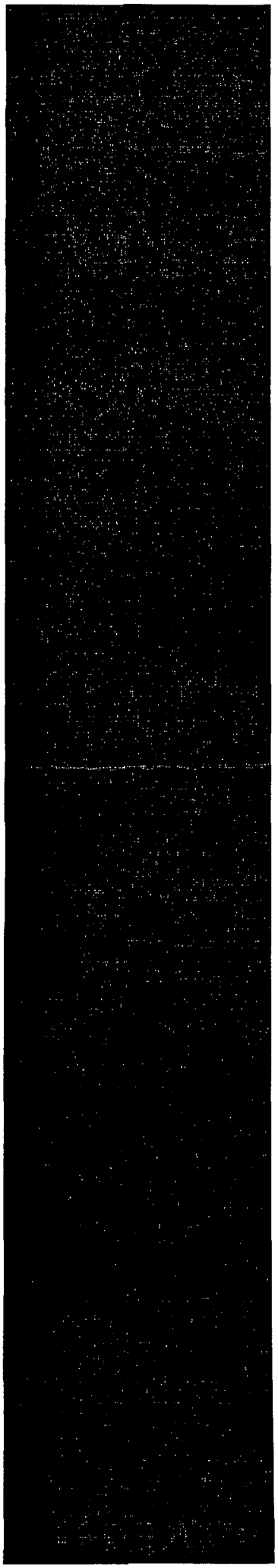
GW - 17

REPORTS

YEAR(S):

1998



BROWN AND CALDWELL

FINAL
SOIL AND GROUNDWATER ASSESSMENT REPORT
HOBBS, NEW MEXICO
(FORMER NOWSCO SITE)
BJ SERVICES COMPANY, U.S.A.

JANUARY 30, 1998

FINAL
SOIL AND GROUNDWATER ASSESSMENT REPORT
HOBBS, NEW MEXICO (FORMER NOWSCO SITE)
BJ SERVICES COMPANY, U.S.A.

Prepared for

BJ Services Company, U.S.A.
8701 New Trials Drive
The Woodlands, Texas 77381

BC Project Number: 6240-01

Timothy L. Jenkins
Associate Engineer

January 30, 1998

Brown and Caldwell
1415 Louisiana, Suite 2500
Houston, Texas 77002 - (713) 759-0999

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1

1.0 INTRODUCTION

Brown and Caldwell conducted a soil and groundwater assessment at the BJ Services Company, U.S.A. (BJ Services) former NOWSCO Well Services, Inc. (NOWSCO) facility in Hobbs, New Mexico. The facility is located in Lea County, on the north side of the Carlsbad Highway, also known as U.S. Highway 180/U.S. Highway 62. The facility address is 5514 Carlsbad Highway, Hobbs, New Mexico. A site location map and site plan are attached as Figures 1 and 2, respectively.

Well installation and groundwater sampling were conducted according to the requirements specified in an October 2, 1997 correspondence from the New Mexico Oil Conservation Division (NMOCD), attached as Appendix A. Following installation, the two new wells, along with an existing water supply well (WSW) and an existing upgradient monitor well (MW-1), were sampled. Groundwater samples were submitted to an analytical laboratory to determine the concentration of organics, metals, cations, and anions in groundwater at the site, as requested in the October 2, 1997 NMOCD correspondence.

This report presents the results of the well installation and groundwater sampling conducted at the BJ Services (former NOWSCO) facility in November and December 1997.

2.0 FACILITY DESCRIPTION AND BACKGROUND

The former NOWSCO facility is located at 5514 Carlsbad Highway (U.S. 180/U.S. 62) in Hobbs, New Mexico. The facility has been inactive since its purchase by BJ Services on June 12, 1996 as a result of BJ Services' acquisition of NOWSCO. The facility was primarily utilized for well stimulation by acidizing, a process that uses hydrochloric acid mixtures which are blended onsite and delivered to oil and gas well locations.

The facility is located in an area of industrial and undeveloped land west of Hobbs, New Mexico, near the Lea County Airport. A site location map is attached as Figure 1.

On January 6, 1983, the NMOCD approved a discharge plan describing the operation of a pit/tank used for the discharge and recycling of field acid waste, and eventual disposal of well treatment solution. This unit, known as the caliche pit, was located west of the acid dock, and was the subject of past investigations. The caliche pit was inactive prior to the June 1996 ownership transfer to BJ Services, and has not been in operation since this ownership transfer.

A Subsurface Investigation and Site Closure Plan Update was performed in March 1995 by Ritter Environmental & Geotechnical Services, Inc. (Ritter), under contract to NOWSCO. During the March 1995 investigation, four borings were completed at the site. One of the soil borings was drilled to the west of a subgrade sump located in the northwestern portion of the facility. The three remaining soil borings were completed in the vicinity of the former caliche pit, which was used for unspecified waste management purposes during NOWSCO's occupancy of the facility. One monitor well (MW-1) was installed during the March 1995 investigation and is located to the west of the former caliche pit, as shown in Figure 3. Appendix B contains the boring logs for the monitor well boring and the soil borings completed in the vicinity of the former caliche pit by Ritter, along with a well installation report for monitor well MW-1 and a site plan showing the locations of these borings.

3.0 FIELD ACTIVITIES

On November 19, 1997, Brown and Caldwell completed two soil borings at the BJ Services former NOWSCO facility in Hobbs, New Mexico. In accordance with the Work Plan for Drilling and Assessment Activities (Work Plan) dated November 17, 1997, these borings were completed as monitor wells. Sampling of the water supply well at the site was also performed during the November 1997 field activities. Groundwater samples were subsequently collected from the three monitor wells at the site in December 1997.

The following subsections describe in detail the activities conducted during the November and December 1997 field activities.

3.1 Selection of Soil Boring/Monitor Well Locations

Existing monitor well MW-1 is located to the west of the former caliche pit. Based on an assumed east to southeast groundwater flow gradient at the site, two soil borings, SB-3 and SB-4, were advanced in the area east of the former caliche pit (between the former pit and the fenceline) and completed as monitor wells. These wells were identified as MW-2 and MW-3; their locations are shown in Figure 3.

Water level measurements were collected from the three monitor wells at the site on November 20, 1997 to determine groundwater flow direction in the eastern portion of the site. The elevations of the top of casings of monitor wells MW-1 through MW-3 were surveyed relative to an arbitrarily assigned site datum of 100.00 feet, and depth-to-groundwater measurements were collected from each of these wells. The groundwater elevation calculations are presented in Table 1. This data was used to create the November 20, 1997 potentiometric surface map presented as Figure 4.

On the basis of the east-northeast groundwater flow direction depicted in Figure 4, monitor well MW-1 is upgradient of the former caliche pit, and MW-2 and MW-3 are downgradient of the

former caliche pit. Installation of a third new well was therefore not required, because the MW-1/MW-2/MW-3 well arrangement meets the requirements specified in the October 2, 1997 NMOCD correspondence presented within Appendix A.

3.2 Soil Sample Collection Methodology

Soil borings SB-3 and SB-4 were drilled using air rotary drilling techniques to depths of 60 feet and 61 feet, respectively. Soil cores were collected on 5-foot centers throughout the entire borehole. The boring logs for soil borings SB-2 and SB-3 are contained in Appendix C.

Recovered cores were field screened by headspace analysis using a photoionization device (PID). Three samples from each boring were submitted to the analytical laboratory. The samples were collected from the interval displaying the highest PID response, from the interval immediately above the top of the saturated zone, and from a third interval which was above a limestone unit present at approximately 26 to 29 feet below grade. A sample could not be obtained from the total depth of each boring because flowing sands were encountered in the lowermost portion of both of the soil borings.

The soil samples were transferred to laboratory-supplied glass containers, labeled, and immediately placed on ice in an insulated cooler for shipment. At the conclusion of sampling, the samples were delivered with completed chain-of-custody documentation to the analytical laboratory. The laboratory reports are included in Appendix D.

3.3 Monitor Well Installation

Upon completion of soil boring and sampling activities, soil borings SB-3 and SB-4 were completed as monitoring wells MW-2 and MW-3, respectively. Groundwater was first encountered at an approximate depth of 47 feet below grade in soil borings SB-3 and SB-4. Monitor wells MW-2 and MW-3 were constructed according to the following criteria.

- 15 feet of 2-inch diameter 0.010 slot PVC well screen was installed, with approximately 5 feet of screen situated above the top of the saturated zone and approximately 10 feet of well screen situated below the top of the saturated zone. Approximately 41 feet of 2-inch diameter riser pipe was added to bring the top of the well casing to approximately 6 inches below grade. The wells were equipped with a bottom cap and a 2.5-foot long sediment sump.
- A silica sand filter pack was installed in the annular area between the PVC well screen and the formation. The sand filter pack extended from the base of the boring to approximately 2 to 3 feet above the top of the screen;
- A 2- to 3-foot hydrated bentonite seal was placed in the annular area above the filter pack; and
- The remaining annular area was filled with a cement-bentonite grout containing 5% bentonite.

The monitor wells were completed using flush mount man-ways set in concrete pads. The wells were equipped with locking water-tight caps and locks.

All well installation work was performed as prescribed by the NMOCD by a person licensed to conduct monitor well drilling and installation in the State of New Mexico. Construction diagrams for monitor wells MW-2 and MW-3 are presented in Appendix C.

3.4 Monitor Well Development

Upon completion of the well installations, the wells were developed by surging and bailing/pumping until the wells were relatively free of sediment. Water generated during the development activities was placed in 55-gallon steel drums. Based on the results of groundwater analysis, purge and development water will be disposed of at an NMOCD-approved facility. Approximately 25 gallons of water were generated during well development activities.

3.5 Monitor Well Purging and Sampling Procedures

The water supply well at the site was sampled on November 20, 1997. The water sample was collected at the wellhead, directly from the discharge line of the pump. A portable electric generator was used as a temporary power source for the pump during the sampling operation.

Groundwater samples were collected from the monitoring wells at the site on December 11, 1997. Groundwater elevation data was collected on December 11, 1997, prior to the commencement of purging operations, and is presented in Table 1. This data was used to create the December 11, 1997 potentiometric surface map presented as Figure 5. The east-northeast groundwater flow direction indicated by the November 20, 1997 was substantiated by the December 11, 1997 groundwater elevation data.

Each monitoring well was purged with a submersible pump. All wells at the site, including the water supply well, were purged of a minimum of three well volumes prior to collection of groundwater samples.

Groundwater samples were transferred to laboratory-supplied glass and plastic containers, labeled, and immediately placed on ice in an insulated cooler for shipment. At the conclusion of sampling, the samples were delivered with completed chain-of-custody documentation to the analytical laboratory. The laboratory reports are included in Appendix D.

3.6 Decontamination Procedures

The downhole drilling and sampling equipment was decontaminated using a pressure washer prior to commencement of sampling activities at a given soil boring/monitor well location. All field sampling equipment was decontaminated prior to use at each boring location and between sample intervals by washing with a laboratory grade detergent, rinsing with potable water, and completing a final rinse with distilled water.

3.7 Sample Analysis

Soil samples were collected from soil boring SB-3 at depths of 20, 40, and 45 feet below ground surface (bgs). Soil sample SB-3-20 was collected from within an approximate 7-foot thick sand-bearing unit which overlies a thin limestone unit present at a depth of 27 to 28 feet bgs in boring

SB-3. Soil sample SB-3-45 was collected from the interval immediately above the top of the saturated zone; this interval displayed the highest PID response within boring SB-3. Sample SB-3-45 met the criteria for highest PID response as well as being from the interval immediately overlying the top of the saturated zone. The sample collected from this boring at a depth of 40 feet, SB-3-40, was submitted for laboratory analysis because this interval displayed the second highest PID response within boring SB-3.

This same criteria was used in selection of soil samples at similar intervals (i.e., at depths of 25, 40, and 45 feet below grade) in soil boring SB-4.

Each sample collected as described above was analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method 8020 and for diesel-range total petroleum hydrocarbons (TPH-D) by Method 8015. The analytical results for soil samples are presented in Table 2.

Each of the groundwater samples, including the water supply well sample, was analyzed for major cations and anions by SW 846 Method 6010 or EPA Method 300.0A, total RCRA metals by SW-846 Method 3050/6010/7000 Series, polynuclear aromatic hydrocarbons (PAHs) by Method 8310, and BTEX by Method 8020. Sample MW-2, which displayed the maximum total BTEX concentration, was also analyzed for aromatic and halogenated organics (volatiles and semivolatiles, including chlorinated compounds) by Methods 8240/8270/8100.

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4.0 ANALYTICAL RESULTS

Soil and groundwater samples were collected and analyzed to determine the degree to which soil and groundwater in the area of the former caliche pit may have been impacted as a result of waste management activities previously conducted in this portion of the facility. Subsections 4.1 and 4.2 present the analytical results for soil and groundwater samples, respectively.

4.1 Soil Results

Toluene and xylenes were detected in samples SB-3-40 and SB-3-45, which were collected from the interval above the top of the saturated zone in soil boring SB-3. Ethylbenzene was also detected in sample SB-3-40. Benzene was not detected at concentrations in excess of the detection limit in either of these samples. No BTEX constituents were detected in samples SB-3-20, SB-4-25, SB-4-40, and SB-4-45.

TPH-D was detected in samples SB-3-45, SB-4-25, SB-4-40, and SB-4-45. TPH-D was present at a concentration in excess of 10 milligrams per kilogram (mg/kg) only in sample SB-3-45, where TPH-D was detected at 150 mg/kg.

The complete analytical results for soil samples collected during the November 1997 sampling event are summarized in Table 2.

4.2 Groundwater Results

The complete analytical results for groundwater samples collected during the November and December 1997 sampling event are summarized in Table 3.

There were no BTEX constituents detected in sample WSW-1, which was collected from the water supply well. Barium and chromium were detected in this well at respective concentrations of 0.36 milligrams per liter (mg/L) and 0.082 mg/L. The detection of chromium in sample WSW-1

exceeds the maximum contaminant level (MCL) of 0.05 mg/L established under 40 CFR 141.11. The chromium concentration also exceeds the New Mexico Water Quality Control Commission (NMWQCC) standard of 0.05 mg/L. The screened interval for the water supply well is believed to be several hundred feet below grade. The well is not currently equipped with power, and is not in use.

Xylenes and barium were detected in the groundwater sample collected from monitor well MW-1 on December 11, 1997 at concentrations of 0.0018 mg/L and 0.22 mg/L, respectively. Neither of these detections exceed the NMWQCC standards of 0.62 mg/L for xylenes and 1.0 mg/L for barium. No other BTEX constituents, metals, or PAHs were detected in this sample.

No BTEX constituents, metals, or PAHs were detected in the sample from monitor well MW-3, which is located downgradient and southeast of the center of the former caliche pit.

The groundwater sample collected from monitor well MW-2, which is located downgradient and northeast of the center of the former caliche pit, displayed detectable concentrations of ethylbenzene, toluene, and xylenes as well as arsenic, barium, mercury, and selenium. None of these constituents were detected at a concentration in excess of the NMWQCC standards, as indicated in Table 3.

Chlorides were detected in the water supply well and in the upgradient monitor well, MW-1, at concentrations of 464 mg/L and 354 mg/L, respectively. These concentrations exceed the NMWQCC standard of 250 mg/L, which is applicable to domestic water supply wells only. The chlorides concentrations in the downgradient wells, MW-2 and MW-3, were less than 250 mg/L.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Groundwater elevation data from monitor wells MW-1 though MW-3 indicate an east-northeastward groundwater flow direction in the eastern portion of the BJ Services (former NOWSCO) facility at Hobbs, New Mexico. Monitor wells MW-2 and MW-3 are located downgradient of the former caliche pit.

The groundwater analytical results for the November and December 1997 sampling event indicate that toluene, ethylbenzene, and xylenes and various metals were detected in one of the downgradient wells, but at concentrations below the NMWQCC groundwater standards. These standards are listed in the most recent guideline publication, as revised on December 1, 1995.

Chromium was detected in the water supply well at the site in excess of the NMWQCC standard of 0.05 mg/L and the Federal MCL of 0.05 mg/L established under 40 CFR 141.11. This well is reportedly screened in a deep aquifer several hundred feet below grade, and is currently not in use.

5.2 Recommendations

Brown and Caldwell recommends that monitor wells MW-1 through MW-3 be sampled at approximate 6-month intervals through December 1998. Samples should be analyzed for BTEX and RCRA metals. Analysis for PAHs is not recommended in future sampling events because these constituents were not detected in the November and December 1997 groundwater sampling event.

If BTEX and metals concentrations continue to be below NMWQCC standards during the proposed followup sampling events, Brown and Caldwell recommends that the NMOCD consider granting closure for the former waste management unit known as the caliche pit.

The water supply well should be resampled to confirm the exceedance of the MCL for chromium in this well. If the exceedance is confirmed, we recommend that future use of this water supply well be restricted to non-potable use only.

DISTRIBUTION

Final
Soil and Groundwater Assessment Report
Hobbs, New Mexico (Former NOWSCO Site)
BJ Services Company, U.S.A.

January 30, 1998

1 copy to: BJ Services Company, U.S.A.
8701 New Trails Drive
The Woodlands, Texas 77381

Attention: Ms. Jo Ann Cobb

1 copy to: New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Attention: Mr. Mark Ashley

1 copy to: New Mexico Oil Conservation Division
Post Office Box 1980
Hobbs, New Mexico 88240

Attention: Mr. Wayne Price

1 copy to: Brown and Caldwell
File

QUALITY CONTROL REVIEWER:

Richard Rexroad
Principal in Charge

TLJ/uak

Tables

TABLES

Table 1
Groundwater Elevation Calculations
BJ Services (former NOWSCO) Facility
Hobbs, New Mexico

Monitor Well Number	Top of Casing Elevation (ft.) [1]	Measurement Date	Depth to Groundwater (ft.)	Groundwater Elevation (ft.) [1]
MW-1	96.15	11/20/97	47.77	48.38
		12/11/97	47.85	48.30
MW-2	95.92	11/20/97	47.98	47.94
		12/11/97	48.06	47.86
MW-3	95.43	11/20/97	47.41	48.02
		12/11/97	47.47	47.96

[1] - Relative to an arbitrary site datum of 100.00 feet.

Table 2

Soil Analytical Results [1]

BJ Services (former NOWSCO) Hobbs, New Mexico Facility

Sample ID	TPH-D	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX
SB-3-20	<1.8	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
SB-3-40	<2.1	< 0.0012	0.0031	< 0.0012	0.0025	0.0056
SB-3-45	150	< 0.054	1.80	1.60	17.0	20.4
SB-4-25	8.4	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011
SB-4-40	5.7	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011
SB-4-45	5.3	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011

[1] - in milligrams per kilogram

Table 3
Groundwater Analytical Results
November[1] and December 1997 Sampling Event
BJ Services (former NOWSCO)
Hobbs, New Mexico Facility

Analyte	Sample ID					New Mexico WQCC Standard [3]
	WSW-1 [1]	MW-1	MW-2 [2]	MW-2 (Duplicate)	MW-3	
BTEX-Method 8020 (µg/L)						
Benzene	< 1.0	< 1.0	< 10	< 5.0	< 1.0	10
Toluene	< 1.0	< 1.0	410	370	< 1.0	750
Ethylbenzene	< 1.0	< 1.0	68	57	< 1.0	750
Xylenes	< 1.0	1.8	420	370	< 1.0	620
Metals (mg/L)						
Arsenic	< 0.30	< 0.01	0.017	0.017	< 0.01	0.1
Barium	0.36	0.22	0.33	0.31	< 0.20	1.0
Cadmium	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.01
Chromium	0.082	< 0.010	< 0.010	< 0.010	< 0.010	0.05
Lead	< 0.10	< 0.030	< 0.030	< 0.030	< 0.030	0.05
Mercury	< 0.00020	< 0.00020	0.00020	< 0.00020	< 0.00020	0.002
Selenium	< 0.25	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.05
Silver	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.05
Anions (mg/L)						
Calcium	154	158	215	204	123	NL [4]
Potassium	< 5.0	5.7	11.1	9.3	9.2	NL
Magnesium	25.4	19.3	20.4	19.4	9.9	NL
Sodium	274	241	92.6	88	129	NL
Cations (mg/L)						
Chloride	464	354	218	215	173	250 [5]
Fluoride	3.6	3.3	1.1	1.1	2.2	NL
Nitrate as N	4.1	1.2	1.4	1.4	4.0	NL
o-Phosphate as P	<1.0	<1.0	<1.0	< 1.0	<1.0	NL
Sulfate	159	95.9	92.8	96.9	77.4	600
Alkalinity (mg/L)						
	310	350	400	370	260	NL
PAHs (mg/L)						
	NA [6]	ND [7]	ND	ND	ND	[8]

[1] - WSW = water supply well; this well was sampled on 11/20/98

[2] - Method 8240 Volatile Organics analysis also performed; concentrations for Method 8240 analysis exceed those reported for Method 8020 analysis and are therefore reported - see Appendix D for complete analytical results.

[3] - WQCC = Water Quality Control Commission; units are ug/L for BTEX and mg/L for all other constituents

[4] - NL = Not Listed in New Mexico WQCC standards.

[5] - Applicable to domestic water supply only.

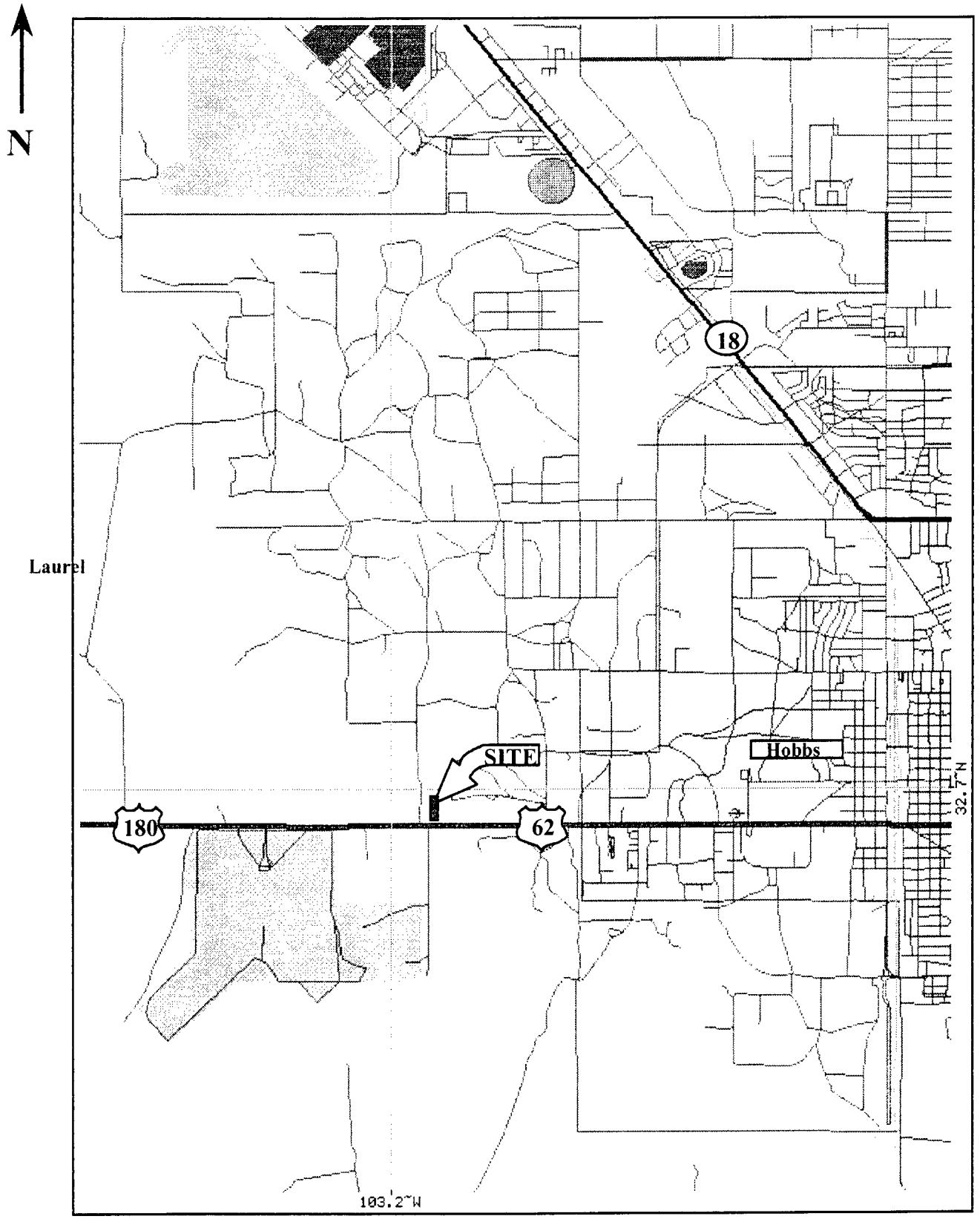
[6] - NA = Not Analyzed

[7] - ND = Not Detected at applicable detection limits; see Laboratory Reports in Appendix D for specific compounds

[8] - total naphthalene plus monomethylnaphthalenes at 0.03 mg/L; benzo-a-pyrene at 0.0007 mg/L.

Figures

FIGURES



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		CLIENT: BJ SERVICES COMPANY, U.S.A.	PROJECT NO.: 6240.01
		SITE LOCATION: HOBBS, NEW MEXICO	FIGURE NO.: 1

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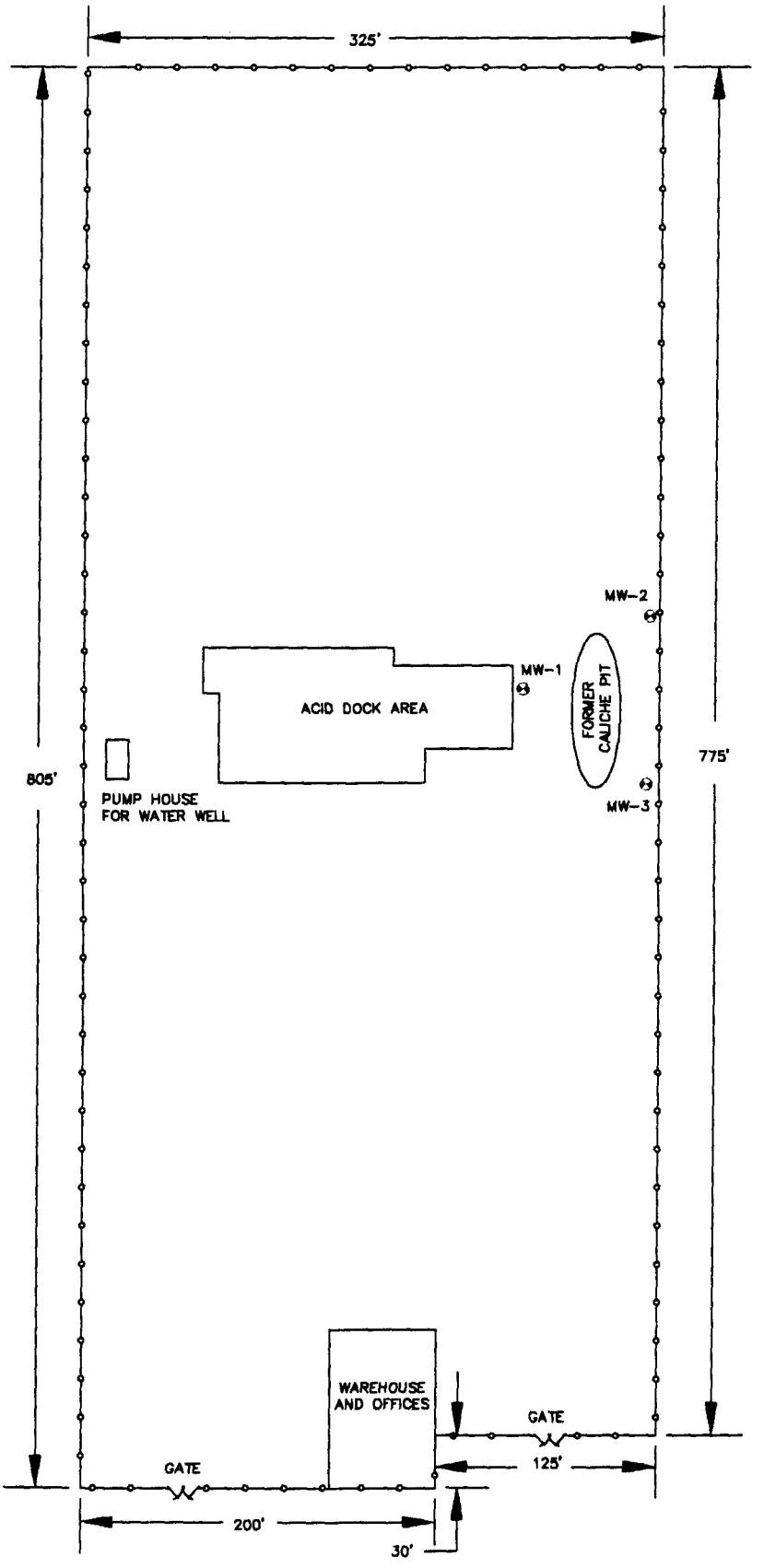

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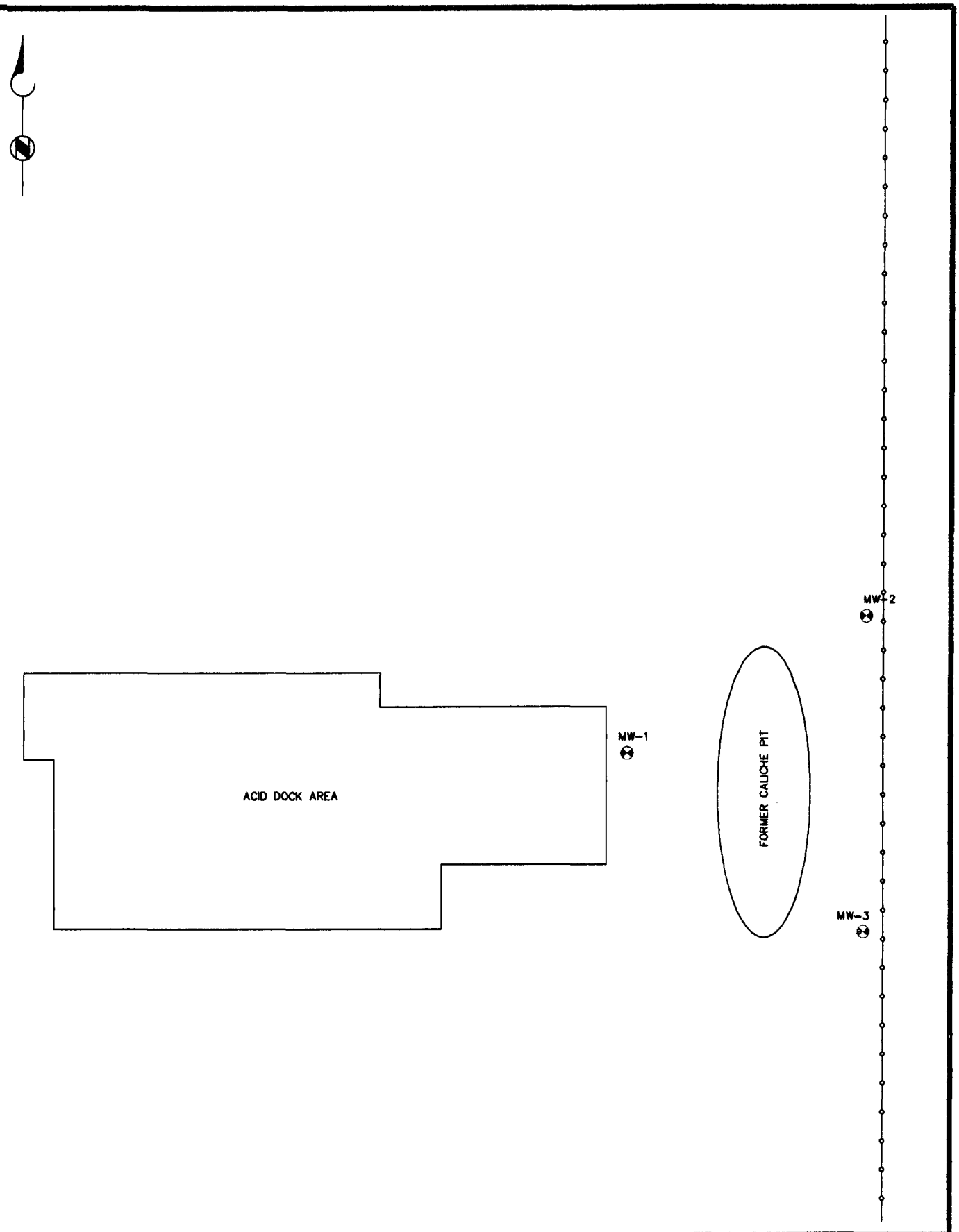

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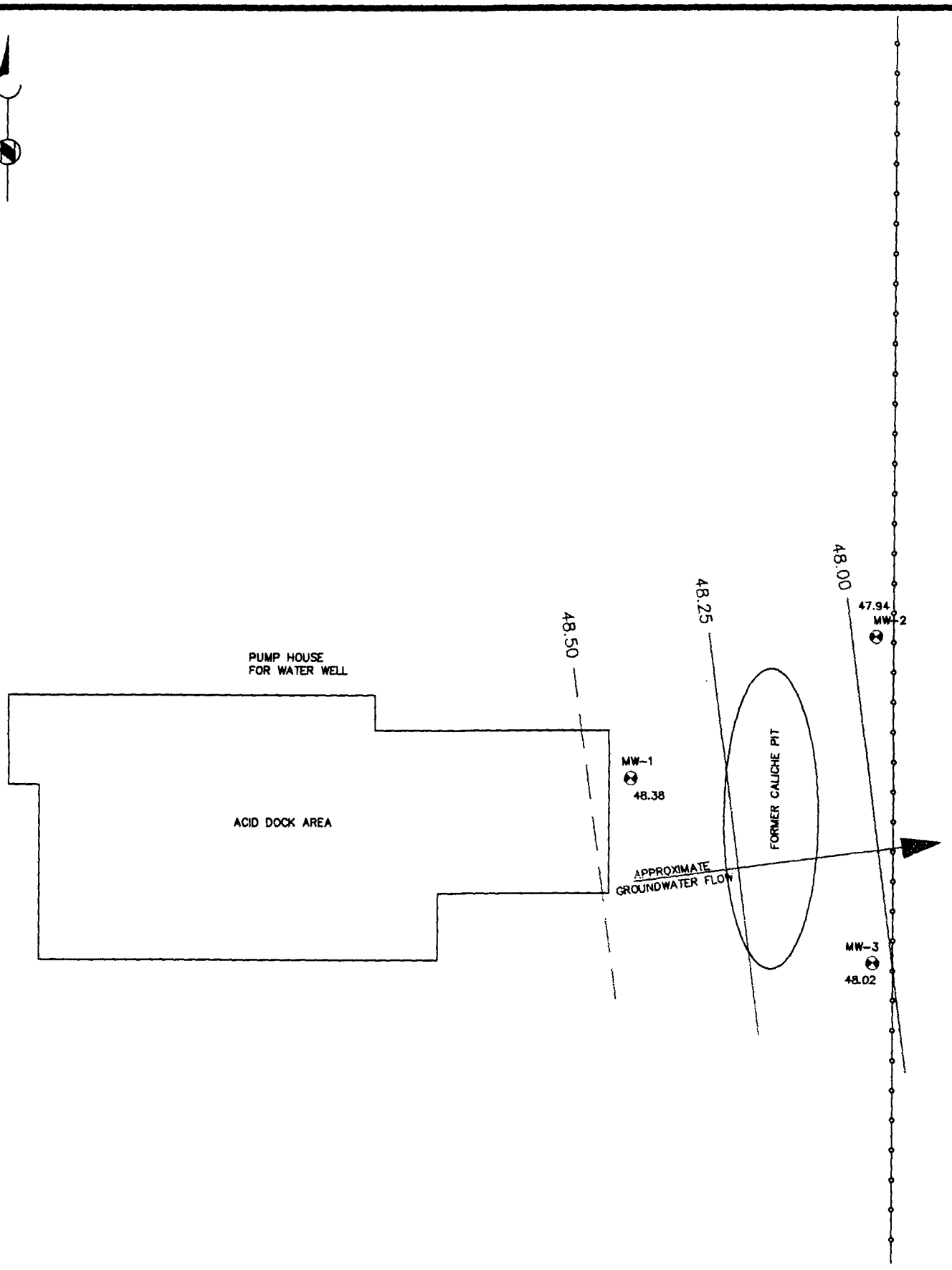

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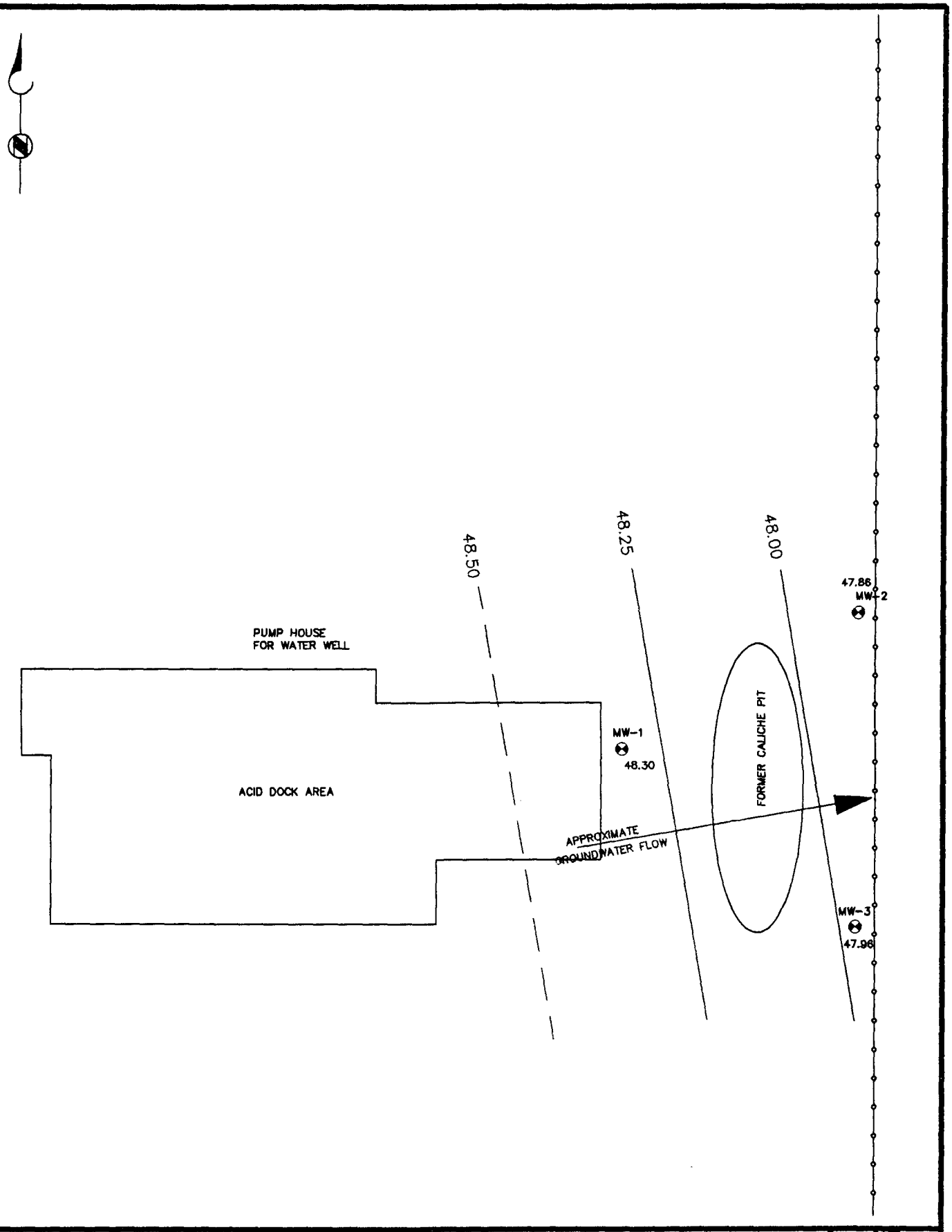

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Appendices

APPENDICES

A

APPENDIX A

October 2, 1997 Correspondence from the NMOCD

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

October 2, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-258-982

Mr. Rick N. Johnson
BJ Services Company, U.S.A.
8701 New Trails Drive
Woodlands, Texas 77381

RE: **Closure Approval of Discharge Plan GW-17 (Formerly Nowsco)**
Hobbs Facility
Lea County, New Mexico

Dear Mr. Johnson:

The New Mexico Oil Conservation Division (OCD) has received the letter dated July 11, 1997 for the Closure of the BJ Services Company, U.S.A. (BJ) GW-17 Discharge Plan located in the SW/4 SW/4 of Section 36, Township 18 South, Range 37 East, NMPM, Lea County, New Mexico. The closure of the Hobbs facility was submitted pursuant to Section 3107 A.11 of the Water Quality Control Commission Regulations. Based on information gathered to date, it is unclear if ground water at the site has been impacted by activities associated with the caliche pit.

The OCD requires further investigation by BJ that will include, at a minimum, the following information:

1. A ground water depth and gradient map.

2. A minimum of one monitor well installed upgradient and a minimum of two monitor wells installed downgradient from the caliche pit.

3. Monitor wells will be constructed with:

   a. A minimum of fifteen feet of well screen, with at least five feet of well screen above the water table and ten feet of well screen below the water table.

   b. An appropriately sized gravel pack will be set around the well screen from the bottom of the hole to 2-3 feet above the top of the well screen.

   c. A 2-3 foot bentonite plug will be placed above the gravel pack.

d. The remainder of the hole will be grouted to the surface with cement containing 5% bentonite.

4. All soils generated from drilling activities will be characterized for hazardous constituents and disposed of at an OCD approved site.

5. Ground water from the monitor wells will be sampled and analyzed for concentrations of major cations and anions, heavy metals, polynuclear aromatic hydrocarbons, and aromatic and halogenated organics using EPA approved methods.

6. The existing ground water supply well located on the facility will be sampled for the constituents listed in number 4 above. 5

7. BJ will submit a report on the investigation to the OCD by January 5, 1998. The report will include a description of the actions performed and the results of all sampling activities. The report will also include recommendations for future actions based on the results of ground water sampling.

8. BJ will notify the OCD at least 72 hours in advance of all activities.

9. All original documents will be submitted to the OCD Santa Fe Office with copies to the OCD Hobbs District Office.

If BJ has any further questions or comments please contact me at (505)-827-7155.

Sincerely,

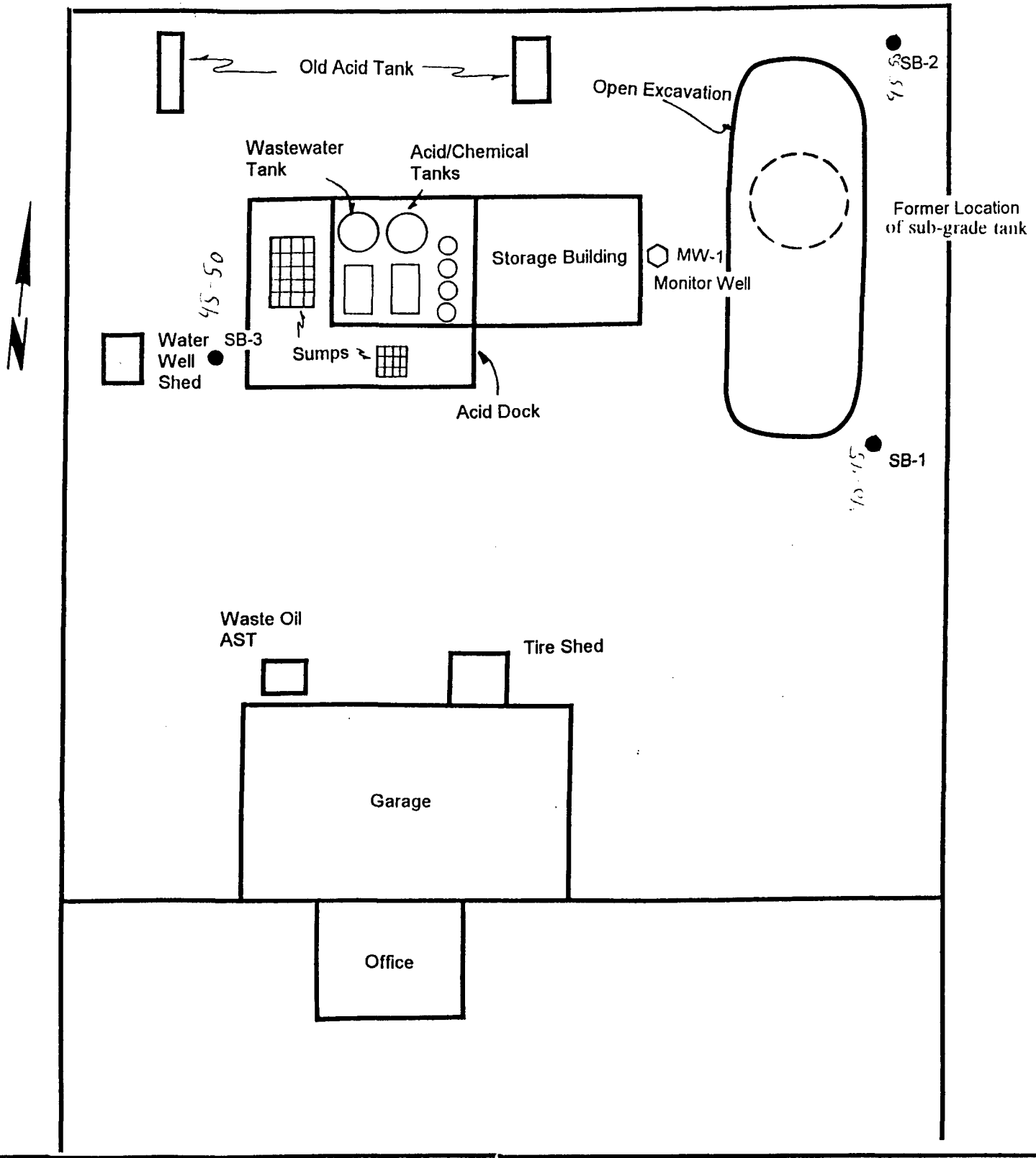
Mark Ashley
Geologist

xc: OCD Hobbs Office

B

APPENDIX B

Boring Logs, Well Installation Report, and Site Map from March 1995 Investigation



Highway 62-180

Legend

- Soil Boring
- Monitor Well

Ritter Environmental & Geotechnical Services

NOWSCO WELL SERVICE, INC.

Hobbs, New Mexico

SITE PLAN

No Scale

WEST TEXAS WATER WELL SERVICE

3432 W. University Blvd.
Odessa, Texas 79764

(915) 381-2687 Fax (915) 381-7853

NOWSCO
% R.E.G.S.

Hobbs, NM

03-27-95 Monitor well #1

DRILLERS LOG:

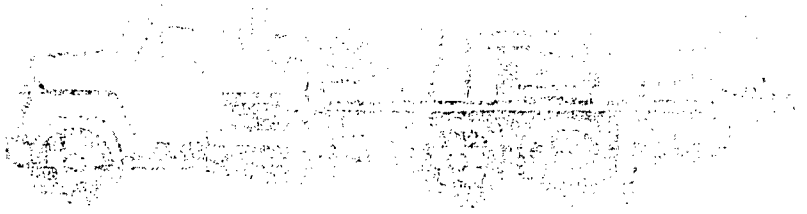
0	1	Caliche
1	2	Sand
2	15	Caliche rocks
15	25	Caliche rocks w/streaks of sand
25	30	Limestone
30	60	Sand

Dia. of hole 7 7/8" from surface to 60'

4" dia. plain plastic	0	40	
4" dia. screen	40	55	.010

CEMENTING DATA:

0	30	5 sacks
35	30	Hole plug



DEPTH	LITH	DESCRIPTION	NUM	SAMPLE DEPTH	PID	ODOR
			MW1-1	10' - 11.5'	0.0	NONE
			MW1-2	15' - 16.5'	0.0	NONE
5			MW1-3	20' - 21.5'	0.0	NONE
			MW1-4	25' - 26.5'	0.0	NONE
10		DENSE CALICHE - TAN	MW1-5	30' - 31.5'	0.0	NONE
			MW1-6	35' - 36.5'	0.0	NONE
15		DENSE CALICHE - TAN AND WHITE	MW1-7	40' - 41.5'	0.0	NONE
			MW1-8*	45' - 46.5'	0.5	NONE
20		DENSE CALICHE AND SAND - TAN AND WHITE	MW1-9	50' - 51.5'	0.0	NONE
25		DENSE CALICHE AND SAND - TAN (NOT MUCH OF A SAMPLE)				
30		DENSE CALICHE AND SAND - TAN (DENSE CHERTY LIME)				
35		FINE GRAIN SAND - REDDISH TAN				
40		AA				
45		AA				
50		WET SAND - REDDISH TAN				

* INDICATES SAMPLE WAS ANALYZED FOR TPH, TOTAL METALS, AND BTEX
\# INDICATES SAMPLE WAS ANALYZED FOR TPH AND BTEX ONLY

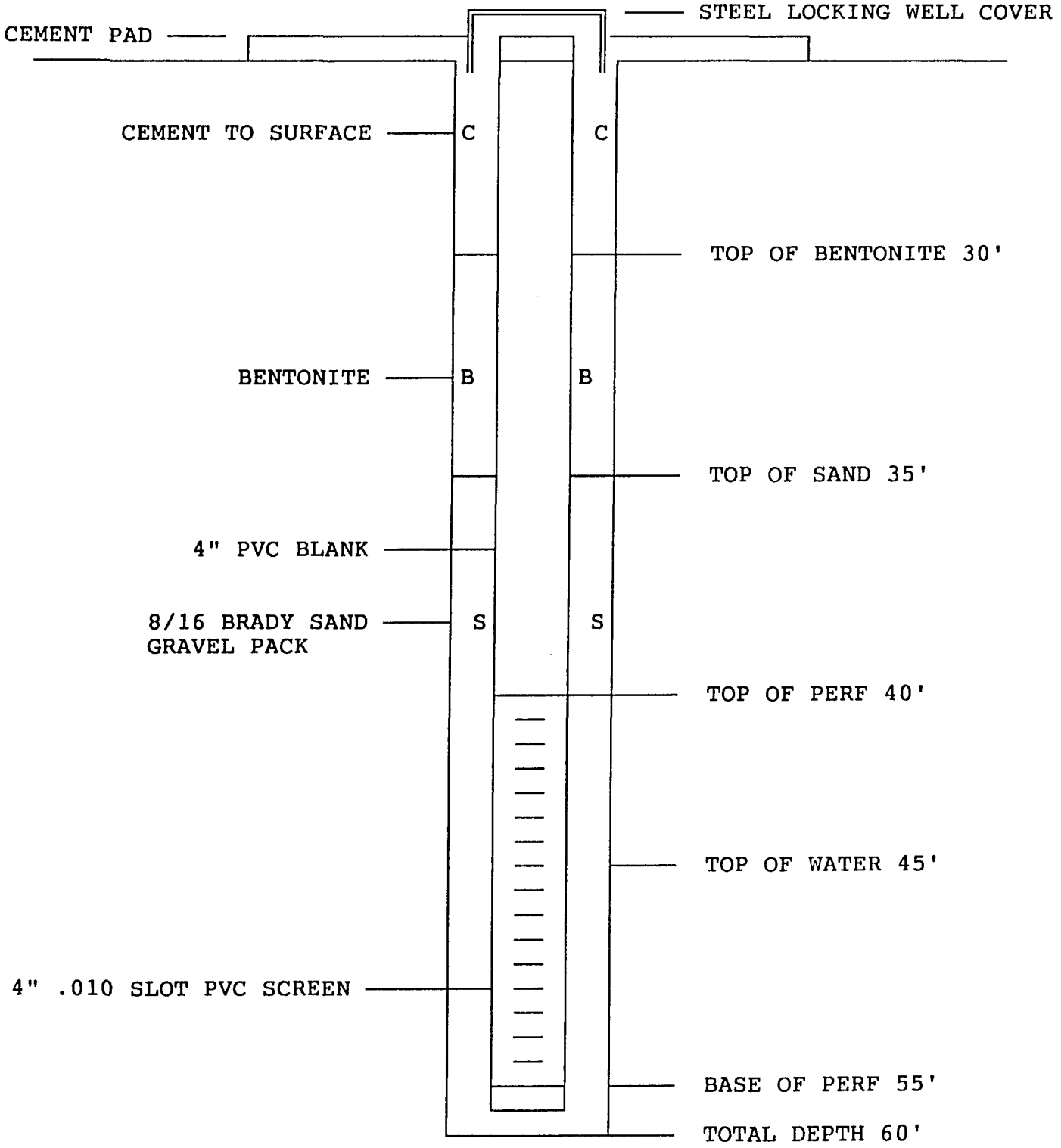
SOFT DRILLING AFTER 30'
TOP OF WATER 45'

SOIL BORING LOG

PROJECT: Nowsco Well Service, Inc. - Hobbs Facility DATE: 3/27/95
BORING #: MW-1 DIAMETER: 7 1/2"
LOCATION: 6' WEST OF BUILDING, 120' SOUTH OF NORTH FENCE LINE
TOTAL DEPTH: 60'

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES

MONITOR WELL #1



CLIENT: NOWSCO WELL SERVICE, INC.
PROJECT: PIT CLOSURE
LOCATION: HOBBS, NEW MEXICO
WELL # MW-1
WELL LOCATION: 6' WEST OF BUILDING, 120' SOUTH OF NORTH FENCE LINE

DEPTH: 60'
HOLE SIZE: 7 1/2"
CASING: 4" PVC
SCREEN: .010 SLOT

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES

DRILLING LOG

HOLE/WELL NO: MW-1 PROJECT: Nowsco/Hobbs DATE/TIME: 3/27/95 - 9:30 AM GEOLOGIST: MRR

DRILL METHOD: Air Rotary AUGER SIZE: 7 1/2 DRILLING COMPANY: West Texas Water Well JOB NO. ____

Location: 120' FNL & 5' from metal building

DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE INTERVAL	ODOR	SAMPLE TYPE	SOIL SYMBOL	HNU	STAIN
0	10	Caliche - tan	MW-1-1	10-11.5	None	Core		0.0	No
10	15	Caliche - tan & white	MW-1-2	15-16.5	None	Core		0.0	No
15	20	Dense caliche and sand - tan & white	MW-1-3	20-21.5	None	Core		0.0	No
20	25	Dense caliche and sand - tan & white (Not much of a sample)	MW-1-4	25-26.5	None	Core		0.0	No
25	30	Dense caliche and sand (50/50) - tan - dense cherty lime	MW-1-5	30-31.5	None	Core		0.0	No
30	35	Fine-grain sand - reddish tan	MW-1-6	35-36.5	None	Core		0.0	No
35	40	Fine-grain sand - reddish tan	MW-1-7	40-41.5	None	Core		0.0	No
40	45	Fine-grain sand - reddish tan *	MW-1-8	45-46.5	None	Core		0.5	No
45	50	Wet, fine-grain sand - reddish tan	MW-1-9	50-51.5	None	Core		0.0	No
		Soft drilling after 30'							
		Top of water 45'							
		Drilling to 55'							
		*Indicates sample was analyzed - see Soil Boring Log							

c:\off\wpm\nowsco\drillog.mw1

DEPTH	LITH	DESCRIPTION	NUM	SAMPLE DEPTH	PID	ODOR
			SB1-1	10' - 11.5'	0.0	NONE
			SB1-2	15' - 16.5'	0.0	NONE
5			SB1-3	20' - 21.5'	0.0	NONE
			SB1-4	25' - 26.5'	0.1	NONE
10		DENSE CALICHE - TAN	SB1-5#	30' - 31.5'	1.3	NONE
			SB1-6	35' - 36.5'	1.0	NONE
15		AA	SB1-7	40' - 41.5'	0.8	NONE
			SB1-8*	45' - 46.5'	0.7	NONE
20		DENSE CALICHE AND SAND - TAN AND WHITE	SB1-9	50' - 51.5'	0.0	NONE
25		AA				
30		AA				
35		AA				
40		MOIST, FINE GRAIN SAND, SOME CALICHE - REDDISH TAN				
45		WET, FINE GRAIN SAND - REDDISH TAN				
50		AA				

* INDICATES SAMPLE WAS ANALYZED FOR TPH, TOTAL METALS, AND BTEX

\# INDICATES SAMPLE WAS ANALYZED FOR TPH AND BTEX ONLY

SOIL BORING LOG

PROJECT: Nowsco Well Service, Inc. - Hobbs Facility DATE: 3/27/95
BORING #: SB-1 DIAMETER: 4 7/8"
LOCATION: 209' FROM NORTH FENCE LINE AND 11' FROM EAST FENCE LINE
TOTAL DEPTH: 50'

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES

DRILLING LOG

HOLE/WELL NO: SB-1 PROJECT: Nowsco/Hobbs DATE/TIME: 3/27/95 - 3:00 PM GEOLOGIST: MRR

DRILL METHOD: Air Rotary AUGER SIZE: 4 7/8 DRILLING COMPANY: West Texas Water Well JOB NO. ____

Location: 209' from north fence line & 11' from east fence line

DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE INTERVAL	ODOR	SAMPLE TYPE	SOIL SYMBOL	HNU	STAIN
0	10	Dense caliche - tan	SB-1-1	10-11.5	None	Core		0.0	No
10	15	Dense caliche - tan	SB-1-2	15-16.5	None	Core		0.0	No
15	20	Dense caliche and sand - tan & white	SB-1-3	20-21.5	None	Core		0.0	No
20	25	Dense caliche and sand - tan & white	SB-1-4	25-26.5	None	Core		0.1	No
25	30	Dense caliche and sand - tan & white *	SB-1-5	30-31.5	None	Core		1.3	No
30	35	Caliche and sand - tannish white	SB-1-6	35-36.5	None	Core		1.0	No
35	40	Moist, fine-grain sand, some caliche - reddish tan	SB-1-7	40-41.5	None	Core		0.8	No
40	45	Wet, fine-grain sand - reddish tan *	SB-1-8	45-46.5	None	Core		0.7	No
45	50	Wet, fine-grain sand - reddish tan	SB-1-9	50-51.5	None	Core		0.0	No
		* Indicates sample was analyzed - see Soil Boring Log							

DEPTH	LITH	DESCRIPTION	NUM	SAMPLE DEPTH	PID	ODOR
			SB3-1	10' - 11.5'	0.0	NONE
			SB3-2	15' - 16.5'	1.7	NONE
5			SB3-3	20' - 21.5'	2.2	SLIGHT
			SB3-4	25' - 26.5'	3.0	NONE
10		DENSE CALICHE - TAN	SB3-5#	30' - 31.5'	6.0	SLIGHT
			SB3-6	35' - 36.5'	4.0	SLIGHT
15		AA	SB3-7	40' - 41.5'	3.7	SLIGHT
			SB3-8*	45' - 46.5'	4.3	NONE
20		DENSE CALICHE - TAN AND WHITE	SB3-9	50' - 51.5'	4.9	NONE
25		CALICHE AND SAND - TAN AND WHITE				
30		AA				
35		FINE GRAIN SAND - REDDISH TAN				
40		AA				
45		AA				
50		WET SAND - REDDISH TAN				

* INDICATES SAMPLE WAS ANALYZED FOR TPH, TOTAL METALS, AND BTEX

\# INDICATES SAMPLE WAS ANALYZED FOR TPH AND BTEX ONLY

SOIL BORING LOG

PROJECT: Nowsco Well Service, Inc. - Hobbs Facility DATE: 3/28/95
BORING #: SB-3 DIAMETER: 6 3/4"
LOCATION: 57' FROM WEST FENCE LINE AND 35' FROM NORTH FENCE LINE
TOTAL DEPTH: 50'

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES

DRILLING LOG

HOLE/WELL NO: SB-3 PROJECT: Nowsco/Hobbs DATE/TIME: 3/28/95 GEOLOGIST: MRR/BK

DRILL METHOD: Air Rotary AUGER SIZE: 6 3/4 DRILLING COMPANY: West Texas Water Well JOB NO. ____

Location: 57' from west fence line & 35' from north fence line

DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE INTERVAL	ODOR	SAMPLE TYPE	SOIL SYMBOL	HNU	STAIN
0	10	Dense caliche - tan	SB-3-1	10-11.5	None	Core		0.0	No
10	15	Dense caliche - tan	SB-3-2	15-16.5	None	Core		1.7	No
15	20	Dense caliche - tan & white	SB-3-3	20-21.5	V.Slight	Core		2.2	No
20	25	Caliche and sand - tan & white	SB-3-4	25-26.5	None	Core		3.0	No
25	30	Caliche and sand - tan & white *	SB-3-5	30-31.5	V.Slight	Core		6.0	No
30	35	Fine-grain sand - reddish tan	SB-3-6	35-36.5	V.Slight	Core		4.0	No
35	40	Fine-grain sand - reddish tan	SB-3-7	40-41.5	V.Slight	Core		3.7	No
40	45	Fine-grain sand - reddish tan *	SB-3-8	45-46.5	None	Core		4.3	No
45	50	Wet, fine-grain sand - reddish tan	SB-3-9	50-51.5	None	Core		4.9	No
		* Indicates sample was analyzed - see Soil Boring Lob							

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WEST TEXAS WATER WELL SERVICE

3432 W. University Blvd.
Odessa, Texas 79764

(915) 381-2687 Fax (915) 381-7853

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Hobbs, NM

03-28-95 Boring 4 (this log represents REGS soil boring #3)

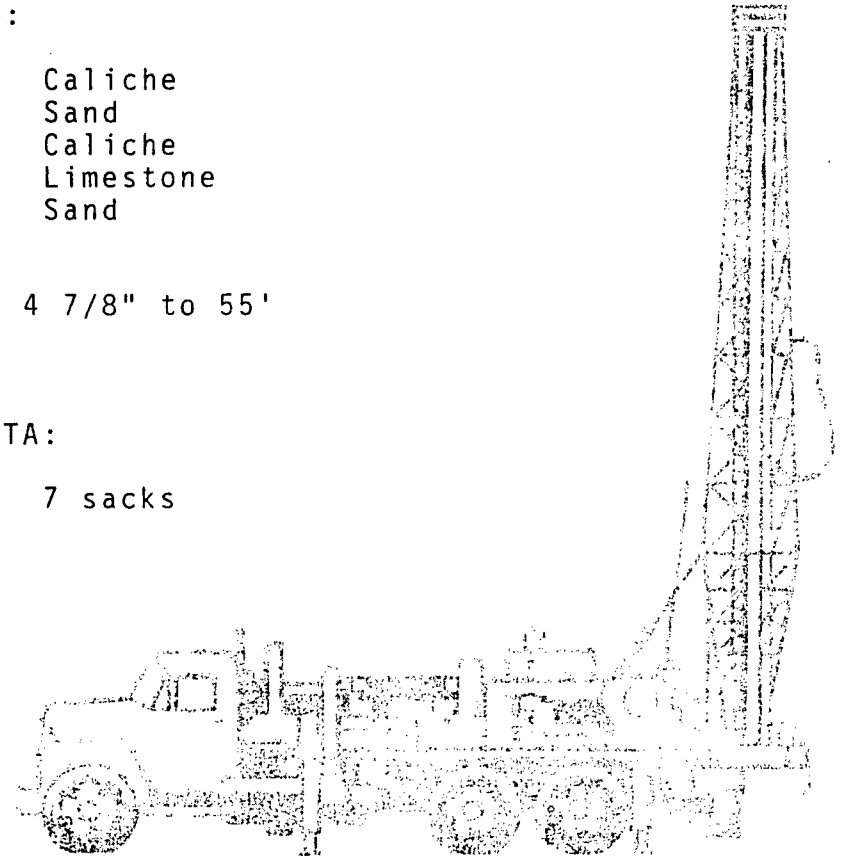
DRILLERS LOG:

0	3	Caliche
3	5	Sand
5	26	Caliche
26	29	Limestone
29	55	Sand

Dia. of hole 4 7/8" to 55'

CEMENTING DATA:

0 55 7 sacks



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(915) 381-2687 Fax (915) 381-7853

NOWSCO
% R.E.G.S.

Hobbs, NM

03-27-95 Boring 2 (this log represents REGS soil boring #1)

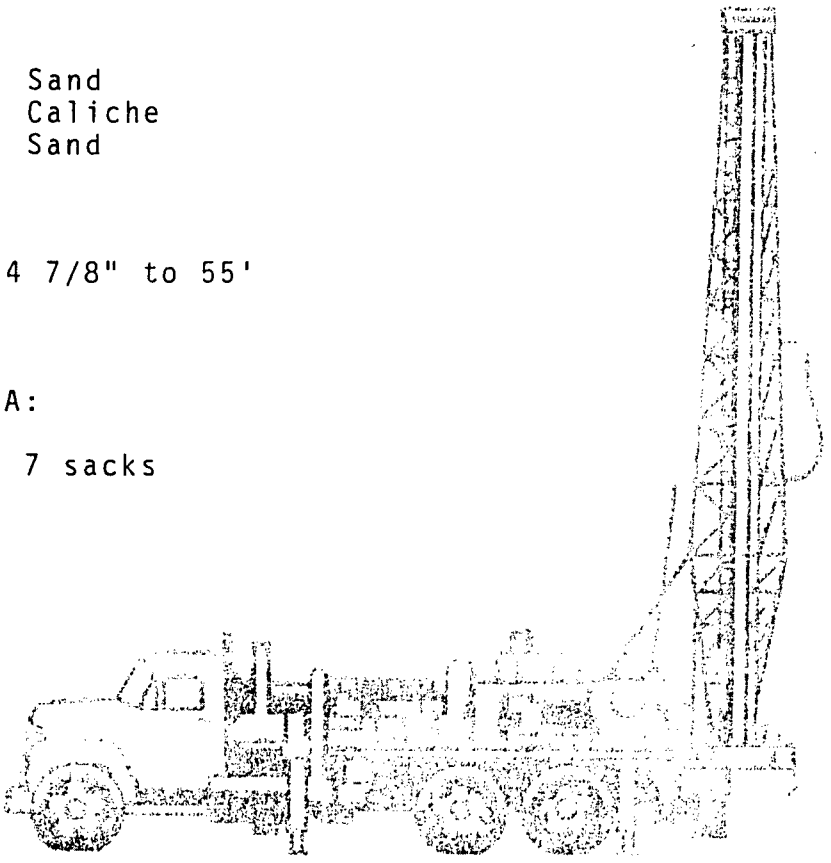
DRILLERS LOG:

0	2	Sand
2	30	Caliche
30	55	Sand

Dia. of hole 4 7/8" to 55'

CEMENTING DATA:

0	55	7 sacks



DEPTH	LITH	DESCRIPTION	NUM	SAMPLE DEPTH	PID	ODOR
			SB2-1	10' - 11.5'	0.0	NONE
			SB2-2	15' - 16.5'	0.0	NONE
5			SB2-3	20' - 21.5'	0.0	NONE
			SB2-4	25' - 26.5'	0.0	NONE
10		DENSE CALICHE - TAN	SB2-5	30' - 31.5'	0.0	NONE
			SB2-6	35' - 36.5'	0.0	NONE
15		AA	SB2-7	40' - 41.5'	0.0	NONE
			SB2-8*	45' - 46.5'	1.3	NONE
20		DENSE CALICHE AND SAND - TAN AND WHITE	SB2-9	50' - 51.5'	1.8	NONE
25		CALICHE AND SAND - TAN AND WHITE				
30		AA				
35		CALICHE AND SAND - REDDISH TAN				
40		FINE GRAIN SAND - REDDISH TAN				
45		AA				
50		WET SAND - REDDISH TAN				

* INDICATES SAMPLE WAS ANALYZED FOR TPH, TOTAL METALS, AND BTEX

\# INDICATES SAMPLE WAS ANALYZED FOR TPH AND BTEX ONLY

SOIL BORING LOG

PROJECT: Nowsco Well Service, Inc. - Hobbs Facility DATE: 3/28/95
BORING #: SB-2 DIAMETER: 4 7/8"
LOCATION: 6' FROM NORTH FENCE LINE, 9' FROM EAST FENCE LINE
TOTAL DEPTH: 50'

RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES

DRILLING LOG

HOLE/WELL NO: SB-2 PROJECT: Nowsco/Hobbs DATE/TIME: 3/28/95 - 10:30 AM GEOLOGIST: MRR

DRILL METHOD: Air Rotary AUGER SIZE: 4 7/8 DRILLING COMPANY: West Texas Water Well JOB NO. ____

Location: 6' from north fence line & 9' from east fence line

DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE INTERVAL	ODOR	SAMPLE TYPE	SOIL SYMBOL	HNU	STAIN
0	10	Dense caliche - tan	SB-2-1	10-11.5	None	Core		0.0	No
10	15	Dense caliche - tan	SB-2-2	15-16.5	None	Core		0.0	No
15	20	Dense caliche with some sand - tan & white	SB-2-3	20-21.5	None	Core		0.0	No
20	25	Caliche and sand - tan & white	SB-2-4	25-26.5	None	Core		0.0	No
25	30	Caliche and sand - tan & white	SB-2-5	30-31.5	None	Core		0.0	No
30	35	Caliche and sand - reddish tan	SB-2-6	35-36.5	None	Core		0.0	No
35	40	Sand - reddish tan	SB-2-7	40-41.5	None	Core		0.0	No
40	45	Sand - reddish tan *	SB-2-8	45-46.5	None	Core		1.3	No
45	50	Wet sand - reddish brown	SB-2-9	50-51.5	None	SS		1.8	No
		* Indicates sample was analyzed - see Soil Boring Log							

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3432 W. University Blvd.
Odessa, Texas 79764

(915) 381-2687 Fax (915) 381-7853

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Hobbs, NM

03-28-95 Boring 3 (this log represents REGS soil boring #2)

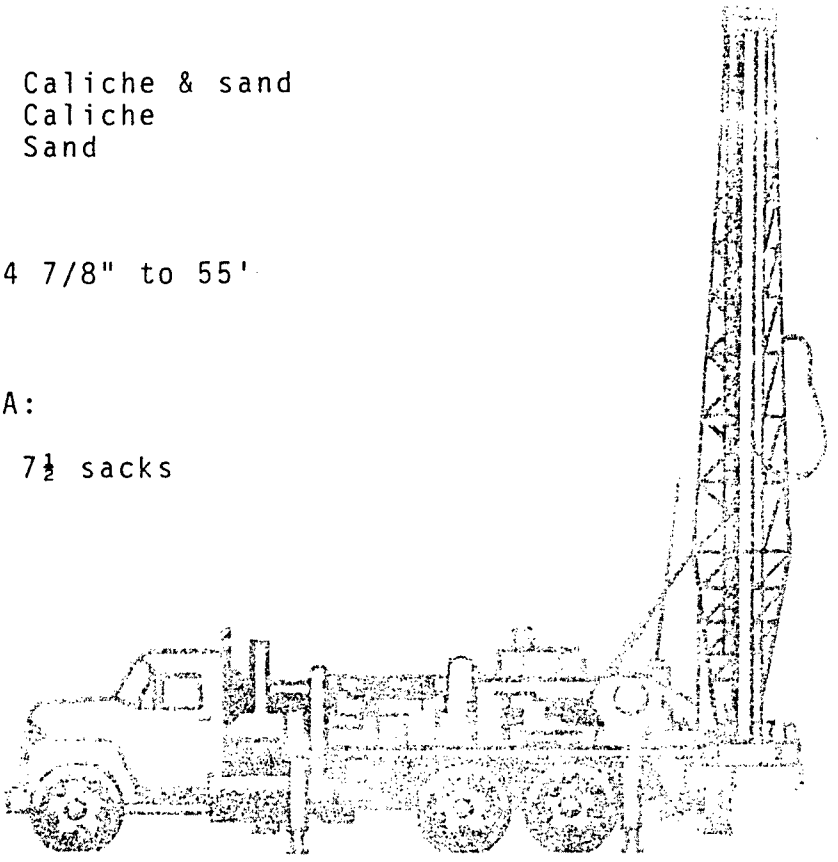
DRILLERS LOG:

0	15	Caliche & sand
15	30	Caliche
30	55	Sand

Dia. of hole 4 7/8" to 55'

CEMENTING DATA:

0	55	7½ sacks



C

APPENDIX C

SB-3 and SB-4 Boring Logs and Well Construction Diagrams for Monitor Wells MW-2 and MW-3

BROWN AND CALDWELL

Monitoring Well: MW-2

Project Name: **BJ Services Company U.S.A. (Hobbs, New Mexico)** Project Number: **6240.01** Sheet **1** of **2**

Project Location: **Northeast Corner of Claiche Pit**		Logged By: **T. Jenkins**	Approved: **T. Jenkins**
Drilling Contractor: **West Texas Water Well**		Date Started: **11/19/97**	Date Finished: **11/19/97**
Drilling Equipment: **Badger 1250**	Driller: **Bernie Brockman**	Total Boring Depth: (feet) **60.0**	Depth to Static Water: (feet) **47.0**
Drilling Method: **Air Rotary**	Borehole Diameter: **4.875"**	TOC Elevation:	Ground Elevation: **NA**
Sampling Method: **Core/Split Spoon**		Diameter and Type of Well Casing: **2" Sch. 40 - PVC**	
Comments: **Monitor Well MW-2 was installed in Soil Boring SB-3**		Slot Size: **0.010**	Filter Material: **Silica Sand**
		Development Method: **Surge and Bail**	

Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description	PID Readings	Sampled Interval	Recovery (feet)	Sample ID	Monitoring Well Remarks
2		SM		GRAVEL/MEDIUM with sand					
4									
6				Light tan colored, caliche/sand mixture	5		1		
8				Dense Caliche, Tan, mixed with small gravel					
10				Tan colored, Caliche	6		1		
12				Caliche, becoming darker with depth					
14									
16				Reddish, Tan colored caliche	5		1		
18									Cement grout with 5% bentonite.
20		SM		Tan caliche mixed with coarse sand and gravel	6		1	SB-3-20	
22									
24									
26				No recovery first attempt			0		
				No recovery second attempt			0		
28				Limestone	8		1		
		SM		reddish Brown Sand					
30				Reddish brown sand	8		1		
32									

BROWN AND CALDWELL

Monitoring Well: MW-2

Project Name: **BJ Services Company U.S.A. (Hobbs, New Mexico)** Project Number: **6240.01** Sheet 2 of 2

Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description	PID Readings	Sampled Interval	Recovery (feet)	Sample ID
34								
35				Reddish brown sand	15		1	
36								
38								
40				Reddish Brown sand	18		1	SB-3-40
42								
44								
46	▼			Attempt split spoon sample obtained about 3" sample -Reddish-brown sand 6" recovery	>2441		0.75	SB-3-45
48								
50				Saturated reddish-brown sand	11		2	
52								
54								
56				No sample obtained			0	
58								
60				No sample obtained			0	
				Total depth = 60 feet				

Monitoring Well Remarks

- 35.0 — Top of bentonite seal at 35.0 feet.
- 38.0 — Top of sand filter pack at 38.0 feet.
- 41.0 — Top of screen at 41.0 feet.
- 56.0 — Bottom of screen at 56.0 feet.
- 58.5
- 59.0 — Bottom of well at 59.0 feet.

BROWN AND CALDWELL

Monitoring Well: MW-3

Project Name: **BJ Services Company U.S.A. (Hobbs, New Mexico)** Project Number: **6240.01** Sheet **1** of **2**

Project Location: **Northeast Corner of Claiche Pit**		Logged By: **T. Jenkins**	Approved: **T. Jenkins**
Drilling Contractor: **West Texas Water Well**		Date Started: **11/19/97**	Date Finished: **11/19/97**
Drilling Equipment: **Badger 1250**	Driller: **Bernie Brockman**	Total Boring Depth: (feet) **61.0**	Depth to Static Water: (feet) **47.0**
Drilling Method: **Air Rotary**	Borehole Diameter: **4.875"**	TOC Elevation:	Ground Elevation: **NA**
Sampling Method: **Core/Split Spoon**		Diameter and Type of Well Casing: **2" Sch. 40 - PVC**	
Comments: **Monitor Well MW-3 was installed in Soil Boring SB-4**		Slot Size: **0.010**	Filter Material: **Silica Sand**
		Development Method: **Surge and Bail**	

Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description	PID Readings	Sampled Interval	Recovery (feet)	Sample ID	Monitoring Well Remarks
2									
4				Tan caliche with gravel	2				
6									
8									
10				Light tan caliche	6				
12									
14									
16				Light tan caliche	7				
18									Cement grout with 5% bentonite.
20				Tan caliche with rock	8				
22									
24									
26				Tan caliche mixed with limestone	8				
28				Limestone present in 26-to-29-feet interval					
30		SM		Reddish-brown sand	7				
32									

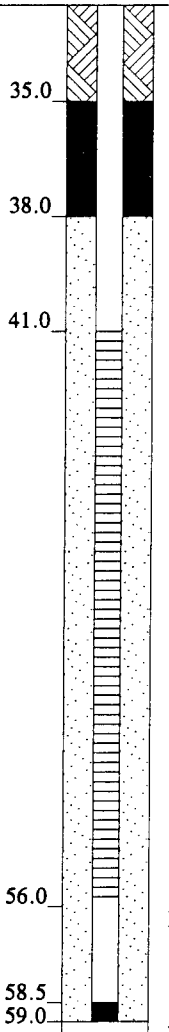
BROWN AND CALDWELL

Monitoring Well: MW-3

Project Name: **BJ Services Company U.S.A. (Hobbs, New Mexico)** Project Number: **6240.01** Sheet 2 of 2

Depth (feet)	Depth to Water	USC Soil Type	Lithology	Description	PID Readings	Sampled Interval	Recovery (feet)	Sample ID
34								
36				Reddish-brown sand mixed with gravel	7			
38								
40		SM		Reddish-brown sand	5			
42								
44								
46	▼			Split Spoon sample: reddish brown sand (6" Recovery)	9			
48								
50				Split Spoon sample: saturated red sand; sandstone layer present from 50.75 to 51.0 feet Sample below sandstone displays lower moisture content than does the sand above the sandstone unit	9 10			
52								
54								
56								
58								
60				Total depth = 61 feet.				

Monitoring Well Remarks



35.0 — Top of bentonite seal at 35.0 feet.

38.0 — Top of sand filter pack at 38.0 feet.

41.0 — Top of screen at 41.0 feet.

56.0 — Bottom of screen at 56.0 feet.

58.5

59.0 — Bottom of well at 59.0 feet.

D

APPENDIX D

Laboratory Analytical Reports

Certificate of Analysis

Quanterra Incorporated
5307 Industrial Oaks Boulevard, Suite 160
Austin, Texas 78735

512 892-6684 Direct
512 892-6652 Fax

Quanterra

ANALYTICAL REPORT

HOBBS,NM

Lot #: I8A080117

TIM JENKINS

Brown & Caldwell

QUANTERRA INCORPORATED

Sandra L. Green
Project Manager

January 13, 1998

Quanterra
Environmental
Services

EXECUTIVE SUMMARY - Detection Highlights

I8A080117

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SB-3-20 11/19/97 08:35 001				
Percent Moisture	4.3	0.50	%	OCLP OLM03.1
SB-3-40 11/19/97 09:40 002				
Percent Moisture	17.9	0.50	%	OCLP OLM03.1
SB-3-45 11/19/97 10:00 003				
Diesel Range Organics	150000	1800	ug/kg	SW846 8015 MOD
Percent Moisture	7.3	0.50	%	OCLP OLM03.1
SB-4-25 11/19/97 00:00 004				
Diesel Range Organics	8400	1800	ug/kg	SW846 8015 MOD
Percent Moisture	5.2	0.50	%	OCLP OLM03.1
SB-4-40 11/19/97 00:00 005				
Diesel Range Organics	5700	1800	ug/kg	SW846 8015 MOD
Percent Moisture	5.0	0.50	%	OCLP OLM03.1
SB-4-45 11/19/97 00:00 006				
Diesel Range Organics	5300	1900	ug/kg	SW846 8015 MOD
Percent Moisture	11.2	0.50	%	OCLP OLM03.1

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ANALYTICAL METHODS SUMMARY

I8A080117

PARAMETER	ANALYTICAL METHOD
% Moisture, Decanted-CLP	OCLP OLM03.1
Extractable Petroleum Hydrocarbons	SW846 8015 MOD
Volatile and Gasoline Range Organics (PID/FID)	SW846 8020/GRO

References:

OCLP USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

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SAMPLE SUMMARY

I8A080117

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CETAM	001	SB-3-20	11/19/97	08:35
CETAQ	002	SB-3-40	11/19/97	09:40
CETAT	003	SB-3-45	11/19/97	10:00
CETAW	004	SB-4-25	11/19/97	00:00
CETAX	005	SB-4-40	11/19/97	00:00
CETC1	006	SB-4-45	11/19/97	00:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

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BROWN & CALDWELL

Client Sample ID: SB-3-20

GC Semivolatiles

Lot-Sample #...: I8A080117-001 **Work Order #...:** CETAM103 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 08:35 **Date Received..:** 01/08/98
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 16:40
Dilution Factor: 1
% Moisture.....: 4.3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	1800	ug/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	80	(40 - 144)
Dotriacontane	88	(42 - 159)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-3-20

GC Volatiles

Lot-Sample #...: I8A080117-001 **Work Order #...:** CETAM102 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 08:35 **Date Received..:** 01/08/98
Prep Date.....: 01/12/98 **Analysis Date..:** 01/12/98
Prep Batch #...: 8013132 **Analysis Time..:** 21:09
Dilution Factor: 1
% Moisture.....: 4.3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/kg	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/kg	SW846 8020/GRO
Toluene	ND	1.0	ug/kg	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/kg	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(75 - 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-3-40

GC Semivolatiles

Lot-Sample #...: I8A080117-002 **Work Order #...:** CETAQ102 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 09:40 **Date Received..:** 01/08/98
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 17:20
Dilution Factor: 1
% Moisture.....: 18

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	2100	ug/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	73	(40 - 144)
Dotriacontane	77	(42 - 159)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-3-45

GC Semivolatiles

Lot-Sample #...:	I8A080117-003	**Work Order #...:**	CETAT102	**Matrix.....:**	SOLID
Date Sampled...:	11/19/97 10:00	**Date Received..:**	01/08/98		
Prep Date.....:	01/08/98	**Analysis Date..:**	01/09/98		
Prep Batch #...:	8008204	**Analysis Time..:**	19:23		
Dilution Factor:	1				
% Moisture.....:	7.3				

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	**150000**	**1800**	**ug/kg**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	105	(40 - 144)
Dotriacontane	84	(42 - 159)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-4-25

GC Semivolatiles

Lot-Sample #...: I8A080117-004 **Work Order #...:** CETAW103 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 20:01
Dilution Factor: 1
% Moisture.....: 5.2

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	**8400**	**1800**	**ug/kg**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	83	(40 - 144)
Dotriacontane	84	(42 - 159)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-4-25

GC Volatiles

Lot-Sample #...: I8A080117-004 **Work Order #...:** CETAW102 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
Prep Date.....: 01/12/98 **Analysis Date..:** 01/12/98
Prep Batch #...: 8013132 **Analysis Time..:** 21:51
Dilution Factor: 1
% Moisture.....: 5.2

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.1	ug/kg	SW846 8020/GRO
Ethylbenzene	ND	1.1	ug/kg	SW846 8020/GRO
Toluene	ND	1.1	ug/kg	SW846 8020/GRO
Xylenes (total)	ND	1.1	ug/kg	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	103	(75 - 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-4-40

GC Semivolatiles

Lot-Sample #...: I8A080117-005 **Work Order #...:** CETAX103 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 20:41
Dilution Factor: 1
% Moisture.....: 5.0

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	**5700**	**1800**	**ug/kg**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	83	(40 - 144)
Dotriacontane	80	(42 - 159)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-4-40

GC Volatiles

Lot-Sample #...: I8A080117-005 **Work Order #...:** CETAX102 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
Prep Date.....: 01/12/98 **Analysis Date..:** 01/12/98
Prep Batch #...: 8013132 **Analysis Time..:** 22:31
Dilution Factor: 1
% Moisture.....: 5.0

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.1	ug/kg	SW846 8020/GRO
Ethylbenzene	ND	1.1	ug/kg	SW846 8020/GRO
Toluene	ND	1.1	ug/kg	SW846 8020/GRO
Xylenes (total)	ND	1.1	ug/kg	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	103	(75 - 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-4-45

GC Semivolatiles

Lot-Sample #...: I8A080117-006 **Work Order #...:** CETC1103 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 21:20
Dilution Factor: 1
% Moisture.....: 11

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	**5300**	**1900**	**ug/kg**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	77	(40 - 144)
Dotriacontane	83	(42 - 159)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-4-45

GC Volatiles

Lot-Sample #...: I8A080117-006 **Work Order #...:** CETC1102 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
Prep Date.....: 01/12/98 **Analysis Date..:** 01/12/98
Prep Batch #...: 8013132 **Analysis Time..:** 23:12
Dilution Factor: 1
% Moisture.....: 11

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.1	ug/kg	SW846 8020/GRO
Ethylbenzene	ND	1.1	ug/kg	SW846 8020/GRO
Toluene	ND	1.1	ug/kg	SW846 8020/GRO
Xylenes (total)	ND	1.1	ug/kg	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-3-20

General Chemistry

Lot-Sample #...: I8A080117-001 **Work Order #...:** CETAM **Matrix.....:** SOLID
Date Sampled...: 11/19/97 08:35 **Date Received..:** 01/08/98
% Moisture.....: 4.3

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**4.3**	**0.50**	**%**	**OCLP OLM03.1**	**01/12-01/13/98**	**8013121**

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-3-40

General Chemistry

Lot-Sample #...: I8A080117-002 **Work Order #...:** CETAQ **Matrix.....:** SOLID
Date Sampled...: 11/19/97 09:40 **Date Received..:** 01/08/98
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**17.9**	**0.50**	**%**	**OCLP OLM03.1**	**11/21-11/22/97**	**8008228**

Dilution Factor: 1
Analysis Time..: 08:00

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-3-45

General Chemistry

Lot-Sample #...: I8A080117-003 **Work Order #...:** CETAT **Matrix.....:** SOLID
Date Sampled...: 11/19/97 10:00 **Date Received..:** 01/08/98
% Moisture.....: 7.3

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**7.3**	**0.50**	**%**	**OCLP OLM03.1**	**11/21-11/22/97**	**8008228**

Dilution Factor: 1
Analysis Time..: 08:00

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

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BROWN & CALDWELL

Client Sample ID: SB-4-25

General Chemistry

Lot-Sample #...: I8A080117-004 **Work Order #...:** CETAW **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
% Moisture.....: 5.2

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**5.2**	**0.50**	**%**	**OCLP OLM03.1**	**01/12-01/13/98**	**8013121**

Dilution Factor: 1
Analysis Time..: 07:00

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Client Sample ID: SB-4-40

General Chemistry

Lot-Sample #...: I8A080117-005 **Work Order #...:** CETAX **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
% Moisture.....: 5.0

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**5.0**	**0.50**	**%**	**OCLP OLM03.1**	**01/12-01/13/98**	**8013121**

Dilution Factor: 1
Analysis Time..: 07:00

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Client Sample ID: SB-4-45

General Chemistry

Lot-Sample #...: I8A080117-006 **Work Order #...:** CETC1 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 00:00 **Date Received..:** 01/08/98
% Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**11.2**	**0.50**	**%**	**OCLP OLM03.1**	**01/12-01/13/98**	**8013121**

Dilution Factor: 1
Analysis Time..: 07:00

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QC DATA ASSOCIATION SUMMARY

I8A080117

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SOLID	OCLP OLM03.1		8013121	8013015
	SOLID	SW846 8015 MOD		8008204	8008077
	SOLID	SW846 8020/GRO		8013132	8013021
002	SOLID	OCLP OLM03.1		8008228	7325125
	SOLID	SW846 8015 MOD		8008204	8008077
003	SOLID	OCLP OLM03.1		8008228	7325125
	SOLID	SW846 8015 MOD		8008204	8008077
004	SOLID	OCLP OLM03.1		8013121	8013015
	SOLID	SW846 8015 MOD		8008204	8008077
	SOLID	SW846 8020/GRO		8013132	8013021
005	SOLID	OCLP OLM03.1		8013121	8013015
	SOLID	SW846 8015 MOD		8008204	8008077
	SOLID	SW846 8020/GRO		8013132	8013021
006	SOLID	OCLP OLM03.1		8013121	8013015
	SOLID	SW846 8015 MOD		8008204	8008077
	SOLID	SW846 8020/GRO		8013132	8013021

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METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: I8A080117 **Work Order #...:** CETHH101 **Matrix.....:** SOLID
MB Lot-Sample #: I8A080000-204

Prep Date.....: 01/08/98 **Analysis Time..:** 15:21
Analysis Date..: 01/09/98 **Prep Batch #...:** 8008204
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	1700	ug/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	81	(40 - 144)
Dotriacontane	86	(42 - 159)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I8A080117 **Work Order #...:** CEVL3101 **Matrix.....:** SOLID
MB Lot-Sample #: I8A130000-132

Prep Date.....: 01/12/98 **Analysis Time..:** 17:49
Analysis Date..: 01/12/98 **Prep Batch #...:** 8013132
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/kg	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/kg	SW846 8020/GRO
Toluene	ND	1.0	ug/kg	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/kg	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: I8A080117 **Work Order #...:** CETHH102 **Matrix.....:** SOLID
LCS Lot-Sample#: I8A080000-204
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 16:01
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Diesel Range Organics	**33000**	**24000**	**ug/kg**	**71**	**SW846 8015 MO**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	97	(40 - 144)
Dotriacontane	89	(42 - 159)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8A080117 **Work Order #...:** CEVL3102 **Matrix.....:** SOLID
LCS Lot-Sample#: I8A130000-132
Prep Date.....: 01/12/98 **Analysis Date..:** 01/12/98
Prep Batch #...: 8013132 **Analysis Time..:** 15:52
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	20	20	ug/kg	99	SW846 8020/GR
Toluene	60	59	ug/kg	98	SW846 8020/GR
Ethylbenzene	20	19	ug/kg	97	SW846 8020/GR
Xylenes (total)	120	120	ug/kg	98	SW846 8020/GR
Gasoline Range Organics	400	450	ug/kg	113	SW846 8020/GR

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: I8A080117 **Work Order #...:** CETHH102 **Matrix.....:** SOLID
LCS Lot-Sample#: I8A080000-204
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 16:01
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Diesel Range Organics	**71**	**(38 - 139)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	97	(40 - 144)
Dotriacontane	89	(42 - 159)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8A080117 **Work Order #...:** CEVL3102 **Matrix.....:** SOLID
LCS Lot-Sample#: I8A130000-132
Prep Date.....: 01/12/98 **Analysis Date..:** 01/12/98
Prep Batch #...: 8013132 **Analysis Time..:** 15:52
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	99	(85 - 115)	SW846 8020/GRO
Toluene	98	(85 - 115)	SW846 8020/GRO
Ethylbenzene	97	(85 - 115)	SW846 8020/GRO
Xylenes (total)	98	(85 - 115)	SW846 8020/GRO
Gasoline Range Organics	113	(85 - 115)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: I8A080117 **Work Order #...:** CETAQ103-MS **Matrix.....:** SOLID
MS Lot-Sample #: I8A080117-002 CETAQ104-MSD
Date Sampled...: 11/19/97 09:40 **Date Received..:** 01/08/98
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 18:01
Dilution Factor: 1 **% Moisture.....:** 18

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Diesel Range Organics	**ND**	**41000**	**31000**	**ug/kg**	**77**		**SW846 8015 MOD**
	ND	**41000**	**38000**	**ug/kg**	**93**	**19**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	91	(40 - 144)
	91	(40 - 144)
Dotriacontane	85	(42 - 159)
	81	(42 - 159)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

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MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8A080117 **Work Order #...:** CEV8D107-MS **Matrix.....:** SOLID
MS Lot-Sample #: I8A120104-001 CEV8D108-MSD
Date Sampled...: 01/06/98 17:00 **Date Received..:** 01/10/98
Prep Date.....: 01/12/98 **Analysis Date..:** 01/12/98
Prep Batch #...: 8013132 **Analysis Time..:** 19:10
Dilution Factor: 1 **% Moisture.....:** 0.0

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene		20	24	ug/kg	115		SW846 8020/GRO
		20	23	ug/kg	111	3.6	SW846 8020/GRO
Toluene		60	65	ug/kg	105		SW846 8020/GRO
		60	64	ug/kg	103	1.7	SW846 8020/GRO
Ethylbenzene		20	18	ug/kg	88		SW846 8020/GRO
		20	18	ug/kg	89	1.0	SW846 8020/GRO
Xylenes (total)		120	120	ug/kg	94		SW846 8020/GRO
		120	120	ug/kg	95	0.95	SW846 8020/GRO
Gasoline Range Organics		400	300	ug/kg	60		SW846 8020/GRO
	Qualifiers: a,MSC						
		400	290 a	ug/kg	57	3.6	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	90	(75 - 125)
	91	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: I8A080117 **Work Order #...:** CETAQ103-MS **Matrix.....:** SOLID
MS Lot-Sample #: I8A080117-002 CETAQ104-MSD
Date Sampled...: 11/19/97 09:40 **Date Received..:** 01/08/98
Prep Date.....: 01/08/98 **Analysis Date..:** 01/09/98
Prep Batch #...: 8008204 **Analysis Time..:** 18:01
Dilution Factor: 1 **% Moisture.....:** 18

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Diesel Range Organics	**77**	**(40 - 126)**			**SW846 8015 MOD**
	93	**(40 - 126)**	**19**	**(0-30)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	91	(40 - 144)
	91	(40 - 144)
Dotriacontane	85	(42 - 159)
	81	(42 - 159)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8A080117 **Work Order #...:** CEV8D107-MS **Matrix.....:** SOLID
MS Lot-Sample #: I8A120104-001 CEV8D108-MSD
Date Sampled...: 01/06/98 17:00 **Date Received..:** 01/10/98
Prep Date.....: 01/12/98 **Analysis Date..:** 01/12/98
Prep Batch #...: 8013132 **Analysis Time..:** 19:10
Dilution Factor: 1 **% Moisture.....:** 0.0

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	115	(75 - 125)			SW846 8020/GRO
	111	(75 - 125)	3.6	(0-30)	SW846 8020/GRO
Toluene	105	(75 - 125)			SW846 8020/GRO
	103	(75 - 125)	1.7	(0-30)	SW846 8020/GRO
Ethylbenzene	88	(75 - 125)			SW846 8020/GRO
	89	(75 - 125)	1.0	(0-30)	SW846 8020/GRO
Xylenes (total)	94	(75 - 125)			SW846 8020/GRO
	95	(75 - 125)	0.95	(0-30)	SW846 8020/GRO
Gasoline Range Organics	60 a,MSC	(75 - 125)			SW846 8020/GRO
	57 a	(75 - 125)	3.6	(0-30)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	90	(75 - 125)
	91	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I8A080117 **Work Order #...:** CETAM-SMP **Matrix.....:** SOLID
CETAM-DUP
Date Sampled...: 11/19/97 08:35 **Date Received..:** 01/08/98
% Moisture.....: 4.3

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	I8A080117-001	
	4.3	3.8	%	11	(0-14)	OCLP OLM03.1	01/12-01/13/98	8013121

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I8A080117 **Work Order #...:** CE5F9-SMP CE5F9-DUP **Matrix.....:** SOLID

Date Sampled...: 11/17/97 11:07 **Date Received..:** 11/20/97

% Moisture.....: 7.7

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	I7K210118-005	
	7.7	7.2	%	7.5	(0-14)	OCLP OLM03.1	11/21-11/22/97	7325240

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

C3

Chain of Custody Record

QUA-4149-1

CHAIN OF CUSTODY NUMBER

* 0 0 0 5 9 8 - 0 0 1 *

~~FK 210132~~
I8A050117

Quanterra

Client: B.J. SERVICES	Project Manager: TIM JENKINS	Date: 11/14/1997
Address: 2708 W. COUNTY ROAD	Telephone Number (Area Code)/Fax Number: (713) 759-0999 / (000)	Lab Location: QUANTERRA - AUSTIN
City: HOBBS — State: NM — Zip Code: 88240	Site Contact: TIM JENKINS	Page 1 of 1
Project Number/Name: BJ SERVICES/HOBBS,NM — NOWSCO SITE	Carrier/Waybill Number: 8267385840 - ABX	

Contract/Purchase Order/Quote Number
CONTRACT / PURCHASE ORDER # : BJ SERVICES/HOBBS — QUOTE: 21685

Analysis: PH, RCI; HOLD ALL OTHER UNTIL NOTIFIED; BTEX; HOLD

Sample I.D. Number and Description	Date	Time	Sample Type	Volume	Type	No.	Preservative	Condition on Receipt/Comments	PH, RCI	HOLD ALL OTHER UNTIL NOTIFIED	BTEX	HOLD
HCAT-L	11/20/97	1050	~~SOLID~~ LIQ	16oz ~~60mL~~	CLEAR GL	6	None		X	X		
~~[illegible]~~			~~SOLID~~	~~120mL~~	CLEAR GL	~~6~~	None	5				
NWFT-L	11/20/97	1025	~~SOLID~~ LIQ	16oz ~~60mL~~	CLEAR GL	6	None		X	X		
14-1-WL	11/20/97	1210	~~SOLID~~ LIQ	16oz ~~120mL~~	CLEAR GL	6	None		X	X		
		835	~~SOLID~~	~~60mL~~	CLEAR GL		None					
SB-3-20	11/19/97	~~[illegible]~~	~~SOLID~~ Soil	4oz ~~120mL~~	CLEAR GL	1	None					X
SB-3-40	11/19/97	940	~~SOLID~~ Soil	4oz ~~60mL~~	CLEAR GL	1	None				X	
SB-3-45	11/19/97	1000	~~SOLID~~ Soil	4oz ~~120mL~~	CLEAR GL	1	None				X	
SB-4-~~[illegible]~~25	11/19/97		~~SOLID~~	~~60mL~~	CLEAR GL	1	None					X
SB-4-40	11/19/97		~~SOLID~~	~~120mL~~	CLEAR GL	1	None				~~X~~	X
SB-4-45	11/19/97		~~SOLID~~	~~60mL~~	CLEAR GL	1	None				~~X~~	X
			~~SOLID~~	~~120mL~~	CLEAR GL		None					
WSW-1	11/20/97	1200	~~SOLID~~	~~60mL~~	CLEAR GL		None	5		X		
			~~SOLID~~	~~120mL~~	CLEAR GL		None					
			~~SOLID~~	~~60mL~~	CLEAR GL		None					
			~~SOLID~~	~~120mL~~	CLEAR GL		None					

Special Instructions: BLUE ICE, CUSTODY SEALS, COC
1/8/98 - All soils requested DRO Analysis / 4 holds - 8020 added as well

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ Normal ☐ Rush ☐ Other ____

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	11/15/97	1800	1. Received By		
2. Relinquished By: [signature]	11/20/97	1600	2. Received By: AIR BORNE XPRESS	11/20/97	1600
3. Relinquished By			3. Received By: [signature]	11/21/97	935

Comments
11/21/97 Delete RCI pH from HEAT-L, 14-1-WL / Add to NWFT-L: TCLP VOA, SV, metals (RCRA) + RCI / Add to WSW-1: Cations, Anions, Alk-T, Total RCRA metals, PAH (8310), BTEX (8020)

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Certificate of Analysis

Quanterra Incorporated
5307 Industrial Oaks Boulevard, Suite 160
Austin, Texas 78735

512 892-6684 Direct
512 892-6652 Fax

ANALYTICAL REPORT

NOWSCO

Lot #: I7K210132

TIM JENKINS

Brown & Caldwell

QUANTERRA INCORPORATED

Sandra L. Green
Project Manager

December 19, 1997

Quanterra
Environmental Services

ANALYTICAL METHODS SUMMARY

I7K210132

PARAMETER	ANALYTICAL METHOD
% Moisture, Decanted-CLP	OCLP OLM03.1
o-Phosphate as P	MCAWW 300.0A
pH (Electrometric)	MCAWW 150.1
Alkalinity	MCAWW 310.1
Chloride	MCAWW 300.0A
Fluoride	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A
Nitrate as N	MCAWW 300.0A
Pensky-Martens Method for Determining Ignitability	SW846 1010
Reactive Cyanide	SW846 7.3.3
Reactive Sulfide	SW846 7.3.4
Sulfate	MCAWW 300.0A
TCLP BNA's	SW846 8270B
TCLP Mercury (CVAA)	SW846 7470
TCLP Metals (ICP)	SW846 6010A
TCLP Volatiles	SW846 8240B
Volatile and Gasoline Range Organics (PID/FID)	SW846 8020/GRO

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

OCLP USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

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SAMPLE SUMMARY

I7K210132

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CE5M4	002	NWFT-L	11/20/97	10:25
CE5M8	005	SB-3-40	11/19/97	09:40
CE5M9	006	SB-3-45	11/19/97	10:00
CE5MG	010	WSW-1	11/20/97	12:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Quanterra
Environmental Services

QC DATA ASSOCIATION SUMMARY

I7K210132

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
002	WATER	SW846 1010		7330225	7330082
	WATER	MCAWW 150.1		7325189	7325073
	WATER	SW846 6010A	P733605	7337204	7337077
	WATER	SW846 7470	P733605	7339177	7339065
	WATER	SW846 7.3.3		7329187	7329063
	WATER	SW846 7.3.4		7329190	7329066
	WATER	SW846 8270B	P733605	7337171	7337055
	WATER	SW846 8240B	P733803	7345254	7345109
005	SOLID	OCLP OLM03.1		7325240	7325125
	SOLID	SW846 8020/GRO		7325184	7325122
006	SOLID	OCLP OLM03.1		7325240	7325125
	SOLID	SW846 8020/GRO		7326138	7326023
010	WATER	MCAWW 300.0A		7330191	7330055
	WATER	MCAWW 300.0A		7330192	7330056
	WATER	MCAWW 300.0A		7330187	7330053
	WATER	MCAWW 300.0A		7330181	7330050
	WATER	MCAWW 300.0A		7330173	7330047
	WATER	SW846 6010A		7335237	7335105
	WATER	SW846 8020/GRO		7335198	7335078
	WATER	SW846 7470A		7330168	7330043
	WATER	MCAWW 310.1		7335259	7335124

Quanterra
Environmental Services

BROWN & CALDWELL

Client Sample ID: NWFT-L

TCLP GC/MS Semivolatiles

Lot-Sample #...: I7K210132-002 **Work Order #...:** CE5M4105 **Matrix.....:** WATER
Date Sampled...: 11/20/97 10:25 **Date Received..:** 11/21/97
Leach Date.....: 12/01/97 **Prep Date.....:** 12/03/97 **Analysis Date..:** 12/09/97
Leach Batch #..: P733605 **Prep Batch #...:** 7337171 **Analysis Time..:** 19:46
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
o-Cresol	**0.061**	**0.050**	**mg/L**	**SW846 8270B**
m-Cresol & p-Cresol	ND	0.10	mg/L	SW846 8270B
1,4-Dichlorobenzene	ND	0.050	mg/L	SW846 8270B
2,4-Dinitrotoluene	ND	0.050	mg/L	SW846 8270B
Hexachlorobenzene	ND	0.050	mg/L	SW846 8270B
Hexachlorobutadiene	ND	0.050	mg/L	SW846 8270B
Hexachloroethane	ND	0.050	mg/L	SW846 8270B
Nitrobenzene	ND	0.050	mg/L	SW846 8270B
Pentachlorophenol	ND	0.25	mg/L	SW846 8270B
Pyridine	ND	0.10	mg/L	SW846 8270B
2,4,5-Trichlorophenol	ND	0.050	mg/L	SW846 8270B
2,4,6-Trichlorophenol	ND	0.050	mg/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	59	(21 - 100)
Phenol-d5	73	(10 - 94)
Nitrobenzene-d5	76	(35 - 114)
2-Fluorobiphenyl	70	(43 - 116)
2,4,6-Tribromophenol	90	(10 - 123)
Terphenyl-d14	69	(33 - 141)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

Quanterra
Environmental Services

BROWN & CALDWELL

Client Sample ID: NWFT-L

TCLP GC/MS Volatiles

Lot-Sample #...: I7K210132-002 **Work Order #...:** CE5M4106 **Matrix.....:** WATER
Date Sampled...: 11/20/97 10:25 **Date Received..:** 11/21/97
Leach Date.....: 12/03/97 **Prep Date.....:** 12/09/97 **Analysis Date..:** 12/10/97
Leach Batch #..: P733803 **Prep Batch #...:** 7345254 **Analysis Time..:** 07:13
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.050	mg/L	SW846 8240B
Carbon tetrachloride	ND	0.050	mg/L	SW846 8240B
Chlorobenzene	ND	0.050	mg/L	SW846 8240B
Chloroform	ND	0.050	mg/L	SW846 8240B
1,2-Dichloroethane	ND	0.050	mg/L	SW846 8240B
1,1-Dichloroethylene	ND	0.050	mg/L	SW846 8240B
Methyl ethyl ketone	ND	0.20	mg/L	SW846 8240B
Tetrachloroethylene	ND	0.050	mg/L	SW846 8240B
Trichloroethylene	ND	0.050	mg/L	SW846 8240B
Vinyl chloride	ND	0.10	mg/L	SW846 8240B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	102	(86 - 115)
1,2-Dichloroethane-d4	96	(76 - 114)
Toluene-d8	106	(88 - 110)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

Quanterra
Environmental Services

BROWN & CALDWELL

Client Sample ID: SB-3-40

GC Volatiles

Lot-Sample #...: I7K210132-005 **Work Order #...:** CE5M8102 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 09:40 **Date Received..:** 11/21/97
Prep Date.....: 11/20/97 **Analysis Date..:** 11/21/97
Prep Batch #...: 7325184 **Analysis Time..:** 15:21
Dilution Factor: 1
% Moisture.....: 18

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.2	ug/kg	SW846 8020/GRO
Ethylbenzene	ND	1.2	ug/kg	SW846 8020/GRO
Toluene	**3.1**	**1.2**	**ug/kg**	**SW846 8020/GRO**
Xylenes (total)	**2.5**	**1.2**	**ug/kg**	**SW846 8020/GRO**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	95	(75 - 125)
Bromofluorobenzene		(75 - 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Quanterra
Environmental Services

BROWN & CALDWELL

Client Sample ID: SB-3-45

GC Volatiles

Lot-Sample #...: I7K210132-006 **Work Order #...:** CE5M9102 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 10:00 **Date Received..:** 11/21/97
Prep Date.....: 11/21/97 **Analysis Date..:** 11/22/97
Prep Batch #...: 7326138 **Analysis Time..:** 01:33
Dilution Factor: 50
% Moisture.....: 7.3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	54	ug/kg	SW846 8020/GRO
Ethylbenzene	**1600**	**54**	**ug/kg**	**SW846 8020/GRO**
Toluene	**1800**	**54**	**ug/kg**	**SW846 8020/GRO**
Xylenes (total)	**17000**	**54**	**ug/kg**	**SW846 8020/GRO**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	107	(75 - 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Quanterra
Environmental Services

BROWN & CALDWELL

Client Sample ID: WSW-1

GC Volatiles

Lot-Sample #...: I7K210132-010 **Work Order #...:** CE5MG102 **Matrix.....:** WATER
Date Sampled...: 11/20/97 12:00 **Date Received..:** 11/21/97
Prep Date.....: 11/25/97 **Analysis Date..:** 11/26/97
Prep Batch #...: 7335198 **Analysis Time..:** 10:07
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/L	SW846 8020/GRO
Toluene	ND	1.0	ug/L	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/L	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	101	(75 - 125)

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Environmental Services

BROWN & CALDWELL

Client Sample ID: NWFT-L

General Chemistry

Lot-Sample #...: I7K210132-002 **Work Order #...:** CE5M4 **Matrix.....:** WATER
Date Sampled...: 11/20/97 10:25 **Date Received..:** 11/21/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (liquid)	**6.8**	**0.10**	**No Units**	**MCAWW 150.1**	**11/21/97**	**7325189**
	Dilution Factor: 1					
	Analysis Time..: 16:00					
Flashpoint	**>150**		**deg F**	**SW846 1010**	**11/26/97**	**7330225**
	Dilution Factor: 1					
	Analysis Time..: 13:00					
Reactive Cyanide	ND	200	mg/L	SW846 7.3.3	11/25-12/01/97	7329187
	Dilution Factor: 1					
	Analysis Time..: 15:42					
Reactive Sulfide	**29**	**3.0**	**mg/L**	**SW846 7.3.4**	**11/25/97**	**7329190**
	Dilution Factor: 1					
	Analysis Time..: 00:00					

Quanterra
Environmental Services

BROWN & CALDWELL

Client Sample ID: SB-3-40

General Chemistry

Lot-Sample #...: I7K210132-005 **Work Order #...:** CE5M8 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 09:40 **Date Received..:** 11/21/97
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**17.9**	**0.50**	**%**	**OCLP OLM03.1**	**11/21-11/22/97**	**7325240**

Dilution Factor: 1
Analysis Time..: 11:00

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

Quanterra
Environmental Services

BROWN & CALDWELL

Client Sample ID: SB-3-45

General Chemistry

Lot-Sample #...: I7K210132-006 **Work Order #...:** CE5M9 **Matrix.....:** SOLID
Date Sampled...: 11/19/97 10:00 **Date Received..:** 11/21/97
% Moisture.....: 7.3

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**7.3**	**0.50**	**%**	**OCLP OLM03.1**	**11/21-11/22/97**	**7325240**

Dilution Factor: 1
Analysis Time..: 11:00

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

Quanterra
Environmental Services

BROWN & CALDWELL

Client Sample ID: WSW-1

General Chemistry

Lot-Sample #...: I7K210132-010 **Work Order #...:** CE5MG **Matrix.....:** WATER
Date Sampled...: 11/20/97 12:00 **Date Received..:** 11/21/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	**464**	**100**	**mg/L**	**MCAWW 300.0A**	**11/25/97**	**7330191**
	Dilution Factor: 100					
	Analysis Time..: 12:20					
Fluoride	**3.6**	**1.0**	**mg/L**	**MCAWW 300.0A**	**11/25/97**	**7330187**
	Dilution Factor: 1					
	Analysis Time..: 10:42					
Nitrate	**4.1 H**	**0.50**	**mg/L**	**MCAWW 300.0A**	**11/25/97**	**7330181**
	Dilution Factor: 1					
	Analysis Time..: 10:42					
Orthophosphate	ND H	1.0	mg/L	MCAWW 300.0A	11/25/97	7330173
	Dilution Factor: 1					
	Analysis Time..: 10:42					
Sulfate	**159**	**100**	**mg/L**	**MCAWW 300.0A**	**11/25/97**	**7330192**
	Dilution Factor: 100					
	Analysis Time..: 12:20					
Total Alkalinity	**310**	**5.0**	**mg/L**	**MCAWW 310.1**	**12/01/97**	**7335259**
	Dilution Factor: 1					
	Analysis Time..: 00:00					

NOTE(S):

RL Reporting Limit

H The sample was prepared or analyzed after the EPA recommended holding time had been exceeded.

Quanterra
Environmental Services

Client Sample ID: NWFT-L

TCLP Metals

Lot-Sample #...: I7K210132-002 **Matrix.....:** WATER
Date Sampled...: 11/20/97 10:25 **Date Received..:** 11/21/97
Leach Date.....: 12/01/97 **Leach Batch #..:** P733605

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7337204						
Arsenic	ND	0.50	mg/L	SW846 6010A	12/03-12/04/97	CE5M4108
		Dilution Factor: 1				
		Analysis Time..: 16:47				
Barium	ND	10.0	mg/L	SW846 6010A	12/03-12/04/97	CE5M4109
		Dilution Factor: 1				
		Analysis Time..: 16:47				
Cadmium	ND	0.10	mg/L	SW846 6010A	12/03-12/04/97	CE5M410A
		Dilution Factor: 1				
		Analysis Time..: 16:47				
Chromium	ND	0.50	mg/L	SW846 6010A	12/03-12/04/97	CE5M410C
		Dilution Factor: 1				
		Analysis Time..: 16:47				
Lead	ND	0.50	mg/L	SW846 6010A	12/03-12/04/97	CE5M410D
		Dilution Factor: 1				
		Analysis Time..: 16:47				
Selenium	ND	0.25	mg/L	SW846 6010A	12/03-12/04/97	CE5M410E
		Dilution Factor: 1				
		Analysis Time..: 16:47				
Silver	ND	0.50	mg/L	SW846 6010A	12/03-12/04/97	CE5M410F
		Dilution Factor: 1				
		Analysis Time..: 16:47				
Prep Batch #...: 7339177						
Mercury	ND	0.0020	mg/L	SW846 7470	12/05/97	CE5M4107
		Dilution Factor: 1				
		Analysis Time..: 15:38				

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

Quanterra
Environmental
Services

Client Sample ID: WSW-1

TOTAL Metals

Lot-Sample #...: I7K210132-010 **Matrix.....:** WATER
Date Sampled...: 11/20/97 12:00 **Date Received..:** 11/21/97

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7330168						
Mercury	ND	0.00020	mg/L	SW846 7470A	11/26/97	CE5MG10M
		Dilution Factor: 1				
		Analysis Time..: 13:43				
Prep Batch #...: 7335237						
Barium	**0.36**	**0.20**	**mg/L**	**SW846 6010A**	**12/01-12/03/97**	**CE5MG10E**
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Cadmium	ND	0.0050	mg/L	SW846 6010A	12/01-12/03/97	CE5MG10F
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Chromium	**0.082**	**0.010**	**mg/L**	**SW846 6010A**	**12/01-12/03/97**	**CE5MG10G**
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Silver	ND	0.010	mg/L	SW846 6010A	12/01-12/03/97	CE5MG10H
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Arsenic	ND	0.30	mg/L	SW846 6010A	12/01-12/03/97	CE5MG10J
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Lead	ND	0.10	mg/L	SW846 6010A	12/01-12/03/97	CE5MG10K
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Selenium	ND	0.25	mg/L	SW846 6010A	12/01-12/03/97	CE5MG10L
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Calcium	**154**	**5.0**	**mg/L**	**SW846 6010A**	**12/01-12/03/97**	**CE5MG108**
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Potassium	ND	5.0	mg/L	SW846 6010A	12/01-12/03/97	CE5MG10A
		Dilution Factor: 1				
		Analysis Time..: 13:31				
Magnesium	**25.4**	**5.0**	**mg/L**	**SW846 6010A**	**12/01-12/03/97**	**CE5MG109**
		Dilution Factor: 1				
		Analysis Time..: 13:31				

Quanterra
Environmental Services

Client Sample ID: WSW-1

TOTAL Metals

Lot-Sample #...: I7K210132-010 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Sodium	**274**	**5.0**	**mg/L**	**SW846 6010A**	**12/01-12/03/97**	**CE5MG10C**

Dilution Factor: 1
Analysis Time..: 13:31

Quanterra
Environmental Services

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CEA9H101 **Matrix.....:** WATER
MB Lot-Sample #: I7L010000-198

Prep Date.....: 11/25/97 **Analysis Time..:** 22:46
Analysis Date..: 11/25/97 **Prep Batch #...:** 7335198
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/L	SW846 8020/GRO
Toluene	ND	1.0	ug/L	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/L	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT

TCLP GC/MS Semivolatiles

Client Lot #...: I7K210132 **Work Order #...:** CECON109 **Matrix.....:** WATER
MB Lot-Sample #: I7L020000-239
Leach Date.....: 12/01/97 **Prep Date.....:** 12/03/97 **Analysis Date..:** 12/09/97
Leach Batch #..: P733605 **Prep Batch #...:** 7337171 **Analysis Time..:** 16:56
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
o-Cresol	ND	0.050	mg/L	SW846 8270B
m-Cresol & p-Cresol	ND	0.10	mg/L	SW846 8270B
1,4-Dichlorobenzene	ND	0.050	mg/L	SW846 8270B
2,4-Dinitrotoluene	ND	0.050	mg/L	SW846 8270B
Hexachlorobenzene	ND	0.050	mg/L	SW846 8270B
Hexachlorobutadiene	ND	0.050	mg/L	SW846 8270B
Hexachloroethane	ND	0.050	mg/L	SW846 8270B
Nitrobenzene	ND	0.050	mg/L	SW846 8270B
Pentachlorophenol	ND	0.25	mg/L	SW846 8270B
Pyridine	ND	0.10	mg/L	SW846 8270B
2,4,5-Trichlorophenol	ND	0.050	mg/L	SW846 8270B
2,4,6-Trichlorophenol	ND	0.050	mg/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	51	(21 - 100)
Phenol-d5	59	(10 - 94)
Nitrobenzene-d5	69	(35 - 114)
2-Fluorobiphenyl	65	(43 - 116)
2,4,6-Tribromophenol	67	(10 - 123)
Terphenyl-d14	85	(33 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CEGX2101 **Matrix.....:** WATER
MB Lot-Sample #: I7L110000-254

Prep Date.....: 12/09/97 **Analysis Time..:** 06:41
Analysis Date..: 12/10/97 **Prep Batch #...:** 7345254
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.050	mg/L	SW846 8240B
Carbon tetrachloride	ND	0.050	mg/L	SW846 8240B
Chlorobenzene	ND	0.050	mg/L	SW846 8240B
Chloroform	ND	0.050	mg/L	SW846 8240B
1,2-Dichloroethane	ND	0.050	mg/L	SW846 8240B
1,1-Dichloroethylene	ND	0.050	mg/L	SW846 8240B
Methyl ethyl ketone	ND	0.20	mg/L	SW846 8240B
Tetrachloroethylene	ND	0.050	mg/L	SW846 8240B
Trichloroethylene	ND	0.050	mg/L	SW846 8240B
Vinyl chloride	ND	0.10	mg/L	SW846 8240B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	100	(86 - 115)
1,2-Dichloroethane-d4	94	(76 - 114)
Toluene-d8	103	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE5J0101 **Matrix.....:** SOLID
MB Lot-Sample #: I7K210000-184

Prep Date.....: 11/20/97 **Analysis Time..:** 16:58
Analysis Date..: 11/20/97 **Prep Batch #...:** 7325184
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/kg	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/kg	SW846 8020/GRO
Toluene	ND	1.0	ug/kg	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/kg	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	97	(75 - 125)
Bromofluorobenzene		(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE74E101 **Matrix.....:** SOLID
MB Lot-Sample #: I7K220000-138

Prep Date.....: 11/21/97 **Analysis Time..:** 23:03
Analysis Date..: 11/22/97 **Prep Batch #...:** 7326138
Dilution Factor: 50

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	50	ug/kg	SW846 8020/GRO
Ethylbenzene	ND	50	ug/kg	SW846 8020/GRO
Toluene	ND	50	ug/kg	SW846 8020/GRO
Xylenes (total)	ND	50	ug/kg	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: I7L010000-237 **Prep Batch #...:** 7335237						
Barium	ND	0.20	mg/L	SW846 6010A	12/01-12/03/97	CEACN10R
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Cadmium	ND	0.0050	mg/L	SW846 6010A	12/01-12/03/97	CEACN10T
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Chromium	ND	0.010	mg/L	SW846 6010A	12/01-12/03/97	CEACN10G
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Silver	ND	0.010	mg/L	SW846 6010A	12/01-12/03/97	CEACN10U
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Arsenic	ND	0.30	mg/L	SW846 6010A	12/01-12/03/97	CEACN10V
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Lead	ND	0.10	mg/L	SW846 6010A	12/01-12/03/97	CEACN10W
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Selenium	ND	0.25	mg/L	SW846 6010A	12/01-12/03/97	CEACN10X
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Calcium	ND	5.0	mg/L	SW846 6010A	12/01-12/03/97	CEACN110
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Magnesium	ND	5.0	mg/L	SW846 6010A	12/01-12/03/97	CEACN111
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Potassium	ND	5.0	mg/L	SW846 6010A	12/01-12/03/97	CEACN10Q
		Dilution Factor: 1				
		Analysis Time..: 12:46				
Sodium	ND	5.0	mg/L	SW846 6010A	12/01-12/03/97	CEACN10P
		Dilution Factor: 1				
		Analysis Time..: 12:46				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: I7K260000-168 **Prep Batch #...:** 7330168						
Mercury	ND	0.00020	mg/L	SW846 7470A	11/26/97	CE8WG103
	Dilution Factor: 1					
	Analysis Time..: 13:27					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT

General Chemistry

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: CE90F101		MB Lot-Sample #:	I7K260000-191	
	ND	1.0	mg/L	MCAWW 300.0A	11/25/97	7330191
		Dilution Factor: 1				
		Analysis Time..: 10:20				
Fluoride		Work Order #: CE906101		MB Lot-Sample #:	I7K260000-187	
	ND	1.0	mg/L	MCAWW 300.0A	11/25/97	7330187
		Dilution Factor: 1				
		Analysis Time..: 10:20				
Nitrate		Work Order #: CE8XF101		MB Lot-Sample #:	I7K260000-181	
	ND	0.50	mg/L	MCAWW 300.0A	11/25/97	7330181
		Dilution Factor: 1				
		Analysis Time..: 10:20				
Orthophosphate		Work Order #: CE8X1101		MB Lot-Sample #:	I7K260000-173	
	ND	1.0	mg/L	MCAWW 300.0A	11/25/97	7330173
		Dilution Factor: 1				
		Analysis Time..: 10:18				
Reactive Cyanide		Work Order #: CE86D101		MB Lot-Sample #:	I7K250000-187	
	ND	200	mg/L	SW846 7.3.3	11/25-12/01/97	7329187
		Dilution Factor: 1				
		Analysis Time..: 15:42				
Reactive Sulfide		Work Order #: CE86M101		MB Lot-Sample #:	I7K250000-190	
	ND	3.0	mg/L	SW846 7.3.4	11/25/97	7329190
		Dilution Factor: 1				
		Analysis Time..: 15:00				
Sulfate		Work Order #: CE90T101		MB Lot-Sample #:	I7K260000-192	
	ND	1.0	mg/L	MCAWW 300.0A	11/25/97	7330192
		Dilution Factor: 1				
		Analysis Time..: 10:20				

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Environmental Services

METHOD BLANK REPORT

General Chemistry

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity		Work Order #: CEAFF101		MB Lot-Sample #: I7L010000-259		
	ND	5.0	mg/L	MCAWW 310.1	12/01/97	7335259
		Dilution Factor: 1				
		Analysis Time..: 14:30				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: I7L020000-239 **Prep Batch #...:** 7337204						
Leach Date.....: 12/01/97 **Leach Batch #..:** P733605						
Arsenic	ND	0.50	mg/L	SW846 6010A	12/03-12/04/97	CECON108
		Dilution Factor: 1				
		Analysis Time..: 16:17				
Barium	ND	10.0	mg/L	SW846 6010A	12/03-12/04/97	CECON101
		Dilution Factor: 1				
		Analysis Time..: 16:17				
Cadmium	ND	0.10	mg/L	SW846 6010A	12/03-12/04/97	CECON102
		Dilution Factor: 1				
		Analysis Time..: 16:17				
Chromium	ND	0.50	mg/L	SW846 6010A	12/03-12/04/97	CECON103
		Dilution Factor: 1				
		Analysis Time..: 16:17				
Lead	ND	0.50	mg/L	SW846 6010A	12/03-12/04/97	CECON104
		Dilution Factor: 1				
		Analysis Time..: 16:17				
Selenium	ND	0.25	mg/L	SW846 6010A	12/03-12/04/97	CECON105
		Dilution Factor: 1				
		Analysis Time..: 16:17				
Silver	ND	0.50	mg/L	SW846 6010A	12/03-12/04/97	CECON106
		Dilution Factor: 1				
		Analysis Time..: 16:17				
MB Lot-Sample #: I7L020000-239 **Prep Batch #...:** 7339177						
Leach Date.....: 12/01/97 **Leach Batch #..:** P733605						
Mercury	ND	0.0020	mg/L	SW846 7470	12/05/97	CECON107
		Dilution Factor: 1				
		Analysis Time..: 15:20				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: I7K210132 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (liquid)		WO#:CE5KH101-LCS/CE5KH102-LCSD				LCS Lot-Sample#: I7K210000-189		
	9.0	9.0	No Units	100		MCAWW 150.1	11/21-11/24/97	7325189
	9.0	9.0	No Units	100	0.11	MCAWW 150.1	11/21-11/24/97	7325189
		Dilution Factor: 1						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CEA9H102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L010000-198
Prep Date.....: 11/25/97 **Analysis Date..:** 11/25/97
Prep Batch #...: 7335198 **Analysis Time..:** 21:32
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	20	20	ug/L	99	SW846 8020/GR
Toluene	20	20	ug/L	98	SW846 8020/GR
Ethylbenzene	20	20	ug/L	98	SW846 8020/GR
Xylenes (total)	60	60	ug/L	100	SW846 8020/GR

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: I7K210132 **Work Order #...:** CEC8G101 **Matrix.....:** WATER
LCS Lot-Sample#: I7L030000-171
Prep Date.....: 12/03/97 **Analysis Date..:** 12/09/97
Prep Batch #...: 7337171 **Analysis Time..:** 17:30
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Pyridine	**0.20**	**0.085**	**mg/L**	**42**	**SW846 8270B**
1,4-Dichlorobenzene	**0.20**	**0.12**	**mg/L**	**60**	**SW846 8270B**
o-Cresol	**0.20**	**0.14**	**mg/L**	**68**	**SW846 8270B**
m-Cresol & p-Cresol	**0.40**	**0.28**	**mg/L**	**71**	**SW846 8270B**
Hexachloroethane	**0.20**	**0.099**	**mg/L**	**49**	**SW846 8270B**
Nitrobenzene	**0.20**	**0.14**	**mg/L**	**70**	**SW846 8270B**
Hexachlorobutadiene	**0.20**	**0.095**	**mg/L**	**47**	**SW846 8270B**
2,4,6-Trichlorophenol	**0.20**	**0.14**	**mg/L**	**72**	**SW846 8270B**
2,4,5-Trichlorophenol	**0.20**	**0.14**	**mg/L**	**71**	**SW846 8270B**
2,4-Dinitrotoluene	**0.20**	**0.13**	**mg/L**	**63**	**SW846 8270B**
Hexachlorobenzene	**0.20**	**0.17**	**mg/L**	**85**	**SW846 8270B**
Pentachlorophenol	**0.20**	**0.12**	**mg/L**	**60**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	53	(21 - 100)
Phenol-d5	61	(10 - 94)
Nitrobenzene-d5	73	(35 - 114)
2-Fluorobiphenyl	70	(43 - 116)
2,4,6-Tribromophenol	74	(10 - 123)
Terphenyl-d14	84	(33 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CEGX2102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L110000-254
Prep Date.....: 12/09/97 **Analysis Date..:** 12/10/97
Prep Batch #...: 7345254 **Analysis Time..:** 06:09
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Vinyl chloride	**0.50**	**0.52**	**mg/L**	**103**	**SW846 8240B**
1,1-Dichloroethylene	**0.50**	**0.48**	**mg/L**	**95**	**SW846 8240B**
Chloroform	**0.50**	**0.46**	**mg/L**	**92**	**SW846 8240B**
1,2-Dichloroethane	**0.50**	**0.45**	**mg/L**	**91**	**SW846 8240B**
Methyl ethyl ketone	**0.50**	**0.54**	**mg/L**	**108**	**SW846 8240B**
Carbon tetrachloride	**0.50**	**0.46**	**mg/L**	**93**	**SW846 8240B**
Trichloroethylene	**0.50**	**0.47**	**mg/L**	**95**	**SW846 8240B**
Benzene	**0.50**	**0.52**	**mg/L**	**104**	**SW846 8240B**
Tetrachloroethylene	**0.50**	**0.49**	**mg/L**	**98**	**SW846 8240B**
Chlorobenzene	**0.50**	**0.53**	**mg/L**	**106**	**SW846 8240B**
1,4-Dichlorobenzene	**0.50**	**0.51**	**mg/L**	**102**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	102	(86 - 115)
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	107	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE5J0102 **Matrix.....:** SOLID
LCS Lot-Sample#: I7K210000-184
Prep Date.....: 11/20/97 **Analysis Date..:** 11/20/97
Prep Batch #...: 7325184 **Analysis Time..:** 15:04
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	20	20	ug/kg	100	SW846 8020/GR
Toluene	20	20	ug/kg	101	SW846 8020/GR
Ethylbenzene	20	20	ug/kg	98	SW846 8020/GR
Xylenes (total)	60	61	ug/kg	102	SW846 8020/GR

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	98	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE74E102 **Matrix.....:** SOLID
LCS Lot-Sample#: I7K220000-138
Prep Date.....: 11/21/97 **Analysis Date..:** 11/21/97
Prep Batch #...: 7326138 **Analysis Time..:** 22:17
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	1000	1100	ug/kg	105	SW846 8020/GR
Toluene	3000	3300	ug/kg	109	SW846 8020/GR
Ethylbenzene	1000	870	ug/kg	87	SW846 8020/GR
Xylenes (total)	6000	6600	ug/kg	109	SW846 8020/GR
Methyl tert-butyl ether	2000	2200	ug/kg	111	SW846 8020/GR
Gasoline Range Organics	20000	19000	ug/kg	93	SW846 8020/GR

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	100	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: I7K260000-168 **Prep Batch #...:** 7330168							
Mercury	0.0050	0.0044	mg/L	89	SW846 7470A	11/26/97	CE8WG106
		Dilution Factor: 1					
		Analysis Time..: 13:29					
LCS Lot-Sample#: I7L010000-237 **Prep Batch #...:** 7335237							
Chromium	0.20	0.21	mg/L	104	SW846 6010A	12/01-12/03/97	CEACN11G
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Sodium	50.0	52.3	mg/L	105	SW846 6010A	12/01-12/03/97	CEACN11P
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Potassium	50.0	52.8	mg/L	106	SW846 6010A	12/01-12/03/97	CEACN11Q
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Barium	2.0	2.1	mg/L	105	SW846 6010A	12/01-12/03/97	CEACN11R
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Cadmium	0.050	0.047	mg/L	94	SW846 6010A	12/01-12/03/97	CEACN11T
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Silver	0.050	0.045	mg/L	90	SW846 6010A	12/01-12/03/97	CEACN11U
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Arsenic	2.0	2.1	mg/L	103	SW846 6010A	12/01-12/03/97	CEACN11V
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Lead	0.50	0.51	mg/L	101	SW846 6010A	12/01-12/03/97	CEACN11W
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Selenium	2.0	2.0	mg/L	101	SW846 6010A	12/01-12/03/97	CEACN11X
		Dilution Factor: 1					
		Analysis Time..: 12:48					

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Environmental Services

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	50.0	52.7	mg/L	105	SW846 6010A	12/01-12/03/97	CEACN120
		Dilution Factor: 1					
		Analysis Time..: 12:48					
Magnesium	50.0	53.3	mg/L	107	SW846 6010A	12/01-12/03/97	CEACN121
		Dilution Factor: 1					
		Analysis Time..: 12:48					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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Environmental Services

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: CE90F102 LCS Lot-Sample#: I7K260000-191					
	2.5	2.3	mg/L	92	MCAWW 300.0A	11/25/97	7330191
		Dilution Factor: 1					
		Analysis Time..: 13:03					
Flashpoint		Work Order #: CE97L101 LCS Lot-Sample#: I7K260000-225					
	81	83	deg F	102	SW846 1010	11/26/97	7330225
		Dilution Factor: 1					
		Analysis Time..: 13:00					
Fluoride		Work Order #: CE906102 LCS Lot-Sample#: I7K260000-187					
	2.5	2.7	mg/L	109	MCAWW 300.0A	11/25/97	7330187
		Dilution Factor: 1					
		Analysis Time..: 13:03					
Nitrate		Work Order #: CE8XF102 LCS Lot-Sample#: I7K260000-181					
	2.5	2.8	mg/L	111	MCAWW 300.0A	11/25/97	7330181
		Dilution Factor: 1					
		Analysis Time..: 13:03					
Orthophosphate		Work Order #: CE8X1102 LCS Lot-Sample#: I7K260000-173					
	2.5	2.8	mg/L	112	MCAWW 300.0A	11/25/97	7330173
		Dilution Factor: 1					
		Analysis Time..: 13:03					
Reactive Cyanide		Work Order #: CE86D102 LCS Lot-Sample#: I7K250000-187					
	1.3	0.13	mg/L	9.6	SW846 7.3.3	11/25-12/01/97	7329187
		Dilution Factor: 1					
		Analysis Time..: 15:42					
Sulfate		Work Order #: CE90T102 LCS Lot-Sample#: I7K260000-192					
	5.0	6.0	mg/L	120	MCAWW 300.0A	11/25/97	7330192
		Dilution Factor: 1					
		Analysis Time..: 13:03					

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LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity		Work Order #: CEAFF102			LCS Lot-Sample#: I7L010000-259		
	280	280	mg/L	99	MCAWW 310.1	12/01/97	7335259

Dilution Factor: 1
Analysis Time..: 14:30

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: I7K210132 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (liquid)		WO#:CE5KH101-LCS/CE5KH102-LCSD				LCS Lot-Sample#: I7K210000-189	
	100	(90 - 110)			MCAWW 150.1	11/21-11/24/97	7325189
	100	(90 - 110)	0.11	(0-20)	MCAWW 150.1	11/21-11/24/97	7325189
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE DATA REPORT

TCLP Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: I7L030000-204 **Prep Batch #...:** 7337204							
Barium	2.0	2.0	mg/L	99	SW846 6010A	12/03-12/04/97	CECEW101
		Dilution Factor: 1					
		Analysis Time..: 16:20					
Cadmium	0.050	0.049	mg/L	98	SW846 6010A	12/03-12/04/97	CECEW102
		Dilution Factor: 1					
		Analysis Time..: 16:20					
Chromium	0.20	0.20	mg/L	100	SW846 6010A	12/03-12/04/97	CECEW103
		Dilution Factor: 1					
		Analysis Time..: 16:20					
Lead	0.50	0.52	mg/L	105	SW846 6010A	12/03-12/04/97	CECEW104
		Dilution Factor: 1					
		Analysis Time..: 16:20					
Selenium	2.0	1.9	mg/L	96	SW846 6010A	12/03-12/04/97	CECEW105
		Dilution Factor: 1					
		Analysis Time..: 16:20					
Silver	0.050	0.051	mg/L	102	SW846 6010A	12/03-12/04/97	CECEW106
		Dilution Factor: 1					
		Analysis Time..: 16:20					
Arsenic	2.0	2.0	mg/L	101	SW846 6010A	12/03-12/04/97	CECEW107
		Dilution Factor: 1					
		Analysis Time..: 16:20					
LCS Lot-Sample#: I7L050000-177 **Prep Batch #...:** 7339177							
Mercury	0.0050	0.0046	mg/L	93	SW846 7470	12/05/97	CEDM3101
		Dilution Factor: 1					
		Analysis Time..: 15:22					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CEA9H102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L010000-198
Prep Date.....: 11/25/97 **Analysis Date..:** 11/25/97
Prep Batch #...: 7335198 **Analysis Time..:** 21:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	99	(85 - 115)	SW846 8020/GRO
Toluene	98	(85 - 115)	SW846 8020/GRO
Ethylbenzene	98	(85 - 115)	SW846 8020/GRO
Xylenes (total)	100	(85 - 115)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: I7K210132 **Work Order #...:** CEC8G101 **Matrix.....:** WATER
LCS Lot-Sample#: I7L030000-171
Prep Date.....: 12/03/97 **Analysis Date..:** 12/09/97
Prep Batch #...: 7337171 **Analysis Time..:** 17:30
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Pyridine	**42**	**(1.0- 144)**	**SW846 8270B**
1,4-Dichlorobenzene	**60**	**(26 - 112)**	**SW846 8270B**
o-Cresol	**68**	**(21 - 137)**	**SW846 8270B**
m-Cresol & p-Cresol	**71**	**(19 - 126)**	**SW846 8270B**
Hexachloroethane	**49**	**(26 - 102)**	**SW846 8270B**
Nitrobenzene	**70**	**(42 - 120)**	**SW846 8270B**
Hexachlorobutadiene	**47**	**(33 - 111)**	**SW846 8270B**
2,4,6-Trichlorophenol	**72**	**(19 - 122)**	**SW846 8270B**
2,4,5-Trichlorophenol	**71**	**(29 - 123)**	**SW846 8270B**
2,4-Dinitrotoluene	**63**	**(31 - 106)**	**SW846 8270B**
Hexachlorobenzene	**85**	**(42 - 120)**	**SW846 8270B**
Pentachlorophenol	**60**	**(12 - 156)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	53	(21 - 100)
Phenol-d5	61	(10 - 94)
Nitrobenzene-d5	73	(35 - 114)
2-Fluorobiphenyl	70	(43 - 116)
2,4,6-Tribromophenol	74	(10 - 123)
Terphenyl-d14	84	(33 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CEGX2102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L110000-254
Prep Date.....: 12/09/97 **Analysis Date..:** 12/10/97
Prep Batch #...: 7345254 **Analysis Time..:** 06:09
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Vinyl chloride	**103**	**(1.0- 251)**	**SW846 8240B**
1,1-Dichloroethylene	**95**	**(59 - 155)**	**SW846 8240B**
Chloroform	**92**	**(51 - 136)**	**SW846 8240B**
1,2-Dichloroethane	**91**	**(49 - 155)**	**SW846 8240B**
Methyl ethyl ketone	**108**	**(25 - 250)**	**SW846 8240B**
Carbon tetrachloride	**93**	**(71 - 240)**	**SW846 8240B**
Trichloroethylene	**95**	**(71 - 157)**	**SW846 8240B**
Benzene	**104**	**(37 - 151)**	**SW846 8240B**
Tetrachloroethylene	**98**	**(46 - 157)**	**SW846 8240B**
Chlorobenzene	**106**	**(37 - 160)**	**SW846 8240B**
1,4-Dichlorobenzene	**102**	**(75 - 137)**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	102	(86 - 115)
1,2-Dichloroethane-d4	93	(76 - 114)
Toluene-d8	107	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE5J0102 **Matrix.....:** SOLID
LCS Lot-Sample#: I7K210000-184
Prep Date.....: 11/20/97 **Analysis Date..:** 11/20/97
Prep Batch #...: 7325184 **Analysis Time..:** 15:04
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	100	(85 - 115)	SW846 8020/GRO
Toluene	101	(85 - 115)	SW846 8020/GRO
Ethylbenzene	98	(85 - 115)	SW846 8020/GRO
Xylenes (total)	102	(85 - 115)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	98	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE74E102 **Matrix.....:** SOLID
LCS Lot-Sample#: I7K220000-138
Prep Date.....: 11/21/97 **Analysis Date..:** 11/21/97
Prep Batch #...: 7326138 **Analysis Time..:** 22:17
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	105	(85 - 115)	SW846 8020/GRO
Toluene	109	(85 - 115)	SW846 8020/GRO
Ethylbenzene	87	(85 - 115)	SW846 8020/GRO
Xylenes (total)	109	(85 - 115)	SW846 8020/GRO
Methyl tert-butyl ether	111	(85 - 115)	SW846 8020/GRO
Gasoline Range Organics	93	(85 - 115)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	100	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: I7K260000-168 **Prep Batch #...:** 7330168					
Mercury	89	(81 - 120)	SW846 7470A	11/26/97	CE8WG106
		Dilution Factor: 1			
		Analysis Time..: 13:29			
LCS Lot-Sample#: I7L010000-237 **Prep Batch #...:** 7335237					
Chromium	104	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11G
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Sodium	105	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11P
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Potassium	106	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11Q
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Barium	105	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11R
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Cadmium	94	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11T
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Silver	90	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11U
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Arsenic	103	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11V
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Lead	101	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11W
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Selenium	101	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN11X
		Dilution Factor: 1			
		Analysis Time..: 12:48			

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	105	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN120
		Dilution Factor: 1			
		Analysis Time..: 12:48			
Magnesium	107	(80 - 120)	SW846 6010A	12/01-12/03/97	CEACN121
		Dilution Factor: 1			
		Analysis Time..: 12:48			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: CE90F102	LCS Lot-Sample#: I7K260000-191		
	92	(80 - 120)	MCAWW 300.0A	11/25/97	7330191
		Dilution Factor: 1			
		Analysis Time..: 13:03			
Flashpoint		Work Order #: CE97L101	LCS Lot-Sample#: I7K260000-225		
	102	(95 - 105)	SW846 1010	11/26/97	7330225
		Dilution Factor: 1			
		Analysis Time..: 13:00			
Fluoride		Work Order #: CE906102	LCS Lot-Sample#: I7K260000-187		
	109	(80 - 120)	MCAWW 300.0A	11/25/97	7330187
		Dilution Factor: 1			
		Analysis Time..: 13:03			
Nitrate		Work Order #: CE8XF102	LCS Lot-Sample#: I7K260000-181		
	111	(80 - 120)	MCAWW 300.0A	11/25/97	7330181
		Dilution Factor: 1			
		Analysis Time..: 13:03			
Orthophosphate		Work Order #: CE8X1102	LCS Lot-Sample#: I7K260000-173		
	112	(80 - 120)	MCAWW 300.0A	11/25/97	7330173
		Dilution Factor: 1			
		Analysis Time..: 13:03			
Reactive Cyanide		Work Order #: CE86D102	LCS Lot-Sample#: I7K250000-187		
	9.6	(1.0- 64)	SW846 7.3.3	11/25-12/01/97	7329187
		Dilution Factor: 1			
		Analysis Time..: 15:42			
Sulfate		Work Order #: CE90T102	LCS Lot-Sample#: I7K260000-192		
	120	(80 - 120)	MCAWW 300.0A	11/25/97	7330192
		Dilution Factor: 1			
		Analysis Time..: 13:03			

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity		Work Order #: CEAFF102	LCS Lot-Sample#: I7L010000-259		
	99	(80 - 120)	MCAWW 310.1	12/01/97	7335259

Dilution Factor: 1
Analysis Time..: 14:30

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: I7L030000-204 **Prep Batch #...:** 7337204					
Barium	99	(80 - 120)	SW846 6010A	12/03-12/04/97	CECEW101
		Dilution Factor: 1			
		Analysis Time..: 16:20			
Cadmium	98	(80 - 120)	SW846 6010A	12/03-12/04/97	CECEW102
		Dilution Factor: 1			
		Analysis Time..: 16:20			
Chromium	100	(80 - 120)	SW846 6010A	12/03-12/04/97	CECEW103
		Dilution Factor: 1			
		Analysis Time..: 16:20			
Lead	105	(80 - 120)	SW846 6010A	12/03-12/04/97	CECEW104
		Dilution Factor: 1			
		Analysis Time..: 16:20			
Selenium	96	(80 - 120)	SW846 6010A	12/03-12/04/97	CECEW105
		Dilution Factor: 1			
		Analysis Time..: 16:20			
Silver	102	(80 - 120)	SW846 6010A	12/03-12/04/97	CECEW106
		Dilution Factor: 1			
		Analysis Time..: 16:20			
Arsenic	101	(80 - 120)	SW846 6010A	12/03-12/04/97	CECEW107
		Dilution Factor: 1			
		Analysis Time..: 16:20			
LCS Lot-Sample#: I7L050000-177 **Prep Batch #...:** 7339177					
Mercury	93	(80 - 120)	SW846 7470	12/05/97	CEDM3101
		Dilution Factor: 1			
		Analysis Time..: 15:22			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I7L010105-006 **Prep Batch #...:** 7335237									
Arsenic									
	ND	2.0	2.1	mg/L	103		SW846 6010A	12/01-12/03/97	CEA6G122
	ND	2.0	2.0	mg/L	102	1.5	SW846 6010A	12/01-12/03/97	CEA6G123
			Dilution Factor: 1						
			Analysis Time..: 12:58						
Barium									
	ND	2.0	2.1	mg/L	105		SW846 6010A	12/01-12/03/97	CEA6G11Q
	ND	2.0	2.0	mg/L	102	3.1	SW846 6010A	12/01-12/03/97	CEA6G11R
			Dilution Factor: 1						
			Analysis Time..: 12:58						
Cadmium									
	ND	0.050	0.048	mg/L	97		SW846 6010A	12/01-12/03/97	CEA6G11U
	ND	0.050	0.049	mg/L	98	1.8	SW846 6010A	12/01-12/03/97	CEA6G11V
			Dilution Factor: 1						
			Analysis Time..: 12:58						
Calcium									
	12.4	50.0	64.3	mg/L	104		SW846 6010A	12/01-12/03/97	CEA6G12C
	12.4	50.0	63.0	mg/L	101	2.0	SW846 6010A	12/01-12/03/97	CEA6G12D
			Dilution Factor: 1						
			Analysis Time..: 12:58						
Chromium									
	ND	0.20	0.21	mg/L	106		SW846 6010A	12/01-12/03/97	CEA6G10U
	ND	0.20	0.21	mg/L	103	2.7	SW846 6010A	12/01-12/03/97	CEA6G10V
			Dilution Factor: 1						
			Analysis Time..: 12:58						
Lead									
	ND	0.50	0.53	mg/L	105		SW846 6010A	12/01-12/03/97	CEA6G125
	ND	0.50	0.52	mg/L	104	0.71	SW846 6010A	12/01-12/03/97	CEA6G126
			Dilution Factor: 1						
			Analysis Time..: 12:58						
Magnesium									
	9.7	50.0	62.4	mg/L	105		SW846 6010A	12/01-12/03/97	CEA6G12F
	9.7	50.0	60.7	mg/L	102	2.8	SW846 6010A	12/01-12/03/97	CEA6G12G
			Dilution Factor: 1						
			Analysis Time..: 12:58						

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Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Potassium									
	ND	50.0	56.6	mg/L	104		SW846 6010A	12/01-12/03/97	CEA6G11M
	ND	50.0	54.0	mg/L	99	4.8	SW846 6010A	12/01-12/03/97	CEA6G11N
			Dilution Factor: 1						
			Analysis Time..: 12:58						
Selenium									
	ND	2.0	2.0	mg/L	102		SW846 6010A	12/01-12/03/97	CEA6G128
	ND	2.0	2.0	mg/L	98	4.9	SW846 6010A	12/01-12/03/97	CEA6G129
			Dilution Factor: 1						
			Analysis Time..: 12:48						
Silver									
	ND	0.050	0.050	mg/L	100		SW846 6010A	12/01-12/03/97	CEA6G11X
	ND	0.050	0.048	mg/L	95	5.0	SW846 6010A	12/01-12/03/97	CEA6G120
			Dilution Factor: 1						
			Analysis Time..: 12:58						
Sodium									
	21.2	50.0	71.7	mg/L	101		SW846 6010A	12/01-12/03/97	CEA6G11J
	21.2	50.0	69.9	mg/L	97	2.7	SW846 6010A	12/01-12/03/97	CEA6G11K
			Dilution Factor: 1						
			Analysis Time..: 12:58						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE1WL103-MS **Matrix.....:** SOLID
MS Lot-Sample #: I7K140121-001 CE1WL104-MSD
Date Sampled...: 11/10/97 00:00 **Date Received..:** 11/13/97
Prep Date.....: 11/20/97 **Analysis Date..:** 11/20/97
Prep Batch #...: 7325184 **Analysis Time..:** 22:16
Dilution Factor: 1 **% Moisture.....:** 0.0

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	ND	20	7.4	ug/kg	37		SW846 8020/GRO
	Qualifiers: a,MSC						
	ND	20	7.1 a	ug/kg	36	3.2	SW846 8020/GRO
Toluene	ND	20	20	ug/kg	100		SW846 8020/GRO
	ND	20	20	ug/kg	99	0.92	SW846 8020/GRO
Ethylbenzene	ND	20	20	ug/kg	98		SW846 8020/GRO
	ND	20	20	ug/kg	98	0.38	SW846 8020/GRO
Xylenes (total)	ND	60	61	ug/kg	102		SW846 8020/GRO
	ND	60	61	ug/kg	102	0.50	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	95	(75 - 125)
	97	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

TCLP Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I7K200137-001 **Prep Batch #...:** 7337204									
Leach Date.....: 12/01/97 **Leach Batch #..:** P733605									
Arsenic									
	ND	5.0	5.3	mg/L	107		SW846 6010A	12/03-12/04/97	CE4RL112
	ND	5.0	5.4	mg/L	108	1.1	SW846 6010A	12/03-12/04/97	CE4RL113
			Dilution Factor: 1						
			Analysis Time..: 16:27						
Barium									
	ND	50.0	55.0	mg/L	108		SW846 6010A	12/03-12/04/97	CE4RL10M
	ND	50.0	55.2	mg/L	108	0.29	SW846 6010A	12/03-12/04/97	CE4RL10N
			Dilution Factor: 1						
			Analysis Time..: 16:27						
Cadmium									
	ND	1.0	1.0	mg/L	103		SW846 6010A	12/03-12/04/97	CE4RL10P
	ND	1.0	1.0	mg/L	103	0.56	SW846 6010A	12/03-12/04/97	CE4RL10Q
			Dilution Factor: 1						
			Analysis Time..: 16:27						
Chromium									
	ND	5.0	5.4	mg/L	108		SW846 6010A	12/03-12/04/97	CE4RL10R
	ND	5.0	5.5	mg/L	110	1.4	SW846 6010A	12/03-12/04/97	CE4RL10T
			Dilution Factor: 1						
			Analysis Time..: 16:27						
Lead									
	ND	5.0	5.2	mg/L	103		SW846 6010A	12/03-12/04/97	CE4RL10U
	ND	5.0	5.3	mg/L	105	1.8	SW846 6010A	12/03-12/04/97	CE4RL10V
			Dilution Factor: 1						
			Analysis Time..: 16:27						
Selenium									
	ND	1.0	0.95	mg/L	95		SW846 6010A	12/03-12/04/97	CE4RL10W
	ND	1.0	1.0	mg/L	103	8.3	SW846 6010A	12/03-12/04/97	CE4RL10X
			Dilution Factor: 1						
			Analysis Time..: 16:27						
Silver									
	ND	1.0	0.97	mg/L	97		SW846 6010A	12/03-12/04/97	CE4RL110
	ND	1.0	1.0	mg/L	103	5.8	SW846 6010A	12/03-12/04/97	CE4RL111
			Dilution Factor: 1						
			Analysis Time..: 16:27						

MS Lot-Sample #: I7K200137-001 **Prep Batch #...:** 7339177
Leach Date.....: 12/01/97 **Leach Batch #..:** P733605
(Continued on next page)

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

TCLP Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT		UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Mercury										
	ND	0.001	0.00066	N	mg/L	66		SW846 7470	12/05/97	CE4RL114
	ND	0.001	0.00088	*	mg/L	88	29	SW846 7470	12/05/97	CE4RL115

Dilution Factor: 1
Analysis Time..: 15:34

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

TCLP GC/MS Semivolatiles

Client Lot #...: I7K210132 **Work Order #...:** CE4RL10K-MS **Matrix.....:** WATER
MS Lot-Sample #: I7K200137-001 CE4RL10L-MSD
Date Sampled...: 11/19/97 09:30 **Date Received..:** 11/20/97
Leach Date.....: 12/01/97 **Prep Date.....:** 12/03/97 **Analysis Date..:** 12/09/97
Leach Batch #..: P733605 **Prep Batch #...:** 7337171 **Analysis Time..:** 18:38
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Pyridine	ND	0.20	0.15	mg/L	77		SW846 8270B
	ND	0.20	0.13	mg/L	64	19	SW846 8270B
1,4-Dichlorobenzene	ND	0.20	0.12	mg/L	61		SW846 8270B
	ND	0.20	0.13	mg/L	66	6.6	SW846 8270B
o-Cresol	ND	0.20	0.18	mg/L	87		SW846 8270B
	ND	0.20	0.20	mg/L	97	11	SW846 8270B
m-Cresol & p-Cresol	ND	0.40	0.41	mg/L	89		SW846 8270B
	ND	0.40	0.42	mg/L	91	2.9	SW846 8270B
Hexachloroethane	ND	0.20	0.11	mg/L	57		SW846 8270B
	ND	0.20	0.13	mg/L	64	11	SW846 8270B
Nitrobenzene	ND	0.20	0.14	mg/L	70		SW846 8270B
	ND	0.20	0.15	mg/L	76	9.2	SW846 8270B
Hexachlorobutadiene	ND	0.20	0.12	mg/L	60		SW846 8270B
	ND	0.20	0.12	mg/L	62	3.9	SW846 8270B
2,4,6-Trichlorophenol	ND	0.20	0.18	mg/L	92		SW846 8270B
	ND	0.20	0.19	mg/L	94	2.2	SW846 8270B
2,4,5-Trichlorophenol	ND	0.20	0.24	mg/L	118		SW846 8270B
	ND	0.20	0.23	mg/L	113	4.5	SW846 8270B
2,4-Dinitrotoluene	ND	0.20	0.15	mg/L	74		SW846 8270B
	ND	0.20	0.15	mg/L	73	1.2	SW846 8270B
Hexachlorobenzene	ND	0.20	0.16	mg/L	82		SW846 8270B
	ND	0.20	0.17	mg/L	84	2.2	SW846 8270B
Pentachlorophenol	ND	0.20	0.29	mg/L	144		SW846 8270B
	ND	0.20	0.32	mg/L	158	9.1	SW846 8270B

Qualifiers: a,MSC

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	58	(21 - 100)
	62	(21 - 100)
Phenol-d5	73	(10 - 94)
	74	(10 - 94)
Nitrobenzene-d5	76	(35 - 114)
	81	(35 - 114)
2-Fluorobiphenyl	72	(43 - 116)
	74	(43 - 116)
2,4,6-Tribromophenol	88	(10 - 123)
	88	(10 - 123)
Terphenyl-d14	83	(33 - 141)
	87	(33 - 141)

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Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

TCLP GC/MS Semivolatiles

Client Lot #...: I7K210132 **Work Order #...:** CE4RL10K-MS **Matrix.....:** WATER
MS Lot-Sample #: I7K200137-001 CE4RL10L-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

TCLP GC/MS Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE5M410K-MS **Matrix.....:** WATER
MS Lot-Sample #: I7K210132-002 CE5M410L-MSD
Date Sampled...: 11/20/97 10:25 **Date Received..:** 11/21/97
Leach Date.....: 12/03/97 **Prep Date.....:** 12/09/97 **Analysis Date..:** 12/10/97
Leach Batch #..: P733803 **Prep Batch #...:** 7345254 **Analysis Time..:** 07:44
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**ND**	**0.50**	**0.53**	**mg/L**	**104**		**SW846 8240B**
	ND	**0.50**	**0.53**	**mg/L**	**104**	**0.20**	**SW846 8240B**
Carbon tetrachloride	**ND**	**0.50**	**0.46**	**mg/L**	**93**		**SW846 8240B**
	ND	**0.50**	**0.46**	**mg/L**	**93**	**0.35**	**SW846 8240B**
Chlorobenzene	**ND**	**0.50**	**0.53**	**mg/L**	**105**		**SW846 8240B**
	ND	**0.50**	**0.54**	**mg/L**	**108**	**2.4**	**SW846 8240B**
Chloroform	**ND**	**0.50**	**0.48**	**mg/L**	**95**		**SW846 8240B**
	ND	**0.50**	**0.48**	**mg/L**	**96**	**0.19**	**SW846 8240B**
1,2-Dichloroethane	**ND**	**0.50**	**0.47**	**mg/L**	**93**		**SW846 8240B**
	ND	**0.50**	**0.47**	**mg/L**	**94**	**0.44**	**SW846 8240B**
1,1-Dichloroethylene	**ND**	**0.50**	**0.48**	**mg/L**	**95**		**SW846 8240B**
	ND	**0.50**	**0.48**	**mg/L**	**95**	**0.06**	**SW846 8240B**
Methyl ethyl ketone	**ND**	**0.50**	**0.61**	**mg/L**	**111**		**SW846 8240B**
	ND	**0.50**	**0.61**	**mg/L**	**112**	**0.27**	**SW846 8240B**
Tetrachloroethylene	**ND**	**0.50**	**0.48**	**mg/L**	**96**		**SW846 8240B**
	ND	**0.50**	**0.49**	**mg/L**	**97**	**1.1**	**SW846 8240B**
Trichloroethylene	**ND**	**0.50**	**0.48**	**mg/L**	**96**		**SW846 8240B**
	ND	**0.50**	**0.49**	**mg/L**	**97**	**1.1**	**SW846 8240B**
Vinyl chloride	**ND**	**0.50**	**0.51**	**mg/L**	**102**		**SW846 8240B**
	ND	**0.50**	**0.53**	**mg/L**	**107**	**4.7**	**SW846 8240B**
1,4-Dichlorobenzene	**ND**	**0.50**	**0.50**	**mg/L**	**100**		**SW846 8240B**
	ND	**0.50**	**0.50**	**mg/L**	**100**	**0.74**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	99	(86 - 115)
	97	(86 - 115)
1,2-Dichloroethane-d4	93	(76 - 114)
	92	(76 - 114)
Toluene-d8	104	(88 - 110)
	103	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE5M9103-MS **Matrix.....:** SOLID
MS Lot-Sample #: I7K210132-006 CE5M9104-MSD
Date Sampled...: 11/19/97 10:00 **Date Received..:** 11/21/97
Prep Date.....: 11/21/97 **Analysis Date..:** 11/21/97
Prep Batch #...: 7326138 **Analysis Time..:** 23:41
Dilution Factor: 50 **% Moisture.....:** 7.3

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Methyl tert-butyl ether	ND	2200	2100	ug/kg	96		SW846 8020/GRO
	ND	2200	2200	ug/kg	104	8.0	SW846 8020/GRO
Gasoline Range Organics	ND	22000	86000	ug/kg	71		SW846 8020/GRO
	Qualifiers: a,MSC						
	ND	22000	79000 a	ug/kg	37	8.9	SW846 8020/GRO
Benzene	ND	1100	980	ug/kg	90		SW846 8020/GRO
	ND	1100	1000	ug/kg	96	6.4	SW846 8020/GRO
Toluene	1800	3200	4400	ug/kg	79		SW846 8020/GRO
	1800	3200	4300	ug/kg	77	1.5	SW846 8020/GRO
Ethylbenzene	1600	1100	2200	ug/kg	62		SW846 8020/GRO
	Qualifiers: a,MSC						
	1600	1100	2200 a	ug/kg	59	1.5	SW846 8020/GRO
Xylenes (total)	17000	6500	21000	ug/kg	59		SW846 8020/GRO
	Qualifiers: a,MSC						
	17000	6500	19000 a	ug/kg	32	8.7	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	106	(75 - 125)
	112	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE7A7103-MS **Matrix.....:** WATER
MS Lot-Sample #: I7K240102-001 CE7A7104-MSD
Date Sampled...: 11/12/97 09:45 **Date Received..:** 11/18/97
Prep Date.....: 11/25/97 **Analysis Date..:** 11/26/97
Prep Batch #...: 7335198 **Analysis Time..:** 01:52
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	ND	20	20	ug/L	100		SW846 8020/GRO
	ND	20	20	ug/L	99	1.4	SW846 8020/GRO
Toluene	ND	20	20	ug/L	100		SW846 8020/GRO
	ND	20	20	ug/L	98	1.7	SW846 8020/GRO
Ethylbenzene	ND	20	20	ug/L	102		SW846 8020/GRO
	ND	20	20	ug/L	99	2.5	SW846 8020/GRO
Xylenes (total)	ND	60	60	ug/L	100		SW846 8020/GRO
	ND	60	59	ug/L	98	1.8	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)
	100	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I7K250125-001 **Prep Batch #...:** 7330168									
Mercury									
	ND	0.001	0.00090	mg/L	90		SW846 7470A	11/26/97	CE89510H
	ND	0.001	0.00090	mg/L	90	0.53	SW846 7470A	11/26/97	CE89510J

Dilution Factor: 1
Analysis Time..: 13:34

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Certificate of Analysis

Quanterra Incorporated
5307 Industrial Oaks Boulevard, Suite 160
Austin, Texas 78735

512 892-6684 Direct
512 892-6652 Fax

Quanterra

ANALYTICAL REPORT

PROJECT NO. 6240.01

BJS/HOBBS/NOWSCO

Lot #: I7L160113

RICK REXROAD

Brown & Caldwell

QUANTERRA INCORPORATED

Sandra L. Green
Project Manager

December 31, 1997

Quanterra Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

I7L160113

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MW-1 12/11/97 11:10 001				
Xylenes (total)	1.8	1.0	ug/L	SW846 8020/GRO
Barium	0.22	0.20	mg/L	SW846 6010A
Calcium	158	5.0	mg/L	SW846 6010A
Potassium	5.7	5.0	mg/L	SW846 6010A
Magnesium	19.3	5.0	mg/L	SW846 6010A
Sodium	241 MSB	5.0	mg/L	SW846 6010A
Chloride	354	50.0	mg/L	MCAWW 300.0A
Sulfate	95.9	50.0	mg/L	MCAWW 300.0A
Fluoride	3.3	1.0	mg/L	MCAWW 300.0A
Nitrate	1.2	0.50	mg/L	MCAWW 300.0A
Total Alkalinity	350	5.0	mg/L	MCAWW 310.1
MW-3 12/11/97 11:45 002				
Calcium	123	5.0	mg/L	SW846 6010A
Potassium	9.2	5.0	mg/L	SW846 6010A
Magnesium	9.9	5.0	mg/L	SW846 6010A
Sodium	129	5.0	mg/L	SW846 6010A
Chloride	173	50.0	mg/L	MCAWW 300.0A
Sulfate	77.4	50.0	mg/L	MCAWW 300.0A
Fluoride	2.2	1.0	mg/L	MCAWW 300.0A
Nitrate	4.0	0.50	mg/L	MCAWW 300.0A
Total Alkalinity	260	5.0	mg/L	MCAWW 310.1
MW-2 12/11/97 12:20 003				
Ethylbenzene	59	5.0	ug/L	SW846 8020/GRO
Toluene	390	5.0	ug/L	SW846 8020/GRO
Xylenes (total)	380	5.0	ug/L	SW846 8020/GRO
Barium	0.33	0.20	mg/L	SW846 6010A
Calcium	215	5.0	mg/L	SW846 6010A
Potassium	11.1	5.0	mg/L	SW846 6010A
Magnesium	20.4	5.0	mg/L	SW846 6010A
Sodium	92.6	5.0	mg/L	SW846 6010A
Arsenic	0.017	0.010	mg/L	SW846 6010A
Selenium	0.0050	0.0050	mg/L	SW846 6010A
Mercury	0.00020	0.00020	mg/L	SW846 7470A
Benzene	3.9 J	10	ug/L	SW846 8240B
Ethylbenzene	68	12	ug/L	SW846 8240B
Toluene	410	12	ug/L	SW846 8240B
Xylenes (total)	420	12	ug/L	SW846 8240B
Chloride	218	50.0	mg/L	MCAWW 300.0A
Sulfate	92.8	50.0	mg/L	MCAWW 300.0A

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Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

I7L160113

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MW-2 12/11/97 12:20 003				
Fluoride	1.1	1.0	mg/L	MCAWW 300.0A
Nitrate	1.4	0.50	mg/L	MCAWW 300.0A
Total Alkalinity	400 V	250	mg/L	MCAWW 310.1
MW-6240 12/11/97 00:00 004				
Ethylbenzene	57	5.0	ug/L	SW846 8020/GRO
Toluene	370	5.0	ug/L	SW846 8020/GRO
Xylenes (total)	370	5.0	ug/L	SW846 8020/GRO
Barium	0.31	0.20	mg/L	SW846 6010A
Calcium	204	5.0	mg/L	SW846 6010A
Potassium	9.3	5.0	mg/L	SW846 6010A
Magnesium	19.4	5.0	mg/L	SW846 6010A
Sodium	88.0	5.0	mg/L	SW846 6010A
Arsenic	0.017	0.010	mg/L	SW846 6010A
Chloride	215	50.0	mg/L	MCAWW 300.0A
Sulfate	96.9	50.0	mg/L	MCAWW 300.0A
Fluoride	1.1	1.0	mg/L	MCAWW 300.0A
Nitrate	1.4	0.50	mg/L	MCAWW 300.0A
Total Alkalinity	370	5.0	mg/L	MCAWW 310.1

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ANALYTICAL METHODS SUMMARY

I7L160113

PARAMETER	ANALYTICAL METHOD
o-Phosphate as P	MCAWW 300.0A
Alkalinity	MCAWW 310.1
Chloride	MCAWW 300.0A
Fluoride	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A
Nitrate as N	MCAWW 300.0A
Semivolatile Organic Compounds by GC/MS	SW846 8270B
Sulfate	MCAWW 300.0A
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010A
Volatile Organics by GC/MS	SW846 8240B
Volatile and Gasoline Range Organics (PID/FID)	SW846 8020/GRO

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

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SAMPLE SUMMARY

I7L160113

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CEJQJ	001	MW-1	12/11/97	11:1
CEJQN	002	MW-3	12/11/97	11:4
CEJQP	003	MW-2	12/11/97	12:2
CEJQQ	004	MW-6240	12/11/97	00:0
CEJQT	005	TRIP BLANK	12/11/97	00:0

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

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BROWN & CALDWELL

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #...: I7L160113-001 **Work Order #...:** CEJQJ102 **Matrix.....:** WATER
Date Sampled...: 12/11/97 11:10 **Date Received..:** 12/12/97
Prep Date.....: 12/15/97 **Analysis Date..:** 12/15/97
Prep Batch #...: 7351183 **Analysis Time..:** 23:00
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/L	SW846 8020/GRO
Toluene	ND	1.0	ug/L	SW846 8020/GRO
Xylenes (total)	**1.8**	**1.0**	**ug/L**	**SW846 8020/GRO**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)

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Services

BROWN & CALDWELL

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...: I7L160113-002 **Work Order #...:** CEJQN102 **Matrix.....:** WATER
Date Sampled...: 12/11/97 11:45 **Date Received..:** 12/12/97
Prep Date.....: 12/15/97 **Analysis Date..:** 12/16/97
Prep Batch #...: 7351183 **Analysis Time..:** 00:59
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/L	SW846 8020/GRO
Toluene	ND	1.0	ug/L	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/L	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	98	(75 - 125)

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BROWN & CALDWELL

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...: I7L160113-003 **Work Order #...:** CEJQP102 **Matrix.....:** WATER
Date Sampled...: 12/11/97 12:20 **Date Received..:** 12/12/97
Prep Date.....: 12/15/97 **Analysis Date..:** 12/15/97
Prep Batch #...: 7351183 **Analysis Time..:** 23:40
Dilution Factor: 5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	5.0	ug/L	SW846 8020/GRO
Ethylbenzene	**59**	**5.0**	**ug/L**	**SW846 8020/GRO**
Toluene	**390**	**5.0**	**ug/L**	**SW846 8020/GRO**
Xylenes (total)	**380**	**5.0**	**ug/L**	**SW846 8020/GRO**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(75 - 125)

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BROWN & CALDWELL

Client Sample ID: MW-2

GC/MS Semivolatiles

Lot-Sample #...: I7L160113-003 **Work Order #...:** CEJQP10P **Matrix.....:** WATER
Date Sampled...: 12/11/97 12:20 **Date Received..:** 12/12/97
Prep Date.....: 12/17/97 **Analysis Date..:** 12/30/97
Prep Batch #...: 7351225 **Analysis Time..:** 12:04
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270B
Acenaphthylene	ND	10	ug/L	SW846 8270B
Anthracene	ND	10	ug/L	SW846 8270B
Benz(a)anthracene	ND	10	ug/L	SW846 8270B
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270B
Benzo(a)pyrene	ND	10	ug/L	SW846 8270B
bis(2-Chloroethoxy) methane	ND	10	ug/L	SW846 8270B
bis(2-Chloroethyl) ether	ND	10	ug/L	SW846 8270B
bis(2-Chloroisopropyl) ether	ND	10	ug/L	SW846 8270B
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	SW846 8270B
4-Bromophenyl phenyl ether	ND	10	ug/L	SW846 8270B
Butyl benzyl phthalate	ND	10	ug/L	SW846 8270B
4-Chloroaniline	ND	10	ug/L	SW846 8270B
4-Chloro-3-methylphenol	ND	10	ug/L	SW846 8270B
2-Chloronaphthalene	ND	10	ug/L	SW846 8270B
2-Chlorophenol	ND	10	ug/L	SW846 8270B
4-Chlorophenyl phenyl ether	ND	10	ug/L	SW846 8270B
Chrysene	ND	10	ug/L	SW846 8270B
Dibenz(a,h)anthracene	ND	10	ug/L	SW846 8270B
Dibenzofuran	ND	10	ug/L	SW846 8270B
Di-n-butyl phthalate	ND	10	ug/L	SW846 8270B
1,2-Dichlorobenzene	ND	10	ug/L	SW846 8270B
1,3-Dichlorobenzene	ND	10	ug/L	SW846 8270B
1,4-Dichlorobenzene	ND	10	ug/L	SW846 8270B
3,3'-Dichlorobenzidine	ND	50	ug/L	SW846 8270B
2,4-Dichlorophenol	ND	10	ug/L	SW846 8270B
Diethyl phthalate	ND	10	ug/L	SW846 8270B
2,4-Dimethylphenol	ND	10	ug/L	SW846 8270B
Dimethyl phthalate	ND	10	ug/L	SW846 8270B
4,6-Dinitro-2-methylphenol	ND	50	ug/L	SW846 8270B
2,4-Dinitrophenol	ND	50	ug/L	SW846 8270B

(Continued on next page)

Quanterra Environmental Services

BROWN & CALDWELL

Client Sample ID: MW-2

GC/MS Semivolatiles

Lot-Sample #...: I7L160113-003 **Work Order #...:** CEJQP10P **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-Dinitrotoluene	ND	10	ug/L	SW846 8270B
2,6-Dinitrotoluene	ND	10	ug/L	SW846 8270B
Di-n-octyl phthalate	ND	10	ug/L	SW846 8270B
Fluoranthene	ND	10	ug/L	SW846 8270B
Fluorene	ND	10	ug/L	SW846 8270B
Hexachlorobenzene	ND	10	ug/L	SW846 8270B
Hexachlorobutadiene	ND	10	ug/L	SW846 8270B
Hexachlorocyclopentadiene	ND	50	ug/L	SW846 8270B
Hexachloroethane	ND	10	ug/L	SW846 8270B
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270B
Isophorone	ND	10	ug/L	SW846 8270B
2-Methylnaphthalene	ND	10	ug/L	SW846 8270B
2-Methylphenol	ND	10	ug/L	SW846 8270B
4-Methylphenol	ND	10	ug/L	SW846 8270B
Naphthalene	ND	10	ug/L	SW846 8270B
2-Nitroaniline	ND	50	ug/L	SW846 8270B
3-Nitroaniline	ND	50	ug/L	SW846 8270B
4-Nitroaniline	ND	50	ug/L	SW846 8270B
Nitrobenzene	ND	10	ug/L	SW846 8270B
2-Nitrophenol	ND	10	ug/L	SW846 8270B
4-Nitrophenol	ND	50	ug/L	SW846 8270B
N-Nitrosodiphenylamine	ND	10	ug/L	SW846 8270B
N-Nitrosodi-n-propylamine	ND	10	ug/L	SW846 8270B
Pentachlorophenol	ND	50	ug/L	SW846 8270B
Phenanthrene	ND	10	ug/L	SW846 8270B
Phenol	ND	10	ug/L	SW846 8270B
Pyrene	ND	10	ug/L	SW846 8270B
1,2,4-Trichlorobenzene	ND	10	ug/L	SW846 8270B
2,4,5-Trichlorophenol	ND	10	ug/L	SW846 8270B
2,4,6-Trichlorophenol	ND	10	ug/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	71	(21 - 100)
Phenol-d5	83	(10 - 94)
Nitrobenzene-d5	68	(35 - 114)
2-Fluorobiphenyl	70	(43 - 116)
2,4,6-Tribromophenol	122	(10 - 123)
Terphenyl-d14	94	(33 - 141)

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BROWN & CALDWELL

Client Sample ID: MW-2

GC/MS Volatiles

Lot-Sample #...: I7L160113-003 **Work Order #...:** CEJQP10Q **Matrix.....:** WATER
Date Sampled...: 12/11/97 12:20 **Date Received..:** 12/12/97
Prep Date.....: 12/20/97 **Analysis Date..:** 12/20/97
Prep Batch #...: 7356243 **Analysis Time..:** 14:14
Dilution Factor: 2.5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	50	ug/L	SW846 8240B
Benzene	**3.9 J**	**10**	**ug/L**	**SW846 8240B**
Bromodichloromethane	ND	12	ug/L	SW846 8240B
Bromoform	ND	12	ug/L	SW846 8240B
Bromomethane	ND	25	ug/L	SW846 8240B
2-Butanone	ND	50	ug/L	SW846 8240B
Carbon disulfide	ND	12	ug/L	SW846 8240B
Carbon tetrachloride	ND	10	ug/L	SW846 8240B
Chlorobenzene	ND	12	ug/L	SW846 8240B
Chloroethane	ND	25	ug/L	SW846 8240B
Chloroform	ND	12	ug/L	SW846 8240B
Chloromethane	ND	25	ug/L	SW846 8240B
Dibromochloromethane	ND	12	ug/L	SW846 8240B
1,1-Dichloroethane	ND	12	ug/L	SW846 8240B
1,2-Dichloroethane	ND	10	ug/L	SW846 8240B
1,1-Dichloroethene	ND	12	ug/L	SW846 8240B
1,2-Dichloroethene (total)	ND	5.1	ug/L	SW846 8240B
1,2-Dichloropropane	ND	12	ug/L	SW846 8240B
cis-1,3-Dichloropropene	ND	12	ug/L	SW846 8240B
trans-1,3-Dichloropropene	ND	12	ug/L	SW846 8240B
Ethylbenzene	**68**	**12**	**ug/L**	**SW846 8240B**
2-Hexanone	ND	50	ug/L	SW846 8240B
Methylene chloride	ND	12	ug/L	SW846 8240B
4-Methyl-2-pentanone	ND	50	ug/L	SW846 8240B
Styrene	ND	12	ug/L	SW846 8240B
1,1,2,2-Tetrachloroethane	ND	12	ug/L	SW846 8240B
Tetrachloroethene	ND	12	ug/L	SW846 8240B
Toluene	**410**	**12**	**ug/L**	**SW846 8240B**
1,1,1-Trichloroethane	ND	12	ug/L	SW846 8240B
1,1,2-Trichloroethane	ND	10	ug/L	SW846 8240B
Trichloroethene	ND	12	ug/L	SW846 8240B
Vinyl chloride	ND	6.0	ug/L	SW846 8240B
Xylenes (total)	**420**	**12**	**ug/L**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	102	(86 - 115)
1,2-Dichloroethane-d4	105	(76 - 114)
Toluene-d8	101	(88 - 110)

NOTE(S):

J Estimated result. Result is less than RL.

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BROWN & CALDWELL

Client Sample ID: MW-6240

GC Volatiles

Lot-Sample #...: I7L160113-004 **Work Order #...:** CEJQQ102 **Matrix.....:** WATER
Date Sampled...: 12/11/97 00:00 **Date Received..:** 12/12/97
Prep Date.....: 12/15/97 **Analysis Date..:** 12/16/97
Prep Batch #...: 7351183 **Analysis Time..:** 00:19
Dilution Factor: 5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	5.0	ug/L	SW846 8020/GRO
Ethylbenzene	**57**	**5.0**	**ug/L**	**SW846 8020/GRO**
Toluene	**370**	**5.0**	**ug/L**	**SW846 8020/GRO**
Xylenes (total)	**370**	**5.0**	**ug/L**	**SW846 8020/GRO**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(75 - 125)

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BROWN & CALDWELL

Client Sample ID: TRIP BLANK

GC Volatiles

Lot-Sample #...: I7L160113-005 **Work Order #...:** CEJQT102 **Matrix.....:** WATER
Date Sampled...: 12/11/97 00:00 **Date Received..:** 12/12/97
Prep Date.....: 12/22/97 **Analysis Date..:** 12/22/97
Prep Batch #...: 7357178 **Analysis Time..:** 14:54
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/L	SW846 8020/GRO
Toluene	ND	1.0	ug/L	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/L	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(75 - 125)

Quanterra Environmental Services

BROWN & CALDWELL

Client Sample ID: MW-1

General Chemistry

Lot-Sample #...: I7L160113-001 **Work Order #...:** CEJQJ **Matrix.....:** WATER
Date Sampled...: 12/11/97 11:10 **Date Received..:** 12/12/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	**354**	**50.0**	**mg/L**	**MCAWW 300.0A**	**12/17/97**	**7351236**
	Dilution Factor: 50					
	Analysis Time..: 09:08					
Fluoride	**3.3**	**1.0**	**mg/L**	**MCAWW 300.0A**	**12/12/97**	**7351226**
	Dilution Factor: 1					
	Analysis Time..: 18:05					
Nitrate	**1.2**	**0.50**	**mg/L**	**MCAWW 300.0A**	**12/12/97**	**7351227**
	Dilution Factor: 1					
	Analysis Time..: 18:05					
Orthophosphate	ND	1.0	mg/L	MCAWW 300.0A	12/12/97	7351228
	Dilution Factor: 1					
	Analysis Time..: 18:05					
Sulfate	**95.9**	**50.0**	**mg/L**	**MCAWW 300.0A**	**12/17/97**	**7351233**
	Dilution Factor: 50					
	Analysis Time..: 09:08					
Total Alkalinity	**350**	**5.0**	**mg/L**	**MCAWW 310.1**	**12/19/97**	**7353192**
	Dilution Factor: 1					
	Analysis Time..: 00:00					

Quanterra Environmental Services

BROWN & CALDWELL

Client Sample ID: MW-3

General Chemistry

Lot-Sample #...: I7L160113-002 **Work Order #...:** CEJQN **Matrix.....:** WATER
Date Sampled...: 12/11/97 11:45 **Date Received..:** 12/12/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	**173**	**50.0**	**mg/L**	**MCAWW 300.0A**	**12/17/97**	**7351236**
	Dilution Factor: 50					
	Analysis Time..: 09:51					
Fluoride	**2.2**	**1.0**	**mg/L**	**MCAWW 300.0A**	**12/12/97**	**7351226**
	Dilution Factor: 1					
	Analysis Time..: 18:59					
Nitrate	**4.0**	**0.50**	**mg/L**	**MCAWW 300.0A**	**12/12/97**	**7351227**
	Dilution Factor: 1					
	Analysis Time..: 18:59					
Orthophosphate	ND	1.0	mg/L	MCAWW 300.0A	12/12/97	7351228
	Dilution Factor: 1					
	Analysis Time..: 18:59					
Sulfate	**77.4**	**50.0**	**mg/L**	**MCAWW 300.0A**	**12/17/97**	**7351233**
	Dilution Factor: 50					
	Analysis Time..: 09:51					
Total Alkalinity	**260**	**5.0**	**mg/L**	**MCAWW 310.1**	**12/19/97**	**7353192**
	Dilution Factor: 1					
	Analysis Time..: 13:00					

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BROWN & CALDWELL

Client Sample ID: MW-2

General Chemistry

Lot-Sample #...: I7L160113-003 **Work Order #...:** CEJQP **Matrix.....:** WATER
Date Sampled...: 12/11/97 12:20 **Date Received..:** 12/12/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	**218**	**50.0**	**mg/L**	**MCAWW 300.0A**	**12/17/97**	**7351236**
	Dilution Factor: 50					
	Analysis Time..: 10:02					
Fluoride	**1.1**	**1.0**	**mg/L**	**MCAWW 300.0A**	**12/12/97**	**7351226**
	Dilution Factor: 1					
	Analysis Time..: 18:49					
Nitrate	**1.4**	**0.50**	**mg/L**	**MCAWW 300.0A**	**12/12/97**	**7351227**
	Dilution Factor: 1					
	Analysis Time..: 18:49					
Orthophosphate	ND	1.0	mg/L	MCAWW 300.0A	12/12/97	7351228
	Dilution Factor: 1					
	Analysis Time..: 18:49					
Sulfate	**92.8**	**50.0**	**mg/L**	**MCAWW 300.0A**	**12/17/97**	**7351233**
	Dilution Factor: 50					
	Analysis Time..: 10:02					
Total Alkalinity	**400 V**	**250**	**mg/L**	**MCAWW 310.1**	**12/19/97**	**7353192**
	Dilution Factor: 50					
	Analysis Time..: 13:00					

NOTE(S):

RL Reporting Limit

V Elevated reporting limit. The reporting limit is elevated due to limited sample volume.

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BROWN & CALDWELL

Client Sample ID: MW-6240

General Chemistry

Lot-Sample #...: I7L160113-004 **Work Order #...:** CEJQQ **Matrix.....:** WATER
Date Sampled...: 12/11/97 00:00 **Date Received..:** 12/12/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	**215**	**50.0**	**mg/L**	**MCAWW 300.0A**	**12/17/97**	**7351236**
	Dilution Factor: 50					
	Analysis Time..: 10:13					
Fluoride	**1.1**	**1.0**	**mg/L**	**MCAWW 300.0A**	**12/12/97**	**7351226**
	Dilution Factor: 1					
	Analysis Time..: 19:10					
Nitrate	**1.4**	**0.50**	**mg/L**	**MCAWW 300.0A**	**12/12/97**	**7351227**
	Dilution Factor: 1					
	Analysis Time..: 19:10					
Orthophosphate	ND	1.0	mg/L	MCAWW 300.0A	12/12/97	7351228
	Dilution Factor: 1					
	Analysis Time..: 19:10					
Sulfate	**96.9**	**50.0**	**mg/L**	**MCAWW 300.0A**	**12/17/97**	**7351233**
	Dilution Factor: 50					
	Analysis Time..: 10:13					
Total Alkalinity	**370**	**5.0**	**mg/L**	**MCAWW 310.1**	**12/19/97**	**7353192**
	Dilution Factor: 1					
	Analysis Time..: 13:00					

BROWN & CALDWELL

Client Sample ID: MW-1

TOTAL Metals

Lot-Sample #...: I7L160113-001 **Matrix.....:** WATER
Date Sampled...: 12/11/97 11:10 **Date Received..:** 12/12/97

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7351187						
Silver	ND	0.010	mg/L	SW846 6010A	12/17-12/18/97	CEJQJ10E
		Dilution Factor: 1				
		Analysis Time..: 15:38				
Barium	**0.22**	**0.20**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQJ10G**
		Dilution Factor: 1				
		Analysis Time..: 15:38				
Cadmium	ND	0.0050	mg/L	SW846 6010A	12/17-12/18/97	CEJQJ10H
		Dilution Factor: 1				
		Analysis Time..: 15:38				
Chromium	ND	0.010	mg/L	SW846 6010A	12/17-12/18/97	CEJQJ10J
		Dilution Factor: 1				
		Analysis Time..: 15:38				
Calcium	**158**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQJ108**
		Dilution Factor: 1				
		Analysis Time..: 15:38				
Potassium	**5.7**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQJ10A**
		Dilution Factor: 1				
		Analysis Time..: 15:38				
Magnesium	**19.3**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQJ109**
		Dilution Factor: 1				
		Analysis Time..: 15:38				
Sodium	**241 MSB**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQJ10C**
		Dilution Factor: 1				
		Analysis Time..: 15:38				
Prep Batch #...: 7352175						
Mercury	ND	0.00020	mg/L	SW846 7470A	12/18/97	CEJQJ10M
		Dilution Factor: 1				
		Analysis Time..: 13:32				
Prep Batch #...: 7364146						
Arsenic	ND	0.010	mg/L	SW846 6010A	12/17-12/30/97	CEJQJ12J
		Dilution Factor: 1				
		Analysis Time..: 11:10				
Lead	ND	0.0030	mg/L	SW846 6010A	12/17-12/30/97	CEJQJ12K
		Dilution Factor: 1				

Quanterra
Environmental
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BROWN & CALDWELL

Client Sample ID: MW-1

TOTAL Metals

Lot-Sample #...: I7L160113-001 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.0050	mg/L	SW846 6010A	12/17-12/30/97	CEJQJ12L

Dilution Factor: 1
Analysis Time..: 11:10

NOTE(S):

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

Quanterra Environmental Services

BROWN & CALDWELL

Client Sample ID: MW-3

TOTAL Metals

Lot-Sample #...: I7L160113-002 **Matrix.....:** WATER
Date Sampled...: 12/11/97 11:45 **Date Received..:** 12/12/97

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7351187						
Silver	ND	0.010	mg/L	SW846 6010A	12/17-12/18/97	CEJQN10E
		Dilution Factor: 1				
		Analysis Time..: 15:52				
Barium	ND	0.20	mg/L	SW846 6010A	12/17-12/18/97	CEJQN10G
		Dilution Factor: 1				
		Analysis Time..: 15:52				
Cadmium	ND	0.0050	mg/L	SW846 6010A	12/17-12/18/97	CEJQN10H
		Dilution Factor: 1				
		Analysis Time..: 15:52				
Chromium	ND	0.010	mg/L	SW846 6010A	12/17-12/18/97	CEJQN10J
		Dilution Factor: 1				
		Analysis Time..: 15:52				
Calcium	**123**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQN108**
		Dilution Factor: 1				
		Analysis Time..: 15:52				
Potassium	**9.2**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQN10A**
		Dilution Factor: 1				
		Analysis Time..: 15:52				
Magnesium	**9.9**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQN109**
		Dilution Factor: 1				
		Analysis Time..: 15:52				
Sodium	**129**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQN10C**
		Dilution Factor: 1				
		Analysis Time..: 15:52				
Prep Batch #...: 7352175						
Mercury	ND	0.00020	mg/L	SW846 7470A	12/18/97	CEJQN10M
		Dilution Factor: 1				
		Analysis Time..: 13:39				
Prep Batch #...: 7364146						
Arsenic	ND	0.010	mg/L	SW846 6010A	12/17-12/30/97	CEJQN10R
		Dilution Factor: 1				
		Analysis Time..: 11:42				
Lead	ND	0.0030	mg/L	SW846 6010A	12/17-12/30/97	CEJQN10T
		Dilution Factor: 1				

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BROWN & CALDWELL

Client Sample ID: MW-3

TOTAL Metals

Lot-Sample #...: I7L160113-002 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.0050	mg/L	SW846 6010A	12/17-12/30/97	CEJQN10U

Dilution Factor: 1
Analysis Time..: 11:42

BROWN & CALDWELL

Client Sample ID: MW-2

TOTAL Metals

Lot-Sample #...: I7L160113-003 **Matrix.....:** WATER
Date Sampled...: 12/11/97 12:20 **Date Received..:** 12/12/97

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7351187						
Silver	ND	0.010 Dilution Factor: 1 Analysis Time..: 15:54	mg/L	SW846 6010A	12/17-12/18/97	CEJQP10E
Barium	**0.33**	**0.20** Dilution Factor: 1 Analysis Time..: 15:54	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQP10G**
Cadmium	ND	0.0050 Dilution Factor: 1 Analysis Time..: 15:54	mg/L	SW846 6010A	12/17-12/18/97	CEJQP10H
Chromium	ND	0.010 Dilution Factor: 1 Analysis Time..: 15:54	mg/L	SW846 6010A	12/17-12/18/97	CEJQP10J
Calcium	**215**	**5.0** Dilution Factor: 1 Analysis Time..: 15:54	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQP108**
Potassium	**11.1**	**5.0** Dilution Factor: 1 Analysis Time..: 15:54	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQP10A**
Magnesium	**20.4**	**5.0** Dilution Factor: 1 Analysis Time..: 15:54	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQP109**
Sodium	**92.6**	**5.0** Dilution Factor: 1 Analysis Time..: 15:54	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQP10C**
Prep Batch #...: 7352175						
Mercury	**0.00020**	**0.00020** Dilution Factor: 1 Analysis Time..: 13:42	**mg/L**	**SW846 7470A**	**12/18/97**	**CEJQP10M**
Prep Batch #...: 7364146						
Arsenic	**0.017**	**0.010** Dilution Factor: 1 Analysis Time..: 11:47	**mg/L**	**SW846 6010A**	**12/17-12/30/97**	**CEJQP10R**
Lead	ND	0.0030 Dilution Factor: 1	mg/L	SW846 6010A	12/17-12/30/97	CEJQP10T

Quanterra Environmental Services

BROWN & CALDWELL

Client Sample ID: MW-6240

TOTAL Metals

Lot-Sample #...: I7L160113-004 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.0050	mg/L	SW846 6010A	12/17-12/30/97	CEJQQ10R

Dilution Factor: 1
Analysis Time..: 11:53

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QC DATA ASSOCIATION SUMMARY

I7L160113

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	MCAWW 300.0A		7351236	7351088
	WATER	MCAWW 300.0A		7351233	7351086
	WATER	MCAWW 300.0A		7351226	7351078
	WATER	MCAWW 300.0A		7351227	7351079
	WATER	MCAWW 300.0A		7351228	7351080
	WATER	SW846 6010A		7351187	7351057
	WATER	SW846 6010A		7364146	7364027
	WATER	SW846 8020/GRO		7351183	7351051
	WATER	SW846 7470A		7352175	7353070
	WATER	MCAWW 310.1		7353192	7353074
002	WATER	MCAWW 300.0A		7351236	7351088
	WATER	MCAWW 300.0A		7351233	7351086
	WATER	MCAWW 300.0A		7351226	7351078
	WATER	MCAWW 300.0A		7351227	7351079
	WATER	MCAWW 300.0A		7351228	7351080
	WATER	SW846 6010A		7351187	7351057
	WATER	SW846 6010A		7364146	7364027
	WATER	SW846 8020/GRO		7351183	7351051
	WATER	SW846 7470A		7352175	7353070
	WATER	MCAWW 310.1		7353192	7353074
003	WATER	MCAWW 300.0A		7351236	7351088
	WATER	MCAWW 300.0A		7351233	7351086
	WATER	MCAWW 300.0A		7351226	7351078
	WATER	MCAWW 300.0A		7351227	7351079
	WATER	MCAWW 300.0A		7351228	7351080
	WATER	SW846 6010A		7351187	7351057
	WATER	SW846 6010A		7364146	7364027
	WATER	SW846 8020/GRO		7351183	7351051
	WATER	SW846 8270B		7351225	7351090
	WATER	SW846 8240B		7356243	7356094
	WATER	SW846 7470A		7352175	7353070
	WATER	MCAWW 310.1		7353192	7353074
004	WATER	MCAWW 300.0A		7351236	7351088
	WATER	MCAWW 300.0A		7351233	7351086
	WATER	MCAWW 300.0A		7351226	7351078
	WATER	MCAWW 300.0A		7351227	7351079
	WATER	MCAWW 300.0A		7351228	7351080
	WATER	SW846 6010A		7351187	7351057
	WATER	SW846 6010A		7364146	7364027
	WATER	SW846 8020/GRO		7351183	7351051
	WATER	SW846 7470A		7352175	7353070

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QC DATA ASSOCIATION SUMMARY

I7L160113

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
004	WATER	MCAWW 310.1		7353192	7353074
005	WATER	SW846 8020/GRO		7357178	7357050

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METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKEF101 **Matrix.....:** WATER
MB Lot-Sample #: I7L170000-183

Prep Date.....: 12/15/97 **Analysis Time..:** 20:22
Analysis Date..: 12/15/97 **Prep Batch #...:** 7351183
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/L	SW846 8020/GRO
Toluene	ND	1.0	ug/L	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/L	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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BROWN & CALDWELL

Client Sample ID: MW-2

TOTAL Metals

Lot-Sample #...: I7L160113-003 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	**0.0050**	**0.0050**	**mg/L**	**SW846 6010A**	**12/17-12/30/97**	**CEJQP10U**

Dilution Factor: 1
Analysis Time..: 11:47

BROWN & CALDWELL

Client Sample ID: MW-6240

TOTAL Metals

Lot-Sample #...: I7L160113-004 **Matrix.....:** WATER
Date Sampled...: 12/11/97 00:00 **Date Received..:** 12/12/97

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 7351187						
Silver	ND	0.010	mg/L	SW846 6010A	12/17-12/18/97	CEJQQ10E
		Dilution Factor: 1				
		Analysis Time..: 15:57				
Barium	**0.31**	**0.20**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQQ10G**
		Dilution Factor: 1				
		Analysis Time..: 15:57				
Cadmium	ND	0.0050	mg/L	SW846 6010A	12/17-12/18/97	CEJQQ10H
		Dilution Factor: 1				
		Analysis Time..: 15:57				
Chromium	ND	0.010	mg/L	SW846 6010A	12/17-12/18/97	CEJQQ10J
		Dilution Factor: 1				
		Analysis Time..: 15:57				
Calcium	**204**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQQ108**
		Dilution Factor: 1				
		Analysis Time..: 15:57				
Potassium	**9.3**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQQ10A**
		Dilution Factor: 1				
		Analysis Time..: 15:57				
Magnesium	**19.4**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQQ109**
		Dilution Factor: 1				
		Analysis Time..: 15:57				
Sodium	**88.0**	**5.0**	**mg/L**	**SW846 6010A**	**12/17-12/18/97**	**CEJQQ10C**
		Dilution Factor: 1				
		Analysis Time..: 15:57				
Prep Batch #...: 7352175						
Mercury	ND	0.00020	mg/L	SW846 7470A	12/18/97	CEJQQ10M
		Dilution Factor: 1				
		Analysis Time..: 13:44				
Prep Batch #...: 7364146						
Arsenic	**0.017**	**0.010**	**mg/L**	**SW846 6010A**	**12/17-12/30/97**	**CEJQQ10P**
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Lead	ND	0.0030	mg/L	SW846 6010A	12/17-12/30/97	CEJQQ10Q
		Dilution Factor: 1				

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKK7101 **Matrix.....:** WATER
MB Lot-Sample #: I7L170000-225

Prep Date.....: 12/17/97 **Analysis Time..:** 19:11
Analysis Date..: 12/24/97 **Prep Batch #...:** 7351225
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270B
Acenaphthylene	ND	10	ug/L	SW846 8270B
Anthracene	ND	10	ug/L	SW846 8270B
Benz(a)anthracene	ND	10	ug/L	SW846 8270B
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270B
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270B
Benzo(a)pyrene	ND	10	ug/L	SW846 8270B
bis(2-Chloroethoxy) methane	ND	10	ug/L	SW846 8270B
bis(2-Chloroethyl) ether	ND	10	ug/L	SW846 8270B
bis(2-Chloroisopropyl) ether	ND	10	ug/L	SW846 8270B
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	SW846 8270B
4-Bromophenyl phenyl ether	ND	10	ug/L	SW846 8270B
Butyl benzyl phthalate	ND	10	ug/L	SW846 8270B
4-Chloroaniline	ND	10	ug/L	SW846 8270B
4-Chloro-3-methylphenol	ND	10	ug/L	SW846 8270B
2-Chloronaphthalene	ND	10	ug/L	SW846 8270B
2-Chlorophenol	ND	10	ug/L	SW846 8270B
4-Chlorophenyl phenyl ether	ND	10	ug/L	SW846 8270B
Chrysene	ND	10	ug/L	SW846 8270B
Dibenz(a,h)anthracene	ND	10	ug/L	SW846 8270B
Dibenzofuran	ND	10	ug/L	SW846 8270B
Di-n-butyl phthalate	ND	10	ug/L	SW846 8270B
1,2-Dichlorobenzene	ND	10	ug/L	SW846 8270B
1,3-Dichlorobenzene	ND	10	ug/L	SW846 8270B
1,4-Dichlorobenzene	ND	10	ug/L	SW846 8270B
3,3'-Dichlorobenzidine	ND	50	ug/L	SW846 8270B
2,4-Dichlorophenol	ND	10	ug/L	SW846 8270B
Diethyl phthalate	ND	10	ug/L	SW846 8270B
2,4-Dimethylphenol	ND	10	ug/L	SW846 8270B
Dimethyl phthalate	ND	10	ug/L	SW846 8270B
4,6-Dinitro-2-methylphenol	ND	50	ug/L	SW846 8270B
2,4-Dinitrophenol	ND	50	ug/L	SW846 8270B
2,4-Dinitrotoluene	ND	10	ug/L	SW846 8270B
2,6-Dinitrotoluene	ND	10	ug/L	SW846 8270B

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKK7101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Di-n-octyl phthalate	ND	10	ug/L	SW846 8270B
Fluoranthene	ND	10	ug/L	SW846 8270B
Fluorene	ND	10	ug/L	SW846 8270B
Hexachlorobenzene	ND	10	ug/L	SW846 8270B
Hexachlorobutadiene	ND	10	ug/L	SW846 8270B
Hexachlorocyclopentadiene	ND	50	ug/L	SW846 8270B
Hexachloroethane	ND	10	ug/L	SW846 8270B
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270B
Isophorone	ND	10	ug/L	SW846 8270B
2-Methylnaphthalene	ND	10	ug/L	SW846 8270B
2-Methylphenol	ND	10	ug/L	SW846 8270B
4-Methylphenol	ND	10	ug/L	SW846 8270B
Naphthalene	ND	10	ug/L	SW846 8270B
2-Nitroaniline	ND	50	ug/L	SW846 8270B
3-Nitroaniline	ND	50	ug/L	SW846 8270B
4-Nitroaniline	ND	50	ug/L	SW846 8270B
Nitrobenzene	ND	10	ug/L	SW846 8270B
2-Nitrophenol	ND	10	ug/L	SW846 8270B
4-Nitrophenol	ND	50	ug/L	SW846 8270B
N-Nitrosodiphenylamine	ND	10	ug/L	SW846 8270B
N-Nitrosodi-n-propylamine	ND	10	ug/L	SW846 8270B
Pentachlorophenol	ND	50	ug/L	SW846 8270B
Phenanthrene	ND	10	ug/L	SW846 8270B
Phenol	ND	10	ug/L	SW846 8270B
Pyrene	ND	10	ug/L	SW846 8270B
1,2,4-Trichlorobenzene	ND	10	ug/L	SW846 8270B
2,4,5-Trichlorophenol	ND	10	ug/L	SW846 8270B
2,4,6-Trichlorophenol	ND	10	ug/L	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	68	(21 - 100)
Phenol-d5	71	(10 - 94)
Nitrobenzene-d5	67	(35 - 114)
2-Fluorobiphenyl	63	(43 - 116)
2,4,6-Tribromophenol	73	(10 - 123)
Terphenyl-d14	84	(33 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CENFA101 **Matrix.....:** WATER
MB Lot-Sample #: I7L220000-243

Prep Date.....: 12/20/97 **Analysis Time..:** 11:37
Analysis Date..: 12/20/97 **Prep Batch #...:** 7356243
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/L	SW846 8240B
Benzene	ND	4.0	ug/L	SW846 8240B
Bromodichloromethane	ND	5.0	ug/L	SW846 8240B
Bromoform	ND	5.0	ug/L	SW846 8240B
Bromomethane	ND	10	ug/L	SW846 8240B
2-Butanone	ND	20	ug/L	SW846 8240B
Carbon disulfide	ND	5.0	ug/L	SW846 8240B
Carbon tetrachloride	**1.4 J**	**4.0**	**ug/L**	**SW846 8240B**
Chlorobenzene	ND	5.0	ug/L	SW846 8240B
Chloroethane	ND	10	ug/L	SW846 8240B
Chloroform	ND	5.0	ug/L	SW846 8240B
Chloromethane	ND	10	ug/L	SW846 8240B
Dibromochloromethane	ND	5.0	ug/L	SW846 8240B
1,1-Dichloroethane	ND	5.0	ug/L	SW846 8240B
1,2-Dichloroethane	ND	4.0	ug/L	SW846 8240B
1,1-Dichloroethene	ND	5.0	ug/L	SW846 8240B
1,2-Dichloroethene (total)	ND	2.0	ug/L	SW846 8240B
1,2-Dichloropropane	ND	5.0	ug/L	SW846 8240B
cis-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8240B
trans-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8240B
Ethylbenzene	ND	5.0	ug/L	SW846 8240B
2-Hexanone	ND	20	ug/L	SW846 8240B
Methylene chloride	ND	5.0	ug/L	SW846 8240B
4-Methyl-2-pentanone	ND	20	ug/L	SW846 8240B
Styrene	ND	5.0	ug/L	SW846 8240B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	SW846 8240B
Tetrachloroethene	ND	5.0	ug/L	SW846 8240B
Toluene	ND	5.0	ug/L	SW846 8240B
1,1,1-Trichloroethane	**11**	**5.0**	**ug/L**	**SW846 8240B**
1,1,2-Trichloroethane	ND	4.0	ug/L	SW846 8240B
Trichloroethene	ND	5.0	ug/L	SW846 8240B
Vinyl chloride	ND	2.4	ug/L	SW846 8240B
Xylenes (total)	ND	5.0	ug/L	SW846 8240B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	100	(86 - 115)
1,2-Dichloroethane-d4	106	(76 - 114)
Toluene-d8	101	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CENFA101 **Matrix.....:** WATER

NOTE(S):

J Estimated result. Result is less than RL.

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METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CENNW101 **Matrix.....:** WATER
MB Lot-Sample #: I7L230000-178

Prep Date.....: 12/22/97 **Analysis Time..:** 10:51
Analysis Date..: 12/22/97 **Prep Batch #...:** 7357178
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8020/GRO
Ethylbenzene	ND	1.0	ug/L	SW846 8020/GRO
Toluene	ND	1.0	ug/L	SW846 8020/GRO
Xylenes (total)	ND	1.0	ug/L	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	103	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER
MB Lot-Sample #: I7L170000-187 **Prep Batch #...:** 7351187						
Silver	ND	0.010	mg/L	SW846 6010A	12/17-12/18/97	CEKF41
		Dilution Factor: 1				
		Analysis Time..: 15:24				
Barium	ND	0.20	mg/L	SW846 6010A	12/17-12/18/97	CEKF41
		Dilution Factor: 1				
		Analysis Time..: 15:24				
Cadmium	ND	0.0050	mg/L	SW846 6010A	12/17-12/18/97	CEKF41
		Dilution Factor: 1				
		Analysis Time..: 15:24				
Chromium	ND	0.010	mg/L	SW846 6010A	12/17-12/18/97	CEKF41
		Dilution Factor: 1				
		Analysis Time..: 15:24				
Calcium	ND	5.0	mg/L	SW846 6010A	12/17-12/18/97	CEKF41
		Dilution Factor: 1				
		Analysis Time..: 15:24				
Magnesium	ND	5.0	mg/L	SW846 6010A	12/17-12/18/97	CEKF41
		Dilution Factor: 1				
		Analysis Time..: 15:24				
Potassium	ND	5.0	mg/L	SW846 6010A	12/17-12/18/97	CEKF41
		Dilution Factor: 1				
		Analysis Time..: 15:24				
Sodium	ND	5.0	mg/L	SW846 6010A	12/17-12/18/97	CEKF41
		Dilution Factor: 1				
		Analysis Time..: 15:24				
MB Lot-Sample #: I7L180000-175 **Prep Batch #...:** 7352175						
Mercury	ND	0.00020	mg/L	SW846 7470A	12/18/97	CELA11
		Dilution Factor: 1				
		Analysis Time..: 13:28				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: I7L300000-146 **Prep Batch #...:** 7364146						
Arsenic	ND	0.010	mg/L	SW846 6010A	12/17-12/30/97	CEQ06101
		Dilution Factor: 1				
		Analysis Time..: 10:59				
Lead	ND	0.0030	mg/L	SW846 6010A	12/17-12/30/97	CEQ06102
		Dilution Factor: 1				
		Analysis Time..: 10:59				
Selenium	ND	0.0050	mg/L	SW846 6010A	12/17-12/30/97	CEQ06103
		Dilution Factor: 1				
		Analysis Time..: 10:59				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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METHOD BLANK REPORT

General Chemistry

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: CEKL2101		MB Lot-Sample #:	I7L170000-236	
	ND	1.0	mg/L	MCAWW 300.0A	12/17/97	7351236
		Dilution Factor: 1				
		Analysis Time..: 08:46				
Fluoride		Work Order #: CEKK9101		MB Lot-Sample #:	I7L170000-226	
	ND	1.0	mg/L	MCAWW 300.0A	12/12/97	7351226
		Dilution Factor: 1				
		Analysis Time..: 17:43				
Nitrate		Work Order #: CEKKD101		MB Lot-Sample #:	I7L170000-227	
	ND	0.50	mg/L	MCAWW 300.0A	12/12/97	7351227
		Dilution Factor: 1				
		Analysis Time..: 17:43				
Orthophosphate		Work Order #: CEKKF101		MB Lot-Sample #:	I7L170000-228	
	ND	1.0	mg/L	MCAWW 300.0A	12/12/97	7351228
		Dilution Factor: 1				
		Analysis Time..: 17:43				
Sulfate		Work Order #: CEKKV101		MB Lot-Sample #:	I7L170000-233	
	ND	1.0	mg/L	MCAWW 300.0A	12/17/97	7351233
		Dilution Factor: 1				
		Analysis Time..: 08:46				
Total Alkalinity		Work Order #: CEME1101		MB Lot-Sample #:	I7L190000-192	
	ND	5.0	mg/L	MCAWW 310.1	12/19/97	7353192
		Dilution Factor: 1				
		Analysis Time..: 13:00				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKEF102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L170000-183
Prep Date.....: 12/15/97 **Analysis Date..:** 12/16/97
Prep Batch #...: 7351183 **Analysis Time..:** 02:57
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	10	9.5	ug/L	95	SW846 8020/GR
Toluene	10	10	ug/L	100	SW846 8020/GR
Ethylbenzene	10	10	ug/L	100	SW846 8020/GR
Xylenes (total)	30	30	ug/L	100	SW846 8020/GR

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKK7102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L170000-225
Prep Date.....: 12/17/97 **Analysis Date..:** 12/24/97
Prep Batch #...: 7351225 **Analysis Time..:** 19:43
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Phenol	**150**	**96**	**ug/L**	**64**	**SW846 8270B**
2-Chlorophenol	**150**	**98**	**ug/L**	**65**	**SW846 8270B**
1,4-Dichlorobenzene	**100**	**54**	**ug/L**	**54**	**SW846 8270B**
N-Nitrosodi-n-propylamine	**100**	**78**	**ug/L**	**78**	**SW846 8270B**
1,2,4-Trichlorobenzene	**100**	**55**	**ug/L**	**55**	**SW846 8270B**
4-Chloro-3-methylphenol	**150**	**95**	**ug/L**	**64**	**SW846 8270B**
Acenaphthene	**100**	**72**	**ug/L**	**72**	**SW846 8270B**
4-Nitrophenol	**150**	**110**	**ug/L**	**76**	**SW846 8270B**
2,4-Dinitrotoluene	**100**	**83**	**ug/L**	**83**	**SW846 8270B**
Pentachlorophenol	**150**	**130**	**ug/L**	**83**	**SW846 8270B**
Pyrene	**100**	**85**	**ug/L**	**85**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	61	(21 - 100)
Phenol-d5	66	(10 - 94)
Nitrobenzene-d5	65	(35 - 114)
2-Fluorobiphenyl	60	(43 - 116)
2,4,6-Tribromophenol	74	(10 - 123)
Terphenyl-d14	76	(33 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CENFA102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L220000-243
Prep Date.....: 12/20/97 **Analysis Date..:** 12/20/97
Prep Batch #...: 7356243 **Analysis Time..:** 11:06
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,1-Dichloroethene	**50**	**54**	**ug/L**	**108**	**SW846 8240B**
Trichloroethene	**50**	**49**	**ug/L**	**99**	**SW846 8240B**
Benzene	**50**	**51**	**ug/L**	**102**	**SW846 8240B**
Toluene	**50**	**51**	**ug/L**	**103**	**SW846 8240B**
Chlorobenzene	**50**	**51**	**ug/L**	**102**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	99	(86 - 115)
1,2-Dichloroethane-d4	107	(76 - 114)
Toluene-d8	99	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CENNW102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L230000-178
Prep Date.....: 12/22/97 **Analysis Date..:** 12/22/97
Prep Batch #...: 7357178 **Analysis Time..:** 09:32
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	20	21	ug/L	104	SW846 8020/GR
Toluene	60	67	ug/L	112	SW846 8020/GR
Ethylbenzene	20	21	ug/L	103	SW846 8020/GR
Xylenes (total)	120	130	ug/L	108	SW846 8020/GR
Methyl tert-butyl ether	40	38	ug/L	95	SW846 8020/GR
Gasoline Range Organics	400	430	ug/L	107	SW846 8020/GR

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: I7L170000-187 **Prep Batch #...:** 7351187							
Potassium	50.0	49.2	mg/L	98	SW846 6010A	12/17-12/18/97	CEKF410D
		Dilution Factor: 1					
		Analysis Time..: 15:26					
Sodium	50.0	51.2	mg/L	102	SW846 6010A	12/17-12/18/97	CEKF410E
		Dilution Factor: 1					
		Analysis Time..: 15:26					
Silver	0.050	0.042	mg/L	84	SW846 6010A	12/17-12/18/97	CEKF410F
		Dilution Factor: 1					
		Analysis Time..: 15:26					
Barium	2.0	2.0	mg/L	99	SW846 6010A	12/17-12/18/97	CEKF410H
		Dilution Factor: 1					
		Analysis Time..: 15:26					
Cadmium	0.050	0.048	mg/L	95	SW846 6010A	12/17-12/18/97	CEKF410J
		Dilution Factor: 1					
		Analysis Time..: 15:26					
Chromium	0.20	0.19	mg/L	95	SW846 6010A	12/17-12/18/97	CEKF410K
		Dilution Factor: 1					
		Analysis Time..: 15:26					
Calcium	50.0	49.2	mg/L	98	SW846 6010A	12/17-12/18/97	CEKF410N
		Dilution Factor: 1					
		Analysis Time..: 15:26					
Magnesium	50.0	50.9	mg/L	102	SW846 6010A	12/17-12/18/97	CEKF410P
		Dilution Factor: 1					
		Analysis Time..: 15:26					
LCS Lot-Sample#: I7L180000-175 **Prep Batch #...:** 7352175							
Mercury	0.0050	0.0041	mg/L	83	SW846 7470A	12/18/97	CELA1102
		Dilution Factor: 1					
		Analysis Time..: 13:30					
LCS Lot-Sample#: I7L300000-146 **Prep Batch #...:** 7364146							

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LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Arsenic	2.0	2.1	mg/L	103	SW846 6010A	12/17-12/30/97	CEQ06104
		Dilution Factor: 1					
		Analysis Time..: 11:04					
Lead	0.50	0.52	mg/L	104	SW846 6010A	12/17-12/30/97	CEQ06105
		Dilution Factor: 1					
		Analysis Time..: 11:04					
Selenium	2.0	2.0	mg/L	102	SW846 6010A	12/17-12/30/97	CEQ06106
		Dilution Factor: 1					
		Analysis Time..: 11:04					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			Work Order #: CEKL2102 LCS Lot-Sample#: I7L170000-236				
	2.5	2.5	mg/L	98	MCAWW 300.0A	12/17/97	7351236
			Dilution Factor: 1				
			Analysis Time..: 08:56				
Fluoride			Work Order #: CEKK9102 LCS Lot-Sample#: I7L170000-226				
	2.5	2.3	mg/L	93	MCAWW 300.0A	12/12/97	7351226
			Dilution Factor: 1				
			Analysis Time..: 17:53				
Nitrate			Work Order #: CEKKD102 LCS Lot-Sample#: I7L170000-227				
	2.5	2.3	mg/L	93	MCAWW 300.0A	12/12/97	7351227
			Dilution Factor: 1				
			Analysis Time..: 17:53				
Orthophosphate			Work Order #: CEKKF102 LCS Lot-Sample#: I7L170000-228				
	2.5	2.3	mg/L	93	MCAWW 300.0A	12/12/97	7351228
			Dilution Factor: 1				
			Analysis Time..: 17:53				
Sulfate			Work Order #: CEKKV102 LCS Lot-Sample#: I7L170000-233				
	5.0	5.5	mg/L	109	MCAWW 300.0A	12/17/97	7351233
			Dilution Factor: 1				
			Analysis Time..: 08:56				
Total Alkalinity			Work Order #: CEME1102 LCS Lot-Sample#: I7L190000-192				
	280	310	mg/L	109	MCAWW 310.1	12/19/97	7353192
			Dilution Factor: 1				
			Analysis Time..: 13:00				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKEF102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L170000-183
Prep Date.....: 12/15/97 **Analysis Date..:** 12/16/97
Prep Batch #...: 7351183 **Analysis Time..:** 02:57
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	95	(85 - 115)	SW846 8020/GRO
Toluene	100	(85 - 115)	SW846 8020/GRO
Ethylbenzene	100	(85 - 115)	SW846 8020/GRO
Xylenes (total)	100	(85 - 115)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKK7102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L170000-225
Prep Date.....: 12/17/97 **Analysis Date..:** 12/24/97
Prep Batch #...: 7351225 **Analysis Time..:** 19:43
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Phenol	**64**	**(25 - 112)**	**SW846 8270B**
2-Chlorophenol	**65**	**(46 - 103)**	**SW846 8270B**
1,4-Dichlorobenzene	**54**	**(37 - 98)**	**SW846 8270B**
N-Nitrosodi-n-propylamine	**78**	**(44 - 109)**	**SW846 8270B**
1,2,4-Trichlorobenzene	**55**	**(38 - 101)**	**SW846 8270B**
4-Chloro-3-methylphenol	**64**	**(48 - 104)**	**SW846 8270B**
Acenaphthene	**72**	**(47 - 112)**	**SW846 8270B**
4-Nitrophenol	**76**	**(14 - 130)**	**SW846 8270B**
2,4-Dinitrotoluene	**83**	**(47 - 106)**	**SW846 8270B**
Pentachlorophenol	**83**	**(33 - 113)**	**SW846 8270B**
Pyrene	**85**	**(55 - 129)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	61	(21 - 100)
Phenol-d5	66	(10 - 94)
Nitrobenzene-d5	65	(35 - 114)
2-Fluorobiphenyl	60	(43 - 116)
2,4,6-Tribromophenol	74	(10 - 123)
Terphenyl-d14	76	(33 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CENFA102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L220000-243
Prep Date.....: 12/20/97 **Analysis Date..:** 12/20/97
Prep Batch #...: 7356243 **Analysis Time..:** 11:06
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	**108**	**(67 - 126)**	**SW846 8240B**
Trichloroethene	**99**	**(76 - 115)**	**SW846 8240B**
Benzene	**102**	**(85 - 121)**	**SW846 8240B**
Toluene	**103**	**(81 - 119)**	**SW846 8240B**
Chlorobenzene	**102**	**(86 - 118)**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	99	(86 - 115)
1,2-Dichloroethane-d4	107	(76 - 114)
Toluene-d8	99	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CENNW102 **Matrix.....:** WATER
LCS Lot-Sample#: I7L230000-178
Prep Date.....: 12/22/97 **Analysis Date..:** 12/22/97
Prep Batch #...: 7357178 **Analysis Time..:** 09:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	104	(85 - 115)	SW846 8020/GRO
Toluene	112	(85 - 115)	SW846 8020/GRO
Ethylbenzene	103	(85 - 115)	SW846 8020/GRO
Xylenes (total)	108	(85 - 115)	SW846 8020/GRO
Methyl tert-butyl ether	95	(85 - 115)	SW846 8020/GRO
Gasoline Range Organics	107	(85 - 115)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: I7L170000-187 **Prep Batch #...:** 7351187					
Potassium	98	(80 - 120)	SW846 6010A	12/17-12/18/97	CEKF410D
		Dilution Factor: 1			
		Analysis Time..: 15:26			
Sodium	102	(80 - 120)	SW846 6010A	12/17-12/18/97	CEKF410E
		Dilution Factor: 1			
		Analysis Time..: 15:26			
Silver	84	(80 - 120)	SW846 6010A	12/17-12/18/97	CEKF410F
		Dilution Factor: 1			
		Analysis Time..: 15:26			
Barium	99	(80 - 120)	SW846 6010A	12/17-12/18/97	CEKF410H
		Dilution Factor: 1			
		Analysis Time..: 15:26			
Cadmium	95	(80 - 120)	SW846 6010A	12/17-12/18/97	CEKF410J
		Dilution Factor: 1			
		Analysis Time..: 15:26			
Chromium	95	(80 - 120)	SW846 6010A	12/17-12/18/97	CEKF410K
		Dilution Factor: 1			
		Analysis Time..: 15:26			
Calcium	98	(80 - 120)	SW846 6010A	12/17-12/18/97	CEKF410N
		Dilution Factor: 1			
		Analysis Time..: 15:26			
Magnesium	102	(80 - 120)	SW846 6010A	12/17-12/18/97	CEKF410P
		Dilution Factor: 1			
		Analysis Time..: 15:26			
LCS Lot-Sample#: I7L180000-175 **Prep Batch #...:** 7352175					
Mercury	83	(81 - 120)	SW846 7470A	12/18/97	CELA1102
		Dilution Factor: 1			
		Analysis Time..: 13:30			
LCS Lot-Sample#: I7L300000-146 **Prep Batch #...:** 7364146					

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Arsenic	103	(80 - 120)	SW846 6010A	12/17-12/30/97	CEQ06104
		Dilution Factor: 1			
		Analysis Time..: 11:04			
Lead	104	(80 - 120)	SW846 6010A	12/17-12/30/97	CEQ06105
		Dilution Factor: 1			
		Analysis Time..: 11:04			
Selenium	102	(80 - 120)	SW846 6010A	12/17-12/30/97	CEQ06106
		Dilution Factor: 1			
		Analysis Time..: 11:04			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: I7L160113 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: CEKL2102	LCS Lot-Sample#: I7L170000-236		
	98	(80 - 120)	MCAWW 300.0A	12/17/97	7351236
		Dilution Factor: 1			
		Analysis Time..: 08:56			
Fluoride		Work Order #: CEKK9102	LCS Lot-Sample#: I7L170000-226		
	93	(80 - 120)	MCAWW 300.0A	12/12/97	7351226
		Dilution Factor: 1			
		Analysis Time..: 17:53			
Nitrate		Work Order #: CEKKD102	LCS Lot-Sample#: I7L170000-227		
	93	(80 - 120)	MCAWW 300.0A	12/12/97	7351227
		Dilution Factor: 1			
		Analysis Time..: 17:53			
Orthophosphate		Work Order #: CEKKF102	LCS Lot-Sample#: I7L170000-228		
	93	(80 - 120)	MCAWW 300.0A	12/12/97	7351228
		Dilution Factor: 1			
		Analysis Time..: 17:53			
Sulfate		Work Order #: CEKKV102	LCS Lot-Sample#: I7L170000-233		
	109	(80 - 120)	MCAWW 300.0A	12/17/97	7351233
		Dilution Factor: 1			
		Analysis Time..: 08:56			
Total Alkalinity		Work Order #: CEME1102	LCS Lot-Sample#: I7L190000-192		
	109	(80 - 120)	MCAWW 310.1	12/19/97	7353192
		Dilution Factor: 1			
		Analysis Time..: 13:00			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEDJF10H-MS **Matrix.....:** WATER
MS Lot-Sample #: I7L050117-001 CEDJF10J-MSD
Date Sampled...: 12/01/97 00:00 **Date Received..:** 12/03/97
Prep Date.....: 12/20/97 **Analysis Date..:** 12/20/97
Prep Batch #...: 7356243 **Analysis Time..:** 12:40
Dilution Factor: 200

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	**ND**	**10000**	**11000**	**ug/L**	**106**		**SW846 8240B**
	ND	**10000**	**10000**	**ug/L**	**104**	**1.2**	**SW846 8240B**
Trichloroethene	**ND**	**10000**	**9600**	**ug/L**	**96**		**SW846 8240B**
	ND	**10000**	**9400**	**ug/L**	**94**	**1.2**	**SW846 8240B**
Benzene	**ND**	**10000**	**9800**	**ug/L**	**98**		**SW846 8240B**
	ND	**10000**	**10000**	**ug/L**	**100**	**2.0**	**SW846 8240B**
Toluene	**ND**	**10000**	**9900**	**ug/L**	**99**		**SW846 8240B**
	ND	**10000**	**10000**	**ug/L**	**102**	**2.5**	**SW846 8240B**
Chlorobenzene	**ND**	**10000**	**9900**	**ug/L**	**99**		**SW846 8240B**
	ND	**10000**	**10000**	**ug/L**	**100**	**0.79**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(86 - 115)
	102	(86 - 115)
1,2-Dichloroethane-d4	107	(76 - 114)
	105	(76 - 114)
Toluene-d8	99	(88 - 110)
	102	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEHV7104-MS **Matrix.....:** WATER
MS Lot-Sample #: I7L130109-001 CEHV7105-MSD
Date Sampled...: 12/12/97 12:00 **Date Received..:** 12/13/97
Prep Date.....: 12/22/97 **Analysis Date..:** 12/22/97
Prep Batch #...: 7357178 **Analysis Time..:** 19:22
Dilution Factor: 50

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	4400	1000	5500	ug/L	110		SW846 8020/GRO
	4400	1000	5500	ug/L	101	1.5	SW846 8020/GRO
Toluene	1300	3000	4600	ug/L	111		SW846 8020/GRO
	1300	3000	4500	ug/L	108	1.9	SW846 8020/GRO
Ethylbenzene	1700	1000	2800	ug/L	114		SW846 8020/GRO
	1700	1000	2900	ug/L	123	3.0	SW846 8020/GRO
Xylenes (total)	3200	6000	10000	ug/L	112		SW846 8020/GRO
	3200	6000	9400	ug/L	102	6.3	SW846 8020/GRO
Methyl tert-butyl ether	ND	2000	2100	ug/L	103		SW846 8020/GRO
	ND	2000	2000	ug/L	101	1.2	SW846 8020/GRO
Gasoline Range Organics	20000	20000	45000	ug/L	125		SW846 8020/GRO
	20000	20000	40000	ug/L	98	13	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	117	(75 - 125)
	108	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER
Date Sampled...: 12/16/97 16:00 **Date Received..:** 12/17/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I7L160113-001 **Prep Batch #...:** 7351187									
Silver									
	ND	0.050	0.046	mg/L	91		SW846 6010A	12/17-12/18/97	CEJQJ10U
	ND	0.050	0.042	mg/L	84	7.8	SW846 6010A	12/17-12/18/97	CEJQJ10V
			Dilution Factor: 1						
			Analysis Time..: 15:43						
Barium									
	0.22	2.0	2.1	mg/L	96		SW846 6010A	12/17-12/18/97	CEJQJ110
	0.22	2.0	2.3	mg/L	102	5.8	SW846 6010A	12/17-12/18/97	CEJQJ111
			Dilution Factor: 1						
			Analysis Time..: 15:43						
Cadmium									
	ND	0.050	0.051	mg/L	101		SW846 6010A	12/17-12/18/97	CEJQJ112
	ND	0.050	0.054	mg/L	108	6.4	SW846 6010A	12/17-12/18/97	CEJQJ113
			Dilution Factor: 1						
			Analysis Time..: 15:43						
Chromium									
	ND	0.20	0.19	mg/L	93		SW846 6010A	12/17-12/18/97	CEJQJ114
	ND	0.20	0.20	mg/L	98	5.0	SW846 6010A	12/17-12/18/97	CEJQJ115
			Dilution Factor: 1						
			Analysis Time..: 15:43						
Calcium									
	158	50.0	201	mg/L	86		SW846 6010A	12/17-12/18/97	CEJQJ11A
	158	50.0	209	mg/L	102	3.9	SW846 6010A	12/17-12/18/97	CEJQJ11C
			Dilution Factor: 1						
			Analysis Time..: 15:43						
Magnesium									
	19.3	50.0	68.3	mg/L	98		SW846 6010A	12/17-12/18/97	CEJQJ11D
	19.3	50.0	72.2	mg/L	106	5.5	SW846 6010A	12/17-12/18/97	CEJQJ11E
			Dilution Factor: 1						
			Analysis Time..: 15:43						
Potassium									
	5.7	50.0	54.1	mg/L	97		SW846 6010A	12/17-12/18/97	CEJQJ10P
	5.7	50.0	57.8	mg/L	104	6.7	SW846 6010A	12/17-12/18/97	CEJQJ10Q
			Dilution Factor: 1						
			Analysis Time..: 15:43						

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER
Date Sampled...: 12/16/97 16:00 **Date Received..:** 12/17/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Sodium									
	241	50.0	279 NC	mg/L			SW846 6010A	12/17-12/18/97	CEJQJ10R
	241	50.0	294 NC	mg/L			SW846 6010A	12/17-12/18/97	CEJQJ10T
			Dilution Factor: 1						
			Analysis Time..: 15:43						
MS Lot-Sample #: I7L160113-001 **Prep Batch #...:** 7352175									
Mercury									
	ND	0.001	0.00079	mg/L	79		SW846 7470A	12/18/97	CEJQJ125
	ND	0.001	0.00088	mg/L	88	12	SW846 7470A	12/18/97	CEJQJ126
			Dilution Factor: 1						
			Analysis Time..: 13:35						
MS Lot-Sample #: I7L160113-001 **Prep Batch #...:** 7364146									
Arsenic									
	ND	2.0	2.1	mg/L	103		SW846 6010A	12/17-12/30/97	CEJQJ12M
	ND	2.0	2.1	mg/L	106	3.1	SW846 6010A	12/17-12/30/97	CEJQJ12N
			Dilution Factor: 1						
			Analysis Time..: 11:20						
Lead									
	ND	0.50	0.50	mg/L	101		SW846 6010A	12/17-12/30/97	CEJQJ12P
	ND	0.50	0.52	mg/L	103	2.6	SW846 6010A	12/17-12/30/97	CEJQJ12Q
			Dilution Factor: 1						
			Analysis Time..: 11:20						
Selenium									
	ND	2.0	2.0	mg/L	102		SW846 6010A	12/17-12/30/97	CEJQJ12R
	ND	2.0	2.1	mg/L	105	2.9	SW846 6010A	12/17-12/30/97	CEJQJ12T
			Dilution Factor: 1						
			Analysis Time..: 11:20						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and RPD were not calculated.

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MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEJQN10P-MS **Matrix.....:** WATER
MS Lot-Sample #: I7L160113-002 CEJQN10Q-MSD
Date Sampled...: 12/11/97 11:45 **Date Received..:** 12/12/97
Prep Date.....: 12/15/97 **Analysis Date..:** 12/16/97
Prep Batch #...: 7351183 **Analysis Time..:** 01:38
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	ND	10	9.8	ug/L	98		SW846 8020/GRO
	ND	10	9.5	ug/L	95	3.6	SW846 8020/GRO
Toluene	ND	10	10	ug/L	98		SW846 8020/GRO
	ND	10	9.9	ug/L	98	0.93	SW846 8020/GRO
Ethylbenzene	ND	10	10	ug/L	100		SW846 8020/GRO
	ND	10	10	ug/L	100	0.43	SW846 8020/GRO
Xylenes (total)	ND	30	30	ug/L	101		SW846 8020/GRO
	ND	30	30	ug/L	100	0.96	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	98	(75 - 125)
	97	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKFT106-MS **Matrix.....:** WATER
MS Lot-Sample #: I7L170112-001 CEKFT107-MSD
Date Sampled...: 12/16/97 16:00 **Date Received..:** 12/17/97
Prep Date.....: 12/17/97 **Analysis Date..:** 12/24/97
Prep Batch #...: 7351225 **Analysis Time..:** 21:16
Dilution Factor: 50

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Phenol	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
2-Chlorophenol	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
1,4-Dichlorobenzene	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
N-Nitrosodi-n-propylamine	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
1,2,4-Trichlorobenzene	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
4-Chloro-3-methylphenol	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
Acenaphthene	**1400**		**NC,DIL**	**ug/L**			**SW846 8270B**
	1400		**NC,DIL**	**ug/L**			**SW846 8270B**
4-Nitrophenol	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
2,4-Dinitrotoluene	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
Pentachlorophenol	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**
Pyrene	**ND**		**NC,DIL**	**ug/L**			**SW846 8270B**
	ND		**NC,DIL**	**ug/L**			**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	NC,DIL	(21 - 100)
	NC,DIL	(21 - 100)
Phenol-d5	NC,DIL	(10 - 94)
	NC,DIL	(10 - 94)
Nitrobenzene-d5	NC,DIL	(35 - 114)
	NC,DIL	(35 - 114)
2-Fluorobiphenyl	NC,DIL	(43 - 116)
	NC,DIL	(43 - 116)
2,4,6-Tribromophenol	NC,DIL	(10 - 123)
	NC,DIL	(10 - 123)
Terphenyl-d14	NC,DIL	(33 - 141)
	NC,DIL	(33 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

NC The recovery and RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

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MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: I7L160113 **Matrix.....:** WATER
Date Sampled...: 12/16/97 16:00 **Date Received..:** 12/17/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT		UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			WO#: CEJQJ122-MS/CEJQJ123-MSD MS Lot-Sample #: I7L160113-001							
	354	125	453		mg/L	79		MCAWW 300.0A	12/17/97	7351236
	354	125	442	N	mg/L	70	2.3	MCAWW 300.0A	12/17/97	7351236
			Dilution Factor: 1							
			Analysis Time..: 09:30							
Fluoride			WO#: CEJQJ11M-MS/CEJQJ11N-MSD MS Lot-Sample #: I7L160113-001							
	3.3	2.5	5.6		mg/L	93		MCAWW 300.0A	12/12/97	7351226
	3.3	2.5	5.7		mg/L	95	1.0	MCAWW 300.0A	12/12/97	7351226
			Dilution Factor: 1							
			Analysis Time..: 18:27							
Nitrate			WO#: CEJQJ11Q-MS/CEJQJ11R-MSD MS Lot-Sample #: I7L160113-001							
	1.2	2.5	3.6		mg/L	97		MCAWW 300.0A	12/12/97	7351227
	1.2	2.5	3.6		mg/L	98	0.08	MCAWW 300.0A	12/12/97	7351227
			Dilution Factor: 1							
			Analysis Time..: 18:27							
Orthophosphate			WO#: CEJQJ11U-MS/CEJQJ11V-MSD MS Lot-Sample #: I7L160113-001							
	ND	2.5	1.8	N	mg/L	74		MCAWW 300.0A	12/12/97	7351228
	ND	2.5	2.0		mg/L	79	7.2	MCAWW 300.0A	12/12/97	7351228
			Dilution Factor: 1							
			Analysis Time..: 18:27							
Sulfate			WO#: CEJQJ11X-MS/CEJQJ120-MSD MS Lot-Sample #: I7L160113-001							
	95.9	250	331		mg/L	94		MCAWW 300.0A	12/17/97	7351233
	95.9	250	312		mg/L	87	5.7	MCAWW 300.0A	12/17/97	7351233
			Dilution Factor: 1							
			Analysis Time..: 09:30							

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEDJF10H-MS **Matrix.....:** WATER
MS Lot-Sample #: I7L050117-001 CEDJF10J-MSD
Date Sampled...: 12/01/97 00:00 **Date Received..:** 12/03/97
Prep Date.....: 12/20/97 **Analysis Date..:** 12/20/97
Prep Batch #...: 7356243 **Analysis Time..:** 12:40
Dilution Factor: 200

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**106**	**(67 - 129)**			**SW846 8240B**
	104	**(67 - 129)**	**1.2**	**(0-14)**	**SW846 8240B**
Trichloroethene	**96**	**(76 - 118)**			**SW846 8240B**
	94	**(76 - 118)**	**1.2**	**(0-8.9)**	**SW846 8240B**
Benzene	**98**	**(72 - 137)**			**SW846 8240B**
	100	**(72 - 137)**	**2.0**	**(0-10)**	**SW846 8240B**
Toluene	**99**	**(81 - 121)**			**SW846 8240B**
	102	**(81 - 121)**	**2.5**	**(0-12)**	**SW846 8240B**
Chlorobenzene	**99**	**(88 - 118)**			**SW846 8240B**
	100	**(88 - 118)**	**0.79**	**(0-12)**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(86 - 115)
	102	(86 - 115)
1,2-Dichloroethane-d4	107	(76 - 114)
	105	(76 - 114)
Toluene-d8	99	(88 - 110)
	102	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEHV7104-MS **Matrix.....:** WATER
MS Lot-Sample #: I7L130109-001 CEHV7105-MSD
Date Sampled...: 12/12/97 12:00 **Date Received..:** 12/13/97
Prep Date.....: 12/22/97 **Analysis Date..:** 12/22/97
Prep Batch #...: 7357178 **Analysis Time..:** 19:22
Dilution Factor: 50

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	110	(75 - 125)			SW846 8020/GRO
	101	(75 - 125)	1.5	(0-30)	SW846 8020/GRO
Toluene	111	(75 - 125)			SW846 8020/GRO
	108	(75 - 125)	1.9	(0-30)	SW846 8020/GRO
Ethylbenzene	114	(75 - 125)			SW846 8020/GRO
	123	(75 - 125)	3.0	(0-30)	SW846 8020/GRO
Xylenes (total)	112	(75 - 125)			SW846 8020/GRO
	102	(75 - 125)	6.3	(0-30)	SW846 8020/GRO
Methyl tert-butyl ether	103	(75 - 125)			SW846 8020/GRO
	101	(75 - 125)	1.2	(0-30)	SW846 8020/GRO
Gasoline Range Organics	125	(75 - 125)			SW846 8020/GRO
	98	(75 - 125)	13	(0-30)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	117	(75 - 125)
	108	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER
Date Sampled...: 12/16/97 16:00 **Date Received..:** 12/17/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I7L160113-001 **Prep Batch #...:** 7351187							
Silver	91	(80 - 120)			SW846 6010A	12/17-12/18/97	CEJQJ10U
	84	(80 - 120)	7.8	(0-20)	SW846 6010A	12/17-12/18/97	CEJQJ10V
		Dilution Factor: 1					
		Analysis Time..: 15:43					
Barium	96	(80 - 120)			SW846 6010A	12/17-12/18/97	CEJQJ110
	102	(80 - 120)	5.8	(0-20)	SW846 6010A	12/17-12/18/97	CEJQJ111
		Dilution Factor: 1					
		Analysis Time..: 15:43					
Cadmium	101	(80 - 120)			SW846 6010A	12/17-12/18/97	CEJQJ112
	108	(80 - 120)	6.4	(0-20)	SW846 6010A	12/17-12/18/97	CEJQJ113
		Dilution Factor: 1					
		Analysis Time..: 15:43					
Chromium	93	(80 - 120)			SW846 6010A	12/17-12/18/97	CEJQJ114
	98	(80 - 120)	5.0	(0-20)	SW846 6010A	12/17-12/18/97	CEJQJ115
		Dilution Factor: 1					
		Analysis Time..: 15:43					
Calcium	86	(80 - 120)			SW846 6010A	12/17-12/18/97	CEJQJ11A
	102	(80 - 120)	3.9	(0-20)	SW846 6010A	12/17-12/18/97	CEJQJ11C
		Dilution Factor: 1					
		Analysis Time..: 15:43					
Magnesium	98	(80 - 120)			SW846 6010A	12/17-12/18/97	CEJQJ11D
	106	(80 - 120)	5.5	(0-20)	SW846 6010A	12/17-12/18/97	CEJQJ11E
		Dilution Factor: 1					
		Analysis Time..: 15:43					
Potassium	97	(80 - 120)			SW846 6010A	12/17-12/18/97	CEJQJ10P
	104	(80 - 120)	6.7	(0-20)	SW846 6010A	12/17-12/18/97	CEJQJ10Q
		Dilution Factor: 1					
		Analysis Time..: 15:43					
Sodium	NC	(80 - 120)			SW846 6010A	12/17-12/18/97	CEJQJ10R
	NC	(80 - 120)		(0-20)	SW846 6010A	12/17-12/18/97	CEJQJ10T
		Dilution Factor: 1					
		Analysis Time..: 15:43					

MS Lot-Sample #: I7L160113-001 **Prep Batch #...:** 7352175

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7L160113 **Matrix.....:** WATER
Date Sampled...: 12/16/97 16:00 **Date Received..:** 12/17/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Mercury	79	(75 - 125)			SW846 7470A	12/18/97	CEJQJ125
	88	(75 - 125)	12	(0-20)	SW846 7470A	12/18/97	CEJQJ126
		Dilution Factor: 1					
		Analysis Time..: 13:35					
MS Lot-Sample #: I7L160113-001 **Prep Batch #...:** 7364146							
Arsenic	103	(80 - 120)			SW846 6010A	12/17-12/30/97	CEJQJ12M
	106	(80 - 120)	3.1	(0-20)	SW846 6010A	12/17-12/30/97	CEJQJ12N
		Dilution Factor: 1					
		Analysis Time..: 11:20					
Lead	101	(80 - 120)			SW846 6010A	12/17-12/30/97	CEJQJ12P
	103	(80 - 120)	2.6	(0-20)	SW846 6010A	12/17-12/30/97	CEJQJ12Q
		Dilution Factor: 1					
		Analysis Time..: 11:20					
Selenium	102	(80 - 120)			SW846 6010A	12/17-12/30/97	CEJQJ12R
	105	(80 - 120)	2.9	(0-20)	SW846 6010A	12/17-12/30/97	CEJQJ12T
		Dilution Factor: 1					
		Analysis Time..: 11:20					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and RPD were not calculated.

Quanterra
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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7L160113 **Work Order #...:** CEJQN10P-MS **Matrix.....:** WATER
MS Lot-Sample #: I7L160113-002 CEJQN10Q-MSD
Date Sampled...: 12/11/97 11:45 **Date Received..:** 12/12/97
Prep Date.....: 12/15/97 **Analysis Date..:** 12/16/97
Prep Batch #...: 7351183 **Analysis Time..:** 01:38
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	98	(75 - 125)			SW846 8020/GRO
	95	(75 - 125)	3.6	(0-30)	SW846 8020/GRO
Toluene	98	(75 - 125)			SW846 8020/GRO
	98	(75 - 125)	0.93	(0-30)	SW846 8020/GRO
Ethylbenzene	100	(75 - 125)			SW846 8020/GRO
	100	(75 - 125)	0.43	(0-30)	SW846 8020/GRO
Xylenes (total)	101	(75 - 125)			SW846 8020/GRO
	100	(75 - 125)	0.96	(0-30)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	98	(75 - 125)
	97	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: I7L160113 **Matrix.....:** WATER
Date Sampled...: 12/16/97 16:00 **Date Received..:** 12/17/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#: CEJQJ122-MS/CEJQJ123-MSD				MS Lot-Sample #:	I7L160113-001
	79	(75 - 125)			MCAWW 300.0A	12/17/97	7351236
	70 N	(75 - 125)	2.3	(0-20)	MCAWW 300.0A	12/17/97	7351236
		Dilution Factor: 1					
		Analysis Time..: 09:30					
Fluoride		WO#: CEJQJ11M-MS/CEJQJ11N-MSD				MS Lot-Sample #:	I7L160113-001
	93	(75 - 125)			MCAWW 300.0A	12/12/97	7351226
	95	(75 - 125)	1.0	(0-20)	MCAWW 300.0A	12/12/97	7351226
		Dilution Factor: 1					
		Analysis Time..: 18:27					
Nitrate		WO#: CEJQJ11Q-MS/CEJQJ11R-MSD				MS Lot-Sample #:	I7L160113-001
	97	(75 - 125)			MCAWW 300.0A	12/12/97	7351227
	98	(75 - 125)	0.08	(0-20)	MCAWW 300.0A	12/12/97	7351227
		Dilution Factor: 1					
		Analysis Time..: 18:27					
Orthophosphate		WO#: CEJQJ11U-MS/CEJQJ11V-MSD				MS Lot-Sample #:	I7L160113-001
	74 N	(75 - 125)			MCAWW 300.0A	12/12/97	7351228
	79	(75 - 125)	7.2	(0-20)	MCAWW 300.0A	12/12/97	7351228
		Dilution Factor: 1					
		Analysis Time..: 18:27					
Sulfate		WO#: CEJQJ11X-MS/CEJQJ120-MSD				MS Lot-Sample #:	I7L160113-001
	94	(75 - 125)			MCAWW 300.0A	12/17/97	7351233
	87	(75 - 125)	5.7	(0-20)	MCAWW 300.0A	12/17/97	7351233
		Dilution Factor: 1					
		Analysis Time..: 09:30					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: I7L160113 **Work Order #...:** CEKFT106-MS **Matrix.....:** WATER
MS Lot-Sample #: I7L170112-001 CEKFT107-MSD
Date Sampled...: 12/16/97 16:00 **Date Received..:** 12/17/97
Prep Date.....: 12/17/97 **Analysis Date..:** 12/24/97
Prep Batch #...: 7351225 **Analysis Time..:** 21:16
Dilution Factor: 50

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	**NC,DIL**	**(32 - 102)**			**SW846 8270B**
	NC,DIL	**(32 - 102)**		**(0-27)**	**SW846 8270B**
2-Chlorophenol	**NC,DIL**	**(36 - 99)**			**SW846 8270B**
	NC,DIL	**(36 - 99)**		**(0-35)**	**SW846 8270B**
1,4-Dichlorobenzene	**NC,DIL**	**(36 - 103)**			**SW846 8270B**
	NC,DIL	**(36 - 103)**		**(0-22)**	**SW846 8270B**
N-Nitrosodi-n-propylamine	**NC,DIL**	**(47 - 103)**			**SW846 8270B**
	NC,DIL	**(47 - 103)**		**(0-25)**	**SW846 8270B**
1,2,4-Trichlorobenzene	**NC,DIL**	**(49 - 93)**			**SW846 8270B**
	NC,DIL	**(49 - 93)**		**(0-19)**	**SW846 8270B**
4-Chloro-3-methylphenol	**NC,DIL**	**(38 - 123)**			**SW846 8270B**
	NC,DIL	**(38 - 123)**		**(0-38)**	**SW846 8270B**
Acenaphthene	**NC,DIL**	**(63 - 97)**			**SW846 8270B**
	NC,DIL	**(63 - 97)**		**(0-19)**	**SW846 8270B**
4-Nitrophenol	**NC,DIL**	**(32 - 118)**			**SW846 8270B**
	NC,DIL	**(32 - 118)**		**(0-27)**	**SW846 8270B**
2,4-Dinitrotoluene	**NC,DIL**	**(41 - 107)**			**SW846 8270B**
	NC,DIL	**(41 - 107)**		**(0-34)**	**SW846 8270B**
Pentachlorophenol	**NC,DIL**	**(13 - 124)**			**SW846 8270B**
	NC,DIL	**(13 - 124)**		**(0-76)**	**SW846 8270B**
Pyrene	**NC,DIL**	**(60 - 113)**			**SW846 8270B**
	NC,DIL	**(60 - 113)**		**(0-12)**	**SW846 8270B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	NC,DIL	(21 - 100)
	NC,DIL	(21 - 100)
Phenol-d5	NC,DIL	(10 - 94)
	NC,DIL	(10 - 94)
Nitrobenzene-d5	NC,DIL	(35 - 114)
	NC,DIL	(35 - 114)
2-Fluorobiphenyl	NC,DIL	(43 - 116)
	NC,DIL	(43 - 116)
2,4,6-Tribromophenol	NC,DIL	(10 - 123)
	NC,DIL	(10 - 123)
Terphenyl-d14	NC,DIL	(33 - 141)
	NC,DIL	(33 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

NC The recovery and RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I7L160113 **Work Order #...:** CEJQJ-SMP **Matrix.....:** WATER
CEJQJ-DUP
Date Sampled...: 12/11/97 11:10 **Date Received..:** 12/12/97

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #:	I7L160113-001	
	354	342	mg/L	3.5	(0-20)	MCAWW 300.0A	12/17/97	7351236
		Dilution Factor: 50						
		Analysis Time..: 09:08						
Sulfate						SD Lot-Sample #:	I7L160113-001	
	95.9	96.9	mg/L	0.97	(0-20)	MCAWW 300.0A	12/17/97	7351233
		Dilution Factor: 50						
		Analysis Time..: 09:08						
Fluoride						SD Lot-Sample #:	I7L160113-001	
	3.3	3.3	mg/L	0.24	(0-20)	MCAWW 300.0A	12/12/97	7351226
		Dilution Factor: 1						
		Analysis Time..: 18:05						
Nitrate						SD Lot-Sample #:	I7L160113-001	
	1.2	1.2	mg/L	0.20	(0-20)	MCAWW 300.0A	12/12/97	7351227
		Dilution Factor: 1						
		Analysis Time..: 18:05						
Orthophosphate						SD Lot-Sample #:	I7L160113-001	
	ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	12/12/97	7351228
		Dilution Factor: 1						
		Analysis Time..: 18:05						
Total Alkalinity						SD Lot-Sample #:	I7L160113-001	
	350	360	mg/L	2.3	(0-20)	MCAWW 310.1	12/19/97	7353192
		Dilution Factor: 1						
		Analysis Time..: 00:00						

Chain of Custody Record

Quanterra

I7L160113

QUA-4149-1

Client: Brown and Caldwell	Project Manager: Rick Rexroad	Date: 12/11/97	Page 1 of 2
Address: 1415 Louisianna Street #2500	Telephone Number (Area Code)/Fax Number: 713-759-0999	Lab Location:	
City: Houston State: TX Zip Code: 77002	Site Contact: Tim Jenkins		
Project Number/Name: 6240.01	Carrier/Waybill Number: ~~Tim Jenkins~~ AB 8267373542		
Contract/Purchase Order/Quote Number: BJS Hobbs (Nowsco)			

Sample I.D. Number and Description	Date	Time	Sample Type	Containers Volume	Containers Type	Containers No.	Preservative	Condition on Receipt/Comments	Total Metals 3050/6010/7000 As,Ba,Pb,Cd,Cr,Hg Silver, Selenium	BTEX 8020	PAH 8310	Major Cations + Anions	Aromatic + Halogenated 8240/8270/8100 Organics
MW-1	12/11/97	1110	W	~~100ml~~ 40ml	Voa Vial	4	HCl		X	X	X	X	(1)
				1 liter	Plastic	1	Nitric						
				1 liter	Amber Gl	2	None						
MW-3	12/11/97	1145	W	40 ml	Voa Vial	4	HCl		X	X	X	X	(1)
				1 liter	Plastic	1	Nitric						
				1 liter	Amber Gl	2	None						
MW-2	12/11/97	1220	W	40ml	VoaVial	4	HCl		X	X	X	X	(1)
				1 liter	Plastic	1	Nitric						
				1 liter	Amber	2	None						
Trip Blank	"		W	40ml	Voa Vial	2				X			

Special Instructions: (1) - Sample With Highest BTXE - Analyze for aromatic + Halogenated Organics

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ Normal ☐ Rush ☐ Other ______

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific Requirements (Specify)

1. Relinquished By: [signature] Thomas A. Walzer	Date: 12/11/97	Time: ~~1500~~ 1700	1. Received By: AirBorne	Date: 12/11/97	Time: ~~1500~~ 1700
2. Relinquished By	Date	Time	2. Received By: [signature]	Date: 12/12/97	Time: [illegible]
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

Quanterra

IL160113

QUA-4149-1

Client: Brown and Caldwell	Project Manager: Rick Rexroad	Date: 12/11/97	Page 2 of 2
Address	Telephone Number (Area Code)/Fax Number: 713 759-0999	Lab Location	Analysis
City / State / Zip Code	Site Contact: Tim Jenkins		
Project Number/Name: 6240.01	Carrier/Waybill Number: Airborne 8267373542		
Contract/Purchase Order/Quote Number			

Sample I.D. Number and Description	Date	Time	Sample Type	Containers: Volume	Containers: Type	Containers: No.	Preservative	Condition on Receipt/Comments	Total Metals	BTEX 8020	TPH 8310	Major Cations + Anions
MW-6240	12/11/97	—	W	40ml	Clear Vial	4	HCl	Cool 4°C	X	X	X	X
				1L	Plastic	1	Nitric	12/12/97				
				1L	Amber Gl	2	None					

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ Normal ☐ Rush ☐ Other _____

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Thomas A. Wafer	12/11/97	1700	1. Received By: Airborne	12/11/97	1700
2. Relinquished By			2. Received By	12/12/97	948
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT		UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			WO#: CE5MG111-MS/CE5MG112-MSD			MS Lot-Sample #: I7K210132-010				
	464	250	699		mg/L	94		MCAWW 300.0A	11/25/97	7330191
	464	250	680		mg/L	86	2.8	MCAWW 300.0A	11/25/97	7330191
			Dilution Factor: 1							
			Analysis Time..: 12:41							
Fluoride			WO#: CE5MG10W-MS/CE5MG10X-MSD			MS Lot-Sample #: I7K210132-010				
	3.6	2.5	6.6		mg/L	120		MCAWW 300.0A	11/25/97	7330187
	3.6	2.5	6.0		mg/L	94	10	MCAWW 300.0A	11/25/97	7330187
			Dilution Factor: 1							
			Analysis Time..: 11:04							
Nitrate			WO#: CE5MG10T-MS/CE5MG10U-MSD			MS Lot-Sample #: I7K210132-010				
	4.1	2.5	6.8		mg/L	106		MCAWW 300.0A	11/25/97	7330181
	4.1	2.5	6.7		mg/L	102	1.5	MCAWW 300.0A	11/25/97	7330181
			Dilution Factor: 1							
			Analysis Time..: 11:04							
Orthophosphate			WO#: CE5MG10P-MS/CE5MG10Q-MSD			MS Lot-Sample #: I7K210132-010				
	ND	2.5	2.3		mg/L	90		MCAWW 300.0A	11/25/97	7330173
	ND	2.5	2.2		mg/L	88	2.3	MCAWW 300.0A	11/25/97	7330173
			Dilution Factor: 1							
			Analysis Time..: 10:53							
Reactive Cyanide			WO#: CE5M410G-MS/CE5M410H-MSD			MS Lot-Sample #: I7K210132-002				
	ND	1.3	0.58		mg/L	43		SW846 7.3.3	11/25-12/01/97	7329187
	ND	1.3	0.56		mg/L	42	2.5	SW846 7.3.3	11/25-12/01/97	7329187
			Dilution Factor: 1							
			Analysis Time..: 15:32							
Sulfate			WO#: CE5MG114-MS/CE5MG115-MSD			MS Lot-Sample #: I7K210132-010				
	159	500	792	N	mg/L	127		MCAWW 300.0A	11/25/97	7330192
	159	500	687		mg/L	106	14	MCAWW 300.0A	11/25/97	7330192
			Dilution Factor: 1							
			Analysis Time..: 12:41							

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I7L010105-006 **Prep Batch #...:** 7335237							
Arsenic	103	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G122
	102	(80 - 120)	1.5	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G123
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Barium	105	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G11Q
	102	(80 - 120)	3.1	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G11R
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Cadmium	97	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G11U
	98	(80 - 120)	1.8	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G11V
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Calcium	104	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G12C
	101	(80 - 120)	2.0	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G12D
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Chromium	106	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G10U
	103	(80 - 120)	2.7	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G10V
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Lead	105	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G125
	104	(80 - 120)	0.71	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G126
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Magnesium	105	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G12F
	102	(80 - 120)	2.8	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G12G
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Potassium	104	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G11M
	99	(80 - 120)	4.8	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G11N
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Selenium	102	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G128
	98	(80 - 120)	4.9	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G129
		Dilution Factor: 1					
		Analysis Time..: 12:48					

(Continued on next page)

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	100	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G11X
	95	(80 - 120)	5.0	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G120
		Dilution Factor: 1					
		Analysis Time..: 12:58					
Sodium	101	(80 - 120)			SW846 6010A	12/01-12/03/97	CEA6G11J
	97	(80 - 120)	2.7	(0-20)	SW846 6010A	12/01-12/03/97	CEA6G11K
		Dilution Factor: 1					
		Analysis Time..: 12:58					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE1WL103-MS **Matrix.....:** SOLID
MS Lot-Sample #: I7K140121-001 CE1WL104-MSD
Date Sampled...: 11/10/97 00:00 **Date Received..:** 11/13/97
Prep Date.....: 11/20/97 **Analysis Date..:** 11/20/97
Prep Batch #...: 7325184 **Analysis Time..:** 22:16
Dilution Factor: 1 **% Moisture.....:** 0.0

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	37 a,MSC	(75 - 125)			SW846 8020/GRO
	36 a	(75 - 125)	3.2	(0-30)	SW846 8020/GRO
Toluene	100	(75 - 125)			SW846 8020/GRO
	99	(75 - 125)	0.92	(0-30)	SW846 8020/GRO
Ethylbenzene	98	(75 - 125)			SW846 8020/GRO
	98	(75 - 125)	0.38	(0-30)	SW846 8020/GRO
Xylenes (total)	102	(75 - 125)			SW846 8020/GRO
	102	(75 - 125)	0.50	(0-30)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	95	(75 - 125)
	97	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I7K200137-001 **Prep Batch #...:** 7337204							
Leach Date.....: 12/01/97 **Leach Batch #..:** P733605							
Arsenic	107	(80 - 120)			SW846 6010A	12/03-12/04/97	CE4RL112
	108	(80 - 120)	1.1	(0-20)	SW846 6010A	12/03-12/04/97	CE4RL113
		Dilution Factor: 1					
		Analysis Time..: 16:27					
Barium	108	(80 - 120)			SW846 6010A	12/03-12/04/97	CE4RL10M
	108	(80 - 120)	0.29	(0-20)	SW846 6010A	12/03-12/04/97	CE4RL10N
		Dilution Factor: 1					
		Analysis Time..: 16:27					
Cadmium	103	(80 - 120)			SW846 6010A	12/03-12/04/97	CE4RL10P
	103	(80 - 120)	0.56	(0-20)	SW846 6010A	12/03-12/04/97	CE4RL10Q
		Dilution Factor: 1					
		Analysis Time..: 16:27					
Chromium	108	(80 - 120)			SW846 6010A	12/03-12/04/97	CE4RL10R
	110	(80 - 120)	1.4	(0-20)	SW846 6010A	12/03-12/04/97	CE4RL10T
		Dilution Factor: 1					
		Analysis Time..: 16:27					
Lead	103	(80 - 120)			SW846 6010A	12/03-12/04/97	CE4RL10U
	105	(80 - 120)	1.8	(0-20)	SW846 6010A	12/03-12/04/97	CE4RL10V
		Dilution Factor: 1					
		Analysis Time..: 16:27					
Selenium	95	(80 - 120)			SW846 6010A	12/03-12/04/97	CE4RL10W
	103	(80 - 120)	8.3	(0-20)	SW846 6010A	12/03-12/04/97	CE4RL10X
		Dilution Factor: 1					
		Analysis Time..: 16:27					
Silver	97	(80 - 120)			SW846 6010A	12/03-12/04/97	CE4RL110
	103	(80 - 120)	5.8	(0-20)	SW846 6010A	12/03-12/04/97	CE4RL111
		Dilution Factor: 1					
		Analysis Time..: 16:27					
MS Lot-Sample #: I7K200137-001 **Prep Batch #...:** 7339177							
Leach Date.....: 12/01/97 **Leach Batch #..:** P733605							
Mercury	66 N	(75 - 125)			SW846 7470	12/05/97	CE4RL114
	88 *	(75 - 125)	29	(0-20)	SW846 7470	12/05/97	CE4RL115
		Dilution Factor: 1					
		Analysis Time..: 15:34					

(Continued on next page)

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Environmental
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MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP GC/MS Semivolatiles

Client Lot #...: I7K210132 **Work Order #...:** CE4RL10K-MS **Matrix.....:** WATER
MS Lot-Sample #: I7K200137-001 CE4RL10L-MSD
Date Sampled...: 11/19/97 09:30 **Date Received..:** 11/20/97
Leach Date.....: 12/01/97 **Prep Date.....:** 12/03/97 **Analysis Date..:** 12/09/97
Leach Batch #..: P733605 **Prep Batch #...:** 7337171 **Analysis Time..:** 18:38
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Pyridine	77	(1.0- 144)			SW846 8270B
	64	(1.0- 144)	19	(0-95)	SW846 8270B
1,4-Dichlorobenzene	61	(26 - 112)			SW846 8270B
	66	(26 - 112)	6.6	(0-40)	SW846 8270B
o-Cresol	87	(21 - 137)			SW846 8270B
	97	(21 - 137)	11	(0-70)	SW846 8270B
m-Cresol & p-Cresol	89	(19 - 126)			SW846 8270B
	91	(19 - 126)	2.9	(0-94)	SW846 8270B
Hexachloroethane	57	(26 - 102)			SW846 8270B
	64	(26 - 102)	11	(0-44)	SW846 8270B
Nitrobenzene	70	(42 - 120)			SW846 8270B
	76	(42 - 120)	9.2	(0-40)	SW846 8270B
Hexachlorobutadiene	60	(33 - 111)			SW846 8270B
	62	(33 - 111)	3.9	(0-40)	SW846 8270B
2,4,6-Trichlorophenol	92	(19 - 122)			SW846 8270B
	94	(19 - 122)	2.2	(0-64)	SW846 8270B
2,4,5-Trichlorophenol	118	(29 - 123)			SW846 8270B
	113	(29 - 123)	4.5	(0-63)	SW846 8270B
2,4-Dinitrotoluene	74	(31 - 106)			SW846 8270B
	73	(31 - 106)	1.2	(0-55)	SW846 8270B
Hexachlorobenzene	82	(42 - 120)			SW846 8270B
	84	(42 - 120)	2.2	(0-39)	SW846 8270B
Pentachlorophenol	144	(12 - 156)			SW846 8270B
	158 a,MSC	(12 - 156)	9.1	(0-76)	SW846 8270B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	58	(21 - 100)
	62	(21 - 100)
Phenol-d5	73	(10 - 94)
	74	(10 - 94)
Nitrobenzene-d5	76	(35 - 114)
	81	(35 - 114)
2-Fluorobiphenyl	72	(43 - 116)
	74	(43 - 116)
2,4,6-Tribromophenol	88	(10 - 123)
	88	(10 - 123)
Terphenyl-d14	83	(33 - 141)
	87	(33 - 141)

(Continued on next page)

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Environmental Services

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP GC/MS Semivolatiles

Client Lot #...: I7K210132 **Work Order #...:** CE4RL10K-MS **Matrix.....:** WATER
MS Lot-Sample #: I7K200137-001 CE4RL10L-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP GC/MS Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE5M410K-MS **Matrix.....:** WATER
MS Lot-Sample #: I7K210132-002 CE5M410L-MSD
Date Sampled...: 11/20/97 10:25 **Date Received..:** 11/21/97
Leach Date.....: 12/03/97 **Prep Date.....:** 12/09/97 **Analysis Date..:** 12/10/97
Leach Batch #..: P733803 **Prep Batch #...:** 7345254 **Analysis Time..:** 07:44
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**104**	**(37 - 151)**			**SW846 8240B**
	104	**(37 - 151)**	**0.20**	**(0-30)**	**SW846 8240B**
Carbon tetrachloride	**93**	**(71 - 240)**			**SW846 8240B**
	93	**(71 - 240)**	**0.35**	**(0-30)**	**SW846 8240B**
Chlorobenzene	**105**	**(37 - 160)**			**SW846 8240B**
	108	**(37 - 160)**	**2.4**	**(0-30)**	**SW846 8240B**
Chloroform	**95**	**(51 - 136)**			**SW846 8240B**
	96	**(51 - 136)**	**0.19**	**(0-30)**	**SW846 8240B**
1,2-Dichloroethane	**93**	**(49 - 155)**			**SW846 8240B**
	94	**(49 - 155)**	**0.44**	**(0-30)**	**SW846 8240B**
1,1-Dichloroethylene	**95**	**(59 - 155)**			**SW846 8240B**
	95	**(59 - 155)**	**0.06**	**(0-30)**	**SW846 8240B**
Methyl ethyl ketone	**111**	**(25 - 250)**			**SW846 8240B**
	112	**(25 - 250)**	**0.27**	**(0-30)**	**SW846 8240B**
Tetrachloroethylene	**96**	**(46 - 157)**			**SW846 8240B**
	97	**(46 - 157)**	**1.1**	**(0-30)**	**SW846 8240B**
Trichloroethylene	**96**	**(71 - 157)**			**SW846 8240B**
	97	**(71 - 157)**	**1.1**	**(0-30)**	**SW846 8240B**
Vinyl chloride	**102**	**(1.0- 251)**			**SW846 8240B**
	107	**(1.0- 251)**	**4.7**	**(0-30)**	**SW846 8240B**
1,4-Dichlorobenzene	**100**	**(75 - 137)**			**SW846 8240B**
	100	**(75 - 137)**	**0.74**	**(0-30)**	**SW846 8240B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	99	(86 - 115)
	97	(86 - 115)
1,2-Dichloroethane-d4	93	(76 - 114)
	92	(76 - 114)
Toluene-d8	104	(88 - 110)
	103	(88 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE5M9103-MS **Matrix.....:** SOLID
MS Lot-Sample #: I7K210132-006 CE5M9104-MSD
Date Sampled...: 11/19/97 10:00 **Date Received..:** 11/21/97
Prep Date.....: 11/21/97 **Analysis Date..:** 11/21/97
Prep Batch #...: 7326138 **Analysis Time..:** 23:41
Dilution Factor: 50 **% Moisture.....:** 7.3

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Methyl tert-butyl ether	96	(75 - 125)			SW846 8020/GRO
	104	(75 - 125)	8.0	(0-30)	SW846 8020/GRO
Gasoline Range Organics	71 a,MSC	(75 - 125)			SW846 8020/GRO
	37 a	(75 - 125)	8.9	(0-30)	SW846 8020/GRO
Benzene	90	(75 - 125)			SW846 8020/GRO
	96	(75 - 125)	6.4	(0-30)	SW846 8020/GRO
Toluene	79	(75 - 125)			SW846 8020/GRO
	77	(75 - 125)	1.5	(0-30)	SW846 8020/GRO
Ethylbenzene	62 a,MSC	(75 - 125)			SW846 8020/GRO
	59 a	(75 - 125)	1.5	(0-30)	SW846 8020/GRO
Xylenes (total)	59 a,MSC	(75 - 125)			SW846 8020/GRO
	32 a	(75 - 125)	8.7	(0-30)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	106	(75 - 125)
	112	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I7K210132 **Work Order #...:** CE7A7103-MS **Matrix.....:** WATER
MS Lot-Sample #: I7K240102-001 CE7A7104-MSD
Date Sampled...: 11/12/97 09:45 **Date Received..:** 11/18/97
Prep Date.....: 11/25/97 **Analysis Date..:** 11/26/97
Prep Batch #...: 7335198 **Analysis Time..:** 01:52
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	100	(75 - 125)			SW846 8020/GRO
	99	(75 - 125)	1.4	(0-30)	SW846 8020/GRO
Toluene	100	(75 - 125)			SW846 8020/GRO
	98	(75 - 125)	1.7	(0-30)	SW846 8020/GRO
Ethylbenzene	102	(75 - 125)			SW846 8020/GRO
	99	(75 - 125)	2.5	(0-30)	SW846 8020/GRO
Xylenes (total)	100	(75 - 125)			SW846 8020/GRO
	98	(75 - 125)	1.8	(0-30)	SW846 8020/GRO

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)
	100	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I7K250125-001 **Prep Batch #...:** 7330168							
Mercury	90	(75 - 125)			SW846 7470A	11/26/97	CE89510H
	90	(75 - 125)	0.53	(0-20)	SW846 7470A	11/26/97	CE89510J
		Dilution Factor: 1					
		Analysis Time..: 13:34					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

General Chemistry

Client Lot #...: I7K210132 **Matrix.....:** WATER
Date Sampled...: 11/23/97 08:00 **Date Received..:** 11/25/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#: CE5MG111-MS/CE5MG112-MSD				MS Lot-Sample #: I7K210132-010	
	94	(75 - 125)			MCAWW 300.0A	11/25/97	7330191
	86	(75 - 125)	2.8	(0-20)	MCAWW 300.0A	11/25/97	7330191
		Dilution Factor: 1					
		Analysis Time..: 12:41					
Fluoride		WO#: CE5MG10W-MS/CE5MG10X-MSD				MS Lot-Sample #: I7K210132-010	
	120	(75 - 125)			MCAWW 300.0A	11/25/97	7330187
	94	(75 - 125)	10	(0-20)	MCAWW 300.0A	11/25/97	7330187
		Dilution Factor: 1					
		Analysis Time..: 11:04					
Nitrate		WO#: CE5MG10T-MS/CE5MG10U-MSD				MS Lot-Sample #: I7K210132-010	
	106	(75 - 125)			MCAWW 300.0A	11/25/97	7330181
	102	(75 - 125)	1.5	(0-20)	MCAWW 300.0A	11/25/97	7330181
		Dilution Factor: 1					
		Analysis Time..: 11:04					
Orthophosphate		WO#: CE5MG10P-MS/CE5MG10Q-MSD				MS Lot-Sample #: I7K210132-010	
	90	(75 - 125)			MCAWW 300.0A	11/25/97	7330173
	88	(75 - 125)	2.3	(0-20)	MCAWW 300.0A	11/25/97	7330173
		Dilution Factor: 1					
		Analysis Time..: 10:53					
Reactive Cyanide		WO#: CE5M410G-MS/CE5M410H-MSD				MS Lot-Sample #: I7K210132-002	
	43	(1.0 - 64)			SW846 7.3.3	11/25-12/01/97	7329187
	42	(1.0 - 64)	2.5	(0-213)	SW846 7.3.3	11/25-12/01/97	7329187
		Dilution Factor: 1					
		Analysis Time..: 15:32					
Sulfate		WO#: CE5MG114-MS/CE5MG115-MSD				MS Lot-Sample #: I7K210132-010	
	127 N	(75 - 125)			MCAWW 300.0A	11/25/97	7330192
	106	(75 - 125)	14	(0-20)	MCAWW 300.0A	11/25/97	7330192
		Dilution Factor: 1					
		Analysis Time..: 12:41					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I7K210132 **Work Order #...:** CE4RL-SMP CE4RL-DUP **Matrix.....:** WATER

Date Sampled...: 11/19/97 09:30 **Date Received..:** 11/20/97

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Flashpoint						SD Lot-Sample #:	I7K200137-001	
	>150	>150	deg F	0.0	(0-20)	SW846 1010	11/26/97	7330225

Dilution Factor: 1
Analysis Time..: 00:00

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I7K210132 **Work Order #...:** CE4WL-SMP CE4WL-DUP **Matrix.....:** WATER

Date Sampled...: 11/14/97 13:00 **Date Received..:** 11/20/97

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (liquid)						SD Lot-Sample #:	I7K200148-001	
	2.8	2.8	No Units	0.0	(0-20)	MCAWW 150.1	11/21/97	7325189

Dilution Factor: 1
Analysis Time..: 00:00

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I7K210132 **Work Order #...:** CE5F9-SMP **Matrix.....:** SOLID
CE5F9-DUP
Date Sampled...: 11/17/97 11:07 **Date Received..:** 11/20/97
% Moisture.....: 7.7

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	I7K210118-005	
	7.7	7.2	%	7.5	(0-14)	OCLP OLM03.1	11/21-11/22/97	7325240

Dilution Factor: 1
Analysis Time..: 00:00

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I7K210132 **Work Order #...:** CE5MG-SMP CE5MG-DUP **Matrix.....:** WATER

Date Sampled...: 11/20/97 12:00 **Date Received..:** 11/21/97

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #:	I7K210132-010	
	464	450	mg/L	3.1	(0-20)	MCAWW 300.0A	11/25/97	7330191
		Dilution Factor: 100						
		Analysis Time..: 12:20						
Sulfate						SD Lot-Sample #:	I7K210132-010	
	159	164	mg/L	3.1	(0-20)	MCAWW 300.0A	11/25/97	7330192
		Dilution Factor: 100						
		Analysis Time..: 12:20						
Fluoride						SD Lot-Sample #:	I7K210132-010	
	3.6	3.6	mg/L	1.5	(0-20)	MCAWW 300.0A	11/25/97	7330187
		Dilution Factor: 1						
		Analysis Time..: 10:42						
Nitrate						SD Lot-Sample #:	I7K210132-010	
	4.1 H	4.1 H	mg/L	0.0	(0-20)	MCAWW 300.0A	11/25/97	7330181
		Dilution Factor: 1						
		Analysis Time..: 10:42						
Orthophosphate						SD Lot-Sample #:	I7K210132-010	
	ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	11/25/97	7330173
		Dilution Factor: 1						
		Analysis Time..: 10:42						
Total Alkalinity						SD Lot-Sample #:	I7K210132-010	
	310	280	mg/L	12	(0-20)	MCAWW 310.1	12/01/97	7335259
		Dilution Factor: 1						
		Analysis Time..: 00:00						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

H The sample was prepared or analyzed after the EPA recommended holding time had been exceeded.

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I7K210132 **Work Order #...:** CE5M4-SMP CE5M4-DUP **Matrix.....:** WATER

Date Sampled...: 11/20/97 10:25 **Date Received..:** 11/21/97

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Reactive Cyanide						SD Lot-Sample #:	I7K210132-002	
	ND	ND	mg/L	0	(0-213)	SW846 7.3.3	11/25-12/01/97	7329187
		Dilution Factor: 1						
		Analysis Time..: 15:42						
Reactive Sulfide						SD Lot-Sample #:	I7K210132-002	
	29	22	mg/L	29	(0-20)	SW846 7.3.4	11/25/97/01/97	7329190
		Dilution Factor: 1						
		Analysis Time..: 00:00						

Quanterra
Environmental
Services

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ANALYTICAL RESULTS

FOR

QUANTERRA, INC., AUSTIN

QUANTERRA NO. 058205

DECEMBER 15, 1997

Prepared by: _____

Julia A. Potter

Quanterra
Environmental Services

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Standard Deliverable

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Quanterra
Environmental Services

I. OVERVIEW

On November 14, 1997, Quanterra Environmental Services, Denver laboratory received one aqueous sample from Quanterra Inc., Austin.

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

I. Overview
II. Sample Description Information/Analytical Test Requests
III. Analytical Results
IV. Quality Control Report
    A. Standard Quanterra QC
    B. Matrix Specific QC

Polynuclear Aromatic Hydrocarbons by HPLC

Average percent recovery of the Duplicate Control Samples (DCSs) samples for sample 058205-0001 is slightly below historical control limits for benzo(a)pyrene. Because the sample holding time had expired and surrogate recovery for this sample was within control limits, the data were accepted and no further action was taken.

With the exception of the above mentioned anomaly, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory QC samples analyzed in conjunction with the samples in this project were within established control limits.

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LIMs Report Key

Section	Description
Cover Letter	Signature page, report narrative as applicable.
Sample Description Information	Tabulated cross-reference between the Lab ID and Client ID, including matrix, date and time sampled, and the date received for all samples in the project.
Sample Analysis Results Sheets	Lists sample results, test components, reporting limits, dates prepared and analyzed, and any data qualifiers. Pages are organized by test.
QC LOT Assignment Report	Cross-reference between lab IDs and applicable QC batches (DCS, LCS, Blank, MS/SD, DU)
Duplicate Control Sample Report	Percent recovery and RPD results, with acceptance limits, for the laboratory duplicate control samples for each test are tabulated in this report. These are measures of accuracy and precision for each test. Acceptance limits are based upon laboratory historical data.
Laboratory Control Sample Report	Percent recovery results for a single Laboratory Control Sample (if applicable) are tabulated in this report, with the applicable acceptance limits for each test.
Matrix Spike/Matrix Spike Duplicate Report	Percent recovery and RPD results for matrix-specific QC samples and acceptance limits, where applicable. This report can be used to assess matrix effects on an analysis.
Single Control Sample Report	A tabulation of the surrogate recoveries for the blank for organic analyses.
Method Blank Report	A summary of the results of the analysis of the method blank for each test.

List of Abbreviations and Terms

Abbreviation	Term	Abbreviation	Term
DCS	Duplicate Control Sample	MSD	Matrix Spike Duplicate
DU	Sample Duplicate	QC Run	Preparation Batch
EB	Equipment Blank	QC Category	LIMs QC Category
FB	Field Blank	QC Lot	DCS Batch
FD	Field Duplicate	ND	Not Detected at or above the reporting limit expressed
IDL	Instrument Detection Limit (Metals)	QC Matrix	Matrix of the laboratory control sample(s)
LCS	Laboratory Control Sample	RL	Reporting Limit
MB	Method Blank	QC	Quality Control
MDL	Method Detection Limit	SA	Sample
MS	Matrix Spike	SD	Spike Duplicate
RPD	Relative Percent Difference	TB	Trip Blank
ppm (part-per-million)	mg/L or mg/kg (usually)	ppb (part-per-billion)	ug/L or ug/kg (usually)
QUAL	Qualifier flag	DIL	Dilution Factor

II. SAMPLE DESCRIPTION INFORMATION/ANALYTICAL TEST REQUESTS

Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned to each sample. Each project received at Quanterra's Denver laboratory is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

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SAMPLE DESCRIPTION INFORMATION
for
Quanterra - Austin

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
058205-0001-SA	WSW-1	AQUEOUS	20 NOV 97	12:00	25 NOV 97

Quanterra
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ANALYTICAL TEST REQUESTS
for
Quanterra - Austin

Lab ID: 058205	Group Code	Analysis Description	Custom Test?
0001	A	Polynuclear Aromatic Hydrocarbons, HPLC	N
		Prep - Polynuclear Aromatic Hydrocarbons by HPLC	N

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III. ANALYTICAL RESULTS

The analytical results for this project are presented in the following data tables. The results are presented by sample, by test, with tests reported in the following order: GC/MS, Chromatography, Metals and Inorganics.

Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization date is the date when the project was defined by the client such that laboratory work could begin. The date prepared is typically the date an extraction or digestion was initiated. For volatile organic compounds in water, the date prepared is the date the screening of the sample was performed.

Datasheets contain a listing of the parameters measured in each test, the analytical results and Quanterra's Denver laboratory reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and soil samples are reported on a "Dry weight" basis, i.e. correction is made for moisture content.

In addition, surrogate recovery data is presented for all GC/MS analyses. The surrogate recovery is an indication of the effect of the sample matrix on the performance of the method. The results from Quanterra's Denver Laboratory Standard QA/QC Program, which generates data independent of matrix effects, are given in Section IV.

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Polynuclear Aromatic Hydrocarbons, HPLC
Method 8310

Client Name: Quanterra - Austin
Client ID: WSW-1
Lab ID: 058205-0001-SA
Matrix: AQUEOUS
Authorized: 25 NOV 97

Sampled: 20 NOV 97
Received: 25 NOV 97

Prepared: 26 NOV 97
Analyzed: 05 DEC 97

Parameter	Result	Units	Reporting Limit
Naphthalene	ND	ug/L	1.1
Acenaphthylene	ND	ug/L	1.1
Acenaphthene	ND	ug/L	1.1
Fluorene	ND	ug/L	0.22
Phenanthrene	ND	ug/L	0.22
Anthracene	ND	ug/L	0.11
Fluoranthene	ND	ug/L	0.22
Pyrene	ND	ug/L	0.22
Benzo(a)anthracene	ND	ug/L	0.11
Chrysene	ND	ug/L	0.22
Benzo(b)fluoranthene	ND	ug/L	0.11
Benzo(k)fluoranthene	ND	ug/L	0.11
Benzo(a)pyrene	ND	ug/L	0.11
Dibenz(a,h)anthracene	ND	ug/L	0.22
Benzo(g,h,i)perylene	ND	ug/L	0.22
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.22

Surrogate	Recovery		Limits
Terphenyl-d14	94	%	37-123

Dilution factor is 1.1. All results and limits are corrected for dilution.

ND = Not Detected

Reported By: Blake Besser

Approved By: Audrey Cornell

IV. QUALITY CONTROL REPORT

The Quanterra laboratories operate under a rigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

A. Standard Quanterra QC

The standard laboratory QC package is designed to:

1. establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data,

2. assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix,

3. establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and

4. provide a standard set of reportables which assures the client of the quality of his data.

The Quanterra QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free,

homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/- 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis.

For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with surrogate compounds appropriate to the method being used. In cases where no surrogate is available, (e.g., metals or conventional analyses) a single DCS serves as the control sample. An SCS is prepared for each sample lot for which the DCS pair are not analyzed. The recovery of the SCS is charted in exactly the same manner as described for the DCS, and provides a daily check on the performance of the method.

Accuracy for DCS and SCS is measured by Percent Recovery.

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD).

$$\text{RPD} = \frac{|\text{Measured Concentration DCS1} - \text{Measured Concentration DCS2}|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$

All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the

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QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

B. Matrix Specific QC

With this project, additional QC was requested in the form of duplicate sample analyses and/or spiked sample analyses. The use of an actual sample as the QC matrix is termed "matrix specific" QC.

Matrix specific QC is valuable in assessing the affect of the sample matrix on the performance of the analytical method. QC limits for accuracy and precision were assigned from data generated by laboratory historical data on similar sample matrices. However, these limits should be considered advisory due to the variability of the matrix at different sampling sites.

The results of the duplicate and/or spike sample analyses follow. For matrix spike analyses, the matrix specific QC results contain the analytical results from both analyses along with the spike level and percent recovery. The percent recovery calculation is not performed if the spike level is less than or equal to 25% of the value in the sample.

For duplicate analyses, the results from both the analyses are reported along with the relative percent difference.

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QC LOT ASSIGNMENT REPORT
High Performance Liquid Chromatography

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
058205-0001-SA	AQUEOUS	8310-A	26 NOV 97-01	26 NOV 97-01

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DUPLICATE CONTROL SAMPLE REPORT
High Performance Liquid Chromatography

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limits
Category: 8310-A								
Matrix: AQUEOUS								
QC Lot: 26 NOV 97-01								
Concentration Units: ug/L								
Naphthalene	10.0	9.65	10.1	9.88	99	53-111	4.6	33
Fluorene	2.00	1.94	1.84	1.89	95	59-123	5.3	26
Pyrene	2.00	1.75	1.80	1.78	89	62-122	2.8	28
Benzo(a)pyrene	1.00	0.610	0.654	0.632	63#	65-117	7.0	22
Indeno(1,2,3-cd)pyrene	1.00	0.966	0.975	0.970	97	53-153	0.93	22

= Recovery outside QC Limits

Calculations are performed before rounding to avoid round-off errors in calculated results.

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SINGLE CONTROL SAMPLE REPORT
High Performance Liquid Chromatography

Analyte	Concentration Spiked	Measured	Accuracy(%) SCS	Limits
Category: 8310-A				
Matrix: AQUEOUS				
QC Lot: 26 NOV 97-01 QC Run: 26 NOV 97-01				
Concentration Units: ug/L				
Terphenyl-d14	20.0	18.5	92	37-123

Calculations are performed before rounding to avoid round-off errors in calculated results.

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METHOD BLANK REPORT
High Performance Liquid Chromatography

Test: 8310-HPLC-A
Matrix:
QC Lot: 26 NOV 97-01 QC Run: 26 NOV 97-01

Analyte	Result	Units	Reporting Limit
Naphthalene	ND	ug/L	1.0
Acenaphthylene	ND	ug/L	1.0
Acenaphthene	ND	ug/L	1.0
Fluorene	ND	ug/L	0.20
Phenanthrene	ND	ug/L	0.20
Anthracene	ND	ug/L	0.10
Fluoranthene	ND	ug/L	0.20
Pyrene	ND	ug/L	0.20
Benzo(a)anthracene	ND	ug/L	0.10
Chrysene	ND	ug/L	0.20
Benzo(b)fluoranthene	ND	ug/L	0.10
Benzo(k)fluoranthene	ND	ug/L	0.10
Benzo(a)pyrene	ND	ug/L	0.10
Dibenz(a,h)anthracene	ND	ug/L	0.20
Benzo(g,h,i)perylene	ND	ug/L	0.20
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.20

C3

QES-Denver - Julia Potter

Chain of Custody Record

CHAIN OF CUSTODY NUMBER

* 000598-001 *

IJK 210132

Quanterra

58205

QUA-4149-1

Client	Project Manager	Date	Page 1 of 1
B.J. SERVICES	TIM JENKINS	11/14/1997	
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Location**	**Analysis**
2708 W. COUNTY ROAD	(713) 759-0999 / (000)	QUANTERRA - AUSTIN	
City / State / Zip Code	**Site Contact**		
HOBBS / NM / 88240	TIM JENKINS		
Project Number/Name	**Carrier/Waybill Number**		
BJ SERVICES/HOBBS,NM - NOWSCO SITE	8267385840 - ABX		

Contract/Purchase Order/Quote Number

CONTRACT / PURCHASE ORDER # : BJ SERVICES/HOBBS QUOTE: 21685

Sample I.D. Number and Description	Date	Time	Sample Type	Containers Volume	Containers Type	Containers No.	Preservative	Condition on Receipt/Comments	pH, RCI	Hold all other until notified	BTEX	HOLD
HCAT-L	11/20/97	1050	~~SOLID~~ LIQ	16oz ~~60mL~~	CLEAR GL	6	None		X	X		
[illegible]			SOLID	120mL	CLEAR GL	6	None	(5)				
NWFT-L	11/20/97	1025	~~SOLID~~ LIQ	16oz ~~60mL~~	CLEAR GL	6	None		X	X		
14-1-WL	11/20/97	1216	~~SOLID~~ LIQ	16oz ~~120mL~~	CLEAR GL	6	None		X	X		
		935	SOLID	60mL	CLEAR GL		None					
SB-3-20	11/19/97	[illegible]	SOLID Soil	4oz	CLEAR GL	1	None					X
SB-3-40	11/19/97	940	SOLID Soil	4oz	CLEAR GL	1	None				X	
SB-3-45	11/19/97	1000	SOLID Soil	4oz	CLEAR GL	1	None				X	
SB-4-25	11/19/97		SOLID	60mL	CLEAR GL	1	None					X
SB-4-40	11/19/97		SOLID	120mL	CLEAR GL	1	None				[illegible]	X
SB-4-45	11/19/97		SOLID	60mL	CLEAR GL	1	None				[illegible]	X
			SOLID	120mL	CLEAR GL		None					
01 WSW-1	11/20/97	1200	SOLID H2O	[illegible]	CLEAR GL	2	None	(5) [illegible] 8310		X		
			SOLID	120mL	CLEAR GL		None					
			SOLID	60mL	CLEAR GL		None					
			SOLID	120mL	CLEAR GL		None					

Special Instructions: BLUE ICE, CUSTODY SEALS, COC

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ Normal ☐ Rush ☐ Other

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	11/15/97	1800	1. Received By		
2. Relinquished By: [signature]	11/20/97	1600	2. Received By: AIR BORNE XPRESS	11/20/97	1600
3. Relinquished By			3. Received By: [signature]	11/21/97	935

Comments: Bill to QES - Austin Attn: Sandra Green

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

1016 003490443 526 11/24/97

SAMPLE CHECKLIST

Project #: 58205 Date/Time Received: 11-25-97 0900

Company Name & Sampling Site: BJ Hobbs - Quanterra Austin Julie Potter

*Cooler #(s): 1

Temperatures: 20°C

Unpacking & Labeling Check Points:

N/A	Yes	No		Initials
	☑	☐	1. Radiation checked, record if reading > 0.5 mR/hr. (_____mR/hr)	KB
	☑	☐	2. Cooler seals intact.	
	☑	☐	3. Chain of custody present.	
	☐	☑	4. Bottles broken and/or are leaking, comment if yes.	
			PHOTOGRAPH BROKEN BOTTLES	
	☑	☐	5. Containers labeled, comment if no.	
	☐	☐	6. pH of all samples checked and meet requirements, note exceptions.	
	☐	☐	7. Chain of custody includes "received by" and "relinquished" by signatures, dates, and times.	
	☑	☐	8. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.	
	☑	☐	9. Chain of custody agrees with bottle count, comment if no.	
	☑	☑	10. Chain of custody agrees with labels, comment if no.	
☑	☐	☐	11. VOA samples filled completely, comment if no.	
☑	☐	☐	12. VOA bottles preserved, check for labels.	
	☐	☑	13. Did samples require preservation with sodium thiosulfate?	
☐	☐	☑	14. If yes to #12, did the samples contain residual chlorine?	
☐	☑	☐	15. Sediment present in "D," dissolved, bottles.	
	☐	☑	16. Are analyses with short holding times requested?	
☐	☐	☑	17. Is extra sample volume provided for MS, MSD or matrix duplicates?	
	☐	☑	18. Multiphase samples present? If yes, comment below.	
	☐	☑	19. Any subsampling for volatiles? If yes, list samples.	
			PHOTOGRAPH MULTIPHASE SAMPLES	
	☑	☐	20. Clear picture taken, labeled, and stapled to project folder.	
☑	☐	☐	21. Subout COC signed and sent with samples to bottle prep?	
	☑	☐	22. Was sample labeling double checked?	KB

Comments: Include action taken to resolve discrepancies/problems. Include a hard copy of e-mail or use extra paper if more space is needed. Subout

Initials: _____

Sample Checklist

Project #: 59705 Duped from Project #: _____

Set-up by: JPotter Duped Group Codes: _____

Logged by: JPotter Date: 11/25/97

Sample Control Review

N/A	Yes	No		Initials
	☐	☐	1. Chain of custody fill out correctly	JP
☑	☐	☐	2. Short holding time worksheet correct.	
	☐	☐	3. Sample bottle type correct.	
☐	☐	☐	4. Overflow sample storage in special instructions.	
	☐	☐	5. All login paperwork (sample list, group code report) is included and correct.	
☐	☐	☐	6. Trip blanks, equipment blanks, and field blanks have correct aliquot designation.	
	☐	☐	7. Sample description, request list, and acceptance letter in folder.	

Comments: Include action taken to resolve discrepancies/problems. Include a hard copy of e-mail or use extra paper if more space is needed. _____

_____

_____ Initials: _____

PA or PM Review

N/A	Yes	No		Initials	Date
	☐	☐	1. Report input sheet.	JP	11/25/97
	☐	☐	2. Invoice Information.		
	☐	☐	3. All discrepancies resolved.		
	☐	☐	4. Sample and test matrices correct.		
☐	☐	☐	5. Subcontract paperwork and attached tracking label present?		
	☐	☐	6. Special instructions in LIMS.		
	☐	☐	7. Modified component lists checked.		
	☐	☐	8. Project due, turnaround, received and collected date(s) OK.		
	☐	☐	9. Log released.		

Comments: _____

_____

_____

_____ Initials: _____

Client Contact for Discrepancies

Person Calling: _____ Date of contact: _____

Person Contacted: _____

Client Decision: _____

_____

3

Chain of Custody Record

Quanterra

CHAIN OF CUSTODY NUMBER

* 0 0 0 5 9 8 - 0 0 1 *

TJK 210132

QUA-4149-1

Client: B.J. SERVICES	Project Manager: TIM JENKINS	Date: 11/14/1997	Page 1 of 1
Address: 2708 W. COUNTY ROAD	Telephone Number (Area Code)/Fax Number: (713) 759-0999 / (000)	Lab Location: QUANTERRA - AUSTIN	Analysis
City: HOBBS — State: NM — Zip Code: 88240	Site Contact: TIM JENKINS		
Project Number/Name: BJ SERVICES/HOBBS,NM — NOWSCO SITE	Carrier/Waybill Number: 8267385840 - ABX		
Contract/Purchase Order/Quote Number: CONTRACT / PURCHASE ORDER # : BJ SERVICES/HOBBS		QUOTE: 21685	

Sample I.D. Number and Description	Date	Time	Sample Type	Containers Volume	Containers Type	Containers No.	Preservative	Condition on Receipt/Comments	[illegible]	[illegible]	PH, RCI	HOLD ALL OTHER UNITS NOTIFIED	BTEX	HOLD
HCAT-L	11/20/97	1050	~~SOLID~~ LIQ	16oz ~~60mL~~	CLEAR GL	6	None	(5)	X		X	X		
[illegible]			SOLID	150mL	CLEAR GL	6	None			X				
NWFT-L	11/20/97	1025	~~SOLID~~ LIQ	16oz ~~60mL~~	CLEAR GL	6	None		X		X	X		
14-1-WL	11/20/97	1210	~~SOLID~~ LIQ	16oz ~~120mL~~	CLEAR GL	6	None			X	X	X		
		635	SOLID	60mL	CLEAR GL		None		X					
SB-3-20	11/19/97	~~800~~	SOLID Soil	4oz ~~120mL~~	CLEAR GL	1	None			X				X
SB-3-40	11/19/97	940	SOLID SOIL	4oz ~~60mL~~	CLEAR GL	1	None		X				X	
SB-3-45	11/19/97	1000	SOLID SOIL	4oz ~~120mL~~	CLEAR GL	1	None			X			X	
SB 4-25	11/19/97		SOLID	60mL	CLEAR GL	1	None		X					X
SB 4-40	11/19/97		SOLID	120mL	CLEAR GL	1	None			X				X
SB 4-45	11/19/97		SOLID	60mL	CLEAR GL	1	None		X					X
			SOLID	120mL	CLEAR GL		None			X				
WSW-1	11/20/97	1200	SOLID	60mL	CLEAR GL		None	(5)	X			X		
			SOLID	120mL	CLEAR GL		None			X				
			SOLID	60mL	CLEAR GL		None		X					
			SOLID	120mL	CLEAR GL		None			X				

Special Instructions: BLUE ICE. CUSTODY SEALS. COC

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ Normal ☐ Rush ☐ Other ____

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific Requirements (Specify)

1. Relinquished By	Date: 11/15/97	Time: 1800	1. Received By	Date	Time
2. Relinquished By	Date: 11/20/97	Time: 1600	2. Received By: AIR BORNE XPRESS	Date: 11/20/97	Time: 1600
3. Relinquished By	Date	Time	3. Received By	Date: 11/21/97	Time: 935

Comments: [illegible] ... NWFT-L ... WSW ... [illegible]

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy