ANNUAL MONITORING REPORT
REQUEST FOR NO FURTHER ACTION STATUS
Task Order No. 067h
Soil Remediation
BUILDING LCH-4022
Marine Corps Base
Camp Lejeune, North Carolina

Prepared for

The Atlantic Division, Naval Facilities Engineering Command

January 4, 2002

Prepared by

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CERTIFICATION

Annual Monitoring Report
Request for No Further Action Status

Task Order No. 067h

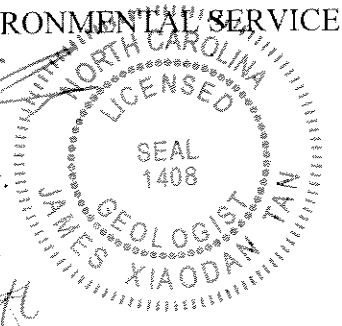
Soil Remediation
Building LCH-4022
Marine Corps Base
Camp Lejeune, North Carolina

The material and data in this Annual Monitoring Report and Request for No Further Action Status were prepared under the direction of the undersigned.

J.A. Jones Environmental Services Company is submitting this Annual Monitoring Report to the Navy as required under contract N62470-93-D-3033 for work performed at Building LCH-4022, Marine Corps Base, Camp Lejeune, North Carolina. The report was prepared in conformance with J.A. Jones Environmental Services Company's quality assurance/quality control procedures to ensure that the report meets industry standards in terms of the methods used and the information presented. If you have any questions or comments concerning the report, please contact one of the individuals listed below.

Respectfully submitted,

J.A. JONES ENVIRONMENTAL SERVICES COMPANY



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ACRONYM LIST

15A NCAC 2L	North Carolina Administrative Code Title 15A Subchapter 2L
bls	below land surface
BQL	Below Laboratory Quantitation Limits
CAP	Corrective Action Plan
Guidance Document	*Guidelines for Assessment and Corrective Action*, dated July 1, 2001
J.A. Jones	J.A. Jones Environmental Services Company
LNAPL	Light, Non-Aqueous Phase Liquid
RC&A	Richard Catlin & Associates, Inc.
µg/l	micrograms per liter
mg/kg	milligrams per kilogram
NAVFACENGCOM	Navy Atlantic Division, Naval Facilities Engineering Command
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
PAH	polynuclear aromatic hydrocarbons
Paradigm	Paradigm Analytical Laboratories, Inc.
TPH	Total Petroleum Hydrocarbons
TPH-DRO	Total Petroleum Hydrocarbon - Diesel Range Organics
TPH-GRO	Total Petroleum Hydrocarbon - Gasoline Range Organics
USEPA	United States Environmental Protection Agency
UST	underground storage tank

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EXECUTIVE SUMMARY

Based on the analytical results from the soil excavation activities, groundwater monitoring well sampling events and the risk characterization evaluation, J.A. Jones Environmental Services Company (J.A. Jones) demonstrated that the Building LCH-4022 site can be classified as a low risk site according to the evaluation criteria provided in the North Carolina Department of Environment and Natural Resources (NCDENR), Underground Storage Tank Section's *Guidelines for Assessment and Corrective Action* dated July 1, 2001 (Guidance Document). Therefore, J.A. Jones recommends the Building LCH-4022 site be considered for No Further Action Status by the NCDENR.

J.A. Jones performed soil excavation activities on September 2, 1998, March 28, 2000, April 11, 2000, May 16, 2000, and May 25, 2000. A total of approximately 275.05 tons of contaminated soil was removed during the soil excavation activities. Review of the analytical results from soil samples collected on the excavation walls indicates that petroleum impacted soil was not detected at concentrations above the North Carolina Action Level of 10 milligrams per kilogram (mg/kg).

J.A. Jones completed installation of the replacement monitoring wells for LCH4022-1 and LCH4022-19 on May 2, 2000, which were abandoned during soil excavation activities conducted March 28, 2000. Replacement monitoring wells LCH4022-1R and LCH-402219R were gauged monthly and all on-site monitoring wells were gauged quarterly until LNAPL was not detected at a measurable thickness for four consecutive quarters.

On July 31, 2001, a groundwater monitoring well sampling event was conducted at each of the monitoring wells in the network. The groundwater samples were analyzed for volatile aromatic hydrocarbons and polynuclear aromatic hydrocarbons by United States Environmental Protection Agency (USEPA) Methods 602 and 610, respectively. The analytical results of this groundwater sampling event indicated that detected concentrations of dissolved hydrocarbon constituents have decreased to below the North Carolina Administrative Code Title 15A Subchapter 2L (15A NCAC 2L) *Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina.*

SECTION 1.0

INTRODUCTION

As a result of the remedial action of the petroleum contaminated soil and groundwater at the Building LCH-4022 site at the Marine Corps Base, Camp Lejeune, North Carolina, J.A. Jones Environmental Services Company has been retained by the Department of the Navy Atlantic Division, Naval Facilities Engineering Command (NAVFACENGCOM), to prepare this Annual Monitoring Report/Request for No Further Action Status. The purpose of this report is to present the findings associated with the remedial action of the impacted soil and groundwater, light non-aqueous phase liquid (LNAPL) recovery, and groundwater monitoring activities and to present the information necessary to demonstrate that the site is a candidate for No Further Action Status.

This Annual Monitoring Report/Request for No Further Action Status is organized into three sections of text including tables that present historical groundwater elevation survey and analytical data from soil and groundwater sampling events conducted at the site. Figures provided in this report present groundwater elevation contour maps detailing groundwater flow patterns and contaminated soil excavation and soil sample locations. Also included are appendices that present the laboratory analytical results from soil samples collected during soil excavation activities and groundwater monitoring well sampling events, a waste transportation and disposal log, and aggressive fluid-vapor recovery data.

Section I.0 Introduction includes the site history, an overview of the contaminated soil excavation, LNAPL recovery and groundwater monitoring activities.

Section 2.0 No Further Action Status Evaluation offers an evaluation of secondary contaminant sources, presence or absence of petroleum hydrocarbon product, unsaturated zone soil, and risk characterization that is required to obtain a status of No Further Action for the site.

Section 3.0 Conclusions and Recommendations addresses the conclusions and any recommendations from the contaminated soil excavation, LNAPL recovery, groundwater monitoring well sampling events, and No Further Action Status evaluation.

1.1 SITE HISTORY

The Building LCH-4022 is located at the Marine Corps Base, Camp Lejeune, North Carolina (N359,750, E2,498,560, based on map measurement). The Leaking Underground Storage Tank Corrective Action Plan (CAP), dated December 12, 1996, prepared by Richard Catlin & associates, Inc. (RC&A), indicates a presence of volatile aromatic hydrocarbons, polynuclear aromatic hydrocarbons (PAH), and heavy metals in

the area adjacent to the former heating oil underground storage tank (UST) basin. The 1,000-gallon, steel UST was removed from the site on June 28, 1992. On June 16, 1993, LNAPL was encountered in monitoring wells LCH4022-2 and LCH4022-3 at thicknesses of 1.19 feet and 7.95 feet, respectively. The horizontal and vertical extent of the petroleum impacted soil and groundwater were documented in the CAP prepared by RC&A. In addition, the CAP provides an evaluation of remedial action alternatives for the petroleum impacted soil and groundwater. **Figure 1-1** provides a site layout map of the former UST location.

A work plan, prepared by J.A. Jones, outlining the required remedial action activities, including excavation of the contaminated soil and natural attenuation of groundwater, was submitted to the Navy in February 1998. Soil excavation was performed at the site on September 2, 1998. However, due to the presence of LNAPL at a measurable thickness in monitoring wells LCH4022-1 and LCH4022-19, additional soil excavation activities were performed March 28, 2000, April 11, 2000, May 16, 2000, and May 25, 2000. Subsequent to the soil excavation activities and the abandonment of monitoring wells LCH4022-1 and LCH4022-19 conducted in March 2000, the monitoring wells were reinstalled in the same location and were gauged monthly for LNAPL occurrence. Quarterly groundwater elevation surveys were conducted from each of the monitoring wells in the network until LNAPL was not detected at a measurable thickness for four consecutive quarters.

1.2 PETROLEUM-IMPACTED SOIL EXCAVATION ACTIVITIES

J.A. Jones initiated soil excavation activities at the Building LCH-4022 site on September 2, 1998. The dimensions of the excavation were approximately 21 feet by 20 feet and a depth of approximately 3.5 feet below land surface (bls). Approximately 80.2 tons of contaminated soil was removed and transported to a North Carolina State Certified disposal facility in Autryville, NC. One composite soil sample was collected from each wall of the excavation. The locations of the four soil samples (SS-1 through SS-4) are illustrated in **Figure 1-2**. The soil samples were analyzed for total petroleum hydrocarbons (TPH) of diesel range organics (DRO) using USEPA Method 3550, for TPH of gasoline range organics (GRO) using USEPA Method 5030, and for TPH of oil & grease using USEPA Method 9071. The analytical results of the soil samples are summarized in **Table 1-1**.

Due to the presence of LNAPL in monitoring wells LCH4022-1 and LCH4022-19 after the soil excavation conducted September 2, 1998, additional soil excavation activities were conducted on March 28, 2000 in the vicinity of these two wells. The dimensions of the excavation were approximately 20 feet by 17 feet and a depth of approximately 6.5 feet bls. One composite soil sample (CS-01) was collected from eight locations on the excavation walls as illustrated in **Figure 1-3**. The sample was analyzed for TPH-DRO and TPH-GRO using USEPA Methods 3550 and 5030, respectively. During the March 28, 2000 soil excavation event, approximately 129.9 tons of contaminated soil were removed and transported to Oak Hill Farms, a North Carolina State Certified disposal

facility. Groundwater monitoring wells LCH4022-1 and LCH4022-19 were abandoned during the excavation activities on March 28, 2000.

The analytical result of soil sample CS-01 indicated the detected TPH-DRO concentration of 908 mg/kg, which is above the North Carolina Action Level of 10 mg/kg. Subsequently, on April 11, 2000, further excavation was conducted on the west side of the previous excavation conducted March 28, 2000. The dimensions of the excavation were approximately 17 feet by 12 feet and a depth of approximately 6.5 feet. The location of the additional excavation area is illustrated in **Figure 1-4**. Four composite soil samples (CSNW-01, CSEW-01, CSSW-01, and CSWW-01) were collected, each from six locations on each wall. The samples were analyzed for TPH-DRO and TPH-GRO using USEPA methods 3550 and 5030, respectively.

Replacement monitoring wells were installed in the same locations as abandoned monitoring wells LCH4022-1 and LCH-4022-19 on May 2, 2000. The new wells are identified as LCH4022-1R and LCH4022-19R, respectively.

Review of the analytical results of the soil samples collected April 11, 2000 indicated that TPH-DRO was detected in the soil sample collected from the south wall of the excavation (CSSW-01) at a concentration of 20 mg/kg, which is above the North Carolina Action Level of 10 mg/kg; therefore, the excavation was extended toward the south approximately 14 feet on May 16, 2000. During the May 16, 2000 soil excavation event, one composite soil sample (CSSW2-01) was collected from six locations along the south wall of the excavation and analyzed for TPH-DRO and TPH-GRO using USEPA methods 3550 and 5030, respectively. The analytical results of the composite soil sample collected May 16, 2000 indicated that TPH-DRO was detected in the soil sample at a concentration of 25 mg/kg, which is above the North Carolina Action Level of 10 mg/kg. Therefore, on May 25, 2000, the excavation was extended approximately 10 feet toward the south as illustrated in **Figure 1-5**. One composite soil sample (CSSW3-01) was collected from six locations along the south wall of the excavation and analyzed for TPH-DRO and TPH-GRO using USEPA Methods 3550 and 5030, respectively. The analytical results of the soil sample collected May 25, 2000 indicate that TPH-DRO was detected at a concentration of 10 mg/kg. Approximately 64.95 tons of excavated soil were removed and transported to Oak Hill Farms, a North Carolina State Certified disposal facility.

The analytical results of all confirmation soil samples are summarized in **Table 1-1** and a copy of the laboratory analytical reports with Chain Of Custody is included in **Appendix A**.

1.3 AGGRESSIVE FLUID-VAPOR RECOVERY

J.A. Jones conducted a groundwater elevation survey at the Building LCH-4022 site following the initial soil excavation event on September 2, 1998. The results of the survey indicated that LNAPL remained in monitoring wells LCH4022-1 and LCH4022-19 at a measurable thickness. Aggressive fluid-vapor recovery (AFVR) was performed at

these two monitoring wells from February 26, 1999 to August 23, 1999. In addition, AFVR was conducted at monitoring well LCH4022-2 from February 26, 1999 to April 8, 1999 and at monitoring well LCH4022-3 from February 26, 1999 to April 23, 1999. A total of 1,602 gallons of groundwater accumulated during the AFVR events were transported to the Building 976 North Plant treatment system for treatment. **Appendix B** presents a summary of the transportation and disposal of the soil and groundwater removed from the Building LCH-4022 site. **Appendix C** presents the results of each AFVR event conducted at the Building LCH-4022 site.

1.4 GROUNDWATER ELEVATION SURVEY

To evaluate the results of the soil excavation activities and gauge LNAPL occurrence at the site, J.A. Jones conducted groundwater elevation surveys on a monthly basis from groundwater monitoring wells LCH4022-1R and LCH4022-19R and on a quarterly basis from each of the monitoring wells in the network. **Table 1-2** presents a summary of the quarterly groundwater elevation measurements performed at the Building LCH-4022 site.

Review of the groundwater elevation survey data from May 18, 2000 to July 31, 2001 indicates that, after soil excavation was completed on May 25, 2000, LNAPL was only observed at wells LCH4022-1R and LCH4022-19R on June 27, 2000, with thicknesses of 0.01 feet and 0.01 feet, respectively.

Groundwater elevation contour maps (**Figures 1-6** through **1-9**) were created based on groundwater elevation data collected November 19, 1998, November 8, 1999, November 10, 2000, and July 31, 2001. As illustrated in **Figures 1-6** through **1-9**, the predominant groundwater flow direction is toward the west.

1.5 GROUNDWATER ANALYTICAL RESULTS

Groundwater monitoring well sampling events were conducted at each of the monitoring wells in the network on November 19, 1998 and July 31, 2001. The groundwater samples were analyzed for volatile aromatic hydrocarbons and polynuclear aromatic hydrocarbons using USEPA Methods 602 and 610, respectively.

The analytical results of the groundwater monitoring well sampling event conducted November 19, 1998 indicate that benzene, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected in the groundwater samples collected from monitoring well LCH4022-19 at concentrations of 2 micrograms per liter (µg/L), 35 µg/L, 92 µg/L, and 48 µg/L, which are above the 15A NCAC 2L groundwater quality standard established for benzene, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene of 1 µg/L, 21 µg/L, laboratory quantitation limit, and 28 µg/L, respectively.

The analytical results of the groundwater monitoring well sampling event conducted July 31, 2001, indicate that volatile aromatic hydrocarbons were not detected above the laboratory quantitation limits. Phenanthrene was detected in the groundwater sample

collected from monitoring well LCH4022-18 at a concentration of 18 µg/L, which is below the 15A NCAC 2L groundwater quality standard established for phenanthrene of 210 µg/L. The laboratory analytical results of the groundwater samples are summarized in **Table 1-3**.

1.6 REPORTING REQUIREMENTS

As indicated in the CAP and as required in the NCAC, Title 15A, Subchapter 2L, Section 0.0106(h)(4), the submittal of this annual monitoring report is required to the NCDENR regional office in Wilmington, North Carolina.

J.A. Jones submits a monthly status report to the Navy that documents the progress of the remedial action at this site. In addition, the monthly status report includes groundwater monitoring well elevations, analytical data from sample collection events, and contaminant trend graphs that utilize the analytical results from groundwater samples.

Table 1-1
Summary of Soil Confirmation Sample Analyses Results
Building LCH-4022
Marine Corps Base
Camp Lejeune, North Carolina

Soil Excavation Event	Sample ID	TPH-GRO (Mg/Kg)	TPH-DRO (Mg/Kg)	TPH-OIL & GREASE (Mg/Kg)
9/2/98	UST LCH-4022-SS 1-3-98C	BQL	BQL	BQL
9/2/98	UST LCH-4022-SS 2-2.5-98C	BQL	BQL	BQL
9/2/98	UST LCH-4022-SS 3-3.5-98C	BQL	BQL	41
9/2/98	UST LCH-4022-SS 4-3-98C	BQL	BQL	BQL
3/28/00	UST LCH-4022-CS-01-01	BQL	903	
4/11/00	UST LCH-4022-CSSW-01	BQL	20	
4/11/00	UST LCH-4022-CSEW-01	BQL	BQL	
4/11/00	UST LCH-4022-CSNW-01	BQL	BQL	
4/11/00	UST LCH-4022-CSWW-01	BQL	BQL	
5/16/00	UST LCH-4022-CSSW2-01	BQL	25	
5/25/00	UST LCH-4022-CSSW3-01	BQL	10	

Table 1-2
Building LCH-4022
Groundwater Level Measurement Summary
Camp Lejeune, North Carolina

Sample Point	Top of Casing Elevation (ft., msl)	7/31/01			11/9/00			8/7/00		
		Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)
LCH4022-1	32.06		6.10	25.96		Not Measured			4.92	27.14
LCH4022-2	31.93		Dry			Dry			3.27	28.66
LCH4022-3	31.74		6.58	25.16		6.06	25.68		4.03	27.71
LCH4022-4	32.65		Not Measured			Not Measured			Not Measured	
LCH4022-5	30.71		6.40	24.31		5.65	25.06		2.24	28.47
LCH4022-6	32.75		6.10	26.65		6.01	26.74		3.92	28.83
LCH4022-7	31.42		5.55	25.87		5.64	25.78		3.39	28.03
LCH4022-8	32.12		Not Measured			Not Measured			4.33	27.79
LCH4022-9	33.02		6.61	26.41		6.63	26.39		4.42	28.60
LCH4022-10	33.40		5.98	27.42		6.26	27.14		4.46	28.94
LCH4022-11	30.04		3.88	26.16		3.56	26.48		1.90	28.14
LCH4022-12	32.88		6.76	26.12		6.42	26.46		4.21	28.67
LCH4022-13	32.31		6.45	25.86		6.40	25.91		3.93	28.38
LCH4022-14	33.16		7.02	26.14		6.92	26.24		4.63	28.53
LCH4022-15	31.60		6.25	25.35		5.43	26.17		2.50	29.10
LCH4022-16	33.17		17.70	15.47		18.46	14.71		19.16	14.01
LCH4022-17	31.81		14.44	17.37		14.67	17.14		14.41	17.40
LCH4022-18	31.60		17.48	14.12		18.17	13.43		18.01	13.59
LCH4022-19	32.16		5.86	26.30		5.32	26.84		3.84	28.32

Notes:
[1] Groundwater elevation measurements same day prior to AFVR event.
[2] Groundwater elevation measurements same day after AFVR event.
ft = feet
toc = top of casing elevation
msl = mean sea level

Table 1-2 (Continued)
Building LCH-4022
Groundwater Level Measurement Summary
Camp Lejeune, North Carolina

Sample Point	Top of Casing Elevation (ft., msl)	5/18/00			3/16/00			11/8/99		
		Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)
LCH4022-1	32.06		4.80	27.26	4.55	4.59	27.47		4.34	27.72
LCH4022-2	31.93		Dry			Dry			Not Measured	
LCH4022-3	31.74		4.43	27.31		4.15	27.59		3.86	27.88
LCH4022-4	32.65		Not Measured			Not Measured			Not Measured	
LCH4022-5	30.71		4.81	25.90		3.61	27.10		2.57	28.14
LCH4022-6	32.75		5.18	27.57		4.72	28.03		4.02	28.73
LCH4022-7	31.42		3.57	27.85		2.93	28.49		3.62	27.80
LCH4022-8	32.12		5.29	26.83		4.86	27.26		4.70	27.42
LCH4022-9	33.02		5.03	27.99		4.69	28.33		4.78	28.24
LCH4022-10	33.40		5.23	28.17		5.11	28.29		4.79	28.61
LCH4022-11	30.04		2.70	27.34		2.14	27.90		1.97	28.07
LCH4022-12	32.88		5.45	27.43		5.14	27.74		4.76	28.12
LCH4022-13	32.31		4.90	27.41		4.36	27.95		4.51	27.80
LCH4022-14	33.16		5.68	27.48		5.26	27.90		5.22	27.94
LCH4022-15	31.60		4.42	27.18		3.78	27.82		2.87	28.73
LCH4022-16	33.17		18.67	14.50		17.82	15.35		17.06	16.11
LCH4022-17	31.81		13.82	17.99		13.60	18.21		12.67	19.14
LCH4022-18	31.60		18.66	12.94		18.36	13.24		17.67	13.93
LCH4022-19	32.16		4.34	27.82		4.67	27.49		4.25	27.91

Notes:
[1] Groundwater elevation measurements same day prior to AFVR event.
[2] Groundwater elevation measurements same day after AFVR event.
ft = feet
toc = top of casing elevation
msl = mean sea level

Table 1-2 (Continued)
Building LCH-4022
Groundwater Level Measurement Summary
Camp Lejeune, North Carolina

Sample Point	Top of Casing Elevation (ft., msl)	10/7/99			9/10/99			8/23/99[2]		
		Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)
LCH4022-1	32.06	4.14	4.17	27.89		6.12	25.94		10.77	21.29
LCH4022-2	31.93		3.43	28.50		Dry			Not Measured	
LCH4022-3	31.74		3.76	27.98		7.12	24.62		8.80	22.94
LCH4022-4	32.65		Not Measured			Not Measured			Not Measured	
LCH4022-5	30.71		2.99	27.72		6.14	24.57		6.26	24.45
LCH4022-6	32.75		3.97	28.78		5.48	27.27		6.53	26.22
LCH4022-7	31.42		3.31	28.11		3.72	27.70		3.85	27.57
LCH4022-8	32.12		4.76	27.36		6.04	26.08		6.04	26.08
LCH4022-9	33.02		4.66	28.36		5.84	27.18		5.97	27.05
LCH4022-10	33.40		4.59	28.81		6.20	27.20		6.30	27.10
LCH4022-11	30.04		1.85	28.19		3.87	26.17		4.20	25.84
LCH4022-12	32.88		4.74	28.14		6.51	26.37		6.71	26.17
LCH4022-13	32.31		4.35	27.96		5.41	26.90		5.52	26.79
LCH4022-14	33.16		5.10	28.06		6.34	26.82		6.45	26.71
LCH4022-15	31.60		3.07	28.53		6.29	25.31		6.30	25.30
LCH4022-16	33.17		16.94	16.23		18.69	14.48		18.71	14.46
LCH4022-17	31.81		12.92	18.89		13.81	18.00		13.10	18.71
LCH4022-18	31.60		16.85	14.75		18.74	12.86		18.82	12.78
LCH4022-19	32.16		4.24	27.92		6.40	25.76		9.42	22.74

Notes:
[1] Groundwater elevation measurements same day prior to AFVR event.
[2] Groundwater elevation measurements same day after AFVR event.
ft = feet
toc = top of casing elevation
msl = mean sea level

Table 1-2 (Continued)
Building LCH-4022
Groundwater Level Measurement Summary
Camp Lejeune, North Carolina

Sample Point	Top of Casing Elevation (ft., msl)	8/23/99[1]			7/20/99			6/16/99		
		Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)
LCH4022-1	32.06		6.23	25.83	5.86	5.98	26.20		5.51	26.55
LCH4022-2	31.93		Not Measured			Not Measured			Not Measured	
LCH4022-3	31.74		7.23	24.51		7.46	24.28		4.97	26.77
LCH4022-4	32.65		Not Measured			Not Measured			Not Measured	
LCH4022-5	30.71		6.24	24.47		6.03	24.68		4.86	25.85
LCH4022-6	32.75		5.50	27.25		6.16	26.59		5.40	27.35
LCH4022-7	31.42		3.83	27.59		3.73	27.69		3.66	27.76
LCH4022-8	32.12		6.05	26.07		5.89	26.23		5.23	26.89
LCH4022-9	33.02		5.95	27.07		5.63	27.39		5.53	27.49
LCH4022-10	33.40		6.31	27.09		5.97	27.43		5.44	27.96
LCH4022-11	30.04		3.98	26.06		3.65	26.39		3.00	27.04
LCH4022-12	32.88		6.62	26.26		6.34	26.54		5.87	27.01
LCH4022-13	32.31		5.52	26.79		5.33	26.98		5.01	27.30
LCH4022-14	33.16		6.45	26.71		6.26	26.90		5.76	27.40
LCH4022-15	31.60		6.30	25.30		5.94	25.66		5.24	26.36
LCH4022-16	33.17		18.70	14.47		18.05	15.12		17.99	15.18
LCH4022-17	31.81		13.92	17.89		13.69	18.12		13.80	18.01
LCH4022-18	31.60		18.85	12.75		18.74	12.86		19.12	12.48
LCH4022-19	32.16		6.51	25.65		6.19	25.97		5.74	26.42

Notes:
[1] Groundwater elevation measurements same day prior to AFVR event.
[2] Groundwater elevation measurements same day after AFVR event.
ft = feet
toc = top of casing elevation
msl = mean sea level

Table 1-2 (Continued)
Building LCH-4022
Groundwater Level Measurement Summary
Camp Lejeune, North Carolina

Sample Point	Top of Casing Elevation (ft., msl)	4/23/99[2]			4/23/99[1]			4/8/99[2]		
		Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)
LCH4022-1	32.06		9.07	22.99		5.01	27.05		7.90	24.16
LCH4022-2	31.93		Not Measured			Not Measured			Dry Well	
LCH4022-3	31.74		8.56	23.18		3.88	27.86		5.90	25.84
LCH4022-4	32.65		Not Measured			Not Measured			Not Measured	
LCH4022-5	30.71		4.00	26.71		4.00	26.71		3.12	27.59
LCH4022-6	32.75		4.78	27.97		4.79	27.96		4.07	28.68
LCH4022-7	31.42		3.66	27.76		3.67	27.75		3.54	27.88
LCH4022-8	32.12		5.26	26.86		5.26	26.86		4.93	27.19
LCH4022-9	33.02		5.18	27.84		5.20	27.82		4.87	28.15
LCH4022-10	33.40		5.23	28.17		5.23	28.17		4.70	28.70
LCH4022-11	30.04		2.89	27.15		2.89	27.15		2.36	27.68
LCH4022-12	32.88		5.60	27.28		5.53	27.35		5.11	27.77
LCH4022-13	32.31		4.95	27.36		4.95	27.36		4.63	27.68
LCH4022-14	33.16		5.75	27.41		5.75	27.41		5.35	27.81
LCH4022-15	31.60		3.96	27.64		3.95	27.65		3.17	28.43
LCH4022-16	33.17		17.80	15.37		17.76	15.41		17.41	15.76
LCH4022-17	31.81		14.31	17.50		14.09	17.72		14.25	17.56
LCH4022-18	31.60		18.65	12.95		14.49	17.11		17.96	13.64
LCH4022-19	32.16		7.26	24.90		5.30	26.86		9.01	23.15

Notes:
[1] Groundwater elevation measurements same day prior to AFVR event.
[2] Groundwater elevation measurements same day after AFVR event.
ft = feet
toc = top of casing elevation
msl = mean sea level

Table 1-2 (Continued)
Building LCH-4022
Groundwater Level Measurement Summary
Camp Lejeune, North Carolina

Sample Point	Top of Casing Elevation (ft., msl)	4/8/99[1]			3/26/99[2]			3/26/99[1]		
		Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)
LCH4022-1	32.06	4.37	4.53	27.69		9.12	22.94	4.18	4.24	27.88
LCH4022-2	31.93		3.54	28.39		Dry Well			3.19	28.74
LCH4022-3	31.74		3.17	28.57		7.59	24.15		2.69	29.05
LCH4022-4	32.65		Not Measured			Not Measured			Not Measured	
LCH4022-5	30.71		3.14	27.57		1.59	29.12		1.60	29.11
LCH4022-6	32.75		4.08	28.67		3.30	29.45		3.36	29.39
LCH4022-7	31.42		3.56	27.86		2.54	28.88		2.63	28.79
LCH4022-8	32.12		4.95	27.17		4.18	27.94		4.23	27.89
LCH4022-9	33.02		4.87	28.15		4.39	28.63		4.46	28.56
LCH4022-10	33.40		4.73	28.67		4.12	29.28		4.75	28.65
LCH4022-11	30.04		2.34	27.70		1.46	28.58		1.60	28.44
LCH4022-12	32.88		4.99	27.89		4.70	28.18		4.62	28.26
LCH4022-13	32.31		4.64	27.67		3.68	28.63		3.72	28.59
LCH4022-14	33.16		5.35	27.81		4.49	28.67		4.54	28.62
LCH4022-15	31.60		3.15	28.45		2.05	29.55		2.12	29.48
LCH4022-16	33.17		17.45	15.72		17.49	15.68		17.47	15.70
LCH4022-17	31.81		14.20	17.61		14.24	17.57		14.16	17.65
LCH4022-18	31.60		17.91	13.69		17.95	13.65		17.29	14.31
LCH4022-19	32.16		4.71	27.45		9.26	22.90		4.54	27.62

Notes:
[1] Groundwater elevation measurements same day prior to AFVR event.
[2] Groundwater elevation measurements same day after AFVR event.
ft = feet
toc = top of casing elevation
msl = mean sea level

Table 1-2 (Continued)
Building LCH-4022
Groundwater Level Measurement Summary
Camp Lejeune, North Carolina

Sample Point	Top of Casing Elevation (ft., msl)	2/26/99[2]			2/26/99[1]			11/19/98		
		Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft. below toc)	Groundwater Elevation (ft., msl)
LCH4022-1	32.06		7.84	24.22	3.56	3.78	28.50	6.45	6.70	25.61
LCH4022-2	31.93		Not Measured			Not Measured			Not Measured	
LCH4022-3	31.74		4.14	27.60		2.90	28.84		Not Measured	
LCH4022-4	32.65		Not Measured			Not Measured			Not Measured	
LCH4022-5	30.71		2.22	28.49		2.28	28.43		6.80	23.91
LCH4022-6	32.75		3.41	29.34		3.42	29.33		6.75	26.00
LCH4022-7	31.42		4.54	26.88		3.54	27.88		5.95	25.47
LCH4022-8	32.12		4.74	27.38		4.76	27.36		7.20	24.92
LCH4022-9	33.02		4.72	28.30		4.73	28.29		6.94	26.08
LCH4022-10	33.40		4.50	28.90		4.51	28.89		6.90	26.50
LCH4022-11	30.04		1.92	28.12		1.82	28.22		5.16	24.88
LCH4022-12	32.88		4.80	28.08		4.63	28.25		7.50	25.38
LCH4022-13	32.31		4.48	27.83		4.48	27.83		7.06	25.25
LCH4022-14	33.16		5.16	28.00		5.16	28.00		7.70	25.46
LCH4022-15	31.60		2.38	29.22		2.36	29.24		6.65	24.95
LCH4022-16	33.17		17.58	15.59		17.56	15.61		17.85	15.32
LCH4022-17	31.81		13.22	18.59		14.17	17.64		14.16	17.65
LCH4022-18	31.60		18.56	13.04		18.48	13.12		18.81	12.79
LCH4022-19	32.16		19.28	12.88		4.57	27.59	7.98	8.00	24.18

Notes:
[1] Groundwater elevation measurements same day prior to AFVR event.
[2] Groundwater elevation measurements same day after AFVR event.
ft = feet
toc = top of casing elevation
msl = mean sea level

Table 1-3
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	MW-01	MW-03	MW-05	
			Sample ID	USTLCH4022-MW01-01C	USTLCH4022-MW03-01C	USTLCH4022-MW05-01C	USTLCH4022-MW05-98D
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	7/31/01	7/31/01	11/19/98
Benzene	1	5,000		BQL	BQL	BQL	BQL
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L							
Naphthalene	21	15,500		BQL	BQL	BQL	BQL
Acenaphthene	80	2,120		BQL	BQL	BQL	BQL
Fluorene	280	950		BQL	BQL	BQL	BQL
Phananthrene	210	410		BQL	BQL	BQL	BQL
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	BQL	BQL	BQL
2-Methylnaphthalene	28	12,500		BQL	BQL	BQL	BQL

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.

Table 1-3 (Continued)
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	MW-06		MW-07		MW-08
			Sample ID	USTLCH4022-MW06-01C	USTLCH4022-MW06-98D	USTLCH4022-MW07-01C	USTLCH4022-MW07-98D	USTLCH4022-MW08-98I
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	11/19/98	7/31/01	11/19/98	11/19/98
Benzene	1	5,000		BQL	BQL	BQL	BQL	BQL
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L								
Naphthalene	21	15,500		BQL	BQL	BQL	BQL	BQL
Acenaphthene	80	2,120		BQL	BQL	BQL	BQL	BQL
Fluorene	280	950		BQL	BQL	BQL	BQL	BQL
Phananthrene	210	410		BQL	BQL	BQL	BQL	BQL
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	BQL	BQL	BQL	BQL
2-Methylnaphthalene	28	12,500		BQL	BQL	BQL	BQL	BQL

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.

Table 1-3 (Continued)
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	MW-09		MW-10	
			Sample ID	USTLCH4022-MW09-01C	USTLCH4022-MW09-98D	USTLCH4022-MW10-01C	USTLCH4022-MW10-98D
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	11/19/98	7/31/01	11/19/98
Benzene	1	5,000		BQL	BQL	BQL	BQL
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L							
Naphthalene	21	15,500		BQL	BQL	BQL	BQL
Acenaphthene	80	2,120		BQL	BQL	BQL	BQL
Fluorene	280	950		BQL	BQL	BQL	BQL
Phananthrene	210	410		BQL	BQL	BQL	BQL
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	BQL	BQL	BQL
2-Methylnaphthalene	28	12,500		BQL	BQL	BQL	BQL

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.

Table 1-3 (Continued)
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	MW-11		MW-12	
			Sample ID	USTLCH4022-MW11-01C	USTLCH4022-MW11-98D	USTLCH4022-MW12-01C	USTLCH4022-MW12-98D
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	11/19/98	7/31/01	11/19/98
Benzene	1	5,000		BQL	BQL	BQL	BQL
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L							
Naphthalene	21	15,500		BQL	BQL	BQL	BQL
Acenaphthene	80	2,120		BQL	BQL	BQL	BQL
Fluorene	280	950		BQL	BQL	BQL	BQL
Phananthrene	210	410		BQL	BQL	BQL	BQL
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	BQL	BQL	BQL
2-Methylnaphthalene	28	12,500		BQL	BQL	BQL	BQL

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.

Table 1-3 (Continued)
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	MW-13		MW-14	
			Sample ID	USTLCH4022-MW13-01C	USTLCH4022-MW13-98D	USTLCH4022-MW14-01C	USTLCH4022-MW14-98D
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	11/19/98	7/31/01	11/19/98
Benzene	1	5,000		BQL	BQL	BQL	BQL
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L							
Naphthalene	21	15,500		BQL	BQL	BQL	BQL
Acenaphthene	80	2,120		BQL	BQL	BQL	BQL
Fluorene	280	950		BQL	BQL	BQL	BQL
Phananthrene	210	410		BQL	BQL	BQL	BQL
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	BQL	BQL	BQL
2-Methylnaphthalene	28	12,500		BQL	BQL	BQL	BQL

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.

Table 1-3 (Continued)
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	MW-15		MW-16	
			Sample ID	USTLCH4022-MW15-01C	USTLCH4022-MW15-98D	USTLCH4022-MW16-01C	USTLCH4022-MW16-98D
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	11/19/98	7/31/01	11/19/98
Benzene	1	5,000		BQL	BQL	BQL	BQL
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L							
Naphthalene	21	15,500		BQL	BQL	BQL	BQL
Acenaphthene	80	2,120		BQL	BQL	BQL	BQL
Fluorene	280	950		BQL	BQL	BQL	BQL
Phananthrene	210	410		BQL	BQL	BQL	BQL
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	BQL	BQL	BQL
2-Methylnaphthalene	28	12,500		BQL	BQL	BQL	BQL

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Gronndwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.

Table 1-3 (Continued)
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	MW-17		MW-18	
			Sample ID	USTLCH4022-MW17-01C	USTLCH4022-MW17-98D	USTLCH4022-MW18-01C	USTLCH4022-MW18-98D
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	11/19/98	7/31/01	11/19/98
Benzene	1	5,000		BQL	BQL	BQL	BQL
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L							
Naphthalene	21	15,500		BQL	BQL	BQL	BQL
Acenaphthene	80	2,120		BQL	BQL	BQL	BQL
Fluorene	280	950		BQL	BQL	BQL	BQL
Phananthrene	210	410		BQL	BQL	18	BQL
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	BQL	BQL	BQL
2-Methylnaphthalene	28	12,500		BQL	BQL	BQL	BQL

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Gnidelines for the Investigation and Remediation of Soil and Groundwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.

Table 1-3 (Continued)
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

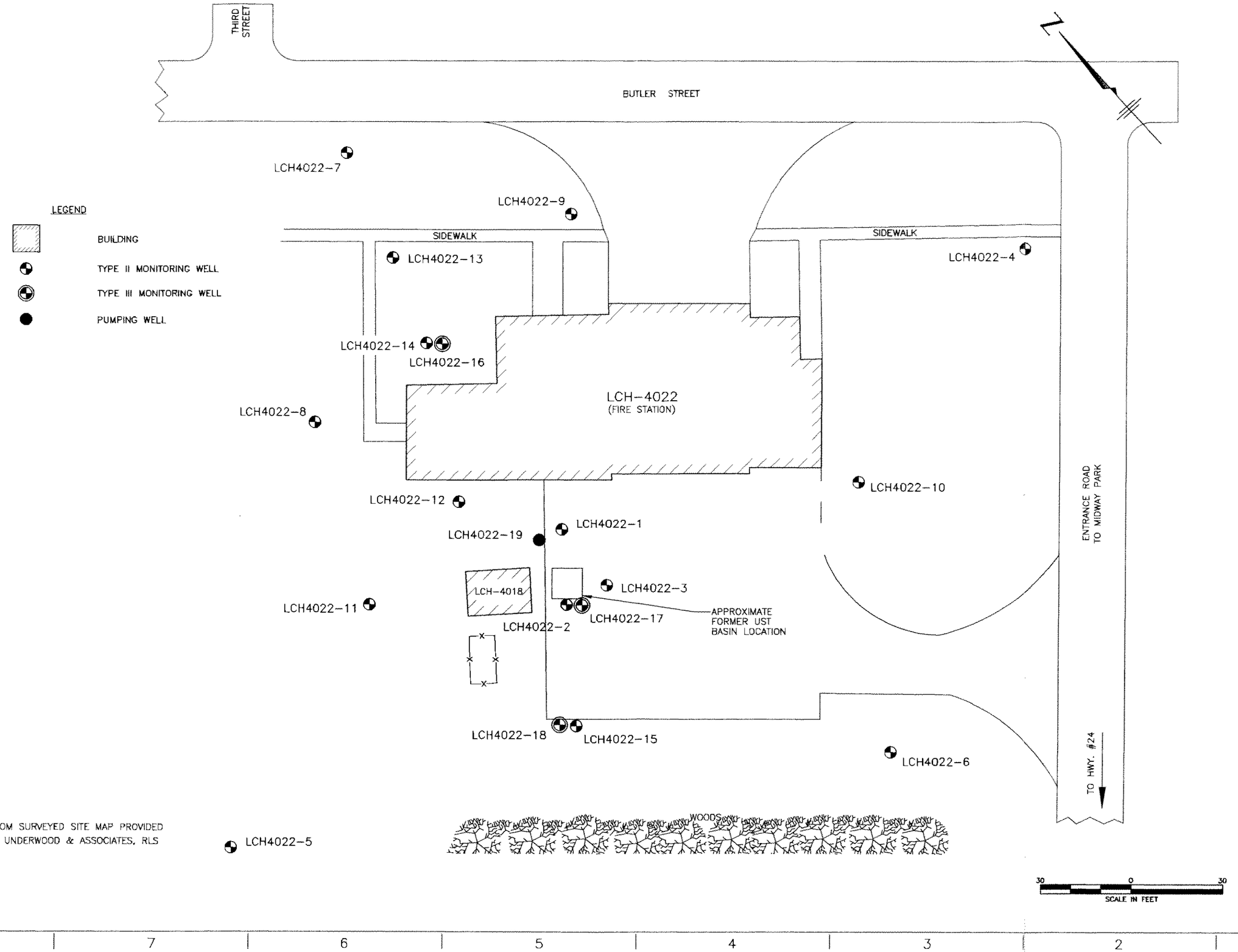
Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	MW-19		DUP-01*	
			Sample ID	USTLCH4022-MW19-01C	USTLCH4022-MW19-98D	USTLCH4022-DUP1-01C	USTLCH4022-DUP1-98D
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	11/19/98	7/31/01	11/19/98
Benzene	1	5,000		BQL	2	BQL	BQL
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L							
Naphthalene	21	15,500		BQL	35	BQL	BQL
Acenaphthene	80	2,120		BQL	12	BQL	BQL
Fluorene	280	950		BQL	19	BQL	BQL
Phananthrene	210	410		BQL	26	BQL	BQL
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	92	BQL	BQL
2-Methylnaphthalene	28	12,500		BQL	48	BQL	BQL

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.

Table 1-3 (Continued)
Summary of Detected Concentrations
Groundwater Monitoring Well Samples
UST LCH-4022
Camp Lejeune, North Carolina

Parameter	NCDENR Groundwater Regulatory Limit[1]	Gross Contamination Level[2]	Sample Location	DUP-02**	
			Sample ID	USTLCH4022-DUP2-01C	USTLCH4022-DUP2-98D
Volatile Aromatic Hydrocarbons by USEPA method 602, ug/L			Sample Date	7/31/01	11/19/98
Benzene	1	5,000		BQL	2
Polynuclear Aromatic Hydrocarbons by USEPA method 610, ug/L					
Naphthalene	21	15,500		BQL	38
Acenaphthene	80	2,120		BQL	14
Fluorene	280	950		BQL	23
Phananthrene	210	410		BQL	33
1-Methylnaphthalene	Detection Limit	1,000[3]		BQL	110
2-Methylnaphthalene	28	12,500		BQL	52

Notes:
[1] North Carolina Administrative Code, Title 15A, Subchapter 2L Groundwater Quality Standard.
[2] NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Vol. II, Petroleum Underground Storage Tanks, Gross Contamination Levels for Groundwater, Table 7, Page 60.
[3] Indicates a value of 1,000 times the laboratory quantitation limit for 1-Methylnaphthalene established at 1.0 ug/l.
* Duplicate sample taken from monitoring well MW-11
** Duplicate sample taken from monitoring well MW-19
BQL = Below laboratory quantitation limits
Detected concentrations above the laboratory quantitation limit are indicated by shading.
NA indicates that the sample was not analyzed for the constituent.



NOTES:

1. ADAPTED FROM SURVEYED SITE MAP PROVIDED BY MICHAEL UNDERWOOD & ASSOCIATES, RLS

REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVED BY

J.A. JONES CONSTRUCTION COMPANY
A/E CONTRACT NO. N62470-93-D-3033
CHARLOTTE, NORTH CAROLINA

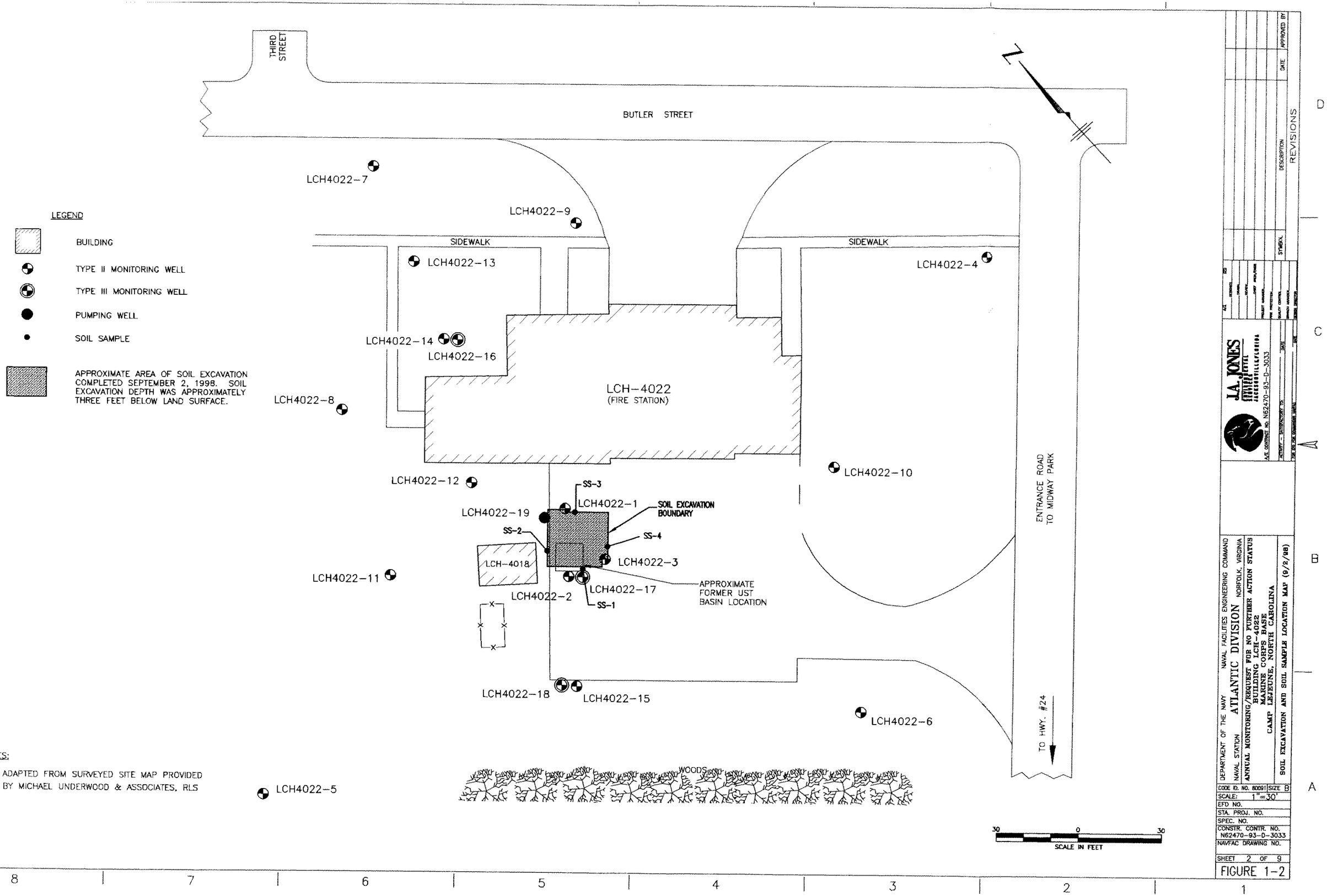
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION NORFOLK, VIRGINIA

ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

SITE PLAN

CODE ID. NO. 80091	SIZE B
SCALE:	1"=30'
EFD NO.	
STA. PROJ. NO.	
SPEC. NO.	
CONSTR. CONTR. NO.	N62470-93-D-3033
NAVFAC DRAWING NO.	
SHEET	1 OF 9

FIGURE 1-1



REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVED BY

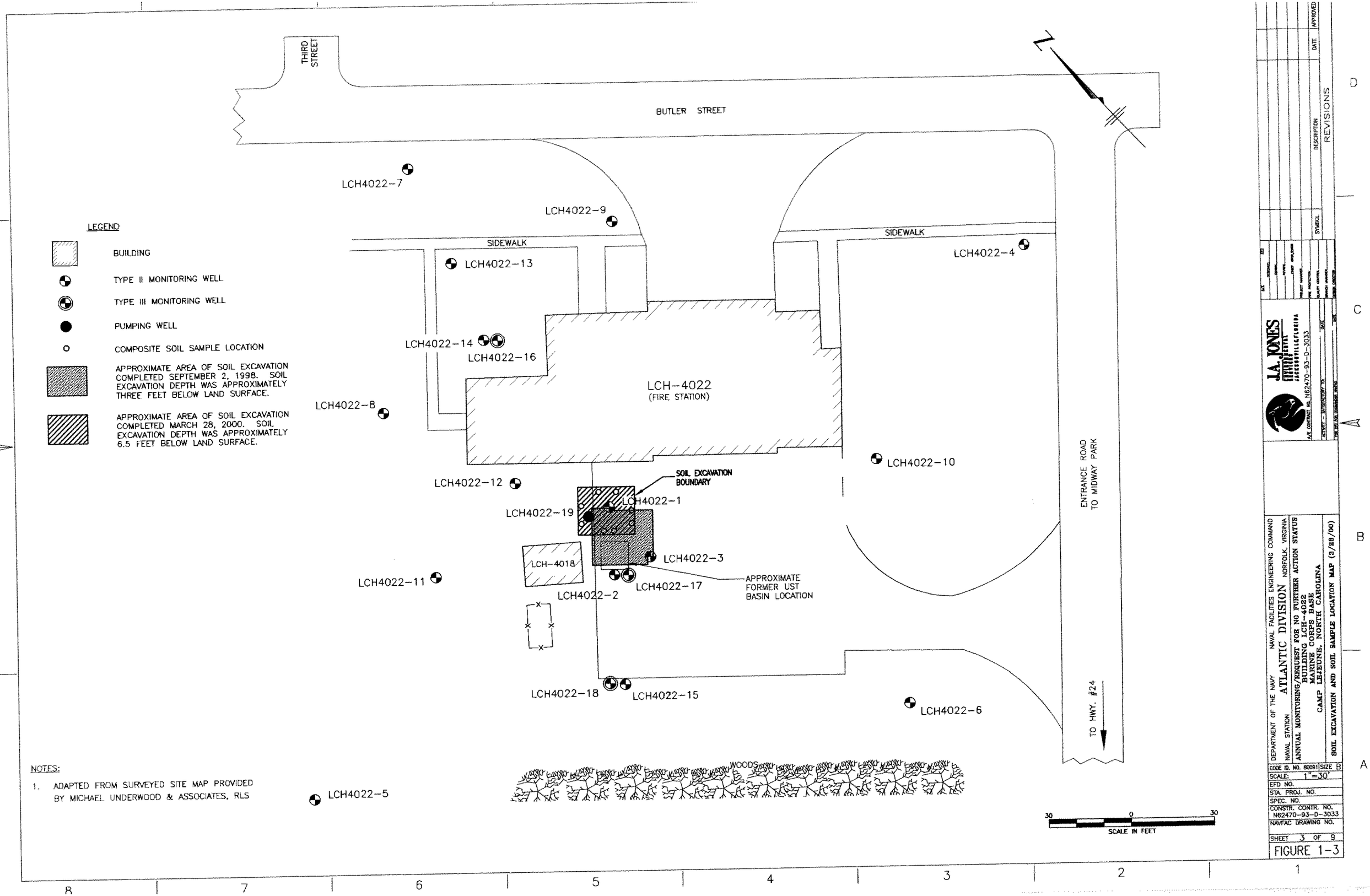
J.A. JONES CONSTRUCTION

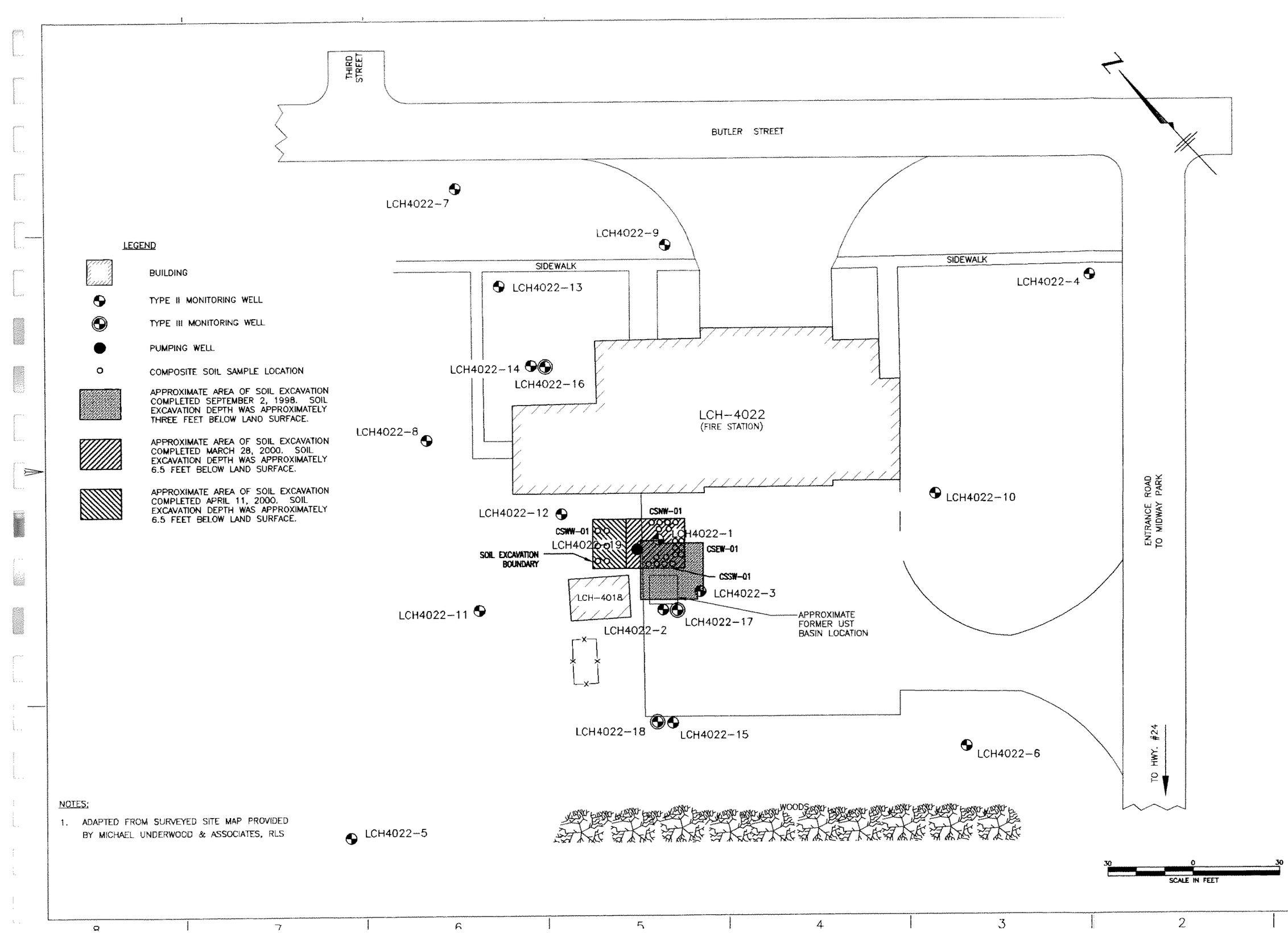
A/E CONTRACT NO. N62470-93-D-3033

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION NORFOLK, VIRGINIA
ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA
SOIL EXCAVATION AND SOIL SAMPLE LOCATION MAP (9/2/98)

CODE ID. NO. 80091	SIZE B
SCALE:	1"=30'
EFD NO.	
STA. PROJ. NO.	
SPEC. NO.	
CONSTR. CONTR. NO.	N62470-93-D-3033
NAVFAC DRAWING NO.	
SHEET	2 OF 9

FIGURE 1-2


THIRD STREET
BUTLER STREET
LCH4022-7
LCH4022-9
SIDEWALK
LCH4022-13
LCH4022-14
LCH4022-16
LCH4022-8
LCH-4022
(FIRE STATION)
SIDEWALK
LCH4022-4
LCH4022-10
LCH4022-12
SOIL EXCAVATION BOUNDARY
LCH4022-1
LCH4022-19
LCH-4018
LCH4022-3
LCH4022-11
LCH4022-17
LCH4022-2
APPROXIMATE FORMER UST BASIN LOCATION
LCH4022-18
LCH4022-15
LCH4022-6
LCH4022-5
WOODS
ENTRANCE ROAD TO MIDWAY PARK
TO HWY. #24
LEGEND
BUILDING
TYPE II MONITORING WELL
TYPE III MONITORING WELL
PUMPING WELL
COMPOSITE SOIL SAMPLE LOCATION
APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED SEPTEMBER 2, 1998. SOIL EXCAVATION DEPTH WAS APPROXIMATELY THREE FEET BELOW LAND SURFACE.
APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED MARCH 28, 2000. SOIL EXCAVATION DEPTH WAS APPROXIMATELY 6.5 FEET BELOW LAND SURFACE.
NOTES:
1. ADAPTED FROM SURVEYED SITE MAP PROVIDED BY MICHAEL UNDERWOOD & ASSOCIATES, RLS
30 0 30
SCALE IN FEET
REVISIONS
DESCRIPTION
DATE
APPROVED
J.A. JONES
CONSTRUCTION GROUP
CHARLOTTE, NORTH CAROLINA
NAVFAC CONTRACT NO. N62470-93-D-3033
ACTIVITY -- SATISFACTORY TO
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION NORFOLK, VIRGINIA
ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA
SOIL EXCAVATION AND SOIL SAMPLE LOCATION MAP (9/28/00)
CODE ID. NO. 80091 SIZE B
SCALE: 1"=30'
EFD NO.
STA. PROJ. NO.
SPEC. NO.
CONSTR. CONTR. NO. N62470-93-D-3033
NAVFAC DRAWING NO.
SHEET 3 OF 9
FIGURE 1-3



LEGEND

- BUILDING
- TYPE II MONITORING WELL
- TYPE III MONITORING WELL
- PUMPING WELL
- COMPOSITE SOIL SAMPLE LOCATION
- APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED SEPTEMBER 2, 1998. SOIL EXCAVATION DEPTH WAS APPROXIMATELY THREE FEET BELOW LAND SURFACE.
- APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED MARCH 28, 2000. SOIL EXCAVATION DEPTH WAS APPROXIMATELY 6.5 FEET BELOW LAND SURFACE.
- APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED APRIL 11, 2000. SOIL EXCAVATION DEPTH WAS APPROXIMATELY 6.5 FEET BELOW LAND SURFACE.

NOTES:

1. ADAPTED FROM SURVEYED SITE MAP PROVIDED BY MICHAEL UNDERWOOD & ASSOCIATES, RLS

REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVED BY

J.A. JONES CONSTRUCTION

A/E CONTRACT NO. N62470-93-D-3033

ACTIVITY - SATISFACTORY TO

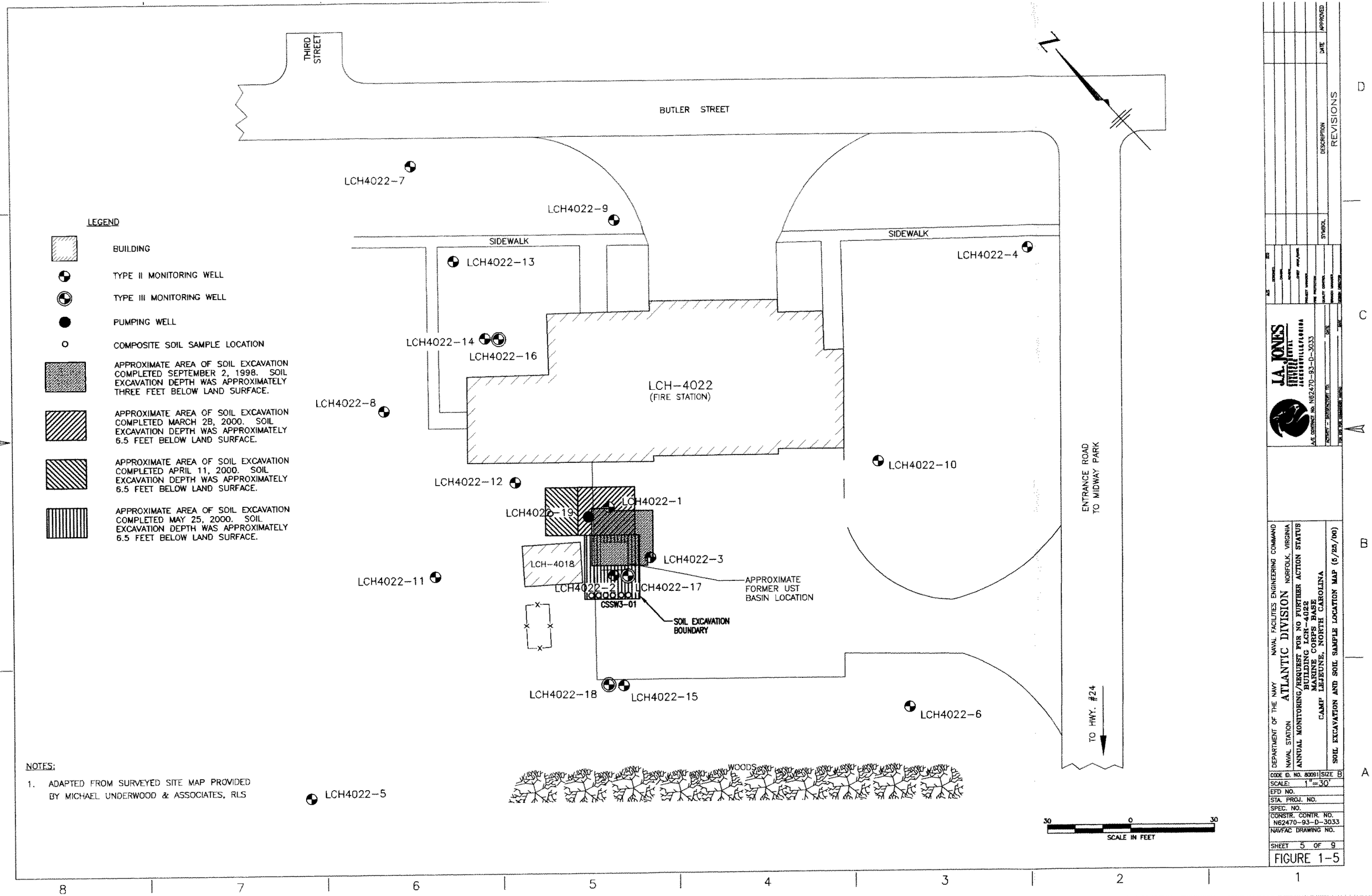
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION NORFOLK, VIRGINIA

ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

SOIL EXCAVATION AND SOIL SAMPLE LOCATION MAP (4/11/00)

CODE ID. NO. 80091	SIZE B
SCALE:	1" = 30'
EFD NO.	
STA. PROJ. NO.	
SPEC. NO.	
CONSTR. CONTR. NO.	N62470-93-D-3033
NAVFAC DRAWING NO.	
SHEET	4 OF 9

FIGURE 1-4


THIRD STREET
BUTLER STREET
LCH4022-7
LCH4022-9
SIDEWALK
LCH4022-13
LCH4022-14
LCH4022-16
LCH4022-8
LCH-4022
(FIRE STATION)
SIDEWALK
LCH4022-4
LCH4022-10
LCH4022-12
LCH4022-19
LCH4022-1
LCH4022-3
LCH-4018
LCH4022-11
LCH4022-2
LCH4022-17
CSSW3-01
APPROXIMATE FORMER UST BASIN LOCATION
SOIL EXCAVATION BOUNDARY
LCH4022-18
LCH4022-15
LCH4022-6
ENTRANCE ROAD TO MIDWAY PARK
TO HWY. #24
WOODS
LCH4022-5
LEGEND
BUILDING
TYPE II MONITORING WELL
TYPE III MONITORING WELL
PUMPING WELL
COMPOSITE SOIL SAMPLE LOCATION
APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED SEPTEMBER 2, 1998. SOIL EXCAVATION DEPTH WAS APPROXIMATELY THREE FEET BELOW LAND SURFACE.
APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED MARCH 28, 2000. SOIL EXCAVATION DEPTH WAS APPROXIMATELY 6.5 FEET BELOW LAND SURFACE.
APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED APRIL 11, 2000. SOIL EXCAVATION DEPTH WAS APPROXIMATELY 6.5 FEET BELOW LAND SURFACE.
APPROXIMATE AREA OF SOIL EXCAVATION COMPLETED MAY 25, 2000. SOIL EXCAVATION DEPTH WAS APPROXIMATELY 6.5 FEET BELOW LAND SURFACE.
NOTES:
1. ADAPTED FROM SURVEYED SITE MAP PROVIDED BY MICHAEL UNDERWOOD & ASSOCIATES, RLS
30 0 30
SCALE IN FEET
REVISIONS
SYMBOL DESCRIPTION DATE APPROVED
J.A. JONES ENVIRONMENTAL SERVICES
A/E CONTRACT No. N62470-93-D-3033
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION NORFOLK, VIRGINIA
ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA
SOIL EXCAVATION AND SOIL SAMPLE LOCATION MAP (5/25/00)
CODE ID. NO. 80091 SIZE B
SCALE: 1" = 30'
EFD NO.
STA. PROJ. NO.
SPEC. NO.
CONSTR. CONTR. NO. N62470-93-D-3033
NAVFAC DRAWING NO.
SHEET 5 OF 9
FIGURE 1-5

THIRD STREET

BUTLER STREET

LEGEND

BUILDING

TYPE II MONITORING WELL

TYPE III MONITORING WELL

PUMPING WELL

NM NOT MEASURED

LCH4022-7
25.47

LCH4022-9
26.08

LCH4022-13
25.25

LCH4022-14
25.46

LCH4022-16

LCH4022-8
24.92

LCH-4022
(FIRE STATION)

LCH4022-4
NM

LCH4022-10
26.50

LCH4022-12
25.38

LCH4022-19

LCH4022-1

LCH-4018

LCH4022-3
NM

LCH4022-17

APPROXIMATE FORMER UST BASIN LOCATION

LCH4022-11
24.88

LCH4022-2
NM

24.95
LCH4022-15

LCH4022-18

LCH4022-5
23.91

26.00
LCH4022-6

25.00

24.00

26.00

SIDEWALK

SIDEWALK

WOODS

ENTRANCE ROAD TO MIDWAY PARK

TO HWY. #24

NOTES:

1. ADAPTED FROM SURVEYED SITE MAP PROVIDED BY MICHAEL UNDERWOOD & ASSOCIATES, RLS

30 0 30
SCALE IN FEET

REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVED

J.A. JONES
CONSTRUCTION SERVICES
A/E CONTRACT NO. N62470-93-D-3033

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION NORFOLK, VIRGINIA

ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

GROUNDWATER ELEVATION CONTOUR MAP (11/19/98)

CODE ID. NO. 80091	SIZE B
SCALE:	1"=30'
EFD NO.	
STA. PROJ. NO.	
SPEC. NO.	
CONSTR. CONTR. NO.	N62470-93-D-3033
NAVFAC DRAWING NO.	
SHEET	6 OF 9

FIGURE 1-6

THIRD STREET

BUTLER STREET

28.00

LCH4022-7
27.80

LCH4022-9
28.24

SIDEWALK

LCH4022-13
27.80

27.50

27.94
LCH4022-14

LCH4022-16

LCH4022-8
27.42

LCH-4022
(FIRE STATION)

28.50

SIDEWALK

LCH4022-4
NM

LCH4022-10
28.61

ENTRANCE ROAD
TO MIDWAY PARK

LCH4022-12
28.12

28.00

LCH4022-1
27.72

LCH4022-19

LCH-4018

LCH4022-3
27.88

LCH4022-2
NM

LCH4022-17

APPROXIMATE
FORMER UST
BASIN LOCATION

27.50

LCH4022-11
28.07

LCH4022-18

LCH4022-15
28.73

28.73
LCH4022-6

28.50

TO HWY. #24

WOODS

28.00

LCH4022-5
28.14

LEGEND

	BUILDING
⊕	TYPE II MONITORING WELL
⊕	TYPE III MONITORING WELL
●	PUMPING WELL
NM	NOT MEASURED

NOTES:

1. ADAPTED FROM SURVEYED SITE MAP PROVIDED BY MICHAEL UNDERWOOD & ASSOCIATES, RLS

30 0 30
SCALE IN FEET

SYMBOL	DESCRIPTION	DATE	APPR'D
	REVISIONS		

J.A. JONES
CONSTRUCTION SERVICES
JACKSONVILLE, FLORIDA
N.A.E. CONTRACT NO. N62470-93-D-3033

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION NORFOLK, VIRGINIA

ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

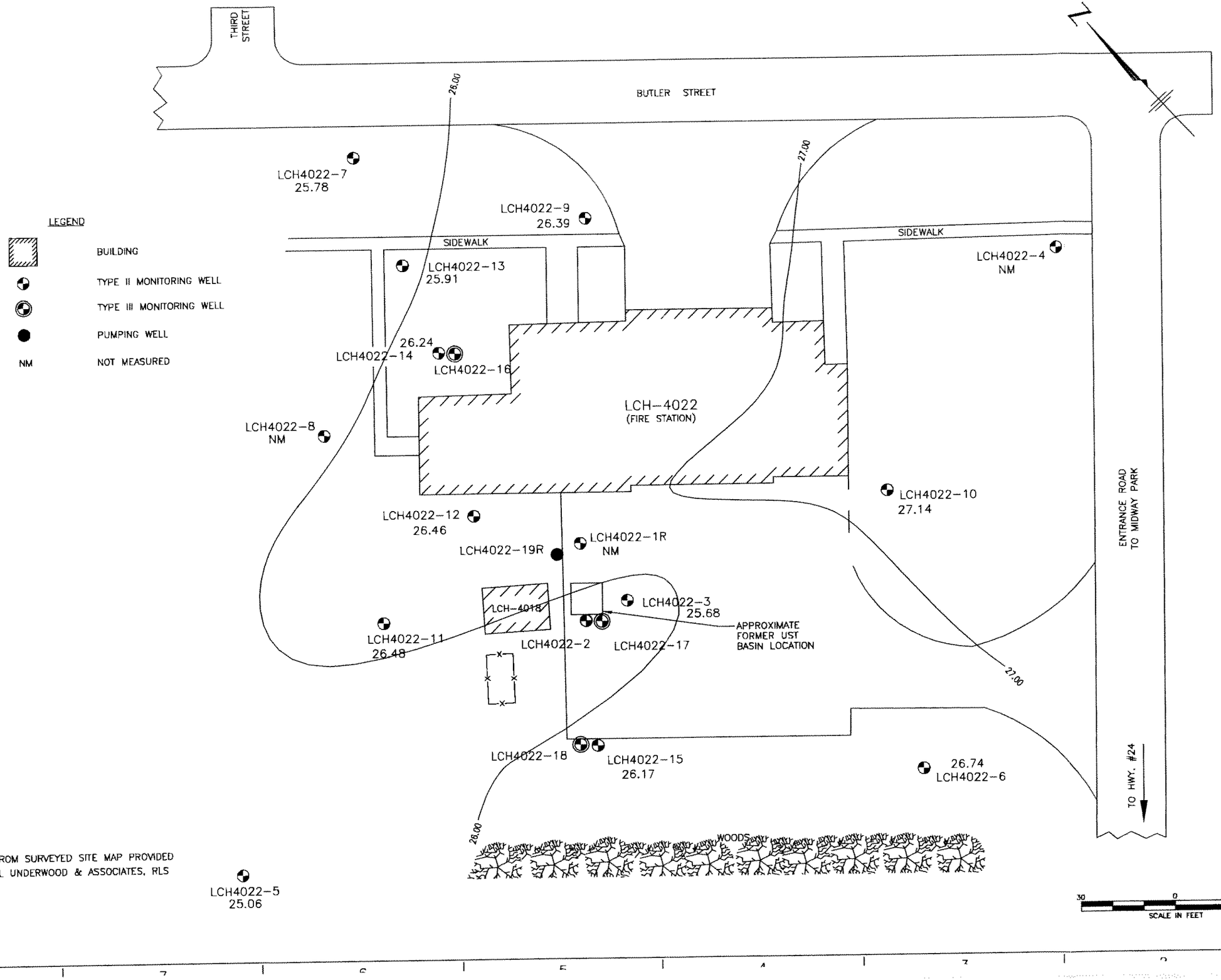
GROUNDWATER ELEVATION CONTOUR MAP 1/6/99)

CODE ID. NO. 80091	SIZE B
SCALE: 1"=30'	
EFD NO.	
STA. PROJ. NO.	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-93-D-3033	
NAVFAC DRAWING NO.	
SHEET 7 OF 9	

FIGURE 1-7

8 7 6 5 4 3 2 1

D C B A



NOTES:

1. ADAPTED FROM SURVEYED SITE MAP PROVIDED BY MICHAEL UNDERWOOD & ASSOCIATES, RLS

REVISIONS

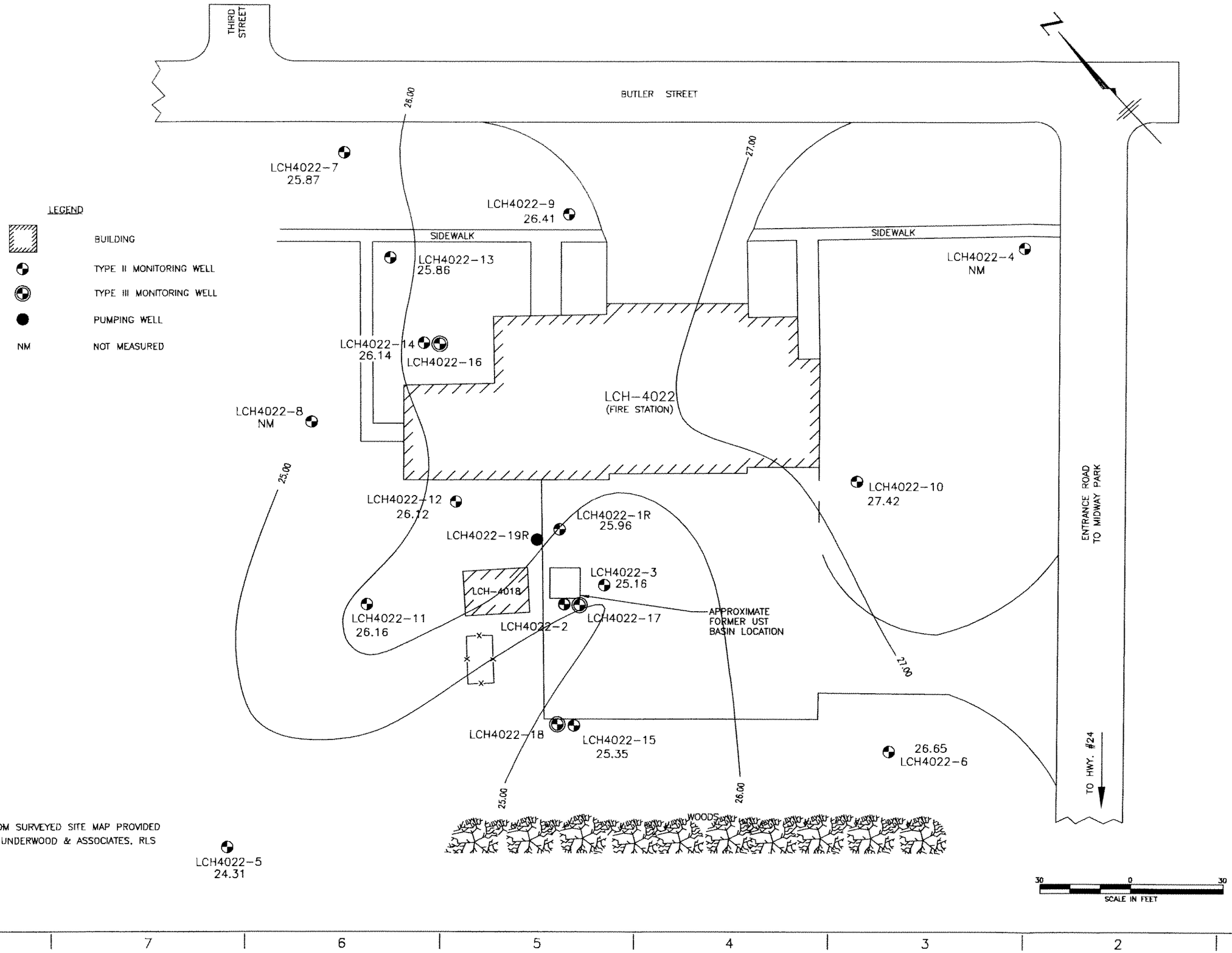
SYMBOL	DESCRIPTION	DATE	APPROVED B

J.A. JONES
ENVIRONMENTAL SERVICES
JACKSONVILLE, FLORIDA
A/E CONTRACT NO. N62470-93-D-3033

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA
NAVAL STATION ATLANTIC DIVISION
ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA
GROUNDWATER ELEVATION CONTOUR MAP (11/9/00)

CODE ID. NO. 80091	SIZE B
SCALE: 1"=30'	
EFD NO.	
STA. PROJ. NO.	
SPEC. NO.	
CONSTR. CONTR. NO. N62470-93-D-3033	
NAVFAC DRAWING NO.	
SHEET 8 OF 9	

FIGURE 1-8



NOTES:

1. ADAPTED FROM SURVEYED SITE MAP PROVIDED BY MICHAEL UNDERWOOD & ASSOCIATES, RLS

REVISIONS

J.A. JONES ENVIRONMENTAL SERVICES JACKSONVILLE, FLORIDA

A/E CONTRACT NO. N62470-93-D-3033

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION ATLANTIC DIVISION NORFOLK, VIRGINIA
ANNUAL MONITORING/REQUEST FOR NO FURTHER ACTION STATUS
BUILDING LCH-4022
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA
GROUNDWATER ELEVATION CONTOUR MAP (7/31/01)

CODE ID. NO. 80091 SIZE B
SCALE: 1"=30'
EFD NO.
STA. PROJ. NO.
SPEC. NO.
CONSTR. CONTR. NO. N62470-93-D-3033
NAVFAC DRAWING NO.
SHEET 9 OF 9

FIGURE 1-9

SECTION 2.0

NO FURTHER ACTION STATUS EVALUATION

2.1 EVALUATION OF SECONDARY CONTAMINANT SOURCES

2.1.1 Petroleum Hydrocarbon Product

Liquid-phase petroleum hydrocarbon product has not been detected in any on-site groundwater monitoring well at the Building LCH-4022 site since June 27, 2000.

2.1.2 Unsaturated Zone Soil

As described in **Section 1.2 Petroleum-Impacted Soil Excavation Activities,** contaminated soil with detected TPH concentrations above the North Carolina Action Level of 10 mg/kg was excavated and transported to a State Certified disposal facility.

2.2 RISK CLASSIFICATION

This section summarizes the criteria used by the NCDENR to classify the site in a risk category. In accordance with the Guidance Document, the following details regarding the potential risk are required for classification as a high, intermediate, or low risk category. This site is currently ranked as a high risk, but the following information may enable the site to be reclassified to a low risk category, which will make the site eligible for consideration of a No Further Action status.

1. *Current Risk Status (High, Intermediate, or Low):*

   The NCDENR has the site classified as a High Risk site.

2. *Has an existing water supply well, including one for non-drinking purposes, been contaminated by the discharge or release?*

   According to the CAP, one water supply well is located hydraulically upgradient and approximately 1,600 feet from the Building LCH-4022 site. There is no evidence of this well being impacted by the petroleum product discharges from the former UST LCH-4022.

3. *Is a water supply well used for drinking water located within 1000 feet of the source area of a confirmed discharge or release?*

   According to the CAP, there are no municipal supply wells within 1,000 feet of the Building LCH-4022 site.

4. *Is a water supply well not used for drinking water located within 250 feet of the source area of a confirmed discharge or release?*

   According to the CAP, there are no water supply wells located within 250 feet of the Building LCH-4022 site.

5. *Does the groundwater within 500 feet of the source area of a confirmed discharge or release have the potential for future use in that there is no source of water supply other than the groundwater?*

   Because the Building LCH-4022 site is a fire station of a military housing area at the Marine Corps Base, Camp Lejeune, it is highly unlikely that this site will change its intended use.

6. *Do the vapors from the discharge or release pose a serious threat of explosion due to accumulation of the vapors in a confined space?*

   There is no documented presence of utility line vapors in the CAP. Underground utilities in the area of investigation include underground water lines, sewer lines, and storm drainage. All of these utilities are located within 100 feet of the former UST basin and are reportedly less than six feet deep. The groundwater table in the source area is approximately 3.5 feet to 8 feet bls. Utility depths intersect the water table, however, based on the analytical result from groundwater samples collected on July 31, 2001, no volatile aromatic hydrocarbons were detected at concentrations above the laboratory quantitation limit.

7. *Does the discharge or release pose an imminent danger to public health, public safety, or the environment?*

   All petroleum impacted soil with detected TPH concentrations above the North Carolina Action Level of 10 mg/kg were excavated and transported to a State Certified disposal facility. Detected concentrations of target compounds in groundwater monitoring well samples are below the State Regulatory Limit. Thus, the release is not expected to pose an imminent danger to public health, public safety, or the environment based on these means of exposure.

8. *Is surface water located within 500 feet of the source area of a confirmed discharge or release and does the maximum groundwater contamination concentration exceed the applicable surface water quality standard and criteria found in 15A NCAC 2B .0200 by a factor of 10?*

   There are no surface water bodies within 500 feet of the site. The nearest body of water is the New River and is located approximately 4,000 feet west of the site.

9. *In the Coastal Plain Physiographic Province as designated on a map entitled "Geology of North Carolina" published by the Department in 1985, is the source area of a confirmed discharge or release located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer which the Department determined is being used or may be used as a source of drinking water?*

   Based on information provided by RC&A in the CAP, the site is located within the Coastal Plain Physiographic Province and is underlain by permeable sands, gravels, and limestone separated by confining units of less permeable sediments. The main aquifer utilized for water consumption in the Camp Lejeune area is the Castle Hayne aquifer.

   The CAP states that the surficial aquifer is comprised chiefly of sand, clay, sandy clay, and silt beds with occasional peat and shells. In the Camp Lejeune area, the surficial aquifer is approximately ten feet thick and is not the source utilized for water supply. The Castle Hayne aquifer and confining unit underlies the surficial aquifer and is used for water supply in the Camp Lejeune area. The confining unit is generally 10 feet thick and consists of partially eroded clay, silt, and sandy clay beds. The Castle Hayne aquifer is chiefly comprised of sand and limestone beds and is reported to be approximately 150 feet to 300 feet thick and averages approximately 203 feet thick in the Camp Lejeune area.

10. *Is the source area of a confirmed discharge or release located within a designated wellhead protection area, as defined in 42 USC 300j-7(e)?*

    Currently, there are no established wellhead protection areas in the Coastal Plain Region of North Carolina.

11. *Do the levels of groundwater contamination for any contaminant except ethylene dibromide, benzene, and alkane and aromatic carbon fraction classes exceed 50 percent of the solubility of the contaminant at 25 degrees Celsius or 1000 times the groundwater quality standard or interim standard established in 15A NCAC 2L .0202, whichever is lower (these levels have been termed as "gross contamination levels" – Table 7 of the Guidance Document)?*

Contaminant concentrations in the groundwater monitoring well samples collected at the Building LCH-4022 site do not exceed their corresponding gross contamination level. A list of the contaminants detected in groundwater samples collected from the Building LCH-4022 site with their maximum concentration, their final groundwater sampling concentration, and gross contamination levels are presented as follows:

List of Contaminants	Maximum Concentration from CAP (12/12/96) (µg/l)	Final Sampling Event (7/31/01) (µg/l)	NCDENR Gross Contamination Level (µg/l)
Ethylbenzene	55	BQL	29,000
Acenaphthene	200	BQL	2,120
Naphthalene	380	BQL	15,500
Phenanthrene	BQL	18	410

BQL indicates the constituent was below the laboratory quantitation limit

12. *Do the levels of groundwater contamination for ethylene dibromide or benzene exceed 1000 times the federal drinking water standard set out in 40 CFR 141 (these levels have been termed as "gross contamination levels" – Table 7 of the Guidance Document)?*

The maximum concentration of benzene detected at the Building LCH-4022 site does not exceed the gross contamination level. The maximum concentration of benzene detected in groundwater samples collected from the Building LCH-4022 site with its gross contamination level is presented as follows:

List of Contaminants	Maximum Concentration from CAP (12/12/96) (µg/l)	Final Sampling Event (7/31/01) (µg/l)	NCDENR Gross Contamination Level (µg/l)
Benzene	45	BQL	5,000

SECTION 3.0

CONCLUSIONS AND RECOMMENDATIONS

From September 2, 1998 to May 25, 2000, J.A. Jones implemented the selected remedial approach as outlined in the December 12, 1996 CAP prepared by RC&A. The selected remedial approach consisted of soil excavation and groundwater natural attenuation.

J.A. Jones conducted soil excavation activities on September 2, 1998, March 28, 2000, April 11, 2000, May 16, 2000 and May 25, 2000. Analytical results from the unsaturated zone soil samples collected by J.A. Jones during soil excavation activities indicate that petroleum impacted soils above the North Carolina Action Level were excavated and transported to an off-site State Certified disposal facility.

Groundwater samples were collected from each of the on-site monitoring wells on July 31, 2001, and analyzed for volatile aromatic and semi-volatile organic hydrocarbons by USEPA Methods 602 and 610, respectively. Concentrations of dissolved hydrocarbon constituents were below the 15A NCAC 2L groundwater quality standards.

As detailed in **Section 2.0 No Further Action Status Evaluation**, there is no documented presence of a petroleum hydrocarbon constituent in the closest water supply well. There is no documented presence of hydrocarbon vapors in underground utilities at the site and the petroleum-impacted groundwater located within the property boundaries is not located within a designated wellhead protection area, as defined in 42 USC 300h-7(e). The nearest surface water body is the New River which is approximately 4,000 feet west of the former UST basin.

No evidence or measurable thickness of LNAPL was identified in any of the on-site monitoring wells in four consecutive quarterly LNAPL gauging events. .

J.A. Jones, through its soil excavation, LNAPL gauging events, groundwater monitoring well sampling events, and risk characterization evaluation, has demonstrated that the Building LCH-4022 site can be classified as low risk. Further, it is recommended that the site be considered a candidate for No Further Action Status.

APPENDIX A

SOIL SAMPLES – LABORATORY DATA

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Casey Hudson
JA Jones Environmental Services
8936 Western Way, Suite 10
Jacksonville, Fl 32256

Date 09-18-98

Report Number: G182-191

Project ID: LCH-4022

Dear Mr. Hudson:

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical service projects. We look forward to working with you again on any additional needs which you may have.

Sincerely,

Paradigm Analytical Laboratories

Laboratory Director
Mark Randall

PA DIGM ANALYTICAL LABORATOR S, INC.

Results for Oil and Grease

Client Sample ID:	USTLCH 4022-SS 1-3-98C	Date Analyzed:	9/3/98
Client Project ID:	LCH-4022	Analyzed By:	MAG
Lab Sample ID:	47431	Date Collected:	9/2/98
Lab Project ID:	G182-191	Date Received:	9/3/98
Matrix:	Soil	Solids:	85.6

Parameter	Method	Quantitation Limit (MG/KG)	Result (MG/KG)
Oil & Grease	9071	34	BQL

Comments:

BQL = Below Quantitation Limit
All soils are corrected for percent solids.

Reviewed By:

PA DIGM ANALYTICAL LABORATORIES, INC.

Results for Oil and Grease

Client Sample ID:	USTLCH 4022-SS 2-2.5-98C	Date Analyzed:	9/3/98
Client Project ID:	LCH-4022	Analyzed By:	MAG
Lab Sample ID:	47432	Date Collected:	9/2/98
Lab Project ID:	G182-191	Date Received:	9/3/98
Matrix:	Soil	Solids:	84.4

Parameter	Method	Quantitation Limit (MG/KG)	Result (MG/KG)
Oil & Grease	9071	35	BQL

Comments:

BQL = Below Quantitation Limit
All soils are corrected for percent solids.

Reviewed By: _____

Results for Oil and Grease

Client Sample ID:	USTLCH 4022-SS 3-3.5-98C	Date Analyzed:	9/3/98
Client Project ID:	LCH-4022	Analyzed By:	MAG
Lab Sample ID:	47433	Date Collected:	9/2/98
Lab Project ID:	G182-191	Date Received:	9/3/98
Matrix:	Soil	Solids:	84.5

Parameter	Method	Quantitation Limit (MG/KG)	Result (MG/KG)
Oil & Grease	9071	34	**41**

Comments:

BQL = Below Quantitation Limit
All soils are corrected for percent solids.

Reviewed By: _____

Results for Oil and Grease

Client Sample ID:	USTLCH 4022-SS 4-3-98C	Date Analyzed:	9/3/98
Client Project ID:	LCH-4022	Analyzed By:	MAG
Lab Sample ID:	47434	Date Collected:	9/2/98
Lab Project ID:	G182-191	Date Received:	9/3/98
Matrix:	Soil	Solids:	83.9

Parameter	Method	Quantitation Limit (MG/KG)	Result (MG/KG)
Oil & Grease	9071	36	BQL

Comments:

BQL = Below Quantitation Limit
All soils are corrected for percent solids.

Reviewed By: _____

PA DIGM ANALYTICAL LABORATOR S, INC.

Results for Total Petroleum Hydrocarbons
by GC

Client Sample ID:	USTLCH 4022-SS 1-3-98C	Date Collected:	9/2/98
Client Project ID:	LCH-4022	Date Received:	9/3/98
Lab Sample ID:	47431	Analyzed By:	JPW
Lab Project ID:	G182-191	%Solids:	85.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Diesel#2	BQL	33	3550	1.0	9/4/98

Comments:

Quanlitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By: hw

Results for Total Petroleum Hydrocarbons by GC

Client Sample ID:	USTLCH 4022-SS 2-2.5-98	Date Collected:	9/2/98
Client Project ID:	LCH-4022	Date Received:	9/3/98
Lab Sample ID:	47432	Analyzed By:	JPW
Lab Project ID:	G182-191	%Solids:	84.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Diesel#2	BQL	33	3550	1.0	9/4/98

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By:

PA DIGM ANALYTICAL LABORATOR , INC.

Results for Total Petroleum Hydrocarbons by GC

Client Sample ID:	USTLCH 4022-SS 3-3.5-98C	Date Collected:	9/2/98
Client Project ID:	LCH-4022	Date Received:	9/3/98
Lab Sample ID:	47433	Analyzed By:	JPW
Lab Project ID:	G182-191	%Solids:	84.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Diesel#2	BQL	33	3550	1.0	9/4/98

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By: _____

Results for Total Petroleum Hydrocarbons by GC

Client Sample ID:	USTLCH 4022-SS 4-3-98C	Date Collected:	9/2/98
Client Project ID:	LCH-4022	Date Received:	9/3/98
Lab Sample ID:	47434	Analyzed By:	JPW
Lab Project ID:	G182-191	%Solids:	83.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Diesel#2	BQL	34	3550	1.0	9/4/98

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORY, INC.

Results for Total Petroleum Hydrocarbons
by GC

Client Sample ID:	USTLCH 4022-SS 1-3-98C	Date Collected:	9/2/98
Client Project ID:	LCH-4022	Date Received:	9/3/98
Lab Sample ID:	47431	Analyzed By:	JPW
Lab Project ID:	G182-191	%Solids:	85.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline	BQL	4.7	5030	1.0	9/9/98

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

Reviewed By: [signature]

Results for Total Petroleum Hydrocarbons
by GC

Client Sample ID:	USTLCH 4022-SS 2-2.5-98C	Date Collected:	9/2/98
Client Project ID:	LCH-4022	Date Received:	9/3/98
Lab Sample ID:	47432	Analyzed By:	JPW
Lab Project ID:	G182-191	%Solids:	84.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline	BQL	4.7	5030	1.0	9/9/98

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

Reviewed By: mrs

PA' DIGM ANALYTICAL LABORATOR' S, INC.

Results for Total Petroleum Hydrocarbons
by GC

Client Sample ID:	USTLCH 4022-SS 3-3.5-98C	Date Collected:	9/2/98
Client Project ID:	LCH-4022	Date Received:	9/3/98
Lab Sample ID:	47433	Analyzed By:	JPW
Lab Project ID:	G182-191	%Solids:	84.5
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline	BQL	4.7	5030	1.0	9/9/98

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORY, INC.

Results for Total Petroleum Hydrocarbons
by GC

Client Sample ID:	USTLCH 4022-SS 4-3-98C	Date Collected:	9/2/98
Client Project ID:	LCH-4022	Date Received:	9/3/98
Lab Sample ID:	47434	Analyzed By:	JPW
Lab Project ID:	G182-191	%Solids:	83.9
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline	BQL	4.8	5030	1.0	9/9/98

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

Reviewed By: _____

PARADIGM ANALYTICAL LABORATORIES, INC.
627 Northchase Parkway SE, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 17662

Page 1 of 1

Client: J.A. Jones Envir. Serv
Address: 8936 western Way suite 10
Address: Jax Fla 32256
Quote #:

Project ID: LCH-4022
P.O. Number:
Contact: Casey Hudson
Phone: 904-363-0911

Date: 9-2-98
Turnaround: 24 Hr Rush
Job Number:

Report To: Casey Hudson
Same

Invoice To: DOF#28

Sample ID	Date	Time	Matrix	Preservatives	Analyses: 3550-5030	Analyses: 9071	Comments: Please specify any special reporting requirements
							G182-191
							24 hr rush
LCH 4022-S 1-3-98C	9-2-98	11:20	Soil		✓	✓	
LCH 4022-S 2-2.5-98C	9-2-98	11:30	Soil		✓	✓	
LCH 4022-S 3-3.5-98C	9-2-98	11:40	Soil		✓	✓	
LCH 4022 S 4-3-98C	9-2-98	11:50	Soil		✓	✓	

Relinquished By	Date	Time	Received By	Date	Time	Temperature	Sampled By	Airbill #
David Plantz	9-2-98	2:35	Suciprica	9/3/98	1010	2.4°C		

ORIGINAL

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

April 12, 2000

Mr. Jeff Henninger
J.A. Jones Environmental Services
8936 Western Way, Suite 10
Jacksonville, Fl 32256

Report Number: G182-489

Dear Mr. Henninger,

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	UST 4022-CS-01-01	Date Collected:	3/28/00
Client Project ID:	T.O. 55	Date Received:	3/29/00
Lab Sample ID:	84553	Analyzed By:	BMS
Lab Project ID:	G182-489	%Solids:	83.6
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.2	5030/8015B	1.0	4/5/00
Diesel Range Organics	**908**	71	3550/8015B	10.0	4/4/00

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By: 

ARCADIS GEOMATRIX LABORATORIES, INC.
2627 Northchase Parkway SE, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 1701

Page 1 of 1

VECTOR BUSINESS SYSTEMS 717-854-7655 18194

Client: JA JONES ENVIRONMENTAL SERVICES
Address: ~~LOT~~ 8936 WESTERN WAY
Address: SUITE 10
Quote #:

Project ID: TO 55 LOH 4022
P.O. Number:
Contact: JEFF HENNIGER
Phone: (904) 363-0911

Date: 3/28/00
Turnaround: ~~OVERNIGHT (24HR)~~ STD per Jeff Henniger 3/30/00
Job Number:

Report To: JEFF HENNIGER
Invoice To:

Sample ID	Date	Time	Matrix	Preservatives: None	Analyses: 503	Analyses: 550	Comments: Please specify any special reporting requirements
LOT 4022-CS-01-01	3/28/00	1430	Soil	✓	✓	✓	

Relinquished By	Date	Time	Received By	Date	Time	Temperature	Sampled By	Airbill #
[signature]	3/28/00	1630	[signature]	3/29	9:55	0 °C	NOT frozen	

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Jeff Henninger
J.A. Jones Environmental Services
8936 Western Way, Suite 10
Jacksonville, Fl 32256

April 20, 2000

Report Number: G182-498

Dear Mr. Henninger,

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	USTLCH4022-CSSW-01	Date Collected:	4/11/00
Client Project ID:	Bldg LCH 4022	Date Received:	4/12/00
Lab Sample ID:	85546	Analyzed By:	BMS
Lab Project ID:	G182-498	%Solids:	89.1
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.7	5030/8015B	1.0	4/14/00
Diesel Range Organics	20	6.8	3550/8015B	1.0	4/18/00

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By: [signature]

Results for Total Petroleum

Hydrocarbons
by GC 8015B

Client Sample ID:	USTLCH4022-CSEW-01	Date Collected:	4/11/00
Client Project ID:	Bldg LCH 4022	Date Received:	4/12/00
Lab Sample ID:	85547	Analyzed By:	BMS
Lab Project ID:	G182-498	%Solids:	85.3
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.0	5030/8015B	1.0	4/14/00
Diesel Range Organics	BQL	7.2	3550/8015B	1.0	4/18/00

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By: [signature]

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	USTLCH4022-CSNW-01	Date Collected:	4/11/00
Client Project ID:	Bldg LCH 4022	Date Received:	4/12/00
Lab Sample ID:	85548	Analyzed By:	BMS
Lab Project ID:	G182-498	%Solids:	84.7
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.1	5030/8015B	1.0	4/14/00
Diesel Range Organics	BQL	7.1	3550/8015B	1.0	4/19/00

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

Reviewed By: [signature]

Results for Total Petroleum
Hydrocarbons
by GC 8015B

Client Sample ID:	USTLCH4022-CSWW-01	Date Collected:	4/11/00
Client Project ID:	Bldg LCH 4022	Date Received:	4/12/00
Lab Sample ID:	85549	Analyzed By:	BMS
Lab Project ID:	G182-498	%Solids:	87.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	4/14/00
Diesel Range Organics	BQL	6.9	3550/8015B	1.0	4/18/00

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By:

Client:	J.A. Jones	**Project ID:**	Bldg LCH 4022	**Date:** 4/11/00	Report To: Jeff Henninger
Address:	8936 Western Way	**P.O Number:**	POSS-006-016	**Turnaround:** Standard	
Address:	Suite 10	**Contact :**	Jeff Henninger	**Job Number:** T. O. 55	
	Jacksonville, Fla. 32256	**Phone:**	904-363-0911	**Page** 1 of 1	Invoice To: T.O. 55

Paradigm Quote # :

Sample ID	Date	Time	Matrix	Preservative & No. Bottles: None				Analyses: 8015 / 5030	8015 / 3550						Comments
															G182-498
USTLCH4022-CSSW-01	4/11/00	1430	soil	X				X	X						
USTLCH4022-CSEW-01	4/11/00	1435	soil	X				X	X						
USTLCH4022-CSNW-01	4/11/00	1440	soil	X				X	X						
USTLCH4022-CSWW-01	4/11/00	1450	soil	X				X	X						

Relinquished By	Date	Time	Received By	Date	Time	Temperature	Sampled By	Airbill #
Richard Sample	4/11/00	1600		4/12/00	0945	1.2	R. Sample	

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

May 25, 2000

Ms. Tracy Thrift
J.A. Jones Environmental Services
8936 Western Way, Suite 10
Jacksonville, Fl 32256

Report Number: G182-511

Client Project ID: Bldg. LCH 4022

Dear Ms. Thrift,

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

PARAI M ANALYTICAL LABOR...

Results for Total Petroleum Hydrocarbons by GC 8015B

Client Sample ID:	USTLCH 4022-CSSW2-01	Date Collected:	5/16/00
Client Project ID:	Bldg. LCH 4022	Date Received:	5/17/00
Lab Sample ID:	87731	Analyzed By:	BMS
Lab Project ID:	G182-511	%Solids:	85.8
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.0	5030/8015B	1.0	5/18/00
Diesel Range Organics	**25**	6.9	3550/8015B	1.0	5/18/00

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.

BQL = Undetected or below quantitation limit.

Reviewed By: [signature]

North Carolina Wastewater Certification #481

PARADIGM ANALYTICAL LABORATORIES

Chain-of-Custody Record & Analytical Request

2627 Northchase Parkway SE. Wilmington, NC 28405 Phone: (910)-350-1903 FAX: (910)-350-1557

Client: J.A. JONES
Address: 8936 WESTERN WAY
Address: SUITE 10
Jacksonville, Fla. 32256

Project ID: Bldg. LCH 4022
P.O Number:
Contact: Jeff Henninger
Phone: 904-363-0911

Date: 16may00
Turnaround: 48 hour
Job Number: ~~T.O. 67~~ T055
Page: 1 OF __

Report To:
Jeff Henninger
Invoice To: ~~T.O. 67~~ T055

T055 Per Jeff Henninger

Paradigm Quote # :

Sample ID	Date	Time	Matrix	Preservative & No. Bottles: Hydrochloric Acid	Nitric Acid	None	Sodium Hydroxide	Analyses: 8021	8310	625	625/8270		Comments
													9182-511
USTLCH 4022-CSSW2-01	5/11/00	13:30									X		3550/5030 ANALYSIS AS PER MARK RANDALL 5/17/00 888

Relinquished By	Date	Time	Received By	Date	Time	Temperature	Sampled By	Airbill #
RICHARD SAMPLE Richard Sample	5/11/00	16:00	[signature]	5/17/00	10.25	1.0		

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

June 13, 2000

Mr. Jeff Henninger
J.A. Jones Environmental Services
8936 Western Way, Suite 10
Jacksonville, Fl 32256

Report Number: G182-516

Dear Mr. Henninger,

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

Results for Total Petroleum Hydrocarbons
by GC 8015B

Client Sample ID:	UST LCH 4022-CSSW3-01	Date Collected:	5/25/00
Client Project ID:	LCH 4022	Date Received:	5/26/00
Lab Sample ID:	88464	Analyzed By:	BMS
Lab Project ID:	G182-516	%Solids:	86.4
Matrix:	Soil		

Compound	Result (MG/KG)	Quantitation Limit	Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.9	5030/8015B	1.0	5/31/00
Diesel Range Organics	10	7.2	3550/8015B	1.0	5/30/00

Comments:

Quantitation Limits are fully calculated using dilution factors and % solids.
BQL = Undetected or below quantitation limit.

Reviewed By:

2627 Northchase Parkway SE, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

Client: S.A. Jones
Address: 7936 Western Way Suite 10
Address: Jacksonville, Fla. 32256
Quote #:

Project ID: LCH 4022
Contact: Jesse Henningsen
Phone: 904-363-0911
Fax:

Date: 25 May 00
Turnaround: 48 hour.
Job Number: T.O. 67
P.O. Number: 055-006-016

Report To: Jesse Henningsen
- Same -
Invoice To: T.O. 67.

Sample ID	Date	Time	Matrix	Preservatives	Analyses	Comments: Please specify any special reporting requirements
				N/A	5030 / 3550	
UST LCH 4022-CSSWJ-01	25 May 00	13:30	soil	X	X X	G182-516

Relinquished By	Date	Time	Received By	Date	Time	Temperature
	25 May 00	1600		5/26/00	0930	4.1

State Certification Requested

NC ____ SC ____ Other ____

SEE REVERSE FOR TERMS AND CONDITIONS

ORIGINAL

APPENDIX B

WASTE TRANSPORTATION AND DISPOSAL LOG

WASTE TRANSPORTATION AND DISPOSAL LOG
J.A. JONES ENVIRONMENTAL SERVICES COMPANY
CAMP LEJEUNE, NORTH CAROLINA
PROJECT NUMBER: 005-067h

GALLONS TO DATE	**1,602**
TONS TO DATE	**275.05**
DRUMS TO DATE	**0.00**

DATE SHIPPED	DISPOSAL FACILITY	HAULER	TONS	GALLONS	DRUMS	MANIFEST NUMBER	LOAD NUMBER	COMMENTS
Building LCH-4022								
9/2/98	ES&J Enterprises	ES&J Enterprises	29.05			617	S-001	Soil Excavation
9/2/98	ES&J Enterprises	ES&J Enterprises	27.27			618	S-002	Soil Excavation
9/2/98	ES&J Enterprises	ES&J Enterprises	23.88			619	S-003	Soil Excavation
2/26/99	Building 976 North Plant	J.A. Jones		125		821	W-001	APVR Event
3/26/99	Building 976 North Plant	J.A. Jones		349		821	W-002	APVR Event
4/9/99	Building 976 North Plant	J.A. Jones		322		821	W-003	APVR Event
4/23/99	Building 976 North Plant	J.A. Jones		695		821	W-004	APVR Event
8/24/99	Building 976 North Plant	J.A. Jones		111		821	W-005	APVR Event
3/30/00	Oak Hill Farms	ES&J Enterprises	20.47			939	S-004	Soil Excavation
3/30/00	Oak Hill Farms	ES&J Enterprises	20.51			940	S-005	Soil Excavation
3/30/00	Oak Hill Farms	ES&J Enterprises	20.85			941	S-006	Soil Excavation
3/30/00	Oak Hill Farms	ES&J Enterprises	20.43			942	S-007	Soil Excavation
3/30/00	Oak Hill Farms	ES&J Enterprises	23.12			943	S-008	Soil Excavation
3/30/00	Oak Hill Farms	ES&J Enterprises	24.52			944	S-009	Soil Excavation
6/5/00	Oak Hill Farms	ES&J Enterprises	25.68			970	S-010	Soil Excavation
6/5/00	Oak Hill Farms	ES&J Enterprises	21.09			971	S-011	Soil Excavation
6/5/00	Oak Hill Farms	ES&J Enterprises	18.18			972	S-012	Soil Excavation
			275.05	**1,602**	**0.00**	**SOIL:**	**12**	**Loads**
						WATER:	**5**	**Loads**
						DRUMS:	**0**	**Loads**

APPENDIX C

AGGRESSIVE FLUID-VAPOR RECOVERY DATA

AFVR
Building LCH-4022
Data Measurement Summary

Date: February 26, 1999
Diameter of Exhaust Pipe: 4 inches
Vacuum at the Blower (in. of Hg): 24.5

Vacuum Applied to Recovery/Monitoring Well(s)	Well Vacuum (in. of Hg)	Start Time	Stop Time	Duration (hours)
LCH4022-19	20	10:00	11:30	1.50
LCH4022-1	18-21	10:00	11:30	1.50

Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s):	Temperature (°F)	Relative Humidity (%)	Velocity (ft/min)	FID Reading (ppm)
30 minutes - 1030	57.8	54.0	670	40
60 minutes -1100	58.3	54.5	1259	17
90 minutes - 1100	68.2	110.0	444	13
Average	61.4	72.8	791	23

Recovery Well	Top of Casing Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft.)	Groundwater Elevation (ft., msl)	Well Vacuum (in. of H_2O)
LCH4022-5	30.71		2.28	28.43	
LCH4022-6	32.75		3.73	29.02	
LCH4022-8	32.12		4.75	27.37	
LCH4022-10	33.40		4.48	28.92	
LCH4022-11	30.04		1.88	28.16	
LCH4022-12	32.88		4.76	28.12	
LCH4022-15	31.60		1.36	30.24	

Notes:
ft = feet
toc = top of casing elevation
msl = mean sea level

Date: February 26, 1999
Diameter of Exhaust Pipe: 4 inches
Vacuum at the Blower (in. of Hg): 20

Vacuum Applied to Recovery/Monitoring Well(s)	Well Vacuum (in. of Hg)	Start Time	Stop Time	Duration (hours)
LCH4022-2	8-10	11:35	12:28	0.88
LCH4022-3	17	11:35	12:28	0.88

Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s):	Temperature (°F)	Relative Humidity (%)	Velocity (ft/min)	FID Reading (ppm)
30 minutes - 1208	120.0	62.8	2164	No FID
Average	120.0	62.8	2164	

DATA TRANSMITTAL

Contract No.	Transmittal Type	Date
N62470-93-D-3033	**Post-construction**	**1/7/02**
Task Order No. 067H	Transmittal No.	**1**

Project Title & Location: **Annual Monitoring Report/Request for NFA Status Building LCH-4022 Marine Corps Base, Camp Lejeune, North Carolina**

To:
Mrs. Lori Reuther
Navy Technical Representative
Department of the Navy, Atlantic Division
1510 Gilbert Street
Norfolk, VA 23511
(757) 322-4779
(757) 322-4805 FAX

From:
Tracy Thrift
Project Geologist
J.A. Jones Environmental Services Company
8936 Western Way, Suite 10
Jacksonville, FL 32256
(904) 363-0911
(904) 363-1421 FAX

Reviewers Use Only

*** Action Codes**
A - Approved
D - Disapproved
AN - Approved as Noted
RA - Receipt Acknowledged
C- Comments
R - Resubmit

☐ Contractor Approved ☐ EMD Approved ☐ ROICC Approved ☑ NTR Approved

Item No.	Spec. Sect. No.	Para. No.	SD No.	Description of Submittal	No. Copies	*Action Code	Reviewers Initials, Code & Date
2	01010	1.1.1.1	9	Annual Monitoring Report/Request for NFA Status	1		

I hereby certify that the (material) (equipment) (article) shown and marked in this submittal is that proposed to be incorporated with Contract Number N62470-93-D-3033, is in compliance with the Contract drawings and specifications, can be installed in the allocated spaces, and is submitted for Government approval. Government approval of proposed variation, if any, is recommended.

Delivery Order Number: 067

Certified by QC Manager: [signature] Date: 1/07/02

Contractor's Comments:
–

Copy of Transmittal to ROICC:

Contractor's Signature: Tracy A Thrift

Date Received by Reviewer:

From (Reviewer):

To:

☐ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A&E recommendations indicated in REVIEWER USE ONLY Section and in comments below on one of the transmittal form.

Reviewer's Comments:

CC: ROICC, EMD, JAJ PMO, JAJ File
Rowse (1), Paul (2), Osmann (1), File (1)

Date:

Signature:

AFVR
Building LCH-4022
AFVR Event - February 26, 1999

AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters	LCH4022-19 and LCH4022-1	LCH4022-2 and LCH4022-3
Time Duration (hours)	1.50	1.40
Average Temperature (^{0}F)	61.4	120.0
Average Relative Humidity (%)	77.8	62.8
Average Velocity (ft/min)	791	2146
Average FID Reading (ppm)	23	No FID Available
B_{WSW} (lb. water/lb. dry air)	0.0059	0.0490
B_{WS} (water vapor % by volume)	0.0093	0.0728
Stack Pipe Cross Sectional Area (ft^2)	0.087	0.087
T_S Stack Temperature (^{0}R)	521.4	580.0
Q_{std} (flow at DSCRM)	69.0	157.6
PPM_W (wet concentration=measured concentraction)	23	No FID Available
PPM_d (dry concentration)	23	
PPM_c (PPM_v, volumetric concentration of VOC emissions as carbon, dry basis at STP)	23	
C_{cm} (mg/dsm^3, mass concentration of VOC emissions as carbon)	12	
C_c (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)	0.000001	
PMR_c (lb/hr, pollutant mass removal rate of VOCs as carbon)	0.00	
$PMR_{Heating\ Oil}$ (lb/hr, pollutant mass removal rate of VOCs as Heating Oil)	0.00	
$PMR_{Heating\ Oil}$ (lbs, total pollutant mass removal of VOCs as Heating Oil)	0.01	
$PMR_{Heating\ Oil}$ (gals, total pollutant mass removal of VOCs as Heating Oil)	0.00	
tal Gallons of Pollutant Volume Removal of VOCs as Heating	**0.00**	
Gallons of LNAPL Removed as Heating Oil from February 26, 1999 AFVR Event	**0**	
Total Gallons of Pollutant Removed as Heating Oil from February 26, 1999 AFVR Event	**0.00**	
Total Gallons of Pollutant Removed as Heating Oil Since Initiation of AFVR Activites February 26, 1999	**0.00**	

AFVR
Building LCH-4022
Data Measurement Summary

Date: March 26, 1999
Diameter of Exhaust Pipe: 4 inches
Vacuum at the Blower (in. of Hg): 22

Vacuum Applied to Recovery/Monitoring Well(s)	Well Vacuum (in. of Hg)	Start Time	Stop Time	Duration (hours)
LCH4022-19	20	8:30	9:30	1.00
LCH4022-1	20	8:30	9:30	1.00

Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s):	Temperature (^{0}F)	Relative Humidity (%)	Velocity (ft/min)	FID Reading (ppm)
5 minutes - 835	56.6	41.1	436	9
32 minutes -902	60.0	96.2	586	10
60 minutes - 930	57.1	100.0	512	3
Average	57.9	79.1	511	7

Recovery Well	Top of Casing Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft.)	Groundwater Elevation (ft., msl)	Well Vacuum (in. of H_2O)
LCH4022-5	30.71		1.60	29.11	
LCH4022-6	32.75		3.35	29.40	
LCH4022-8	32.12		4.22	27.90	
LCH4022-10	33.40		4.12	29.28	
LCH4022-11	30.04		1.53	28.51	
LCH4022-12	32.88		4.76	28.12	
LCH4022-15	31.60		2.05	29.55	

Notes:
ft = feet
toc = top of casing elevation
msl = mean sea level

Date: March 26, 1999
Diameter of Exhaust Pipe: 4 inches
Vacuum at the Blower (in. of Hg): 18

Vacuum Applied to Recovery/Monitoring Well(s)	Well Vacuum (in. of Hg)	Start Time	Stop Time	Duration (hours)
LCH4022-2	8	9:35	10:50	1.25
LCH4022-3	15	9:35	10:50	1.25

Time Duration And Aetual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s):	Temperature (^{0}F)	Relative Humidity (%)	Velocity (ft/min)	FID Reading (ppm)
5 minutes - 940	115.1	14.5	3412	2
40 minutes - 1015	126.8	0.0	3505	4
75 minutes - 1050	125.2	0.2	3470	3
Average	122.4	4.9	3462	3

AFVR
Building LCH-4022
AFVR Event - March 26, 1999

AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters	LCH4022-19 and LCH4022-1	LCH4022-2 and LCH4022-3
Time Duration (hours)	1.00	1.25
Average Temperature (^{0}F)	57.9	122.4
Average Relative Humidity (%)	79.1	4.9
Average Velocity (ft/min)	511	3462
Average FID Reading (ppm)	7	3
B_{WSW} (lb. water/lb. dry air)	0.0105	0.0055
B_{WS} (water vapor % by volume)	0.0165	0.0087
Stack Pipe Cross Sectional Area (ft^2)	0.087	0.087
T_S Stack Temperature (^{0}R)	517.9	582.4
Q_{std} (flow at DSCRM)	44.6	270.7
PPM_W (wet concentration=measured concentraction)	7	3
PPM_d (dry concentration)	7	3
PPM_c (PPM_v, volumetric concentration of VOC emissions as carbon, dry basis at STP)	7	3
C_{cm} (mg/dsm^3, mass concentration of VOC emissions as carbon)	4	2
C_c (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)	0.000000	0.000000
PMR_c (lb/hr, pollutant mass removal rate of VOCs as carbon)	0.00	0.00
$PMR_{Heating\ Oil}$ (lb/hr, pollutant mass removal rate of VOCs as Heating Oil)	0.00	0.00
$PMR_{Heating\ Oil}$ (lbs, total pollutant mass removal of VOCs as Heating Oil)	0.00	0.00
$PMR_{Heating\ Oil}$ (gals, total pollutant mass removal of VOCs as Heating Oil)	0.00	0.00
Total Gallons of Pollutant Volume Removal of VOCs as Heating Oil	**0.00**	
Gallons of LNAPL Removed as Heating Oil from March 26, 1999 AFVR Event	**0**	
Total Gallons of Pollutant Removed as Heating Oil from March 26, 1999 AFVR Event	**0.00**	
Total Gallons of Pollutant Removed as Heating Oil Since Initiation of AFVR Activites February 26, 1999	**0.00**	

AFVR
Building LCH-4022
Data Measurement Summary

Date: April 8, 1999
Diameter of Exhaust Pipe: 4 inches
Vacuum at the Blower (in. of Hg): 23

Vacuum Applied to Recovery/Monitoring Well(s)	Well Vacuum (in. of Hg)	Start Time	Stop Time	Duration (hours)
LCH4022-19	20-21	12:10	13:15	1.08
LCH4022-1	21-22	12:10	13:15	1.08

Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s):	Temperature (^{0}F)	Relative Humidity (%)	Velocity (ft/min)	FID Reading (ppm)
20 minutes - 1230	97.6	100.0	659	38
50 minutes -1300	98.0	100.0	636	13
Average	97.8	100.0	648	25

Recovery Well	Top of Casing Elevation (ft., msl)	Depth to Hydrocarbon Product (ft. below toc)	Depth to Groundwater (ft.)	Groundwater Elevation (ft., msl)	Well Vacuum (in. of H_2O)
LCH4022-5	30.71		3.15	27.56	
LCH4022-6	32.75		4.10	28.65	
LCH4022-8	32.12		4.94	27.18	
LCH4022-10	33.40		4.71	28.69	
LCH4022-11	30.04		2.43	27.61	
LCH4022-12	32.88		5.05	27.83	
LCH4022-15	31.60		3.14	28.46	

Notes:
ft = feet
toc = top of casing elevation
msl = mean sea level

Date: April 8, 1999
Diameter of Exhaust Pipe: 4 inches
Vacuum at the Blower (in. of Hg): 15

Vacuum Applied to Recovery/Monitoring Well(s)	Well Vacuum (in. of Hg)	Start Time	Stop Time	Duration (hours)
LCH4022-2	13	13:25	14:35	1.17
LCH4022-3	14-15	13:25	14:35	1.17

Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s):	Temperature (^{0}F)	Relative Humidity (%)	Velocity (ft/min)	FID Reading (ppm)
8 minutes - 1333	96.3	28.2	3250	8
29 minutes - 1354	137.0	0.0	3418	2
55 minutes - 1430	127.0	4.8	4039	6
Average	120.1	11.0	3569	5

AFVR
Building LCH-4022
AFVR Event - April 8, 1999

AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters	LCH4022-19 and LCH4022-1	LCH4022-2 and LCH4022-3
Time Duration (hours)	1.08	1.17
Average Temperature (^{0}F)	97.8	120.1
Average Relative Humidity (%)	100.0	11.0
Average Velocity (ft/min)	648	3569
Average FID Reading (ppm)	25	5
B_{wsw} (lb. water/lb. dry air)	0.0409	0.0083
B_{WS} (water vapor % by volume)	0.0615	0.0131
Stack Pipe Cross Sectional Area (ft^2)	0.087	0.087
T_S Stack Temperature (^{0}R)	557.8	580.1
Q_{std} (flow at DSCRM)	50.0	278.9
PPM_W (wet concentration=measured concentraction)	25	5
PPM_d (dry concentration)	27	5
PPM_c (PPM_v, volumetric concentration of VOC emissions as carbon, dry basis at STP)	27	5
C_{cm} (mg/dsm^3, mass concentration of VOC emissions as carbon)	13	3
C_c (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)	0.000001	0.000000
PMR_c (lb/hr, pollutant mass removal rate of VOCs as carbon)	0.00	0.00
$PMR_{Heating\ Oil}$ (lb/hr, pollutant mass removal rate of VOCs as Heating Oil)	0.00	0.00
$PMR_{Heating\ Oil}$ (lbs, total pollutant mass removal of VOCs as Heating Oil)	0.00	0.00
$PMR_{Heating\ Oil}$ (gals, total pollutant mass removal of VOCs as Heating Oil)	0.00	0.00
Total Gallons of Pollutant Volume Removal of VOCs as Heating Oil	**0.00**	
Gallons of LNAPL Removed as Heating Oil from April 8, 1999 AFVR Event	**0**	
Total Gallons of Pollutant Removed as Heating Oil from April 8, 1999 AFVR Event	**0.00**	
Total Gallons of Pollutant Removed as Heating Oil Since Initiation of AFVR Activites February 26, 1999	**0.00**	

AFVR
Building LCH-4022
Data Measurement Summary

Date: April 23, 1999
Diameter of Exhaust Pipe: 4 inches
Vacuum at the Blower (in. of Hg):

Vacuum Applied to Recovery/Monitoring Well(s)	Well Vacuum (in. of Hg)	Start Time	Stop Time	Duration (hours)
LCH4022-1	20	8:30	9:30	1.00
LCH4022-3	20	8:30	9:30	1.00
LCH4022-19	22	8:30	9:30	1.00

Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s):	Temperature (^{0}F)	Relative Humidity (%)	Velocity (ft/min)	FID Reading (ppm)
15 minutes - 845	80.2	56.8	1643	246
45 minutes - 915	87.2	37.3	2901	52
60 minutes - 930	89.9	41.9	1738	53
Average	85.8	45.3	2094	117

AFVR
Building LCH-4022
AFVR Event - April 23, 1999

AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters	LCH4022-1, LCH4022-3, and LCH4022-19
Time Duration (hours)	1.00
Average Temperature (^{0}F)	85.8
Average Relative Humidity (%)	45.3
Average Velocity (ft/min)	2094
Average FID Reading (ppm)	117
B_{WSW} (lb. water/lb. dry air)	0.0120
B_{WS} (water vapor % by volume)	0.0189
Stack Pipe Cross Sectional Area (ft^2)	0.087
T_S Stack Temperature (^{0}R)	545.8
Q_{std} (flow at DSCRM)	172.9
PPM_W (wet concentration=measured concentraction)	117
PPM_d (dry concentration)	119
PPM_c (PPM_v, volumetric concentration of VOC emissions as carbon, dry basis at STP)	119
C_{cm} (mg/dsm^3, mass concentration of VOC emissions as carbon)	59
C_c (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)	0.000004
PMR_c (lb/hr, pollutant mass removal rate of VOCs as carbon)	0.04
$PMR_{Heating\ Oil}$ (lb/hr, pollutant mass removal rate of VOCs as Heating Oil)	0.05
$PMR_{Heating\ Oil}$ (lbs, total pollutant mass removal of VOCs as Heating Oil)	0.05
$PMR_{Heating\ Oil}$ (gals, total pollutant mass removal of VOCs as Heating Oil)	0.01
Total Gallons of Pollutant Volume Removal of VOCs as Heating Oil	**0.01**
Gallons of LNAPL Removed as Heating Oil from April 23, 1999 AFVR Event	**0**
Total Gallons of Pollutant Removed as Heating Oil from April 23, 1999 AFVR Event	**0.01**
Total Gallons of Pollutant Removed as Heating Oil Since Initiation of AFVR Activites February 26, 1999	**0.00**

AFVR
Building LCH-4022
Data Measurement Summary

Date: August 23, 1999
Diameter of Exhaust Pipe: 4 inches
Vacuum at the Blower (in. of Hg): 26

Vacuum Applied to Recovery/Monitoring Well(s)	Well Vacuum (in. of Hg)	Start Time	Stop Time	Duration (hours)
LCH4022-1	22	13:45	15:00	1.25
LCH4022-19	25	13:45	15:00	1.25

Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s):	Temperature (^{0}F)	Relative Humidity (%)	Velocity (ft/min)	FID Reading (ppm)
5 minutes - 1350	101.7	45.1	716	981
30 minutes - 1415	108.4	64.9	671	560
45 minutes - 1430	109.7	62.3	691	409
75 minutes - 1500	106.1	67.9	703	379
Average	106.5	60.1	695.3	582.3

AFVR
Building LCH-4022
AFVR Event - August 23, 1999

AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters	LCH4022-1 and LCH4022-19
Time Duration (hours)	1.25
Average Temperature (^{0}F)	106.5
Average Relative Humidity (%)	60.1
Average Velocity (ft/min)	695
Average FID Reading (ppm)	582
B_{WSW} (lb. water/lb. dry air)	0.0310
B_{WS} (water vapor % by volume)	0.0473
Stack Pipe Cross Sectional Area (ft^2)	0.087
T_S Stack Temperature (^{0}R)	566.5
Q_{std} (flow at DSCRM)	53.7
PPM_W (wet concentration=measured concentraction)	582
PPM_d (dry concentration)	611
PPM_c (PPM_v, volumetric concentration of VOC emissions as carbon, dry basis at STP)	611
C_{cm} (mg/dsm^3, mass concentration of VOC emissions as carbon)	305
C_c (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)	0.000019
PMR_c (lb/hr, pollutant mass removal rate of VOCs as carbon)	0.06
$PMR_{Heating\ Oil}$ (lb/hr, pollutant mass removal rate of VOCs as Heating Oil)	0.07
$PMR_{Heating\ Oil}$ (lbs, total pollutant mass removal of VOCs as Heating Oil)	0.09
$PMR_{Heating\ Oil}$ (gals, total pollutant mass removal of VOCs as Heating Oil)	0.01
Total Gallons of Pollutant Volume Removal of VOCs as Heating Oil	**0.01**
Gallons of LNAPL Removed as Heating Oil from August 23, 1999 AFVR Event	**0**
Total Gallons of Pollutant Removed as Heating Oil from August 23, 1999 AFVR Event	**0.01**
Total Gallons of Pollutant Removed as Heating Oil Since Initiation of AFVR Activites February 26, 1999	**0.01**

APPENDIX D

GROUNDWATER MONITORING WELL SAMPLES – LABORATORY DATA

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Casey Hudson
JA Jones Environmental Services
8936 Western Way, Suite 10
Jacksonville, Fl 32256

Date 12-08-98

Report Number: G182-231

Project ID: UST LCH 4022

Dear Mr. Hudson:

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical service projects. We look forward to working with you again on any additional needs which you may have.

Sincerely,

Paradigm Analytical Laboratories

Laboratory Director
Mark Randall

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW11-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51804
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW11-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51804
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/5/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	72	72
4-Terphenyl-d14	100	46	46
Nitrobenzene-d5	100	73	73

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: _____

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW12-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51805
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: MAC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW12-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51805
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/5/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	70	70
4-Terphenyl-d14	100	44	44
Nitrobenzene-d5	100	73	73

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: _____

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW13-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51806
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW13-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51806
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/5/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	87	87
4-Terphenyl-d14	100	41	41
Nitrobenzene-d5	100	92	92

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: _____

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW14-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51807
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW14-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51807
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/5/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	72	72
4-Terphenyl-d14	100	47	47
Nitrobenzene-d5	100	85	85

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: [signature]

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW15-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51808
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW15-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51808
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/5/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	51	51
4-Terphenyl-d14	100	34	34
Nitrobenzene-d5	100	60	60

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: _____

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW16-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51809
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: MPC

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW16-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51809
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/5/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	85	85
4-Terphenyl-d14	100	77	77
Nitrobenzene-d5	100	86	86

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: [signature]

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW17-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51810
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW17-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51810
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/5/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	48	48
4-Terphenyl-d14	100	34	34
Nitrobenzene-d5	100	73	73

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By:

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW18-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51811
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds
by GCMS 625

Client Sample ID: USTLCH4022-MW18-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51811
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	95	95
4-Terphenyl-d14	100	85	85
Nitrobenzene-d5	100	99	99

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: [signature]

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW19-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51812
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	2
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW19-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51812
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	**35**
Acenaphthylene	10	BQL
Acenaphthene	10	**12**
Fluorene	10	**19**
Phenanthrene	10	**26**
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	**92**
2-Methylnaphthalene	10	**48**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	87	87
4-Terphenyl-d14	100	70	70
Nitrobenzene-d5	100	94	94

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: [signature]

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-DUP1-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51813
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-DUP1-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51813
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	87	87
4-Terphenyl-d14	100	96	96
Nitrobenzene-d5	100	84	84

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: [signature]

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW05-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51814
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/26/98	1	1	BQL
Chlorobenzene	11/26/98	1	1	BQL
1,2-Dichlorobenzene	11/26/98	1	2	BQL
1,3-Dichlorobenzene	11/26/98	1	2	BQL
1,4-Dichlorobenzene	11/26/98	1	2	BQL
Ethylbenzene	11/26/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/26/98	1	2	BQL
Toluene	11/26/98	1	1	BQL
m/p-Xylene	11/26/98	1	2	BQL
o-Xylene	11/26/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW05-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51814
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	80	80
4-Terphenyl-d14	100	89	89
Nitrobenzene-d5	100	84	84

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: JWK

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW06-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51815
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/30/98	1	1	BQL
Chlorobenzene	11/30/98	1	1	BQL
1,2-Dichlorobenzene	11/30/98	1	2	BQL
1,3-Dichlorobenzene	11/30/98	1	2	BQL
1,4-Dichlorobenzene	11/30/98	1	2	BQL
Ethylbenzene	11/30/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/30/98	1	2	BQL
Toluene	11/30/98	1	1	BQL
m/p-Xylene	11/30/98	1	2	BQL
o-Xylene	11/30/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW06-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51815
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	69	69
4-Terphenyl-d14	100	84	84
Nitrobenzene-d5	100	70	70

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: _____

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW07-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51816
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/30/98	1	1	BQL
Chlorobenzene	11/30/98	1	1	BQL
1,2-Dichlorobenzene	11/30/98	1	2	BQL
1,3-Dichlorobenzene	11/30/98	1	2	BQL
1,4-Dichlorobenzene	11/30/98	1	2	BQL
Ethylbenzene	11/30/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/30/98	1	2	BQL
Toluene	11/30/98	1	1	BQL
m/p-Xylene	11/30/98	1	2	BQL
o-Xylene	11/30/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW07-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51816
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	70	70
4-Terphenyl-d14	100	84	84
Nitrobenzene-d5	100	71	71

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: [signature]

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW08-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51817
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	12/1/98	1	1	BQL
Chlorobenzene	12/1/98	1	1	BQL
1,2-Dichlorobenzene	12/1/98	1	2	BQL
1,3-Dichlorobenzene	12/1/98	1	2	BQL
1,4-Dichlorobenzene	12/1/98	1	2	BQL
Ethylbenzene	12/1/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	12/1/98	1	2	BQL
Toluene	12/1/98	1	1	BQL
m/p-Xylene	12/1/98	1	2	BQL
o-Xylene	12/1/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds
by GCMS 625

Client Sample ID: USTLCH4022-MW08-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51817
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	84	84
4-Terphenyl-d14	100	82	82
Nitrobenzene-d5	100	87	87

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: Mar

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW09-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51818
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	12/1/98	1	1	BQL
Chlorobenzene	12/1/98	1	1	BQL
1,2-Dichlorobenzene	12/1/98	1	2	BQL
1,3-Dichlorobenzene	12/1/98	1	2	BQL
1,4-Dichlorobenzene	12/1/98	1	2	BQL
Ethylbenzene	12/1/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	12/1/98	1	2	BQL
Toluene	12/1/98	1	1	BQL
m/p-Xylene	12/1/98	1	2	BQL
o-Xylene	12/1/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds
by GCMS 625

Client Sample ID: USTLCH4022-MW09-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51818
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	90	90
4-Terphenyl-d14	100	94	94
Nitrobenzene-d5	100	96	96

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: _____

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW10-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51819
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	12/1/98	1	1	BQL
Chlorobenzene	12/1/98	1	1	BQL
1,2-Dichlorobenzene	12/1/98	1	2	BQL
1,3-Dichlorobenzene	12/1/98	1	2	BQL
1,4-Dichlorobenzene	12/1/98	1	2	BQL
Ethylbenzene	12/1/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	12/1/98	1	2	BQL
Toluene	12/1/98	1	1	BQL
m/p-Xylene	12/1/98	1	2	BQL
o-Xylene	12/1/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-MW10-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51819
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	100	81	81
4-Terphenyl-d14	100	86	86
Nitrobenzene-d5	100	86	86

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: _____

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-DUP2-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51820
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	12/1/98	1	1	2
Chlorobenzene	12/1/98	1	1	BQL
1,2-Dichlorobenzene	12/1/98	1	2	BQL
1,3-Dichlorobenzene	12/1/98	1	2	BQL
1,4-Dichlorobenzene	12/1/98	1	2	BQL
Ethylbenzene	12/1/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	12/1/98	1	2	BQL
Toluene	12/1/98	1	1	BQL
m/p-Xylene	12/1/98	1	2	BQL
o-Xylene	12/1/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: MK

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-DUP2-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51820
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	**38**
Acenaphthylene	10	BQL
Acenaphthene	10	**14**
Fluorene	10	**23**
Phenanthrene	10	**33**
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	**110**
2-Methylnaphthalene	10	**52**

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	200	155	78
4-Terphenyl-d14	200	139	70
Nitrobenzene-d5	200	166	83

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: [signature]

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-EQ-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51821
Lab Project ID: G182-231

Analyzed By: RNP
Date Collected: 11/19/98
Date Received: 11/20/98
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	12/1/98	1	1	BQL
Chlorobenzene	12/1/98	1	1	BQL
1,2-Dichlorobenzene	12/1/98	1	2	BQL
1,3-Dichlorobenzene	12/1/98	1	2	BQL
1,4-Dichlorobenzene	12/1/98	1	2	BQL
Ethylbenzene	12/1/98	1	1	BQL
Methyl-tert-butyl ether (MTBE)	12/1/98	1	2	BQL
Toluene	12/1/98	1	1	BQL
m/p-Xylene	12/1/98	1	2	BQL
o-Xylene	12/1/98	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 Compounds

by GCMS 625

Client Sample ID: USTLCH4022-EQ-98D
Client Project ID: USTLCH4022
Lab Sample ID: 51821
Lab Project ID: G182-231
Matrix: Water

Date Analyzed: 12/1/98
Analyzed By: JPW
Date Collected: 11/19/98
Date Received: 11/20/98
Dilution: 1.0

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Naphthalene	10	BQL
Acenaphthylene	10	BQL
Acenaphthene	10	BQL
Fluorene	10	BQL
Phenanthrene	10	BQL
Anthracene	10	BQL
Fluoranthene	10	BQL
Pyrene	10	BQL
Benzo[a]anthracene	10	BQL
Chrysene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[k]fluoranthene	10	BQL
Benzo[a]pyrene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	200	155	78
4-Terphenyl-d14	200	190	95
Nitrobenzene-d5	200	170	85

Comments:

All values corrected for Dilution and %Solids.
E = Estimated value, exceeds calibration range.

Reviewed By: _____

Flags: BQL - Below Quantitation Limit

PARADIGM ANALYTICAL LABORATORY INC

2627 Northchase Parkway SE, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

Page 2 of 2

Client: JA Jones
Address: 8936 Western Way Suite 10
Address: Jacksonville, FL 32256
Quote #:

Project ID: UST LCH4022
P.O. Number:
Contact: Casey Hudson
Phone: 904-363-0911

Date: 11/19/98
Turnaround: Standard
Job Number:

Report To: Casey Hudson
same
Invoice To: PO # 48

Sample ID	Date	Time	Matrix	Preservatives: HCl				Analyses: 602	610								Comments: Please specify any special reporting requirements
UST LCH4022-MW11-98D	11/19/98	1:18	GW	/				/	/								EQ & temp blanks provided by lab.
UST LCH4022-MW12-98D		12:51		/				/	/								
UST LCH4022-MW13-98D		10:36		/				/	/								G182-231
UST LCH4022-MW14-98D		11:28		/				/	/								
UST LCH4022-MW15-98D		1:37		/				/	/								
UST LCH4022-MW16-98D		11:16		/				/	/								
UST LCH4022-MW17-98D		2:10		/				/	/								
UST LCH4022-MW18-98D		2:22		/				/	/								
UST LCH4022-MW19-98D		12:26		/				/	/								
UST LCH4022-DUP1-98D				/				/	/								

Relinquished By	Date	Time	Received By	Date	Time	Temperature	Sampled By	Airbill #
Connie Thurston	11/19/98	3:09	Terry McAuliffe	11/20/98	10:15	0.7	C Sheridan	
						2.9	D. Plantz	
						0.9		

ORIGINAL

_AR GM ALY AL BOI ORI INC

2627 Northchas arkway SE, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of C dy Record & Analytical Request

Page 1 of 2

Client: JA Jones
Address: 8936 Western Way Suite 10
Address: Jacksonville, FL 32256
Quote #:

Project ID: UST LCH4022
P.O. Number:
Contact: Casey Hudson
Phone: 904-363-0911

Date: 11/19/98
Turnaround: standard
Job Number:

Report To: Casey Hudson
same
Invoice To: DO #48

Sample ID	Date	Time	Matrix	Preservatives				Analyses										Comments: Please specify any special reporting requirements
				HCl				602	610									EQ & Temp blanks provided by lab.
USTLCH4022-MW05-98D	11/19/98	9:25	GW	/				/	/									
USTLCH4022-MW06-98D	↓	8:52	↓	/				/	/									
USTLCH4022-MW07-98D		10:15		/				/	/									
USTLCH4022-MW08-98D		9:43		/				/	/									
USTLCH4022-MW09-98D		12:30		/				/	/									G182-23
USTLCH4022-MW10-98D		12:50		/				/	/									
USTLCH4022-DUP2-98D		—		/				/	/									
USTLCH4022-EQ-98D		8:42	H_2O	/				/	/									

Relinquished By	Date	Time	Received By	Date	Time	Temperature	Sampled By	Airbill #
[signature]	11/19/98	3:09	[signature]	11/20/98	1015	0.7	C. Sheridan	
						2.9	D. Plantz	

ORIGINAL

PARADIGM ANALYTICAL LABORATORIES, INC.
2627 Northchase Parkway S.E.
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Jeff Henninger
J.A. Jones Environmental Services
8936 Western Way, Suite 10
Jacksonville, Fl 32256

August 16, 2001

Report Number: G182-681

Client Project ID: LCH4022

Dear Mr. Henninger,

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.

Laboratory Director
Mark Randall

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW01-01C
Client Project ID: LCH4022
Lab Sample ID: 24965
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	88

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW01-01C
Client Project ID: LCH4022
Lab Sample ID: 24965
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

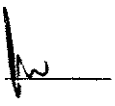
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.4	84
Nitrobenzene-d5	10	8.6	86
4-Terphenyl-d14	10	8.2	82

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW03-01C
Client Project ID: LCH4022
Lab Sample ID: 24966
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	89

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW01-01C
Client Project ID: LCH4022
Lab Sample ID: 24965
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

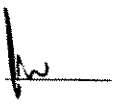
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.4	84
Nitrobenzene-d5	10	8.6	86
4-Terphenyl-d14	10	8.2	82

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles
by GC 602

Client Sample ID: USTLCH4022-MW03-01C
Client Project ID: LCH4022
Lab Sample ID: 24966
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	89

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW03-01C
Client Project ID: LCH4022
Lab Sample ID: 24966
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	5.8	58
Nitrobenzene-d5	10	7.2	72
4-Terphenyl-d14	10	3.4	34

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW05-01C
Client Project ID: LCH4022
Lab Sample ID: 24967
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	87

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW05-01C
Client Project ID: LCH4022
Lab Sample ID: 24967
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.6	86
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	8.6	86

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: [signature]

Results for Volatiles
by GC 602

Client Sample ID: USTLCH4022-MW06-01C
Client Project ID: LCH4022
Lab Sample ID: 24968
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	88

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW06-01C
Client Project ID: LCH4022
Lab Sample ID: 24968
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.7	87
Nitrobenzene-d5	10	8.7	87
4-Terphenyl-d14	10	8.3	83

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

Results for Volatiles
by GC 602

Client Sample ID: USTLCH4022-MW07-01C
Client Project ID: LCH4022
Lab Sample ID: 24969
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	88

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW07-01C
Client Project ID: LCH4022
Lab Sample ID: 24969
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

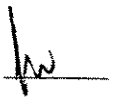
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.1	91
Nitrobenzene-d5	10	9.4	94
4-Terphenyl-d14	10	7.4	74

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW09-01C
Client Project ID: LCH4022
Lab Sample ID: 24970
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	87

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW09-01C
Client Project ID: LCH4022
Lab Sample ID: 24970
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

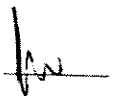
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.2	82
Nitrobenzene-d5	10	7.8	78
4-Terphenyl-d14	10	8.8	88

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles
by GC 602

Client Sample ID: USTLCH4022-MW10-01C
Client Project ID: LCH4022
Lab Sample ID: 24971
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	88

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

Results for Polynuclear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW10-01C
Client Project ID: LCH4022
Lab Sample ID: 24971
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.5	85
Nitrobenzene-d5	10	8.3	83
4-Terphenyl-d14	10	11.6	116

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW11-01C
Client Project ID: LCH4022
Lab Sample ID: 24972
Lab Project ID: G182-681

Analyzed By: EES
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW11-01C
Client Project ID: LCH4022
Lab Sample ID: 24972
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.6	86
Nitrobenzene-d5	10	8.6	86
4-Terphenyl-d14	10	8.4	84

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW12-01C
Client Project ID: LCH4022
Lab Sample ID: 24973
Lab Project ID: G182-681

Analyzed By: EES
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW12-01C
Client Project ID: LCH4022
Lab Sample ID: 24973
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.0	90
Nitrobenzene-d5	10	9.2	92
4-Terphenyl-d14	10	11.1	111

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW13-01C
Client Project ID: LCH4022
Lab Sample ID: 24974
Lab Project ID: G182-681

Analyzed By: EES
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW13-01C
Client Project ID: LCH4022
Lab Sample ID: 24974
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.2	92
Nitrobenzene-d5	10	9.2	92
4-Terphenyl-d14	10	10.4	104

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: [signature]

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW14-01C
Client Project ID: LCH4022
Lab Sample ID: 24975
Lab Project ID: G182-681

Analyzed By: EES
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW14-01C
Client Project ID: LCH4022
Lab Sample ID: 24975
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.8	88
Nitrobenzene-d5	10	8.5	85
4-Terphenyl-d14	10	11.2	112

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW15-01C
Client Project ID: LCH4022
Lab Sample ID: 24976
Lab Project ID: G182-681

Analyzed By: EES
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW15-01C
Client Project ID: LCH4022
Lab Sample ID: 24976
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

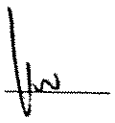
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.7	87
Nitrobenzene-d5	10	8.5	85
4-Terphenyl-d14	10	7.9	79

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW16-01C
Client Project ID: LCH4022
Lab Sample ID: 24977
Lab Project ID: G182-681

Analyzed By: EES
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW16-01C
Client Project ID: LCH4022
Lab Sample ID: 24977
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.6	86
Nitrobenzene-d5	10	8.8	88
4-Terphenyl-d14	10	10.3	103

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles
by GC 602

Client Sample ID: USTLCH4022-MW17-01C
Client Project ID: LCH4022
Lab Sample ID: 24978
Lab Project ID: G182-681

Analyzed By: EES
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	103

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: [signature]

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW17-01C
Client Project ID: LCH4022
Lab Sample ID: 24978
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/10/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.0	70
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	4.1	41

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

Results for Volatiles
by GC 602

Client Sample ID: USTLCH4022-MW18-01C
Client Project ID: LCH4022
Lab Sample ID: 24979
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/9/01	1	1	BQL
Chlorobenzene	8/9/01	1	1	BQL
1,2-Dichlorobenzene	8/9/01	1	2	BQL
1,3-Dichlorobenzene	8/9/01	1	2	BQL
1,4-Dichlorobenzene	8/9/01	1	2	BQL
Ethylbenzene	8/9/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/9/01	1	2	BQL
Toluene	8/9/01	1	1	BQL
m/p-Xylene	8/9/01	1	2	BQL
o-Xylene	8/9/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW18-01C
Client Project ID: LCH4022
Lab Sample ID: 24979
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	18
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.3	73
Nitrobenzene-d5	10	8.3	83
4-Terphenyl-d14	10	3.4	34

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: [signature]

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-MW19-01C
Client Project ID: LCH4022
Lab Sample ID: 24980
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-MW19-01C
Client Project ID: LCH4022
Lab Sample ID: 24980
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.1	91
Nitrobenzene-d5	10	9.1	91
4-Terphenyl-d14	10	10.5	105

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: _____

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-DUP1-01C
Client Project ID: LCH4022
Lab Sample ID: 24981
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-DUP1-01C
Client Project ID: LCH4022
Lab Sample ID: 24981
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

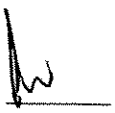
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.5	85
Nitrobenzene-d5	10	8.4	84
4-Terphenyl-d14	10	5.4	54

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-DUP2-01C
Client Project ID: LCH4022
Lab Sample ID: 24982
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

Results for Polynulcear Aromatic Hydrocarbons

EPA 610 by GCMS 8270

Client Sample ID: USTLCH4022-DUP2-01C
Client Project ID: LCH4022
Lab Sample ID: 24982
Lab Project ID: G182-681
Matrix: Water

Date Collected: 7/31/2001
Date Received: 8/1/2001
Date Analyzed: 8/7/2001
Analyzed By: MRC
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Chrysene	10	BQL
Dibenzo[a,h]anthracene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Indeno(1,2,3-c,d)pyrene	10	BQL
1-Methylnaphthalene	10	BQL
2-Methylnaphthalene	10	BQL
Naphthalene	10	BQL
Phenanthrene	10	BQL
Pyrene	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.1	91
Nitrobenzene-d5	10	8.9	89
4-Terphenyl-d14	10	10.3	103

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: [signature]

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-EQ-01C
Client Project ID: LCH4022
Lab Sample ID: 24983
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

Results for Volatiles

by GC 602

Client Sample ID: USTLCH4022-TRIP-01C
Client Project ID: LCH4022
Lab Sample ID: 24984
Lab Project ID: G182-681

Analyzed By: EKR
Date Collected: 07/31/01
Date Received: 08/01/01
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	8/8/01	1	1	BQL
Chlorobenzene	8/8/01	1	1	BQL
1,2-Dichlorobenzene	8/8/01	1	2	BQL
1,3-Dichlorobenzene	8/8/01	1	2	BQL
1,4-Dichlorobenzene	8/8/01	1	2	BQL
Ethylbenzene	8/8/01	1	1	BQL
Methyl-tert-butyl ether (MTBE)	8/8/01	1	2	BQL
Toluene	8/8/01	1	1	BQL
m/p-Xylene	8/8/01	1	2	BQL
o-Xylene	8/8/01	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	35	89

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: _____

Chain-of-Custody Record & Analytical Request

2627 Northchase Parkway SE. Wilmington, NC 28405 Phone: (910)-350-1903 FAX: (910)-350-1557

Client: J.A. Jones
Address: 8936 Western Way Suite 10
Address: Jacksonville, Fla. 32256

Project ID: LCH4022
P.O Number:
Contact : Jeff Henninger
Phone: 904-363-0911

Date: 7/31/2001
Turnaround: STANDARD
Job Number: Task order # 67H
Page 1 OF 3

Report To: Jeff Henninge

Invoice To: T.O. 67H

Paradigm Quote # :

Sample ID	Date	Time	Matrix	Preservative & No. Bottles: Hydrochloric Acid		Preservative & No. Bottles: None		Analyses: 602	Analyses: 610						Comments
															G182681
USTLCH4022-MW01-01C	7/31/01	1315	W	3		1		X	X						EDD
[redacted]	[redacted]		W	3		1		X	X						Send To:
USTLCH4022-MW03-01C	7/31/01	1300	W	3		1		X	X						evansp@clb.usmc.mil
USTLCH4022-MW05-01C	7/31/01	1140	W	3		1		X	X						Copy To:
USTLCH4022-MW06-01C	7/31/01	1245	W	3		1		X	X						pauln@clb.usmc.mil
USTLCH4022-MW07-01C	7/31/01	0900	W	3		1		X	X						
[redacted]	[redacted]		W	3		1		X	X						
USTLCH4022-MW09-01C	7/31/01	1010	W	3		1		X	X						
USTLCH4022-MW10-01C	7/31/01	1030	W	3		1		X	X						
USTLCH4022-MW11-01C	7/31/01	1120	W	3		1		X	X						
USTLCH4022-MW12-01C	7/31/01	1105	W	3		1		X	X						

Relinquished By	Date	Time	Received By	Date	Time	Temperature	Sampled By	Airbill #
Theresa Ellerman	7/31/01	1600		8/1/01	0940	2.2°C, 3.4°C	Ellerman	
						0.2°C		