cl-TCDD		CLS
	DC	SN		27:02			0.11			1.014			
	DC	SN		27:38			0.12			1.036			
	DC	SN		27:45			0.16			1.041			
	DC	SN		27:54			0.07			1.046			
328			1	Peak			43.40						
13C12-TCDD				0.65-0.89						0.925-1.075			
332-334	DC	NL				Height	0.22	0.14	0.08				
	DC	WL		24:01	RO	2.00	0.34			0.901			
	DC	SN		25:32	RO	1.38	0.99			0.958			
				26:29		0.82	667.77	299.98	367.79	0.993	13C12-1234-TCDD		RS1
				26:40		0.82	425.28	191.60	233.68	1.000	13C12-2378-TCDD		IS1
						Height	117.35	53.22	64.13				
				27:02	RO	0.57	1.22	0.53	0.93	1.014			
332-334			3	Peaks			1,094.27						

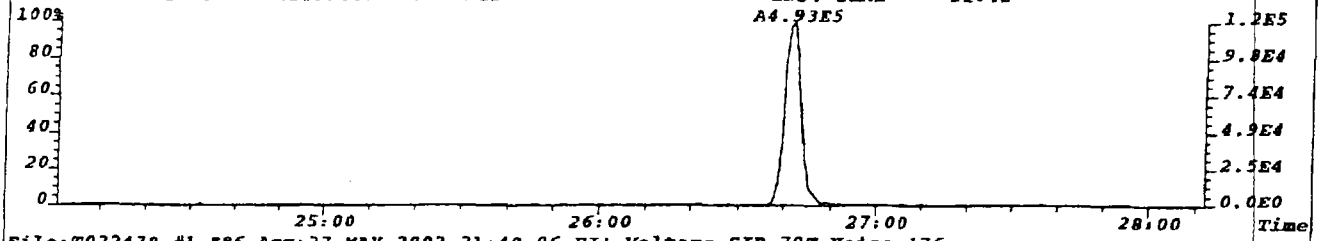
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		X-Ether Interference

*** End of Report ***

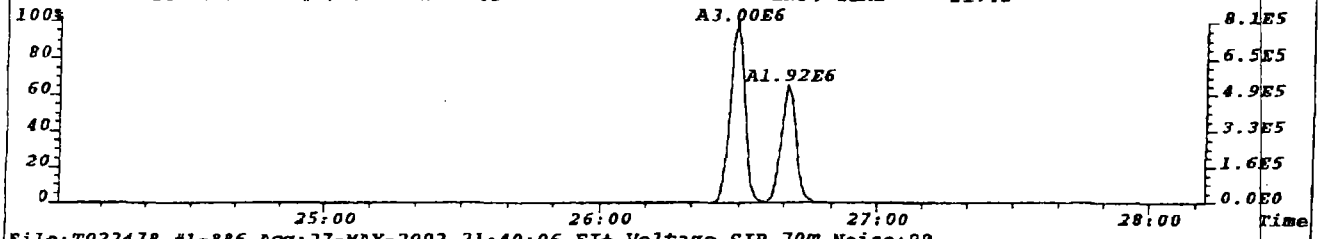
File:T022478 #1-886 Acq:27-MAY-2002 21:40:06 EI+ Voltage SIR 70T Noise:103
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,412.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCS INJ. TIME = 21:42



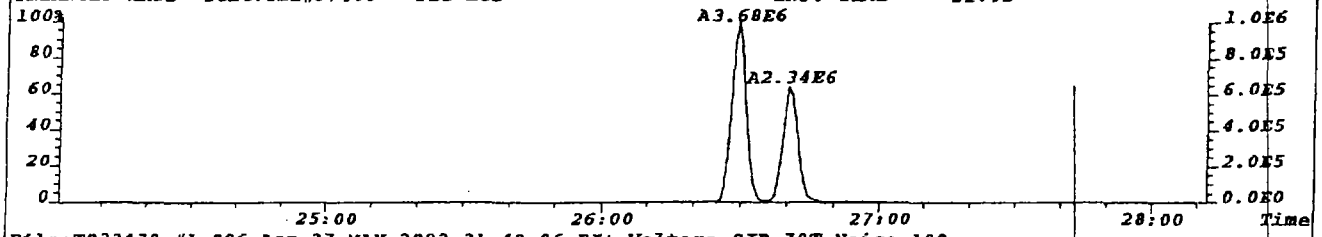
File:T022478 #1-886 Acq:27-MAY-2002 21:40:06 EI+ Voltage SIR 70T Noise:106
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,424.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCS INJ. TIME = 21:42



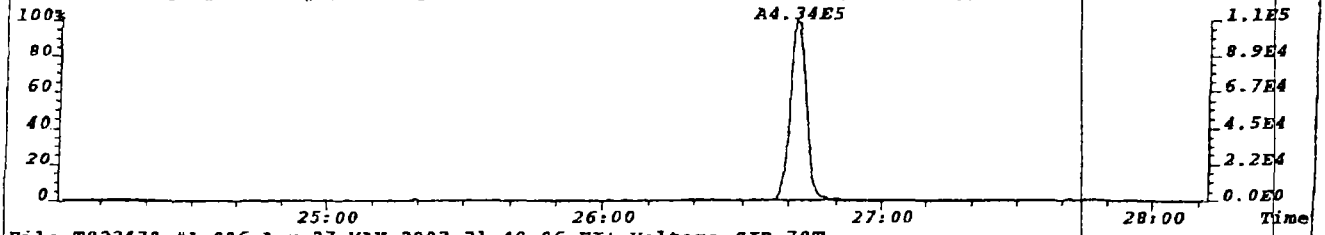
File:T022478 #1-886 Acq:27-MAY-2002 21:40:06 EI+ Voltage SIR 70T Noise:176
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,704.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCS INJ. TIME = 21:42



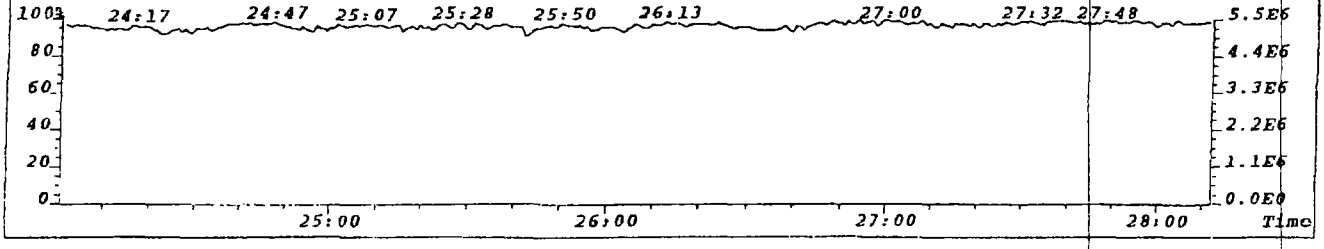
File:T022478 #1-886 Acq:27-MAY-2002 21:40:06 EI+ Voltage SIR 70T Noise:99
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,396.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCS INJ. TIME = 21:42

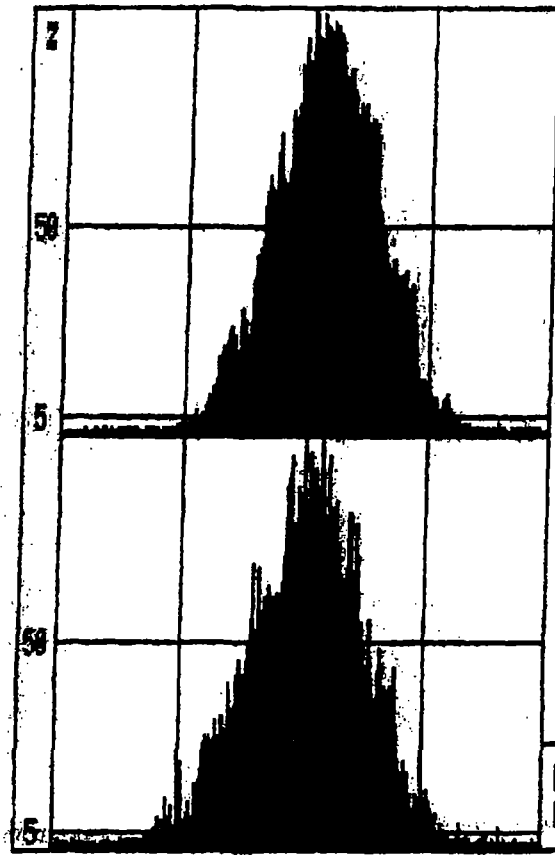


File:T022478 #1-886 Acq:27-MAY-2002 21:40:06 EI+ Voltage SIR 70T Noise:100
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,400.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCS INJ. TIME = 21:42



File:T022478 #1-886 Acq:27-MAY-2002 21:40:06 EI+ Voltage SIR 70T
330.9792 F:2 Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCS INJ. TIME = 21:42





Channel I 338.9792 Peak top
Height .85 volts Span 200 ppm

System file name	NOBSUS
Data file name	R:T527021
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

A	293	J	331	S	360
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .12 volts Span 200 ppm

Cumberland Farms

TLI Project: 57452
Client Sample: TLI LCSD

Method 8290 TCDD Analysis (b)
Analysis File: T022479

Client Project:	Lot 516, Smith St.				
Sample Matrix:	SAND	Date Received:	/ /	Spike File:	SPMIT32S
TLI ID:	TLI LCSD	Date Extracted:	05/24/2002	ICal:	TF51212
		Date Analyzed:	05/27/2002	ConCal:	T022467
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T022469	% Lipid:	n/a
GC Column:	DB-5	Analyst:	CGK	% Solids:	n/a

Analytes	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	39.5			0.80	26:42	—

Internal Standard	Conc. (pg/g)	% Recovery	QC Limits	Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDD	119	59.4	40%-130%	0.82	26:40	—

Other Standard	Conc. (pg/g)	% Recovery	QC Limits	RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	13.6	67.8	40%-130%	26:41	—

Recovery Standard	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	26:29	—

Data Reviewer: _____ 05/28/2002

MIT3.PSR v1.00, LARS 6 25.04

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Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 08:46 05/28/2002

Initial ....Date...

Data Review By: [illegible] 5/28/02

Channel specific noise levels computed from 'NL' heights.

The Total Area for each peak with an ion abundance ratio outside ratio limits has been recalculated according to method requirements.

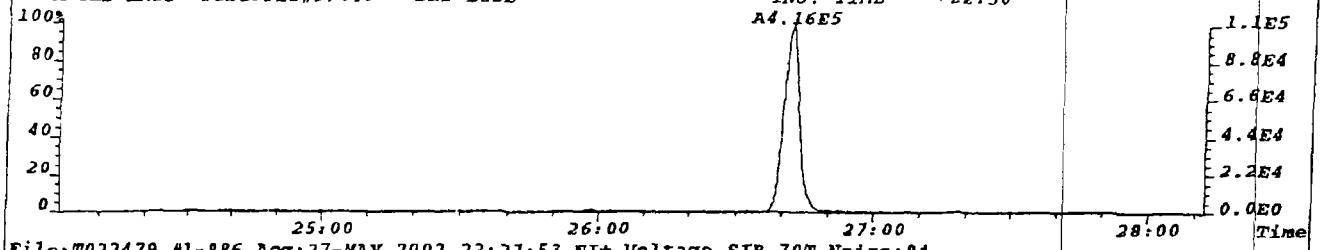
Page No. 1 Listing of T022479B.dbf
05/28/2002 Matched GC Peaks / Ratio / Ret. Time

Compound/ M_Z....	QC.Log	Omit	Why	..RT.	OK	Ratio	Total.Area/Ht	Area/Ht.Peak1	Area/Ht.Peak2	Rel.RT	Compound.Name..	ID..	Flags.
TCDD						0.65-0.89				0.899-1.043			
320-322	DC	NL				Height	0.14	0.07	0.07				
	DC	SN		24:20		0.67	0.25			0.913			
	DC	SN		25:39	RO	1.67	0.21			0.962			
	DC	SN		25:59	RO	1.72	0.57			0.974			
				26:42		0.80	93.37	41.61	51.76	1.001	2378-TCDD		AN
	DC	SN		27:13	RO	0.58	0.16			1.021			
	DC	SN		27:26		0.83	0.22			1.029			
320-322			1	Peak			93.37						
37Cl-TCDD										0.925-1.075			
328	DC	NL				Height	0.07	0.07					
	DC	WL		24:12			0.19			0.908			
	DC	WL		24:21			0.16			0.913			
	DC	WL		24:34			0.09			0.921			
	DC	WL		24:37			0.04			0.923			
	DC	WL		24:39			0.12			0.924			
	DC	SN		24:50			0.10			0.931			
				26:30			0.14	0.14		0.994			
				26:41			43.80	43.80		1.001	37Cl-TCDD		CLS
				27:05			0.29	0.29		1.016			
328			3	Peaks			44.23						
13C12-TCDD						0.65-0.89				0.925-1.075			
332-334	DC	NL				Height	0.22	0.15	0.07				
				26:29		0.82	641.08	288.93	352.15	0.993	13C12-1234-TCDD		RS1
				26:40		0.82	436.27	196.12	240.15	1.000	13C12-2378-TCDD		IS1
						Height	120.90	54.09	66.81				
				26:58		0.81	0.67	0.30	0.37	1.011			
332-334			3	Peaks			1,078.02						

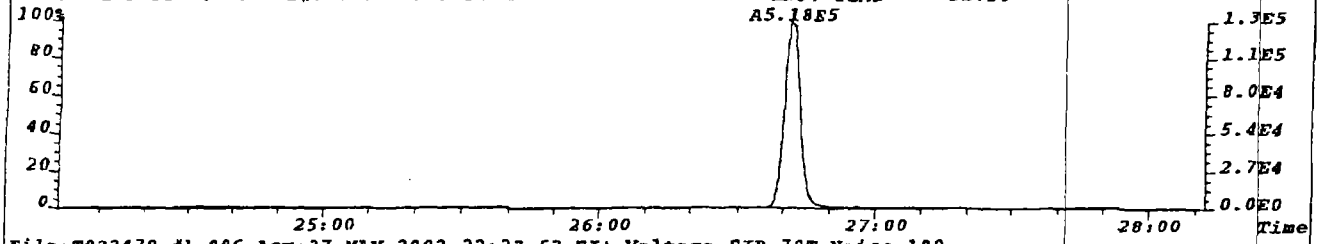
Column Description.....	"Why" Code Description.....	QC Log Desc.....
M_Z -Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT. -Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1 -Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK -RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
		N-Name Changed
		X-Ether Interference

*** End of Report ***

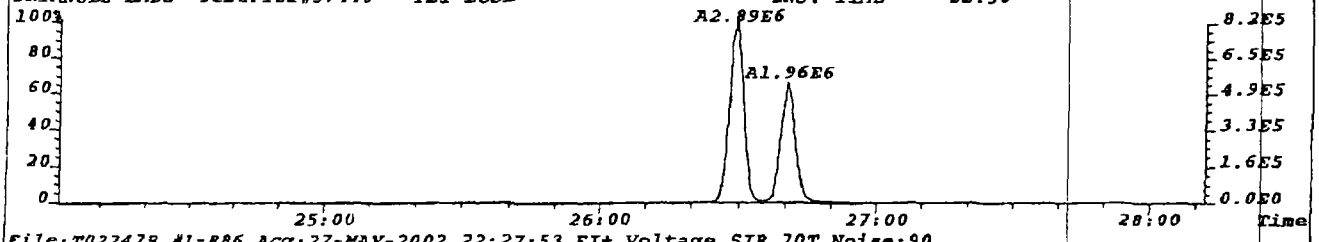
File:T022479 #1-886 Acq:27-MAY-2002 22:27:53 EI+ Voltage SIR 70T Noise:82
319.8965 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,328.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCSD INJ. TIME = 22:30



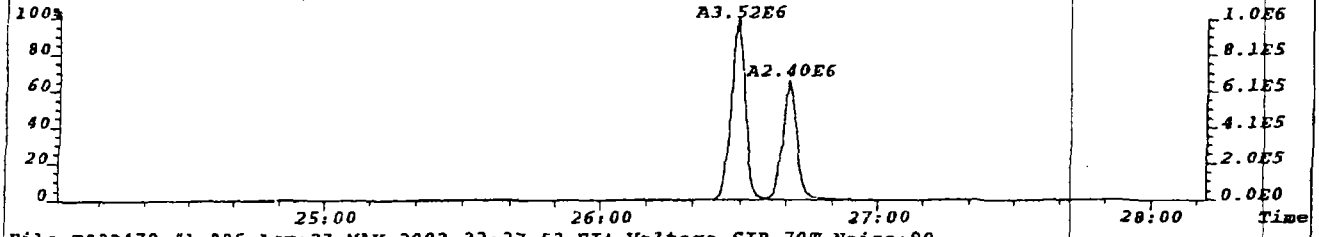
File:T022479 #1-886 Acq:27-MAY-2002 22:27:53 EI+ Voltage SIR 70T Noise:84
321.8936 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,336.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCSD INJ. TIME = 22:30



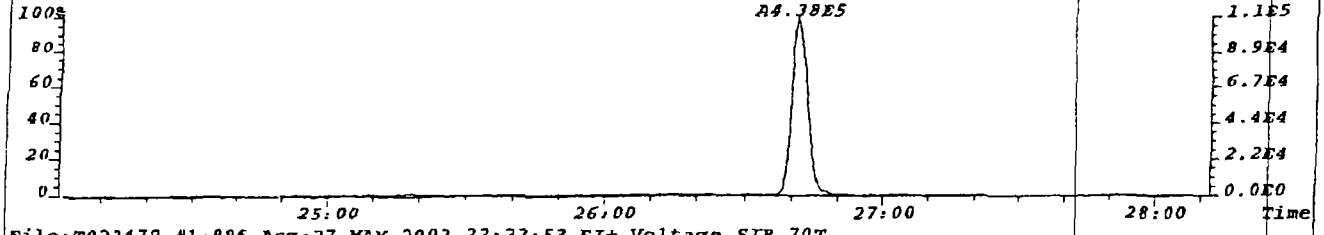
File:T022479 #1-886 Acq:27-MAY-2002 22:27:53 EI+ Voltage SIR 70T Noise:189
331.9368 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,756.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCSD INJ. TIME = 22:30



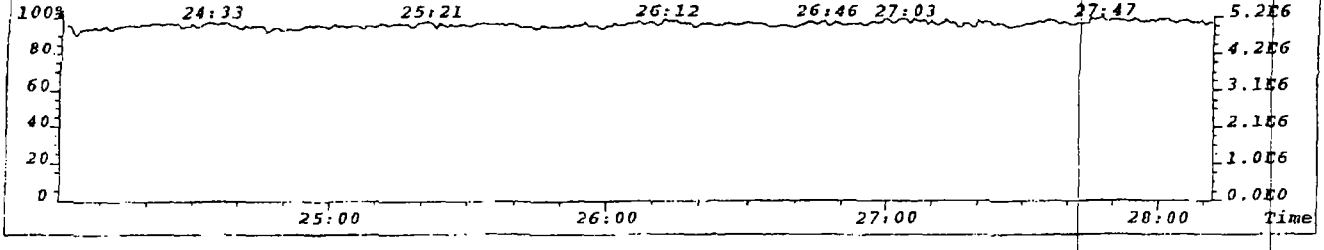
File:T022479 #1-886 Acq:27-MAY-2002 22:27:53 EI+ Voltage SIR 70T Noise:90
333.9338 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,360.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCSD INJ. TIME = 22:30

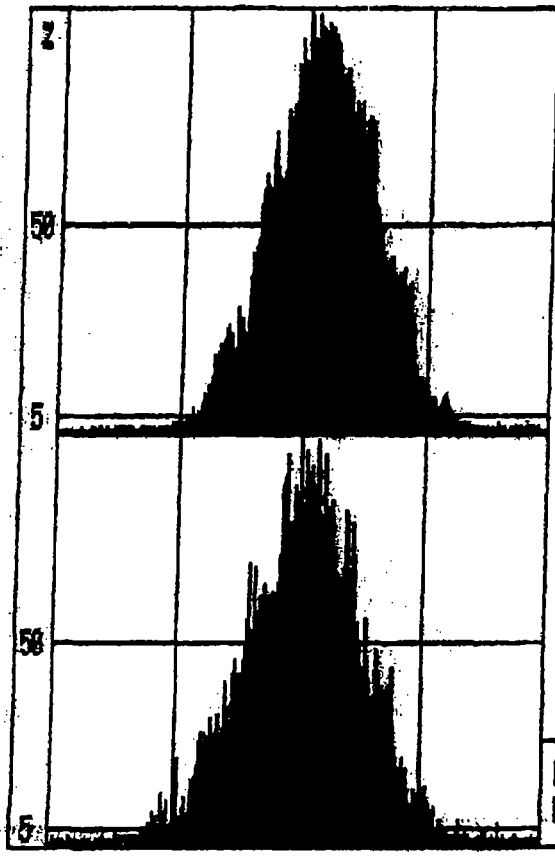


File:T022479 #1-886 Acq:27-MAY-2002 22:27:53 EI+ Voltage SIR 70T Noise:90
327.8847 F:2 BSUB(256,30,-3.0) PKD(7,5,3,0.05%,360.0,1.00%,F,T) Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCSD INJ. TIME = 22:30



File:T022479 #1-886 Acq:27-MAY-2002 22:27:53 EI+ Voltage SIR 70T
330.9792 F:2 Exp:NDB5US
TRIANGLE LABS Text:TLI#57440 TLI LCSD INJ. TIME = 22:30





Channel I 330.9792 Peak top
Height .85 volts Span 200 ppm

System file name	NOBSUS
Data file name	A:T527021
Resolution	10000
Group number	2
Ionization mode	EI+
Switching	VOLTAGE
Ref. masses	292.9825, 416.9760

A	293	J	331	S	368
B	304	K	332	T	370
C	306	L	334	U	376
D	316	M	340	V	410
E	318	N	342		
F	320	O	352		
G	322	P	354		
H	328	Q	356		
I	331	R	358		

Ref. mass 416.9760 Peak top
Height .12 volts Span 200 ppm

CALIBRATION DATA

2445 S. Alston Ave. • Durham, NC 27713 • (919) 544-6723 • FAX (919) 544-5411
www.trianglelabs.com

Initial Calibration Summary for TF51212

Analysis Date....: 01/21/2002 Method.....: MIT3
Instrument.....: T

Analytes	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
Total MCDF	0.000	0.000	100%		4:48	18:48			0
Total MCDD	0.000	0.000	100%		5:32	19:32			0
Total DCDF	0.000	0.000	100%		11:48	19:48			0
Total DCDD	0.000	0.000	100%		12:32	20:32			0
Total TriCDF	0.000	0.000	100%		15:48	22:48			0
Total TriCDD	0.000	0.000	100%		17:32	23:32			0
1368-TCDF	1.030	0.052	5%	21:36	23:48	30:48	0.808		6
1278-TCDF	1.062	0.022	2%	24:25			0.818		6
2378-TCDF	1.107	0.027	2%	24:50			0.802		6
TOTAL TCDF	1.107	0.027	2%				0.810		6
1368-TCDD	0.936	0.016	2%	22:59	24:32	31:32	0.788		6
1379-TCDD	0.825	0.027	3%	23:22			0.800		6
2378-TCDD	1.084	0.083	8%	25:33			0.766		6
TOTAL TCDD	1.084	0.083	8%				0.782		6
12378-PeCDF	0.932	0.024	3%	28:47	24:47	32:47	1.533		6
23478-PeCDF	1.020	0.037	4%	29:30			1.500		6
TOTAL PeCDF	0.976	0.030	3%				1.515		6
12378-PeCDD	1.007	0.050	5%	29:50	25:49	33:49	1.626		6
TOTAL PeCDD	1.007	0.050	5%				1.626		6
123478-HxCDF	1.207	0.047	4%	32:15	28:21	36:21	1.259		6
123678-HxCDF	1.114	0.030	3%	32:21			1.264		6
234678-HxCDF	1.054	0.044	4%	32:50			1.255		6
123789-HxCDF	0.882	0.036	4%	33:36			1.251		6
TOTAL HxCDF	1.064	0.038	4%				1.258		6
123478-HxCDD	1.085	0.032	3%	32:57	29:01	37:01	1.233		6
123678-HxCDD	1.004	0.049	5%	33:02			1.245		6
123789-HxCDD	1.069	0.036	3%	33:20			1.220		6
TOTAL HxCDD	1.052	0.038	4%				1.232		6
1234678-HpCDF	1.088	0.033	2%	35:13	31:12	39:12	1.055		6
1234789-HpCDF	1.103	0.040	4%	36:45			1.060		6
TOTAL HpCDF	1.245	0.034	3%				1.057		6
1234678-HpCDD	1.015	0.007	1%	36:15	32:15	40:15	1.021		6
TOTAL HpCDD	1.015	0.007	1%				1.021		6
OCDF	1.217	0.093	8%	40:02	35:50	43:50	0.885		6
OCDD	1.004	0.031	3%	39:51	35:50	43:50	0.828		6

Other Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
37Cl-TCDD	0.879	0.036	4%	25:33	23:32	27:32			6
13C12-PeCDF 234	0.923	0.007	1%	29:29	26:47	30:47	1.538		6
13C12-HxCDF 478	0.988	0.011	1%	32:15			0.515		6
13C12-HxCDF 234	0.925	0.009	1%	32:50			0.515		6
13C12-HxCDF 789	0.734	0.013	2%	33:35			0.518		6
13C12-HxCDD 478	0.962	0.023	2%	32:57			1.218		6
13C12-HpCDF 789	0.736	0.010	1%	36:44	33:12	39:12	0.431		6

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Printed: 16:06 02/12/2002

Initial Calibration Summary for TF51212

Internal Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-2378-TCDF	1.687	0.031	2%	24:48	23:48	25:48	0.761		6
13C12-2378-TCDD	1.146	0.019	2%	25:32	23:32	27:32	0.807		6
13C12-PeCDF 123	1.338	0.040	3%	28:47	24:47	32:47	1.536		6
13C12-PeCDD 123	0.809	0.032	4%	29:49	25:49	33:49	1.493		6
13C12-HxCDF 678	1.516	0.010	1%	32:21	28:21	36:21	0.516		6
13C12-HxCDD 678	0.985	0.016	2%	33:01	32:01	34:01	1.215		6
13C12-HpCDF 678	0.927	0.016	2%	35:12	33:12	39:12	0.437		6
13C12-HpCDD 678	0.730	0.012	2%	36:15	35:15	37:15	1.036		6
13C12-OCDD	0.596	0.031	5%	39:50	37:50	41:50	0.867		6

Recovery Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-1234-TCDD	1.000	0.000	0%	25:21			0.819		6
13C12-HxCDD 789	1.000	0.000	0%	33:20			1.207		6

*** End of Report ***

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Printed: 16:06 02/12/2002

Initial Calibration Summary for: SF52012

Analysis Date....: 02/01/2002 Method.....: MIT3
Instrument.....: S

Analytes	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
Total MCDF	0.000	0.000	100%		6:31	20:31			0
Total MCDD	0.000	0.000	100%		7:14	21:14			0
Total DCDF	0.000	0.000	100%		13:31	21:31			0
Total DCDD	0.000	0.000	100%		14:14	22:14			0
Total TriCDF	0.000	0.000	100%		17:31	24:31			0
Total TriCDD	0.000	0.000	100%		19:14	25:14			0
1368-TCDF	1.109	0.020	2%	23:28	25:31	32:31	0.837		6
1278-TCDF	0.994	0.026	3%	26:09			0.843		6
2378-TCDF	0.981	0.038	4%	26:32			0.857		6
TOTAL TCDF	0.981	0.038	4%				0.844		6
1368-TCDD	0.995	0.020	2%	24:46	26:14	33:14	0.764		6
1379-TCDD	0.809	0.063	8%	25:09			0.777		6
2378-TCDD	0.942	0.032	3%	27:15			0.768		6
TOTAL TCDD	0.942	0.032	3%				0.769		6
12378-PeCDF	0.904	0.054	6%	30:24	26:23	34:23	1.541		6
23478-PeCDF	0.965	0.075	8%	31:05			1.505		6
TOTAL PeCDF	0.934	0.064	7%				1.522		6
12378-PeCDD	0.984	0.028	3%	31:25	27:24	35:24	1.613		6
TOTAL PeCDD	0.984	0.028	3%				1.613		6
123478-HxCDF	1.071	0.043	4%	33:48	29:53	37:53	1.296		6
123678-HxCDF	1.060	0.033	3%	33:54			1.312		6
234678-HxCDF	1.059	0.048	5%	34:23			1.294		6
123789-HxCDF	0.895	0.044	5%	35:11			1.304		6
TOTAL HxCDF	1.022	0.038	4%				1.301		6
123478-HxCDD	1.022	0.054	5%	34:30	30:34	38:34	1.242		6
123678-HxCDD	0.995	0.053	5%	34:35			1.249		6
123789-HxCDD	1.030	0.052	5%	34:54			1.230		6
TOTAL HxCDD	1.016	0.050	5%				1.240		6
1234678-HpCDF	1.320	0.047	4%	36:50	32:49	40:49	1.072		6
1234789-HpCDF	1.028	0.031	3%	38:24			1.065		6
TOTAL HpCDF	1.174	0.037	3%				1.068		6
1234678-HpCDD	1.014	0.037	4%	37:53	33:53	41:53	1.074		6
TOTAL HpCDD	1.014	0.037	4%				1.074		6
OCDF	1.295	0.096	7%	41:49	37:35	45:35	0.905		6
OCDD	1.021	0.049	5%	41:36	37:35	45:35	0.852		6

Other Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
37Cl-TCDD	0.853	0.017	2%	27:15	25:14	29:14			6
13C12-PeCDF 234	0.890	0.030	3%	31:04	28:23	32:23	1.441		6
13C12-HxCDF 478	0.907	0.024	3%	33:47			0.504		6
13C12-HxCDF 234	0.981	0.020	2%	34:23			0.506		6
13C12-HxCDF 789	0.776	0.023	3%	35:10			0.503		6
13C12-HxCDD 478	0.915	0.052	6%	34:29			1.213		6
13C12-HpCDF 789	0.713	0.021	3%	38:24	34:49	40:49	0.391		6

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Printed: 19:28 02/01/2002

Initial Calibration Summary for SF52012

Internal Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-2378-TCDF	1.486	0.042	3%	26:31	25:31	27:31	0.742		6
13C12-2378-TCDD	1.141	0.044	4%	27:14	25:14	29:14	0.792		6
13C12-PeCDF 123	1.161	0.097	8%	30:23	26:23	34:23	1.449		6
13C12-PeCDD 123	0.748	0.079	11%	31:24	27:24	35:24	1.456		6
13C12-HxCDF 678	1.441	0.051	4%	33:53	29:53	37:53	0.504		6
13C12-HxCDD 678	1.017	0.042	4%	34:34	33:34	35:34	1.211		6
13C12-HpCDF 678	0.799	0.010	1%	36:49	34:49	40:49	0.395		6
13C12-HpCDD 678	0.611	0.024	4%	37:53	36:53	38:53	1.017		6
13C12-OCDD	0.506	0.049	10%	41:35	39:35	43:35	0.859		6

Recovery Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-1234-TCDD	1.000	0.000	0%	27:03			0.801		6
13C12-HxCDD 789	1.000	0.000	0%	34:54			1.201		6

*** End of Report ***

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Printed: 19:26 02/01/2002

Date: 05/27/2002 TRIANGLE LABORATORIES, INC.

Continuing Calibration for T022467

Analysis Date....: 05/27/2002 Method.....: MIT3
Operator.....: CGK Instrument..: T
Init Calibration.: TF51212 Std.Conc....: 10.00
ICal Date.....: 01/21/2002

Analyte Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
Total MCDF	0.000		6:00 20:00			0.000	0.000	100.0%
Total MCDD	0.000		6:43 20:43			0.000	0.000	100.0%
Total DCDF	0.000		13:00 21:00			0.000	0.000	100.0%
Total DCDD	0.000		13:43 21:43			0.000	0.000	100.0%
Total TriCDF	0.000		17:00 24:00			0.000	0.000	100.0%
Total TriCDD	0.000		18:43 24:43			0.000	0.000	100.0%
1368-TCDF	1.226	0.79	22:40 27:53	22:51	0.8788	1.030	0.196	19.1%
1278-TCDF	1.052	0.85		25:37	0.9854	1.062	-0.010	-0.9%
2378-TCDF	1.078	0.80		26:01	1.0008	1.107	-0.029	-2.6%
TOTAL TCDF	1.078	0.81				1.107	-0.029	-2.6%
1368-TCDD	1.072	0.78	24:01 27:52	24:12	0.9057	0.936	0.136	14.5%
1379-TCDD	0.936	0.80		24:35	0.9199	0.825	0.111	13.5%
2378-TCDD	1.017	0.72		26:44	1.0004	1.084	-0.067	-6.2%
TOTAL TCDD	1.017	0.77				1.084	-0.067	-6.2%
12378-PeCDF	0.995	1.55	27:47 31:45	29:57	1.0007	0.932	0.063	6.7%
23478-PeCDF	1.054	1.49		30:39	1.0241	1.020	0.034	3.3%
TOTAL PeCDF	1.024	1.52				0.976	0.048	5.0%
12378-PeCDD	1.109	1.64	29:01 31:36	30:59	1.0003	1.007	0.102	10.1%
TOTAL PeCDD	1.109	1.64				1.007	0.102	10.1%
123478-HxCDF	1.193	1.24	32:14 34:56	33:23	0.9979	1.207	-0.014	-1.2%
123678-HxCDF	1.132	1.22		33:28	1.0006	1.114	0.018	1.6%
234678-HxCDF	1.077	1.23		33:57	1.0149	1.054	0.023	2.2%

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Printed: 14:27 05/27/2002

Date: 05/27/2002 TRIANGLE LABORATORIES, INC.

Continuing Calibration for T022467

123789-HxCDF	0.874	1.25		34:43	1.0380	0.882	-0.008	-0.9%
TOTAL HxCDF	1.069	1.23				1.064	0.005	0.5%
123478-HxCDD	1.055	1.27	32:43 34:35	34:04	0.9982	1.085	-0.030	-2.7%
123678-HxCDD	1.008	1.26		34:08	1.0000	1.004	0.004	0.4%
123789-HxCDD	1.015	1.26		34:28	1.0100	1.069	-0.054	-5.0%
TOTAL HxCDD	1.026	1.26				1.052	-0.026	-2.5%
1234678-HpCDF	1.483	1.02	36:10 38:02	36:21	1.0006	1.388	0.095	6.9%
1234789-HpCDF	1.090	1.04		37:53	1.0427	1.103	-0.013	-1.2%
TOTAL HpCDF	1.287	1.03				1.245	0.042	3.3%
1234678-HpCDD	1.053	1.00	36:27 37:32	37:23	1.0003	1.015	0.038	3.8%
TOTAL HpCDD	1.053	1.00				1.015	0.038	3.8%
OCDF	1.417	0.89	37:00 45:00	41:12	1.0049	1.217	0.200	16.5%
OCDD	1.100	0.82	37:00 45:00	41:01	1.0005	1.004	0.096	9.6%

Other Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
37Cl-TCDD	0.861		24:43 28:43	26:44	1.0004	0.879	-0.018	-2.0%
13C12-PeCDF 234	0.898	1.57	25:56 33:56	30:38	1.0234	0.923	-0.025	-2.7%
13C12-HxCDF 478	0.952	0.50	29:27 37:27	33:22	0.9976	0.988	-0.036	-3.7%
13C12-HxCDF 234	0.933	0.52		33:57	1.0149	0.925	0.008	0.8%
13C12-HxCDF 789	0.725	0.50		34:42	1.0374	0.734	-0.009	-1.2%
13C12-HxCDD 478	0.906	1.21	33:08 35:08	34:03	0.9977	0.962	-0.056	-5.8%
13C12-HpCDF 789	0.684	0.41	34:20 40:20	37:52	1.0424	0.736	-0.052	-7.0%

Internal Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-2378-TCDF	1.747	0.75	25:00 27:00	26:00	1.0000	1.687	0.060	3.5%
13C12-2378-TCDD	1.248	0.79	24:43 28:43	26:43	1.0000	1.146	0.102	8.9%

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Continuing Calibration for T022467

13C12-PeCDF 123	1.027	1.50	25:56 33:56	29:56	1.0000	1.338	-0.311	-23.2%
13C12-PeCDD 123	0.592	1.39	26:58 34:58	30:58	1.0000	0.809	-0.217	-26.9%
13C12-HxCDF 678	1.514	0.49	29:27 37:27	33:27	1.0000	1.516	-0.002	-0.1%
13C12-HxCDD 678	1.020	1.17	33:08 35:08	34:08	1.0000	0.985	0.035	3.6%
13C12-HpCDF 678	0.848	0.41	34:20 40:20	36:20	1.0000	0.927	-0.079	-8.5%
13C12-HpCDD 678	0.645	1.01	36:22 38:22	37:22	1.0000	0.730	-0.085	-11.6%
13C12-OCDD	0.445	0.85	40:49 41:09	41:00	1.0000	0.596	-0.151	-25.3%

Recovery Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-1234-TCDD	1.000	0.80	24:43 28:43	26:32	0.9929	1.000	0.000	0.0%
13C12-HxCDD 789	1.000	1.21	33:08 35:08	34:27	1.0094	1.000	0.000	0.0%

QC Front End Check: 2.6927 TetraRS/HexaRS: 1.567

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Compound/ M_Z....	..RT.	OK Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..
TCDF		0.65-0.89						
304-306	22:51	0.79	88.90	39.26	49.64	0.879	1368-TCDF	AN
	25:37	0.85	76.26	35.01	41.25	0.985	1278-TCDF	AN
	26:01	0.80	78.14	34.77	43.37	1.001	2378-TCDF	AN
304-306		3 Peaks						
13C12-TCDF		0.65-0.89						
316-318	26:00	0.75	724.89	309.90	414.99	1.000	13C12-2378-TCDF	ISD
316-318		1 Peak						

---------- Above: TCDF / TCDD Follows ----------

TCDD		0.65-0.89						
320-322	24:12	0.78	55.51	24.29	31.22	0.906	1368-TCDD	AN
	24:35	0.80	48.47	21.53	26.94	0.920	1379-TCDD	AN
	26:44	0.72	52.65	22.12	30.53	1.000	2378-TCDD	AN
320		3 Peaks						
37Cl-TCDD								
328	26:44		44.59	44.59		1.000	37Cl-TCDD	CLS
328-330		1 Peak						
13C12-TCDD		0.65-0.89						
332-334	26:32	0.80	415.01	184.99	230.02	0.993	13C12-1234-TCDD	RS1
	26:43	0.79	517.78	228.70	289.08	1.000	13C12-2378-TCDD	IS1
332-334		2 Peaks						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF		1.32-1.78						
340-342	29:57	1.55	212.04	128.79	83.25	1.001	12378-PeCDF	AN
	30:39	1.49	224.65	134.38	90.27	1.024	23478-PeCDF	AN
340-342		2 Peaks						
13C12-PeCDF		1.32-1.78						
352-354	29:56	1.50	426.32	256.03	170.29	1.000	13C12-PeCDF 123	IS2
	30:38	1.57	382.97	233.96	149.01	1.023	13C12-PeCDF 234	SUR1
352-354		2 Peaks						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD		1.32-1.78						
356-358	30:59	1.64	136.16	84.62	51.54	1.000	12378-PeCDD	AN
356-358		1 Peak						
13C12-PeCDD		1.32-1.78						
368-370	30:58	1.39	245.52	142.68	102.84	1.000	13C12-PeCDD 123	IS3
368-370		1 Peak						

---------- Above: PeCDD / HxCDF Follows ----------

Compound/ M_Z....	..RT.	OK Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..
HxCDF		1.05-1.43						
374-376	33:23	1.24	194.87	107.73	87.14	0.998	123478-HxCDF	AN
	33:28	1.22	184.93	101.66	83.27	1.001	123678-HxCDF	AN
	33:57	1.23	176.03	97.09	78.94	1.015	234678-HxCDF	AN
	34:43	1.25	142.90	79.31	63.59	1.038	123789-HxCDF	AN
374-376		4 Peaks						
13C12-HxCDF		0.43-0.59						
384-386	33:22	0.50	311.00	103.65	207.35	0.998	13C12-HxCDF 478	SUR2
	33:27	0.49	326.82	108.13	218.69	1.000	13C12-HxCDF 678	IS4
	33:57	0.52	304.78	103.74	201.04	1.015	13C12-HxCDF 234	ALT2
	34:42	0.50	237.10	79.49	157.61	1.037	13C12-HxCDF 789	ALT1
384-386		4 Peaks						

---------- Above: HxCDF / HxCDD Follows ----------

HxCDD		1.05-1.43						
390-392	34:04	1.27	116.18	64.91	51.27	0.998	123478-HxCDD	AN
	34:08	1.26	110.96	61.83	49.13	1.000	123678-HxCDD	AN
	34:28	1.26	111.79	62.24	49.55	1.010	123789-HxCDD	AN
390-392		3 Peaks						
13C12-HxCDD		1.05-1.43						
402-404	34:03	1.21	199.52	109.23	90.29	0.998	13C12-HxCDD 478	SUR3
	34:08	1.17	220.20	118.87	101.33	1.000	13C12-HxCDD 678	IS5
	34:27	1.21	215.82	118.08	97.74	1.009	13C12-HxCDD 789	RS2
402-404		3 Peaks						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF		0.88-1.20						
408-410	36:21	1.02	135.74	68.52	67.22	1.001	1234678-HpCDF	AN
	37:53	1.04	99.74	50.83	48.91	1.043	1234789-HpCDF	AN
408-410		2 Peaks						
13C12-HpCDF		0.37-0.51						
418-420	36:20	0.41	183.02	53.21	129.81	1.000	13C12-HpCDF 678	IS6
	37:52	0.41	125.25	36.23	89.02	1.042	13C12-HpCDF 789	SUR4
418-420		2 Peaks						

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD		0.88-1.20						
424-426	37:23	1.00	73.36	36.77	36.59	1.000	1234678-HpCDD	AN
424-426		1 Peak						
13C12-HpCDD		0.88-1.20						
436-438	37:22	1.01	139.27	69.81	69.46	1.000	13C12-HpCDD 678	IS7
436-438		1 Peak						

---------- Above: HpCDD / Octa-CDD and CDF Follows ----

Compound/ M_Z....	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..
OCDF		0.76-1.02							
442-444	41:12		0.89	136.26	64.05	72.21	1.005	OCDF	AN
442-444		1 Peak							
OCDD		0.76-1.02							
458-460	41:01		0.82	105.78	47.74	58.04	1.001	OCDD	AN
458-460		1 Peak							
13C12-OCDD		0.76-1.02							
470-472	41:00		0.85	192.29	88.19	104.10	1.000	13C12-OCDD	IS8
470		1 Peak							

Column Description.....

M_Z - Nominal Ion Mass(es)
..RT. - Retention Time (mm:ss)
Rat.1 - Ratio of M/M+2 Ions
OK - RO=Ratio Outside Limits
Rel.RT - Relative Retention Time

*** End of Report ***

Date: 05/27/2002 TRIANGLE LABORATORIES, INC.

Continuing Calibration for S022151

Analysis Date....: 05/27/2002 Method.....: MIT3
Operator.....: CGK Instrument..: S
Init Calibration..: SF52012 Std.Conc....: 10.00
ICal Date.....: 02/01/2002

Analyte Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
Total MCDF	0.000		6:03 20:03			0.000	0.000	100.0%
Total MCDD	0.000		6:46 20:46			0.000	0.000	100.0%
Total DCDF	0.000		13:03 21:03			0.000	0.000	100.0%
Total DCDD	0.000		13:46 21:46			0.000	0.000	100.0%
Total TriCDF	0.000		17:03 24:03			0.000	0.000	100.0%
Total TriCDD	0.000		18:46 24:46			0.000	0.000	100.0%
1368-TCDF	1.532	0.81	22:43 27:56	22:55	0.8798	1.109	0.423	38.1%
1278-TCDF	1.039	0.84		25:39	0.9846	0.994	0.045	4.6%
2378-TCDF	1.176	0.75		26:04	1.0008	0.981	0.195	19.9%
TOTAL TCDF	1.176	0.80				0.981	0.195	19.9%
1368-TCDD	1.076	0.74	24:03 27:55	24:15	0.9059	0.995	0.081	8.2%
1379-TCDD	0.804	0.86		24:38	0.9201	0.809	-0.005	-0.6%
2378-TCDD	1.041	0.84		26:46	1.0000	0.942	0.099	10.5%
TOTAL TCDD	1.041	0.81				0.942	0.099	10.5%
12378-PeCDF	0.880	1.48	27:49 31:48	30:00	1.0007	0.904	-0.024	-2.6%
23478-PeCDF	0.949	1.49		30:41	1.0233	0.965	-0.016	-1.6%
TOTAL PeCDF	0.915	1.48				0.934	-0.019	-2.1%
12378-PeCDD	0.934	1.51	29:04 31:39	31:01	1.0006	0.984	-0.050	-5.0%
TOTAL PeCDD	0.934	1.51				0.984	-0.050	-5.0%
123478-HxCDF	1.045	1.23	32:17 34:59	33:25	0.9970	1.071	-0.027	-2.5%
123678-HxCDF	1.220	1.24		33:31	1.0000	1.060	0.160	15.1%
234678-HxCDF	0.991	1.26		34:00	1.0143	1.059	-0.068	-6.4%

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Printed: 13:45 05/27/2002

Date: 05/27/2002 TRIANGLE LABORATORIES, INC.

Continuing Calibration for S022151

123789-HxCDF	0.764	1.38		34:46	1.0373	0.895	-0.131	-14.7%
TOTAL HxCDF	1.005	1.27				1.022	-0.017	-1.7%
123478-HxCDD	0.931	1.28	32:46 34:38	34:07	0.9982	1.022	-0.091	-8.9%
123678-HxCDD	1.105	1.18		34:12	1.0006	0.995	0.110	11.0%
123789-HxCDD	0.921	1.28		34:31	1.0099	1.030	-0.109	-10.6%
TOTAL HxCDD	0.985	1.24				1.016	-0.031	-3.0%
1234678-HpCDF	1.458	1.02	36:12 38:04	36:23	1.0000	1.320	0.138	10.4%
1234789-HpCDF	1.073	1.01		37:55	1.0423	1.028	0.045	4.4%
TOTAL HpCDF	1.265	1.02				1.174	0.091	7.8%
1234678-HpCDD	1.091	1.13	36:29 37:35	37:25	1.0000	1.014	0.077	7.6%
TOTAL HpCDD	1.091	1.13				1.014	0.077	7.6%
OCDF	1.485	0.91	36:59 44:59	41:12	1.0054	1.295	0.190	14.7%
OCDD	1.033	0.92	36:59 44:59	41:01	1.0010	1.021	0.012	1.2%

Other Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
37Cl-TCDD	0.930		24:46 28:46	26:46	1.0000	0.853	0.077	9.1%
13C12-PeCDF 234	0.873	1.53	25:59 33:59	30:40	1.0230	0.890	-0.017	-1.9%
13C12-HxCDF 478	0.795	0.50	29:31 37:31	33:25	0.9970	0.907	-0.112	-12.3%
13C12-HxCDF 234	0.815	0.51		34:00	1.0143	0.981	-0.166	-16.9%
13C12-HxCDF 789	0.616	0.50		34:45	1.0367	0.776	-0.160	-20.6%
13C12-HxCDD 478	0.774	1.34	33:11 35:11	34:06	0.9977	0.915	-0.141	-15.5%
13C12-HpCDF 789	0.675	0.45	34:23 40:23	37:54	1.0418	0.713	-0.038	-5.4%

Internal Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-2378-TCDF	1.537	0.76	25:03 27:03	26:03	1.0000	1.486	0.051	3.4%
13C12-2378-TCDD	1.075	0.80	24:46 28:46	26:46	1.0000	1.141	-0.066	-5.8%

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Continuing Calibration for S022151

13C12-PeCDF 123	0.944	1.47	25:59 33:59	29:59	1.0000	1.161	-0.217	-18.7%
13C12-PeCDD 123	0.596	1.44	27:00 35:00	31:00	1.0000	0.748	-0.152	-20.3%
13C12-HxCDF 678	2.072	0.53	29:31 37:31	33:31	1.0000	1.441	0.631	43.8%
13C12-HxCDD 678	1.261	1.16	33:11 35:11	34:11	1.0000	1.017	0.244	24.0%
13C12-HpCDF 678	1.073	0.46	34:23 40:23	36:23	1.0000	0.799	0.274	34.3%
13C12-HpCDD 678	0.678	0.95	36:25 38:25	37:25	1.0000	0.611	0.067	11.0%
13C12-OCDD	0.465	0.82	40:49 41:09	40:59	1.0000	0.506	-0.041	-8.0%

Recovery Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-1234-TCDD	1.000	0.81	24:46 28:46	26:35	0.9929	1.000	0.000	0.0%
13C12-HxCDD 789	1.000	1.15	33:11 35:11	34:30	1.0094	1.000	0.000	0.0%

QC Front End Check: 2.9420 TetraRS/HexaRS: 2.126

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Compound/ M_Z....	..RT.	OK Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..
TCDF		0.65-0.89						
304-306	22:55	0.81	252.07	112.81	139.26	0.880	1368-TCDF	AN
	25:39	0.84	171.03	78.26	92.77	0.985	1278-TCDF	AN
	26:04	0.75	193.57	83.13	110.44	1.001	2378-TCDF	AN
304-306		3 Peaks						
13C12-TCDF		0.65-0.89						
316-318	26:03	0.76	1,645.61	707.99	937.62	1.000	13C12-2378-TCDF	ISO
316-318		1 Peak						

---------- Above: TCDF / TCDD Follows ----------

TCDD		0.65-0.89						
320-322	24:15	0.74	123.89	52.89	71.00	0.906	1368-TCDD	AN
	24:38	0.86	92.56	42.81	49.75	0.920	1379-TCDD	AN
	26:46	0.84	119.85	54.81	65.04	1.000	2378-TCDD	AN
320		3 Peaks						
37Cl-TCDD								
328	26:46		107.07	107.07		1.000	37Cl-TCDD	CLS
328-330		1 Peak						
13C12-TCDD		0.65-0.89						
332-334	26:35	0.81	1,070.62	477.49	593.13	0.993	13C12-1234-TCDD	RS1
	26:46	0.80	1,150.94	510.36	640.58	1.000	13C12-2378-TCDD	IS1
332-334		2 Peaks						

---------- Above: TCDD / PeCDF Follows ----------

PeCDF		1.32-1.78						
340-342	30:00	1.48	444.94	265.35	179.59	1.001	12378-PeCDF	AN
	30:41	1.49	480.04	287.17	192.87	1.023	23478-PeCDF	AN
340-342		2 Peaks						
13C12-PeCDF		1.32-1.78						
352-354	29:59	1.47	1,011.16	601.11	410.05	1.000	13C12-PeCDF 123	IS2
	30:40	1.53	882.75	533.95	348.80	1.023	13C12-PeCDF 234	SUR1
352-354		2 Peaks						

---------- Above: PeCDF / PeCDD Follows ----------

PeCDD		1.32-1.78						
356-358	31:01	1.51	298.02	179.18	118.84	1.001	12378-PeCDD	AN
356-358		1 Peak						
13C12-PeCDD		1.32-1.78						
368-370	31:00	1.44	637.93	376.51	261.42	1.000	13C12-PeCDD 123	IS3
368-370		1 Peak						

---------- Above: PeCDD / HxCDF Follows ----------

Compound/ M_Z....	..RT.	OK Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..
HxCDF	1.05-1.43							
374-376	33:25	1.23	455.00	251.33	203.67	0.997	123478-HxCDF	AN
	33:31	1.24	531.60	293.90	237.70	1.000	123678-HxCDF	AN
	34:00	1.26	431.64	240.60	191.04	1.014	234678-HxCDF	AN
	34:46	1.38	332.61	193.13	139.48	1.037	123789-HxCDF	AN
374-376		4 Peaks						
13C12-HxCDF	0.43-0.59							
384-386	33:25	0.50	692.90	231.94	460.96	0.997	13C12-HxCDF 478	SUR2
	33:31	0.53	871.23	302.30	568.93	1.000	13C12-HxCDF 678	IS4
	34:00	0.51	710.12	239.05	471.07	1.014	13C12-HxCDF 234	ALT2
	34:45	0.50	536.51	178.53	357.98	1.037	13C12-HxCDF 789	ALT1
384-386		4 Peaks						

---------- Above: HxCDF / HxCDD Follows ----------

HxCDD	1.05-1.43							
390-392	34:07	1.28	246.60	138.38	108.22	0.998	123478-HxCDD	AN
	34:12	1.18	292.79	158.60	134.19	1.001	123678-HxCDD	AN
	34:31	1.28	243.94	137.03	106.91	1.010	123789-HxCDD	AN
390-392		3 Peaks						
13C12-HxCDD	1.05-1.43							
402-404	34:06	1.34	409.99	234.69	175.30	0.998	13C12-HxCDD 478	SUR3
	34:11	1.16	529.99	284.90	245.09	1.000	13C12-HxCDD 678	IS5
	34:30	1.15	420.38	224.58	195.80	1.009	13C12-HxCDD 789	RS2
402-404		3 Peaks						

---------- Above: HxCDD / HpCDF Follows ----------

HpCDF	0.88-1.20							
408-410	36:23	1.02	328.66	166.34	162.32	1.000	1234678-HpCDF	AN
	37:55	1.01	241.94	121.49	120.45	1.042	1234789-HpCDF	AN
408-410		2 Peaks						
13C12-HpCDF	0.37-0.51							
418-420	36:23	0.46	450.93	142.32	308.61	1.000	13C12-HpCDF 678	IS6
	37:54	0.45	304.25	94.33	209.92	1.042	13C12-HpCDF 789	SUR4
418-420		2 Peaks						

---------- Above: HpCDF / HpCDD Follows ----------

HpCDD	0.88-1.20							
424-426	37:25	1.13	155.59	82.50	73.09	1.000	1234678-HpCDD	AN
424-426		1 Peak						
13C12-HpCDD	0.88-1.20							
436-438	37:25	0.95	285.13	139.00	146.13	1.000	13C12-HpCDD 678	IS7
436-438		1 Peak						

---------- Above: HpCDD / Octa-CDD and CDF Follows ----

Compound/ M_Z....	..RT.	OK	Ratio	Total.Area...	Area.Peak.1..	Area.Peak.2..	Rel.RT	Compound.Name..	ID..
OCDF			0.76-1.02						
442-444	41:12		0.91	290.55	138.35	152.20	1.005	OCDF	AN
442-444			1 Peak						
OCDD			0.76-1.02						
458-460	41:01		0.92	202.11	96.76	105.35	1.001	OCDD	AN
458-460			1 Peak						
13C12-OCDD			0.76-1.02						
470-472	40:59		0.82	391.21	175.82	215.39	1.000	13C12-OCDD	IS8
470			1 Peak						

Column Description.....

M_Z - Nominal Ion Mass(es)
..RT. - Retention Time (mm:ss)
Rat.1 - Ratio of M/M+2 Ions
OK - RO=Ratio Outside Limits
Rel.RT - Relative Retention Time

*** End of Report ***

WATER LEVEL MEASUREMENTS

Location	2064 Smith St., North Providence	*Lincoln No.*	RCF8338F
Client	CFI	*Date*	05/20/2002
Instrument	ORS	*Gauged By*	PL
Checked By			

WELL #	M.P. ELEVATIONS	DEPTH TO PRODUCT	DEPTH TO WATER	PRODUCT THICKNESS	EQUIVALENT HD ELEVATION
MW-1	97.65		10.27	0.00	87.38
MW-2	96.07		8.60	0.00	87.47
MW-3	92.13		4.81	0.00	87.32

M.P. Elevations as of : 1/25/01. Elevation assumed 100' at right front corner of building

Notes:

GROUNDWATER ANALYTICAL

Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475

May 29, 2002

Mr. Paul Leclerc
Lincoln Environmental, Inc.
333 Washington Hwy.
Smithfield, RI 02917

Project: **Lot 516 Smith St. N. Prov./RCF8338F**
Lab ID: **50977**
Sampled: **05-20-02**

Dear Paul:

Enclosed are the Volatile Organics and Semivolatile Organics Analyses performed for the above referenced project. This project was processed for Priority One Week turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a project narrative indicating project changes and non-conformances, a brief description of the Quality Assurance/Quality Control procedures employed by our laboratory, and a statement of our state certifications.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Jonathan R. Sanford
President

JRS/kh
Enclosures

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-1	Laboratory ID:	50977-01
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	VM5-2210-W
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	40 mL VOA Vial	Received:	05-21-02
Preservation:	HCl / Cool	Analyzed:	05-24-02
Matrix:	Aqueous	Dilution Factor:	1
		Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/L	0.5
74-87-3	Chloromethane	BRL	ug/L	0.5
75-01-4	Vinyl Chloride	BRL	ug/L	0.5
74-83-9	Bromomethane	BRL	ug/L	0.5
75-00-3	Chloroethane	BRL	ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL	ug/L	0.5
60-29-7	Diethyl Ether	BRL	ug/L	2
75-35-4	1,1-Dichloroethene	BRL	ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL	ug/L	5
67-64-1	Acetone	BRL	ug/L	20
75-15-0	Carbon Disulfide	BRL	ug/L	5
75-09-2	Methylene Chloride	BRL	ug/L	2.5
156-60-5	*trans*- 1,2-Dichloroethene	BRL	ug/L	0.5
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL	ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL	ug/L	0.5
590-20-7	2,2-Dichloropropane	BRL	ug/L	0.5
156-59-2	*cis*- 1,2-Dichloroethene	BRL	ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL	ug/L	5
74-97-5	Bromochloromethane	BRL	ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL	ug/L	5
67-66-3	Chloroform	BRL	ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL	ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL	ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL	ug/L	0.5
71-43-2	Benzene	BRL	ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL	ug/L	0.5
79-01-6	Trichloroethene	BRL	ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL	ug/L	0.5
74-95-3	Dibromomethane	BRL	ug/L	0.5
75-27-4	Bromodichloromethane	BRL	ug/L	0.5
10061-01-5	*cis*- 1,3-Dichloropropene	BRL	ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/L	5
108-88-3	Toluene	BRL	ug/L	0.5
10061-02-6	*trans*- 1,3-Dichloropropene	BRL	ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL	ug/L	0.5
127-18-4	Tetrachloroethene	2	ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL	ug/L	0.5
591-78-6	2-Hexanone	BRL	ug/L	5
124-48-1	Dibromochloromethane	BRL	ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/L	0.5
108-90-7	Chlorobenzene	BRL	ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/L	0.5
100-41-4	Ethylbenzene	BRL	ug/L	0.5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	MW-1	Laboratory ID:	50977-01
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	VM5-2210-W
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	40 mL VOA Vial	Received:	05-21-02
Preservation:	HCl / Cool	Analyzed:	05-24-02
Matrix:	Aqueous	Dilution Factor:	1
		Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL	ug/L	0.5
95-47-6	*ortho*- Xylene	BRL	ug/L	0.5
100-42-5	Styrene	BRL	ug/L	0.5
75-25-2	Bromoform	BRL	ug/L	0.5
98-82-8	Isopropylbenzene	BRL	ug/L	0.5
108-86-1	Bromobenzene	BRL	ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL	ug/L	0.5
103-65-1	*n*-Propylbenzene	BRL	ug/L	0.5
95-49-8	2-Chlorotoluene	BRL	ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/L	0.5
106-43-4	4-Chlorotoluene	BRL	ug/L	0.5
98-06-6	*tert*- Butylbenzene	BRL	ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/L	0.5
135-98-8	*sec*-Butylbenzene	BRL	ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL	ug/L	0.5
99-87-6	4-Isopropyltoluene	BRL	ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL	ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL	ug/L	0.5
104-51-8	*n*-Butylbenzene	BRL	ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL	ug/L	0.5
91-20-3	Naphthalene	BRL	ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/L	0.5

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	104 %	86 - 118 %
1,2-Dichloroethane-d_4	93 %	80 - 120 %
Toluene-d_8	105 %	88 - 110 %
4-Bromofluorobenzene	98 %	86 - 115 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Analysis performed utilizing 25mL sample purge volume.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-2	Laboratory ID:	50977-02
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	VM5-2210-W
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	40 mL VOA Vial	Received:	05-21-02
Preservation:	HCl / Cool	Analyzed:	05-24-02
Matrix:	Aqueous	Dilution Factor:	1
		Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/L	0.5
74-87-3	Chloromethane	BRL	ug/L	0.5
75-01-4	Vinyl Chloride	BRL	ug/L	0.5
74-83-9	Bromomethane	BRL	ug/L	0.5
75-00-3	Chloroethane	BRL	ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL	ug/L	0.5
60-29-7	Diethyl Ether	BRL	ug/L	2
75-35-4	1,1-Dichloroethene	BRL	ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL	ug/L	5
67-64-1	Acetone	BRL	ug/L	20
75-15-0	Carbon Disulfide	BRL	ug/L	5
75-09-2	Methylene Chloride	BRL	ug/L	2.5
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/L	0.5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL	ug/L	0.5
590-20-7	2,2-Dichloropropane	BRL	ug/L	0.5
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL	ug/L	5
74-97-5	Bromochloromethane	BRL	ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL	ug/L	5
67-66-3	Chloroform	1	ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL	ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL	ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL	ug/L	0.5
71-43-2	Benzene	BRL	ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL	ug/L	0.5
79-01-6	Trichloroethene	BRL	ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL	ug/L	0.5
74-95-3	Dibromomethane	BRL	ug/L	0.5
75-27-4	Bromodichloromethane	BRL	ug/L	0.5
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/L	5
108-88-3	Toluene	BRL	ug/L	0.5
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL	ug/L	0.5
127-18-4	Tetrachloroethene	BRL	ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL	ug/L	0.5
591-78-6	2-Hexanone	BRL	ug/L	5
124-48-1	Dibromochloromethane	BRL	ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/L	0.5
108-90-7	Chlorobenzene	BRL	ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/L	0.5
100-41-4	Ethylbenzene	BRL	ug/L	0.5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	MW-2	Laboratory ID:	50977-02
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	VM5-2210-W
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	40 mL VOA Vial	Received:	05-21-02
Preservation:	HCl / Cool	Analyzed:	05-24-02
Matrix:	Aqueous	Dilution Factor:	1
		Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL	ug/L	0.5
95-47-6	*ortho*- Xylene	BRL	ug/L	0.5
100-42-5	Styrene	BRL	ug/L	0.5
75-25-2	Bromoform	BRL	ug/L	0.5
98-82-8	Isopropylbenzene	BRL	ug/L	0.5
108-86-1	Bromobenzene	BRL	ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL	ug/L	0.5
103-65-1	*n*-Propylbenzene	BRL	ug/L	0.5
95-49-8	2-Chlorotoluene	BRL	ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/L	0.5
106-43-4	4-Chlorotoluene	BRL	ug/L	0.5
98-06-6	*tert*- Butylbenzene	BRL	ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/L	0.5
135-98-8	*sec*-Butylbenzene	BRL	ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL	ug/L	0.5
99-87-6	4-Isopropyltoluene	BRL	ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL	ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL	ug/L	0.5
104-51-8	*n*-Butylbenzene	BRL	ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL	ug/L	0.5
91-20-3	Naphthalene	BRL	ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/L	0.5

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	103 %	86 - 118 %
1,2-Dichloroethane-d_4	92 %	80 - 120 %
Toluene-d_8	104 %	88 - 110 %
4-Bromofluorobenzene	96 %	86 - 115 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Analysis performed utilizing 25mL sample purge volume.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	MW-3	Laboratory ID:	50977-03
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	VM5-2210-W
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	40 mL VOA Vial	Received:	05-21-02
Preservation:	HCl / Cool	Analyzed:	05-24-02
Matrix:	Aqueous	Dilution Factor:	1
		Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/L	0.5
74-87-3	Chloromethane	BRL	ug/L	0.5
75-01-4	Vinyl Chloride	BRL	ug/L	0.5
74-83-9	Bromomethane	BRL	ug/L	0.5
75-00-3	Chloroethane	BRL	ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL	ug/L	0.5
60-29-7	Diethyl Ether	BRL	ug/L	2
75-35-4	1,1-Dichloroethene	BRL	ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL	ug/L	5
67-64-1	Acetone	BRL	ug/L	20
75-15-0	Carbon Disulfide	BRL	ug/L	5
75-09-2	Methylene Chloride	BRL	ug/L	2.5
156-60-5	*trans*- 1,2-Dichloroethene	BRL	ug/L	0.5
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	1	ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL	ug/L	0.5
590-20-7	2,2-Dichloropropane	BRL	ug/L	0.5
156-59-2	*cis*- 1,2-Dichloroethene	BRL	ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL	ug/L	5
74-97-5	Bromochloromethane	BRL	ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL	ug/L	5
67-66-3	Chloroform	BRL	ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL	ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL	ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL	ug/L	0.5
71-43-2	Benzene	1	ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL	ug/L	0.5
79-01-6	Trichloroethene	BRL	ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL	ug/L	0.5
74-95-3	Dibromomethane	BRL	ug/L	0.5
75-27-4	Bromodichloromethane	BRL	ug/L	0.5
10061-01-5	*cis*- 1,3-Dichloropropene	BRL	ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/L	5
108-88-3	Toluene	BRL	ug/L	0.5
10061-02-6	*trans*- 1,3-Dichloropropene	BRL	ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL	ug/L	0.5
127-18-4	Tetrachloroethene	BRL	ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL	ug/L	0.5
591-78-6	2-Hexanone	BRL	ug/L	5
124-48-1	Dibromochloromethane	BRL	ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/L	0.5
108-90-7	Chlorobenzene	BRL	ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/L	0.5
100-41-4	Ethylbenzene	BRL	ug/L	0.5

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued)
Volatile Organics by GC/MS

Field ID:	MW-3	Laboratory ID:	50977-03
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	VM5-2210-W
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	40 mL VOA Vial	Received:	05-21-02
Preservation:	HCl / Cool	Analyzed:	05-24-02
Matrix:	Aqueous	Dilution Factor:	1
		Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	6	ug/L	0.5
95-47-6	*ortho*- Xylene	1	ug/L	0.5
100-42-5	Styrene	BRL	ug/L	0.5
75-25-2	Bromoform	BRL	ug/L	0.5
98-82-8	Isopropylbenzene	BRL	ug/L	0.5
108-86-1	Bromobenzene	BRL	ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL	ug/L	0.5
103-65-1	*n*-Propylbenzene	BRL	ug/L	0.5
95-49-8	2-Chlorotoluene	BRL	ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	3	ug/L	0.5
106-43-4	4-Chlorotoluene	BRL	ug/L	0.5
98-06-6	*tert*- Butylbenzene	BRL	ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	4	ug/L	0.5
135-98-8	*sec*-Butylbenzene	BRL	ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL	ug/L	0.5
99-87-6	4-Isopropyltoluene	BRL	ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL	ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL	ug/L	0.5
104-51-8	*n*-Butylbenzene	BRL	ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL	ug/L	0.5
91-20-3	Naphthalene	62	ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/L	0.5

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	101 %	86 - 118 %
1,2-Dichloroethane-d_4	90 %	80 - 120 %
Toluene-d_8	106 %	88 - 110 %
4-Bromofluorobenzene	95 %	86 - 115 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Analysis performed utilizing 25mL sample purge volume.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Polynuclear Aromatic Hydrocarbons by GC/MS

Field ID:	MW-1	Laboratory ID:	50977-04
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	SV-1137-F
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	1 L Amber Glass	Received:	05-21-02
Preservation:	Cool	Extracted:	05-24-02
Matrix:	Aqueous	Analyzed:	05-25-02
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	ug/L	10
91-57-6	2-Methylnaphthalene	BRL	ug/L	10
208-96-8	Acenaphthylene	BRL	ug/L	10
83-32-9	Acenaphthene	BRL	ug/L	10
86-73-7	Fluorene	BRL	ug/L	10
85-01-8	Phenanthrene	BRL	ug/L	10
120-12-7	Anthracene	BRL	ug/L	10
206-44-0	Fluoranthene	BRL	ug/L	10
129-00-0	Pyrene	BRL	ug/L	10
56-55-3	Benzo[a]anthracene	BRL	ug/L	10
218-01-9	Chrysene	BRL	ug/L	10
205-99-2	Benzo[b]fluoranthene	BRL	ug/L	10
207-08-9	Benzo[k]fluoranthene	BRL	ug/L	10
50-32-8	Benzo[a]pyrene	BRL	ug/L	10
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	ug/L	10
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/L	10
191-24-2	Benzo[g,h,i]perylene	BRL	ug/L	10

QC Surrogate Compounds	% Recovery	QC Limits
Nitrobenzene-d_5	78 %	35 - 114 %
2-Fluorobiphenyl	81 %	43 - 116 %
Terphenyl-d_{14}	91 %	33 - 141 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as selected from the Polynuclear Aromatic Hydrocarbon analytes specified by the Target Compound List (TCL) of the US EPA Contract Laboratory Program.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Polynuclear Aromatic Hydrocarbons by GC/MS

Field ID:	MW-2	Laboratory ID:	50977-05
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	SV-1137-F
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	1 L Amber Glass	Received:	05-21-02
Preservation:	Cool	Extracted:	05-24-02
Matrix:	Aqueous	Analyzed:	05-25-02
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	ug/L	10
91-57-6	2-Methylnaphthalene	BRL	ug/L	10
208-96-8	Acenaphthylene	BRL	ug/L	10
83-32-9	Acenaphthene	BRL	ug/L	10
86-73-7	Fluorene	BRL	ug/L	10
85-01-8	Phenanthrene	BRL	ug/L	10
120-12-7	Anthracene	BRL	ug/L	10
206-44-0	Fluoranthene	BRL	ug/L	10
129-00-0	Pyrene	BRL	ug/L	10
56-55-3	Benzo[a]anthracene	BRL	ug/L	10
218-01-9	Chrysene	BRL	ug/L	10
205-99-2	Benzo[b]fluoranthene	BRL	ug/L	10
207-08-9	Benzo[k]fluoranthene	BRL	ug/L	10
50-32-8	Benzo[a]pyrene	BRL	ug/L	10
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	ug/L	10
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/L	10
191-24-2	Benzo[g,h,i]perylene	BRL	ug/L	10

QC Surrogate Compounds	Recovery	QC Limits
Nitrobenzene-d_5	73 %	35 - 114 %
2-Fluorobiphenyl	76 %	43 - 116 %
Terphenyl-d_{14}	84 %	33 - 141 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as selected from the Polynuclear Aromatic Hydrocarbon analytes specified by the Target Compound List (TCL) of the US EPA Contract Laboratory Program.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8270C
Polynuclear Aromatic Hydrocarbons by GC/MS

Field ID:	MW-3	Laboratory ID:	50977-06
Project:	Lot 516 Smith St. N. Prov./RCF8338F	QC Batch ID:	SV-1137-F
Client:	Lincoln Environmental, Inc.	Sampled:	05-20-02
Container:	1 L Amber Glass	Received:	05-21-02
Preservation:	Cool	Extracted:	05-24-02
Matrix:	Aqueous	Analyzed:	05-25-02
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	18	ug/L	10
91-57-6	2-Methylnaphthalene	BRL	ug/L	10
208-96-8	Acenaphthylene	BRL	ug/L	10
83-32-9	Acenaphthene	BRL	ug/L	10
86-73-7	Fluorene	BRL	ug/L	10
85-01-8	Phenanthrene	33	ug/L	10
120-12-7	Anthracene	BRL	ug/L	10
206-44-0	Fluoranthene	23	ug/L	10
129-00-0	Pyrene	20	ug/L	10
56-55-3	Benzo[a]anthracene	BRL	ug/L	10
218-01-9	Chrysene	BRL	ug/L	10
205-99-2	Benzo[b]fluoranthene	BRL	ug/L	10
207-08-9	Benzo[k]fluoranthene	BRL	ug/L	10
50-32-8	Benzo[a]pyrene	BRL	ug/L	10
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	ug/L	10
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/L	10
191-24-2	Benzo[g,h,i]perylene	BRL	ug/L	10

QC Surrogate Compounds	Recovery	QC Limits
Nitrobenzene-d_5	76 %	35 - 114 %
2-Fluorobiphenyl	77 %	43 - 116 %
Terphenyl-d_{14}	86 %	33 - 141 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as selected from the Polynuclear Aromatic Hydrocarbon analytes specified by the Target Compound List (TCL) of the US EPA Contract Laboratory Program.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	Lot 516 Smith St. N. Prov./RCF8338F	Lab ID:	50977
Client:	Lincoln Environmental, Inc.	Received:	05-21-02

A. Physical Condition of Sample(s)

This project was received by the laboratory in satisfactory condition. The sample(s) were received undamaged in appropriate containers with the correct preservation.

B. Project Documentation

This project was accompanied by satisfactory Chain of Custody documentation. The sample container label(s) agreed with the Chain of Custody.

C. Analysis of Sample(s)

No analytical anomalies or non-conformances were noted by the laboratory during the processing of these sample(s). All data contained within this report are released without qualification.

GROUNDWATER ANALYTICAL

228 Main Street, P.O. Box 1200
Buzzards Bay, MA 02532
Telephone (508) 759-4441
FAX (508) 759-4475

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 053089

Project Name: LOT 516 SMITH ST N. PROV.	Firm: LINCOLN ENVIRONMENTAL
Project Number: RCF8338F	Address: 333 WASHINGTON HWY
Sampler Name: [signature]	City / State / Zip: SMITHFIELD, RI 02917
Project Manager: Paul Leclerc	Telephone: 232-3353

TURNAROUND

- ☐ STANDARD (10 Business Days)
- ☒ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- ________) (Rush requires Rush Authorization Number)

Please FAX ☐ YES ☐ NO

FAX Number: 232 1130

BILLING

Purchase Order No.: | GWA Reference No.:

ANALYSIS REQUEST

INSTRUCTIONS: Use separate line for each container (except replicates).

Sampling Date	Time	Sample Identification	Matrix: Water	Type: Grab	Number	Container: 40 mL VOA Vial	Container: 1L Amber Glass	Preservation: HCl	Laboratory Number (Lab Use Only)	Volatiles	Semivolatiles
5/20/02		MW-1	X	X	2	X	X	X	1 4	X	X
″		MW-2	″	″	″	″	X	″	2 5	X	X
″		MW-3	″	″	″	″	X	″	3 6	X	X

Laboratory Number: 1177

REMARKS / SPECIAL INSTRUCTIONS

DATA QUALITY OBJECTIVES

Regulatory Program

- ☐ Safe Drinking Water Act
  - ☐ MA DEP Form
- ☐ NPDES/Clean Water Act Specify State: ________
- ☐ RCRA/Haz. Waste Char.
- ☐ MA MCP (310 CMR 40) Reportable Concentrations
  - ☐ RCGW - 1 ☐ RCS - 1
  - ☐ RCGW - 2 ☐ RCS - 2
- ☐ MA Dredge Disposal
- ☐ NH ☒ RI ☐ CT ☐ ME Specify Category: GB

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. For water samples, each MS, MSD and Sample Duplicate requires an additional sample aliquot.

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Selected by laboratory
- ☐ Please use sample ________

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof

Relinquished by	Date	Time	Received by	
Relinquished by Sampler:	5/21/02	1055	Received by: [signature]	Receipt Temperature: 7.1
Relinquished by:			Received by:	Shipping/Airbill Number:
Relinquished by: [signature]	5/21/02	1630	Received by Laboratory: [signature]	Custody Seal/Cooler Serial Number:

Method of Shipment: ☐ GWA Courier ☐ Express Mail ☐ Federal Express ☐ UPS ☐ Hand ☐ ________