ENVIROMENTAL SITE ASSESSMENT WORKPLAN

INITIAL SITE CHARACTERIZATION REPORT

BYRD LINE RELEASE SITE MONUMENT, NEW MEXICO

Prepared for
ARCO PIPE LINE COMPANY
15600 JFK BLVD. SUITE 300
HOUSTON, TEXAS

JANUARY, 2000

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A Division of URS Corporation

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Project No. 93-99000162.00

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Background

Arco Pipe Line Company (APL) operates a 4-inch crude oil transfer line in Lea County, New Mexico. The line runs east-west in the area near the town of Monument, New Mexico and is located at (32.35.016N and 103.16.625W) Figure 1-1. In January 1998, an APL aerial patrol noted stained soil at the release site. APL personnel responded and a corrosion-related leak with oil stained soil on the surface was observed. The line was clamped and permanent repairs were scheduled. Upon removal of soil during the permanent repairs, APL personnel noted a significantly larger volume of soil stained in the subsurface than originally anticipated.

In November 1998, APL contractors removed approximately 800 yards of stained soil from around the line. Upon removal of the soil from around the line, APL personnel observed oil on the groundwater table at approximately 35 feet below grade. Soil samples collected from the stockpile of the excavated soil indicated total petroleum hydrocarbons (TPH) by EPA Method 418.1 at 20,700 mg/kg. The benzene, toluene, ethyl benzene, and xylenes (BTEX) analysis by EPA Method 8020 indicated benzene at 0.009 milligrams per kilogram (mg/kg), toluene at 0.187 mg/kg, ethyl benzene at 0.317 mg/kg, and total xylenes at 1.172 mg/kg. The composite soil sample was also analyzed by TCLP for metals, TCLP semivolatiles, TCLP volatiles, reactivity (sulfide and cyanide), corrosivity, and ignitability. Appendix A contains the laboratory analytical report for the composite soil sample from the excavated stockpile.

In July 1999, the walls and floor of the 800-yard excavation were sampled and analyzed. Six wall samples and one floor sample were collected for analysis of BTEX by EPA method 8021 and total petroleum hydrocarbons (TPH) by EPA 8015. Additionally, soil samples were collected from three small trenches dug on the south and west sides of the excavated area. Visual observations of the excavated area indicated oil stained soil at depths ranging from 28 to 30 feet below grade (just above the water table) extending outward from the leak point. Analysis of soil samples collected from the south and west walls at 28 to 30 feet below grade indicated TPH concentrations of 4325 mg/kg to 9800 mg/kg. The analytical results of the soil analyses from the limits of this excavation indicated additional excavation would be necessary to meet the New Mexico Oil Conservation Commission (NMOCD) remediation guidelines. Figure 1-2 shows the limits of the initial excavation and the locations of soil samples and TPH results. Table 1-1 presents the soil analytical results from the excavation walls, floor, and the trench samples after the initial excavation. Appendix A contains the laboratory analytical report for the soil samples from the walls, floor, and trenches.

On October 1, 1999, URS Greiner Woodward Clyde (URSWC), on behalf of ARCO Pipe Line Company (APL), submitted an *Initial Site Characterization Work Plan, ARCO Pipe Line Release Site, Monument, New Mexico* to the NMOCD. The work plan was approved by the NMOCD on October 15,1999.

Water Well Search and Local Hydrogeology

A water well search was conducted by Environmental Data Resources on December 15,1999 (Appendix B). No water wells were identified within ½ miles of the site. Nine domestic supply wells are located ½ to 1 mile from the site. According to the United States Geological Survey publication "Geology and Groundwater Conditions in Southern Lea County, New Mexico," the depths of groundwater wells in the vicinity of the site range from 53 to 283 feet below the ground surface (bgs). Groundwater elevations range from 18 to 34 feet (bgs). The water wells are screened in either the Quaternary-age alluvium or the Tertiary-age Ogallala Formation. Groundwater flow beneath the site is to the south-southeast and has a hydraulic gradient of approximately 0.002 (Figure 1-3).

Additional Excavation Activities

Since the soil analytical results from the limits of the initial excavation were much higher that the NMOCD remediation guidelines, APL began additional excavation activities to remove the visually stained soils at depth. In November 1999, APL contractors removed an additional 1,500 cubic yards of soil from the leak area. Figure 2-1 shows the limits of the final excavation and the locations of soil samples. APL discontinued the excavation efforts after the second set of soil samples were collected. The area was filled and compacted with clean imported fill to the original grade. All excavated soils have been placed in an offsite landfarm area provided by the landowner.

5/22/00
J. Cooper
711
Landfarm
per
Rick Nelson

In November 1999, URSGWC initiated a soil and groundwater investigation by drilling and sampling four soil borings and installing four permanent monitoring wells at the site. Soil samples were collected from the soil boring and groundwater samples were collected from the monitoring wells installed into the soil borings. The locations of the monitoring wells are presented on Figure 1-3. The soil boring logs are presented in Appendix C.

Monitoring Well Installation, Soil and Groundwater Sampling

The soil borings were drilled by hollow-stem auger while soil sampling was performed with a 5-foot long CME continuous sampler. An 8.25-inch borehole was drilled and sampled to 40 feet below grade. Saturated soils were encountered at approximately 25 feet below grade in a silty sand material. Caliche was encountered at the total depth of each boring. The monitoring wells were constructed of two-inch diameter schedule 40 PVC with 20 feet of well screen (0.010" slots) extending from 18 to 38 feet below grade. The monitoring wells were filter packed with pre-washed silica sand from 16 to 38 feet and sealed with 2 feet of hydrated bentonite chips from 14 to 16 feet below grade. Above the well seal to ground surface, the borehole annulus was filled with a cement\bentonite slurry. The surface completions were constructed with a six-inch diameter upright locking well cover over a three foot well stickup. A 4ft x 4ft x 6in concrete pad was built around each well and four steel concrete-filled traffic bollards were cemented into place around each well pad.

Soil samples were collected continuously and logged for material type, properties, and moisture content during sample collection. The lithology encountered in the monitoring wells consists of silts and silty sands with caliche zones interspersed throughout. Three soil samples were collected from various depths from each monitoring well and submitted for laboratory analysis. Soil samples were analyzed for BTEX by EPA

Method 8021 and TPH by EPA Method 8015 (GRO-DRO). Soil cuttings from the borings were placed with the excavated soil from the initial excavation of the area.

Groundwater samples were collected from the monitoring wells after development and purging. Development consisted of surging and bailing followed by over-pumping until the water was clear and the pH, temperature, and conductivity had stabilized. After the development was complete, a minimum of 24 hours was allowed to pass prior to purging and sample collection. Purging was accomplished by pumping with a submersible pump at a slow rate (~1 gallon per minute) or until no drawdown was observed. Upon removal of at least three well volumes and stabilization of the pH, temperature, and conductivity, the groundwater was sampled from the discharge tubing of the pump. The samples were placed into the appropriate pre-labeled containers and stored on ice for shipment to the analytical laboratory. Chain-of-custody procedures were followed during sample handling. Purge and development water was placed into 55-gallon drums, labeled with contents, sealed, and left at the site pending waste characterization.

Groundwater samples were analyzed for BTEX by EPA Method 8021, polynuclear aromatic hydrocarbons (PAH) by EPA Method 8310, major cations and anions, and heavy metals by various EPA 7000 series methods. Additionally, groundwater samples were collected for analysis of total dissolved solids.

Soil Analytical Results

Analytical results from soil samples collected from the walls and floor of the final excavation indicated concentrations below the NMOCD cleanup standards of 100 mg/kg for TPH except for the west side bottom samples. These soil samples were reported at 523 mg/kg and 570 mg/kg TPH respectively. Table 3-1 presents the results of the confirmation soil analysis from the excavation walls and floor.

A total of sixteen subsurface soil samples (four from each boring) were collected from the four soil borings. A TPH concentration of 320 mg/kg was detected in one soil sample (MW-2, 24-25') above the NMOCD remediation guidelines. All other soil samples collected from borings during this investigation were below the NMOCD remediation guidelines for TPH, BTEX, and benzene. The NMOCD recommended remediation level for soils impacted with petroleum hydrocarbons is 100 mg/kg for TPH, 50 mg/kg for total BTEX, and 10 mg/kg for benzene, based on site specific ranking criteria where the depth to groundwater is less than 50 feet, the distance to a public water supply is greater than 1000 feet, the distance to a private domestic water source is greater than 200 feet, and the distance to a surface water body is greater than 1000 feet. A summary of soil analytical results from the soil borings are presented in Table 3-2. The laboratory analytical reports are attached as Appendix D.

Groundwater Analytical Results

Four groundwater samples were collected from the permanent monitoring wells and submitted to the analytical laboratory. The groundwater analytical results were compared to the New Mexico Water Quality Control Commission groundwater (NMWQCC) standards. The groundwater analytical results and the NMWQCC standards are presented on Tables 3-3, 3-4, and 3-5. The laboratory analytical report are attached as Appendix D. The analytical results did not report any TPH, BTEX, or polynuclear aromatic hydrocarbons (PAH) concentrations above the laboratory reporting limits except for napthalene in MW-1 at 0.0002 milligrams per liter.

Aluminum, boron, iron, and manganese were also detected in concentrations that exceeded the NMWQCC standards for domestic water supply, however, these concentrations are most likely attributable to the poor quality of the water table aquifer and are not due to the pipe line leak. The total dissolved solids concentrations measured from each of the monitoring wells also exceeds the NMWQCC standards for domestic water supply. Chloride, fluoride, nitrogen, nitrate, and sulfate concentrations were measured in the groundwater samples. Chloride and fluoride concentrations exceeded

both the NMWQCC standards for domestic water supply and human health. Sulfate was detected in the four samples; however, a water quality standard has not been established for sulfate. The ion concentrations are also most likely attributable to the poor quality of the water table aquifer and are not due to the pipe line leak.

Based on the results of the investigation, the leak in the pipe line did impact the soil and to a lesser degree the groundwater (based on the observed oil sheen on the water table in the excavation). The impacted soils were removed from the area and all visually stained soils at depth were removed after a second enlargement of the initial excavation. Soil was also removed from below the water table in the excavation where the oil sheen was observed. All final confirmation soil analytical results from the excavation, except for one area (west wall), were below the NMOCD remediation guidelines. Additionally, one soil sample from MW-2 (24-25') indicated concentrations above the NMOCD remediation guidelines.

Groundwater sample results from samples collected from the four monitoring wells at the site indicated no impact to groundwater in the area of the monitoring wells at the time of sampling which was at least one year after the release. Based on the results of the soil sampling after the over-excavation and the results of the groundwater investigation, APL proposes to sample the groundwater one more time to confirm that the groundwater in the vicinity of the site has not been impacted. If the second groundwater sampling results confirm no groundwater impact, site closure will be requested from NMOCD.

TABLES

TABLE 1-1
SOIL ANALYTICAL RESULTS
WALL AND FLOOR SAMPLES - INITIAL EXCAVATION
BYRD LINE RELEASE SITE

(samples collected 7/6/99)

CONSTITUENT	North Wall (20')	North Wall (26')	South Wall (20')	South Wall (26')	East Wall (20')	West Wall (20')	FLOOR (28')
BTEX (mg/kg)							
Benzene	<.001	<.001	<.010	<.500	<.001	<.010	<.025
Toluene	<.001	<.001	0.12	8.0	<.001	0.34	2.900
Ethylbenzene	<.001	<.001	0.014	1.1	<.001	<.010	.580
Total Xylene	<.001	0.0035	0.48	25.0	<.001	0.56	2.900
Total BTEX	<.001	0.0035	0.61	34.1	<.001	0.9	6.38
TPH (mg/kg)							
Gasoline Range Organics	<0.10	0.28	52	1,300	<0.10	25	420
Diesel Range Organics	<10	160	5,600	8,500	<10	4,300	2,800
Total TPH	<10	**160**	**5652**	**9800**	<10	**4325**	**3220**

SOIL ANALYTICAL RESULTS
EXPLORATORY TRENCH SAMPLES - INITIAL EXCAVATION

(samples collected 8/11-12/99)

CONSTITUENT	Southeast Trench (5')	Southeast Trench (10')	Southeast Trench (20')	Southwest Trench (5')	Southwest Trench (10')	Southwest Trench (20 ')	West Trench (5')	West Trench (10')	West Trench (20')
BTEX (mg/kg)									
Benzene	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002
Toluene	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002
Ethylbenzene	0.003	<.002	<.002	<.002	<.002	<.002	<.002	<.002	0.007
Total Xylene	0.012	0.008	<.006	<.006	<.006	<.006	0.008	<.006	0.109
Total BTEX									
TPH (mg/kg)									
Gasoline Range Organics	<50	<50	<50	<50	<50	<50	<50	<50	<50
Diesel Range organics	<50	<50	<50	<50	<50	308	2,530	616	1,060
Total TPH	<50	<50	<50	<50	<50	308	2530	616	

BTEX = benzene,
TPH = total petroleum hydrocarbons
mg/kg = milligrams per kilogram

TABLE 3-1
SOIL ANALYTICAL RESULTS
WALL AND FLOOR SAMPLES - FINAL EXCAVATION
BYRD LINE RELEASE SITE
(samples collected 12/8/99 and 12/21/99)

CONSTITUENT	North Bottom (30') (12/8/99)	Middle Bottom (30') (12/8/99)	South Bottom (30') (12/8/99)	East Wall Composite (27') (12/8/99)	West Wall South (27') (12/8/99)	Bottom West Wall (27') (12/21/99)	West Side Bottom (30') (12/21/99)
BTEX (mg/kg)							
Benzene	--	--	--	--	--	<0.002	<0.002
Toluene	--	--	--	--	--	<0.002	0.01
Ethylbenzene	--	--	--	--	--	<0.002	0.009
Total Xylene	--	--	--	--	--	0.008	0.28
Total BTEX	--	--	--	--	--	0.008	0.39
TPH (mg/kg)							
Gasoline Range Organics	<50	<50	<50	<50	<50	<50	230
Diesel Range Organics	<50	<50	<50	<50	<50	523	340
Total TPH	<50	<50	<50	<50	<50	523	570

Notes:

-- = not analyzed

BTEX = benzene,

TPH = total petroleum hydrocarbons

mg/kg = milligrams per kilogram

TABLE 3-2
SOIL ANALYTICAL RESULTS
SOIL BORINGS
BYRD LINE RELEASE SITE - HOBBS, NEW MEXICO
(samples collected 11/9-10/99)

CONSTITUENT	MW-1 (4-5')	MW-1 (19-20')	MW-1 (29-30')	MW-1 (39-40')	MW-2 (4-5')	MW-2 (19-20')	MW-2 (24-25')	MW-2 (39-40')
TPH (mg/kg)								
Diesel Range Organics	94	<10	<10	<10	<10	<10	320	<10
Gasoline Range Organics	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11
Total TPH[2]	94	<10	<10	<10	<10	<10	**320**	0.11
BTEX (mg/kg)								
Benzene	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Ethylbenzene	<.001	<.001	<.001	<.001	<.001	<.001	<.001	0.002
Toluene	<.001	<.001	<.001	<.001	<.001	<.001	<.001	0.0057
Xylenes, Total	<.001	<.001	<.001	0.0011	<.001	<.001	<.001	0.0081
Total BTEX[3]	<.001	<.001	<.001	0.0011	<.001	<.001	<.001	0.0158

CONSTITUENT	MW-3 (4-5')	MW-3 (19-20')	MW-3 (29-30')	MW-3 (39-40')	MW-4 (4-5')	MW-4 (19-20')	MW-4 (29-30')	MW-4 (39-40')
TPH (mg/kg)								
Diesel Range Organics	<10	<10	<10	<10	<10	<10	<10	<10
Gasoline Range Organics	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	<0.1
Total TPH[1]	<10	<10	<10	<10	<10	<10	0.12	<10
BTEX (mg/kg)								
Benzene[2]	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Ethylbenzene	<.001	<.001	<.001	<.001	<.001	<.001	0.0016	<.001
Toluene	<.001	<.001	<.001	<.001	<.001	<.001	0.0069	<.001
Xylenes, Total	<.001	<.001	<.001	<.001	<.001	<.001	0.0096	<.001
Total BTEX[3]	<.001	<.001	<.001	<.001	<.001	<.001	0.0181	<.001

Notes:

1) New Mexico Oil Conservation Division's Recommended Remediation Levels for soils impacted with petroleum hydrocarbons is 100 mg/Kg for Total TPH, based on site specific ranking criteria.
2) New Mexico Oil Conservation Division's Recommended Remediation Levels for soils impacted with petroleum hydrocarbons is 10 mg/Kg for benzene, based on site specific ranking criteria.
3) New Mexico Oil Conservation Division's Recommended Remediation Levels for soils impacted with petroleum hydrocarbons is 50 mg/Kg for Total BTEX, based on site specific ranking criteria.

PAH = polynuclear aromatic hydrocarbons

TPH = total petroleum hydrocarbons

BTEX = benzene, toluene, ethyl benzene, xylenes

mg/kg=milligrams per kilogram

TABLE 3-3
GROUNDWATER ANALYTICAL RESULTS
MONITORING WELLS
BYRD LINE RELEASE SITE - HOBBS, NEW MEXICO
(samples collected 11/17/99)

CONSTITUENT	MW-1	MW-2	MW-3	MW-4	New Mexico WQCC Groundwater Standards (HHS)[1]	New Mexico WQCC Groundwater Standards (DWSS)[2]
TPH (mg/L)						
Diesel Range Organics	<0.2	<0.2	<0.2	<0.2	--	--
Gasoline Range Organics	<0.5	<0.1	<0.1	<0.1	--	--
BTEX (mg/L)						
Benzene	<.005	<.001	<.001	<.001	0.01	--
Ethylbenzene	<.005	<.001	<.001	<.001	0.75	--
Toluene	<.005	<.001	<.001	<.001	0.75	--
Xylenes, Total	<.005	<.001	<.001	<.001	0.62	--
Cation, Anion Water Quality Parameters (mg/L)						
Chloride	**630**	**970**	**590**	**850**	--	250
Fluoride	**3.1**	**2.7**	**2.9**	**2.9**	1.6	--
Nitrogen, Nitrate	<0.1	0.71	0.79	<0.1	10	--
Sulfate	220	300	110	110	--	--
Total Dissolved Solids (mg/L)						
Total Dissolved Solids	**1170**	**1480**	**1090**	**1010**	--	1000

Notes:

1) New Mexico Water Quality Control Commision groundwater standards for human health

2) New Mexico Water Quality Control Commision groundwater standards for domestic water supply

TPH = total petroleum hydrocarbons

BTEX = benzene, toluene, ethyl benzene, xylenes

mg/L=milligrams per liter

TABLE 3-4
GROUNDWATER ANALTICAL RESULTS
MONITORING WELLS
BYRD LINE RELEASE SITE - HOBBS, NEW MEXICO
(samples collected 11/17/99)

CONSTITUENT	MW-1	MW-2	MW-3	MW-4	New Mexico WQCC Groundwater Standards (HHS)[1]
PAH (mg/L)					
1-Methylnaphthalene[3]	<.0002	<.0002	<.0002	<.0002	--
2-Methylnaphthalene[3]	<.0002	<.0002	<.0002	<.0002	--
Acenaphtene	<.0001	<.0001	<.0001	<.0001	--
Acenaphthylene	<.0001	<.0001	<.0001	<.0001	--
Anthracene	<.0001	<.0001	<.0001	<.0001	--
Benz(a)anthracene	<.0001	<.0001	<.0001	<.0001	--
Benzo(a)pyrene	<.0001	<.0001	<.0001	<.0001	.0007
Benzo(b)fluoranthene	<.0001	<.0001	<.0001	<.0001	--
Benzo(g,h,I)perylene	<.0001	<.0001	<.0001	<.0001	--
Benzo(k)fluoranthene	<.0001	<.0001	<.0001	<.0001	--
Chrysene	<.0001	<.0001	<.0001	<.0001	--
Dibenzo(g,h)anthracene	<.0001	<.0001	<.0001	<.0001	--
Fluoranthene	<.0001	<.0001	<.0001	<.0001	--
Fluorene	<.0001	<.0001	<.0001	<.0001	--
Indeno(1,2,3-cd)pyrene	<.0001	<.0001	<.0001	<.0001	--
Naphthalene	0.0002	<.0001	<.0001	<.0001	--
Phenanthrene	<.0001	<.0001	<.0001	<.0001	--
Pyrene	<.0001	<.0001	<.0001	<.0001	--
Total, Naphthalene and Monomethylnaphthalenes[2]	0.0002	<.0003	<.0003	<.0003	.030

Notes:

1) New Mexico Water Quality Control Commision groundwater standards for human health
2) The standard set by the New Mexico Water Quality Control Commision for naphthalene includes total monomethylnaphthalenes.

PAH = polynuclear aromatic hydrocarbons

mg/L - milligrams per liter

TABLE 3-5
GROUNDWATER ANALYTICAL RESULTS
MONITORING WELLS
BYRD LINE RELEASE SITE - HOBBS, NEW MEXICO
(samples collected 11/17/99)

CONSTITUENT	MW-1	MW-2	MW-3	MW-4	New Mexico WQCC Groundwater Standards (HHS)[1]	New Mexico WQCC Groundwater Standards (DWSS)[2]
METALS (mg/L)						
Arsenic	0.0543	0.0258	0.0335	0.00996	0.10	--
Lead	0.0227	0.00712	0.0128	<0.005	0.05	--
Selenium	<0.005	0.0154	0.0112	<0.005	0.05	--
Aluminum	**7.67**	3.07	2.82	1.13	--	--
Barium	0.396	0.249	0.453	0.24	1.0	--
Boron	**0.779**	0.56	0.341	0.462	--	--
Cadmium	<0.005	<0.005	<0.005	<0.005	0.01	--
Calcium	2060	859	1580	256	--	--
Chromium	<10	<0.01	<0.01	<1	0.05	--
Cobalt	<0.01	<0.01	<0.01	<0.01	--	--
Copper	<0.01	<0.01	<0.01	<0.01	--	1.0
Iron	**3.46**	**1.47**	**2.39**	0.616	--	1.0
Magnesium	106	151	132	116	--	--
Manganese	**0.456**	**0.204**	**0.474**	0.0545	--	0.20
Molybdenum	<0.02	<0.02	<0.02	<0.02	--	--
Nickel	<0.02	<0.02	<0.02	<0.02	--	--
Potassium	20	5.89	4.82	63.2	--	--
Silver	<0.01	<0.01	<0.01	<0.01	0.05	--
Sodium	471	399	258	250	--	--
Zinc	0.0917	0.0217	0.846	<0.02	--	10.0

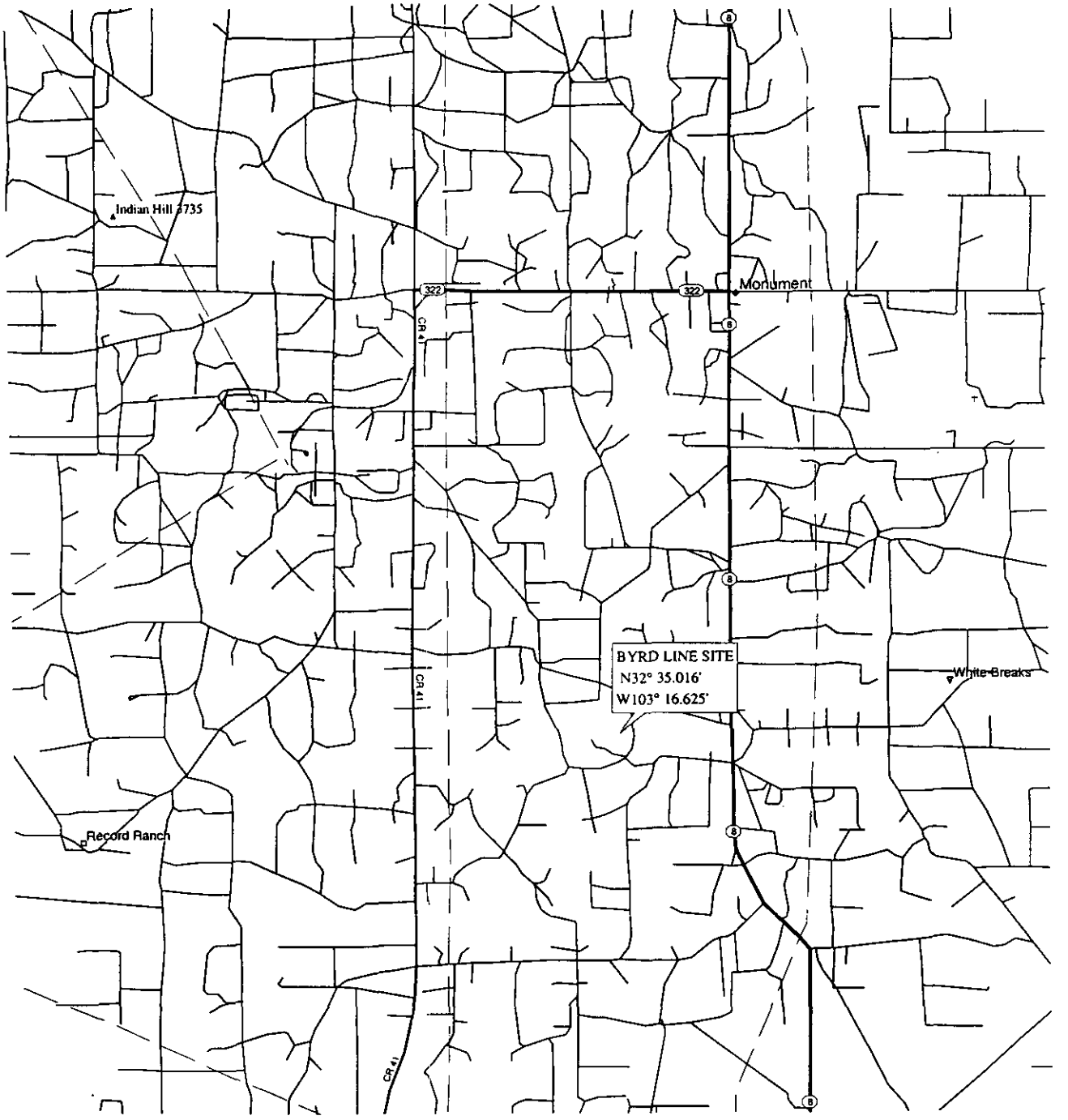
Notes:

1) New Mexico Water Quality Control Commision groundwater standards for human health

2) New Mexico Water Quality Control Commision groundwater standards for domestic water supply

mg/L=milligrams per liter

FIGURES



Mag 13.00
Mon Sep 20 14:20 1999
Scale 1:62,500 (at center)

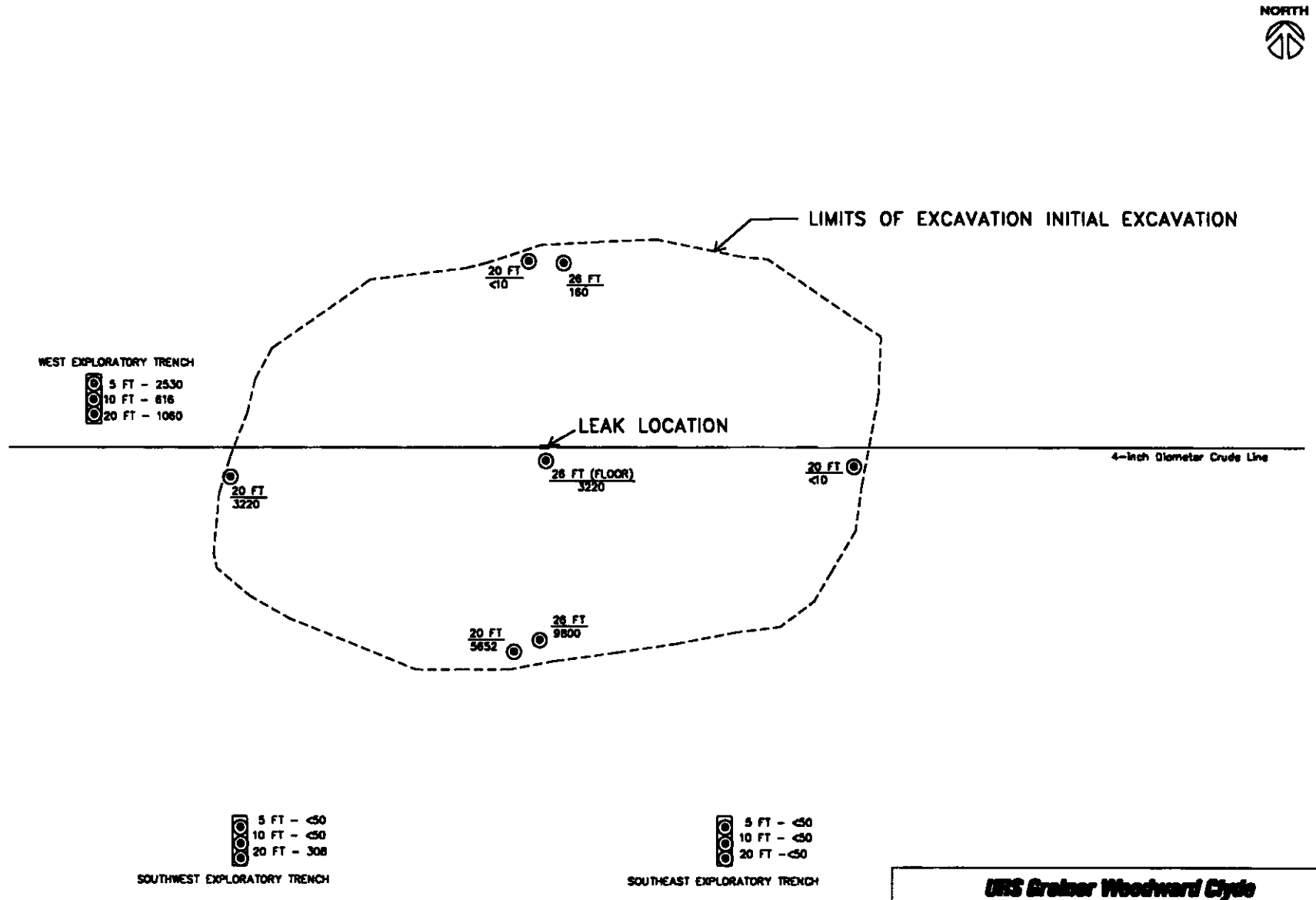
1 Miles

2 KM

- Secondary SR/Road/Hwy Ramp
- Major Connector
- State Route
- Utility/Pipe
- Point of Interest
- Small Town
- Cemetery
- Water
- Intermittent River

ARCO PIPE LINE, CO	URS Greiner Woodward Clyde Austin, Texas	SITE LOCATION MAP	PROJECT NO. 93990000152.00
BYRD LINE\COOPER LAND 3 MILES SW OF MONUMENT, NEW MEXICO	SCALE: NOTED DRAWN BY: MSM DATE: 6/28/99 CHECKED BY: RJN DATE: 9/20/99		FIG. NO. 1-1

I:\ARCO\BYRD\BYRDPUMP\CADD\BORDER.DWG

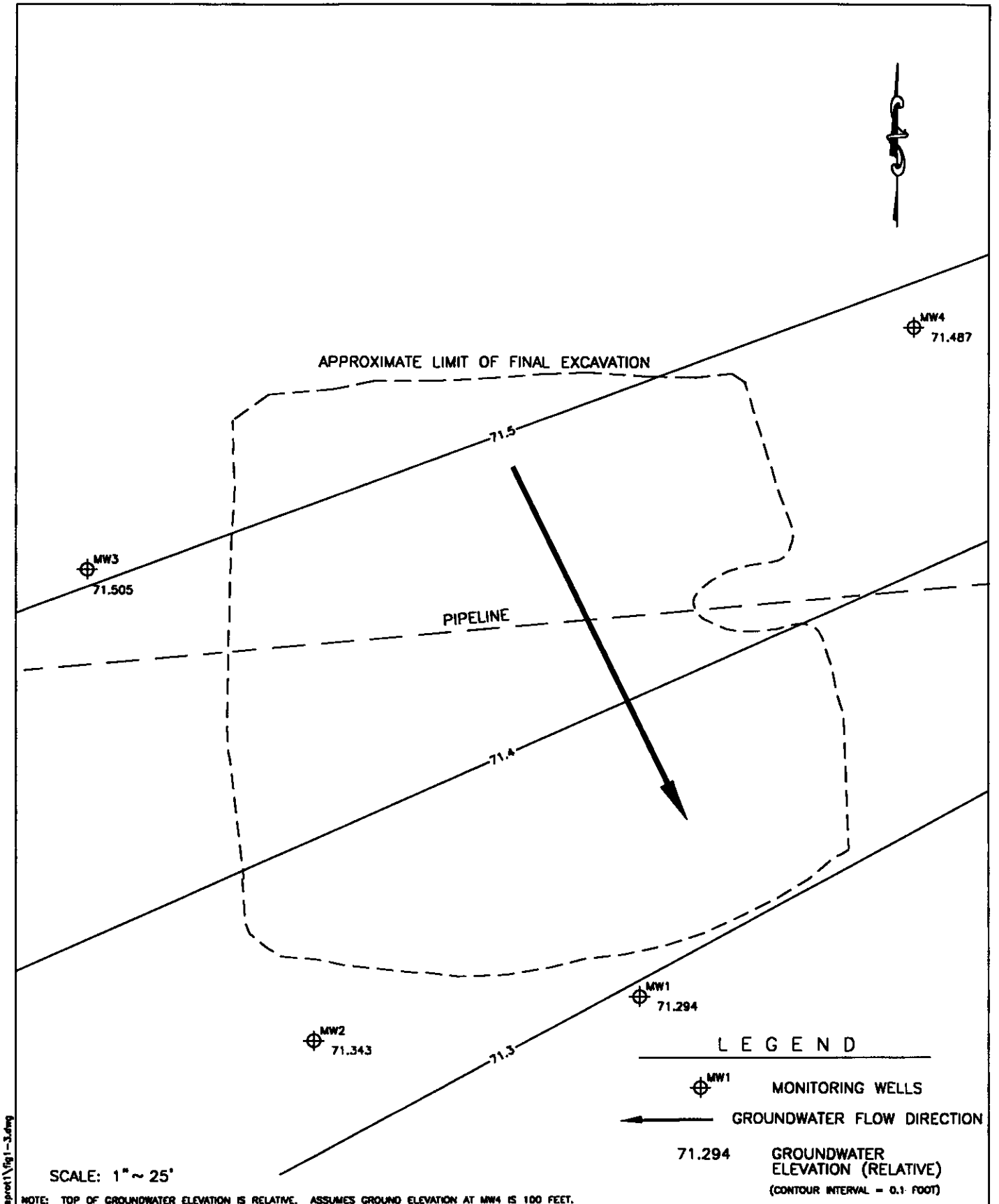


LEGEND

◉= Soil Sample Location and TPH Result in mg/kg

URS Greiner Woodward Clyde Austin, Texas			
ARCO PIPE LINE COMPANY BYRD LINE RELEASE SITE			
SCALE: 1-INCH = 10 FT	MADE BY: RJN MOD BY: RJN	DATE: 9/20/99 DATE: 1/11/00	FILE NO. 93-80000162.00
INITIAL EXCAVATION SOIL SAMPLE LOCATIONS			FIGURE 1-2

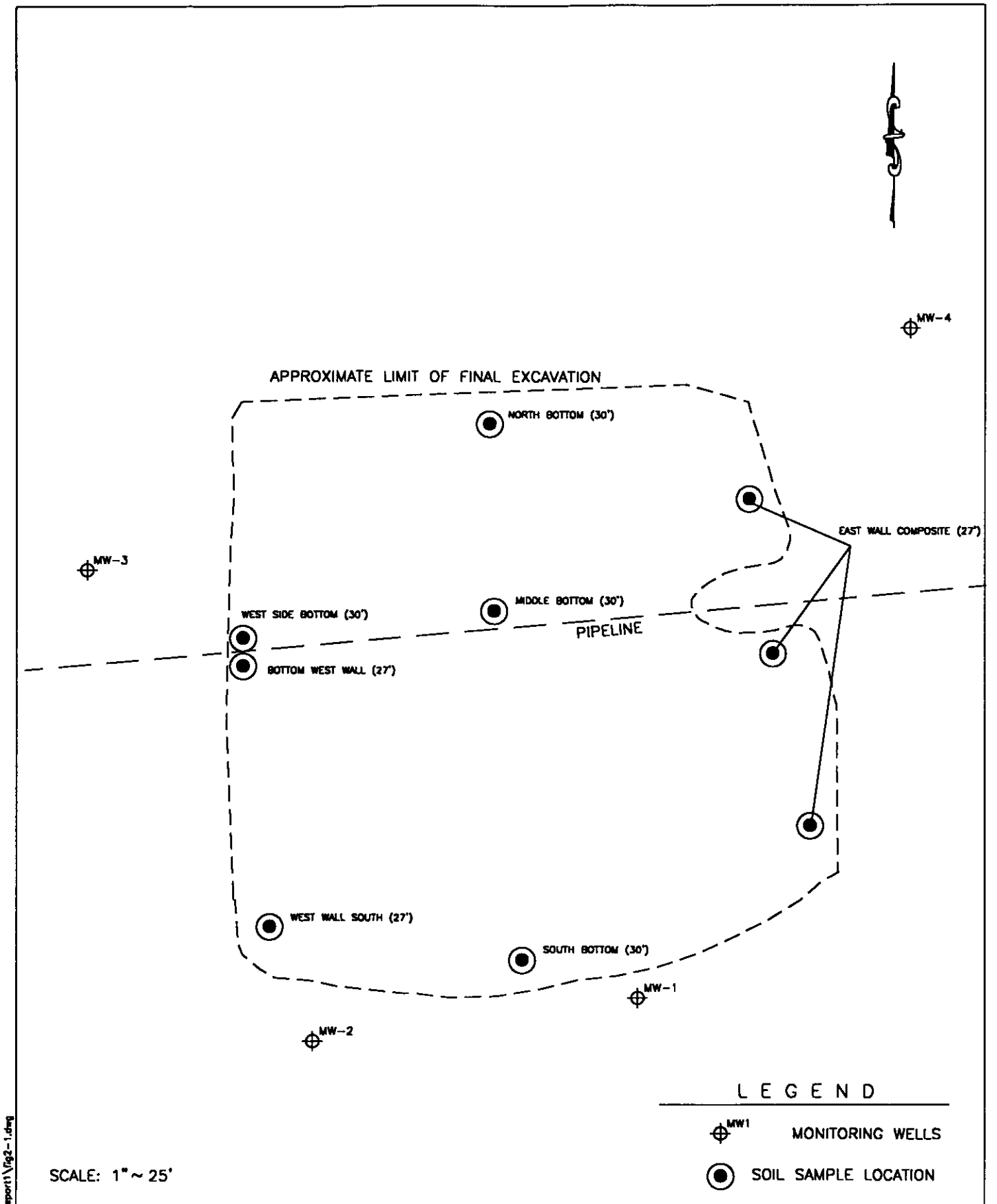
I:\ARCO\BYRD\COOPER LEAK\REPORT1 1\FIG1-2.DWG



NOTE: TOP OF GROUNDWATER ELEVATION IS RELATIVE. ASSUMES GROUND ELEVATION AT MW4 IS 100 FEET.

ARCO PIPE LINE COMPANY BYRD LINE RELEASE SITE MONUMENT NEW MEXICO	**URS Greiner Woodward Clyde** 6200 LA CALMA, STE 210 AUSTIN, TEXAS 78752	POTENTIOMETRIC SURFACE MAP	FILE NO. 93-99000162
	SCALE: DRAWN BY: SAF DATE: 12/1/99 MOD BY: RJN DATE: 1/12/00		FIGURE NO. 1-3

I:\arco\byrd\cooperteak\reprot1\fig1-3.dwg



ARCO PIPE LINE COMPANY BYRD LINE RELEASE SITE MONUMENT NEW MEXICO	**URS Greiner Woodward Clyde** 6200 LA CALMA, STE 210 AUSTIN, TEXAS 78752	FINAL EXCAVATION SOIL SAMPLES	FILE NO. 93-99000162
	SCALE: 1" = 25 FT DRAWN BY: SAF DATE: 12/1/99 MOD BY: RJN DATE: 1/12/00		FIGURE NO. 2-1

I:\arco\byrd\cooperleak\report1\fig2-1.dwg

Appendix A
Laboratory Analytical Reports for Initial and Final Excavations - Soil

Laboratory Analytical Reports
Initial Excavation Wall and Floor Samples

HOUSTON LABORATORY
6880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

July 21, 1999

Mr. Rick Nelson
URS GREINER WOODWARD CLYDE
6200 La Calma #200
Austin, TX 78752

The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on July 7, 1999. The sample(s) was assigned to Certificate of Analysis No. (s) 9907175 and analyzed for all parameters as listed on the chain of custody.

Any data flags or quality control exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis No. during any inquiries.

Again, SPL is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Southern Petroleum Laboratories

Bernadette A. Fini
Senior Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 99-07-175

Approved for Release by:

Bernadette A. Fini, Senior Project Manager — 7-21-99 Date

Joel Grice
Laboratory Director

Ted Yen
Corporate Quality Assurance Director

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-01

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: S. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 11:53:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	52	1.0 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	600MI		
1,4-Difluorobenzene	87		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	10 P	ug/kg
TOLUENE	120	10 P	ug/kg
ETHYLBENZENE	14	10 P	ug/kg
TOTAL XYLENE	480	10 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	614		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	160MI		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	5600	1200 P	mg/kg
Surrogate	**% Recovery**		

(P) - Practical Quantitation Limit MI - Matrix interference.
ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-01

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: S. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 11:53:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
n-Pentacosane	D		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/14/99 04:16:00			
Sonication Extraction of DRO by 8015A	07/08/99		
Method 3550B ***			
Analyzed by: GT			
Date: 07/08/99 16:00:00			

D - Diluted, limits not applicable.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-02

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: E. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 11:58:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	ND	0.10 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	93		
1,4-Difluorobenzene	90		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	1.0 P	ug/kg
TOLUENE	ND	1.0 P	ug/kg
ETHYLBENZENE	ND	1.0 P	ug/kg
TOTAL XYLENE	ND	1.0 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	107		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	ND	10 P	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	96		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/20/99 09:28:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-02

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: E. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 11:58:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sonication Extraction of DRO by 8015A Method 3550B ***	07/08/99		
Analyzed by: GT			
Date: 07/08/99 16:00:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-03

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: N. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 12:05:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	ND	0.10 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	90		
1,4-Difluorobenzene	93		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	1.0 P	ug/kg
TOLUENE	ND	1.0 P	ug/kg
ETHYLBENZENE	ND	1.0 P	ug/kg
TOTAL XYLENE	ND	1.0 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	107		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	ND	10 P	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	140		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 07:55:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-03

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: N. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 12:05:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sonication Extraction of DRO by 8015A Method 3550B ***	07/08/99		
Analyzed by: GT			
Date: 07/08/99 16:00:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-04

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: W. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 12:11:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	25	1.0 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	400MI		
1,4-Difluorobenzene	87		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	10 P	ug/kg
TOLUENE	340	10 P	ug/kg
ETHYLBENZENE	ND	10 P	ug/kg
TOTAL XYLENE	560	10 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	900		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	277MI		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	4300	500 P	mg/kg
Surrogate	**% Recovery**		

(P) - Practical Quantitation Limit MI - Matrix interference.
ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-04

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: W. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 12:11:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
n-Pentacosane	D		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 08:39:00			
Sonication Extraction of DRO by 8015A	07/08/99		
Method 3550B ***			
Analyzed by: GT			
Date: 07/08/99 16:00:00			

D - Diluted, limits not applicable.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-05

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: S. Wall (26 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:08:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	1300	50 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	293MI		
1,4-Difluorobenzene	80		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/16/99			
BENZENE	ND	500 P	ug/kg
TOLUENE	8000	500 P	ug/kg
ETHYLBENZENE	1100	500 P	ug/kg
TOTAL XYLENE	25000	500 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	34100		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	73		
4-Bromofluorobenzene	140		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	8500	500 P	mg/kg
Surrogate	**% Recovery**		

(P) - Practical Quantitation Limit MI - Matrix interference.
ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-05

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: S. Wall (26 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:08:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
n-Pentacosane	D		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 03:15:00			
Sonication Extraction of DRO by 8015A	07/08/99		
Method 3550B ***			
Analyzed by: GT			
Date: 07/08/99 16:00:00			

D - Diluted, limits not applicable.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-06

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: N. Wall (26 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:10:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	0.28	0.10 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	107		
1,4-Difluorobenzene	100		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	1.0 P	ug/kg
TOLUENE	ND	1.0 P	ug/kg
ETHYLBENZENE	ND	1.0 P	ug/kg
TOTAL XYLENE	3.5	1.0 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	3.5		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	97		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	160	10 P	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	134		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 08:24:00			

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-06

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: N. Wall (26 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:10:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sonication Extraction of DRO by 8015A Method 3550B ***	07/08/99		
Analyzed by: GT			
Date: 07/08/99 16:00:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-07

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/9

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: Floor

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:30:0
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNIT
Gasoline Range Organics	420	10 P	mg/k
Surrogate	**% Recovery**		
4-Bromofluorobenzene	330MI		
1,4-Difluorobenzene	73		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/16/99			
BENZENE	ND	25 P	ug/k
TOLUENE	2900	25 P	ug/k
ETHYLBENZENE	580	25 P	ug/k
TOTAL XYLENE	2900	25 P	ug/k
TOTAL VOLATILE AROMATIC HYDROCARBONS	6380		ug/k
Surrogate	**% Recovery**		
1,4-Difluorobenzene	79		
4-Bromofluorobenzene	187MI		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	2800	100 P	mg/k
Surrogate	**% Recovery**		
n-Pentacosane	152		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 09:08:00			

(P) - Practical Quantitation Limit MI - Matrix interference.
ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-07

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/9

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: Floor

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:30:0
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNIT
Sonication Extraction of DRO by 8015A Method 3550B ***	07/08/99		
Analyzed by: GT			
Date: 07/08/99 16:00:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-08

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/9

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: Provided by SPL
SAMPLE ID: Trip Blank 6/29/99

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNIT
BENZENE	ND	1.0 P	ug/l
TOLUENE	ND	1.0 P	ug/l
ETHYLBENZENE	ND	1.0 P	ug/l
TOTAL XYLENE	ND	1.0 P	ug/l
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		ug/l

Surrogate	% Recovery
1,4-Difluorobenzene	87
4-Bromofluorobenzene	93

Method 8021B ***
Analyzed by: CJ/
Date: 07/09/99

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

QUALITY CONTROL

DOCUMENTATION

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Modified 8015B***

Matrix: Soil
Units: mg/kg

Batch Id: HP_0990713025700

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Gasoline Range Organics	ND	1.0	0.83	83.0	53 - 137

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
GASOLINE RANGE ORGANICS	ND	0.9	0.66	73.3	0.59	65.6	11.1	50	36 - 163

Analyst: fab
Sequence Date: 07/13/99
SPL ID of sample spiked: 9907159-18A
Sample File ID: 00G2041.TX0
Method Blank File ID:
Blank Spike File ID: 00G2035.TX0
Matrix Spike File ID: 00G2038.TX0
Matrix Spike Duplicate File ID: 00G2039.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (1st Q.'97)
(***) = Source: SPL-Houston Historical Data(1st Q.'97)

SAMPLES IN BATCH(SPL ID): 9907175-01A 9907175-04A 9907175-02A 9907175-03A
9907175-06A 9907175-05A 9907175-07A

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Modified 8015B***

Matrix: Soil
Units: mg/kg

Batch Id: HP_0990715210600

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Gasoline Range Organics	ND	1.0	0.85	85.0	53 - 137

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
GASOLINE RANGE ORGANICS	ND	0.9	0.75	83.3	0.72	80.0	4.04	50	36 - 163

Analyst: fab
Sequence Date: 07/15/99
SPL ID of sample spiked: 9907401-06A
Sample File ID: 00G2150.TX0
Method Blank File ID:
Blank Spike File ID: 00G2144.TX0
Matrix Spike File ID: 00G2147.TX0
Matrix Spike Duplicate File ID: 00G2148.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (1st Q.'97)
(***) = Source: SPL-Houston Historical Data(1st Q.'97)

SAMPLES IN BATCH(SPL ID): 9907175-07A 9907175-05A

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Method 8021B ***

Matrix: Soil
Units: ug/kg

Batch Id: MP_0990710170401

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	47	94.0	61 - 119
Toluene	ND	50	48	96.0	65 - 125
EthylBenzene	ND	50	49	98.0	70 - 118
O Xylene	ND	50	48	96.0	72 - 117
M & P Xylene	ND	100	96	96.0	72 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
BENZENE	ND	20	20	100	21	105	4.88	21	32 - 164
TOLUENE	ND	20	19	95.0	21	105	10.0	20	38 - 159
ETHYLBENZENE	ND	20	20	100	22	110	9.52	19	52 - 142
O XYLENE	3.4	20	23	98.0	29	128	26.5 *	18	53 - 143
M & P XYLENE	2.5	40	42	98.8	47	111	11.6	17	53 - 144

Analyst: fab
Sequence Date: 07/10/99
SPL ID of sample spiked: 9907279-04A
Sample File ID: O_G1184.TXO
Method Blank File ID:
Blank Spike File ID: O_G1177.TXO
Matrix Spike File ID: O_G1179.TXO
Matrix Spike Duplicate File ID: O_G1180.TXO

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL Historical LImits-1st Qtr.'97
(***) = Source: SPL Historical LImits-1st Qtr.'97

SAMPLES IN BATCH(SPL ID): 9907175-06A 9907175-01A 9907175-04A 9907175-07A
9907175-05A 9907175-02A 9907175-03A

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Method 8021B ***

Matrix: Aqueous
Units: ug/L

Batch Id: MP_R990708210820

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	47	94.0	72 - 128
Benzene	ND	50	51	102	61 - 119
Toluene	ND	50	51	102	65 - 125
EthylBenzene	ND	50	52	104	70 - 118
O Xylene	ND	50	51	102	72 - 117
M & P Xylene	ND	100	100	100	72 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	ND	20	20	100	20	100	0	20	39 - 150
BENZENE	ND	20	20	100	20	100	0	21	32 - 164
TOLUENE	ND	20	19	95.0	19	95.0	0	20	38 - 159
ETHYLBENZENE	ND	20	19	95.0	19	95.0	0	19	52 - 142
O XYLENE	ND	20	18	90.0	18	90.0	0	18	53 - 143
M & P XYLENE	ND	40	35	87.5	34	85.0	2.90	17	53 - 144

Analyst: CJ/
Sequence Date: 07/08/99
SPL ID of sample spiked: 9907104-05A
Sample File ID: R_G1114.TXO
Method Blank File ID:
Blank Spike File ID: R_G1106.TXO
Matrix Spike File ID: R_G1108.TXO
Matrix Spike Duplicate File ID: R_G1109.TXO

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (1st Q '97)
(***) = Source: SPL-Houston Historical Data (1st Q '97)

SAMPLES IN BATCH(SPL ID): 9907188-05A 9907175-08A

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Method Modified 8015B***

Matrix: Soil
Units: mg/kg

Batch Id: HPVV990714033300

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Diesel	ND	166	210	127	77 - 145

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
DIESEL	2819	166	2701.23	NC	4904	NC	NC	50	21 - 175

Analyst: RR
Sequence Date: 07/14/99
SPL ID of sample spiked: 9907175-07B
Sample File ID: VVG1057.TXO
Method Blank File ID:
Blank Spike File ID: VVG1018.TXO
Matrix Spike File ID: VVG1047.TXO
Matrix Spike Duplicate File ID: VVG1142.TXO

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / ((<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (4TH Q '97)
(***) = Source: SPL-Houston Historical Data (4th Q '97)

SAMPLES IN BATCH(SPL ID): 9907175-06B 9907175-07B 9907175-01B 9907175-03B
9907175-04B 9907175-05B 9907175-02B 9907179-01B

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

SPL, Inc.

Analysis Request & Chain of Custody Record

SPL Workorder No: 9907175 | 089550 | page 1 of 2

Client Name: URS GROUP Woodward Clyde
Address/Phone: 6200 La Calma dr Austin TX 5210 78752
Client Contact: RICK NELSON (512) 458-1174
Project Name: APL Cooper
Project Number: 93999000162.00
Project Location: MONUMENT NM. (APL-Cooper)
Invoice To: Rick Nelson

SAMPLE ID	DATE	TIME	comp	grab	matrix (W=water S=soil SL=sludge O=other:)	bottle (P=plastic A=amber glass G=glass V=vial)	size (1=1 liter 4=4oz 40=vial 8=8oz 16=16oz)	pres. (1=HCl 2=HNO3 3=H2SO4 O=other:)	Number of Containers	Requested Analysis: BTEX 8021	TPH 8015 DRO & GRO	RAH 8310 Staff	8 RCRA Metals Staff
S Wall (20')	7/6/99	11:53	X		S	G	4	ice		X	X		
E Wall (20')	"	11:58	"		"	"	"	"		X	X		
N Wall (20')	"	12:05	"		"	"	"	"		X	X		
W Wall (20')	"	12:11	"		"	"	"	"		X	X		
S Wall (26')	"	14:08	"		"	"	"	"		X	X		
N Wall (26')	"	14:10	"		"	"	"	"		X	X		
FLOOR	"	14:30	"		"	"	"	"		X	X		

Client/Consultant Remarks:

Laboratory remarks:

Intact? ☒ Y ☐ N
Temp: 3

Requested TAT

24hr ☐ 72hr ☐
48hr ☐ Standard ☒
Other ☐ _____

Special Reporting Requirements: Fax Results ☒ Raw Data ☐ Standard QC ☐ Level 3 QC ☐ Level 4 QC ☐

Special Detection Limits (specify):

PM review (initial): BAF

	date	time	
1. Relinquished by Sampler: Richard M. Nelson	7/6/99	19:00	2. Received by: Federal EXPRESS
3. Relinquished by:	date	time	4. Received by:
5. Relinquished by:	date	time	6. Received by Laboratory: Donna Kelly 7/7/99 1000

☒ 8880 Interchange Drive, Houston, TX 77054 (713) 660-0901
☐ 459-Hughes Drive, Traverse City, MI 49684 (616) 947-5777
☐ 500 Ambassador Caffery Parkway, Scott, LA 70583 (318) 237-4775

SPL Houston Environmental Laboratory

Sample Login Checklist

Date:	Time:
7/7/99	1000

SPL Sample ID:
9907175

			Yes	No
1	Chain-of-Custody (COC) form is present.		✓	
2	COC is properly completed.		✓	
3	If no, Non-Conformance Worksheet has been completed.			
4	Custody seals are present on the shipping container.		✓	
5	If yes, custody seals are intact.		✓	
6	All samples are tagged or labeled.		✓	
7	If no, Non-Conformance Worksheet has been completed.			
8	Sample containers arrived intact		✓	
9	Temperature of samples upon arrival:		3 C	
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)	811305336785	
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name:	Date:
Dianna Bellez	7/7/99

Laboratory Analytical Reports
Final Excavation Wall and Floor Samples

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CJR CONTRACTORS
ATTN: J.L. HAM
P.O. BOX 1080
DENVER CITY, TX 79323
FAX TO: (806) 592-3412

Receiving Date: 12/08/99
Reporting Date: 12/10/99
Project Number: NOT GIVEN
Project Name: BYRD LINE (COOPER CANYON)
Project Location: MONUMENT, NM

Sampling Date: 12/08/99
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)
ANALYSIS DATE:		12/08/99	12/08/99
H4498-1	NORTH BOTTOM	<50	<50
H4498-2	MIDDLE BOTTOM	<50	<50
H4498-3	SOUTH BOTTOM	<50	<50
H4498-4	EAST WALL	<50	<50
H4498-5	WEST WALL	<50	<50
Quality Control		854	1018
True Value QC		1000	1000
% Recovery		85.4	102
Relative Percent Difference		8.6	5.4

METHOD: SW-846 8015 M

Chemist

12/10/99
Date

H4498.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CJR CONTRACTORS
ATTN: J.L. HAM
P.O. BOX 1080
DENVER CITY, TX 79323
FAX TO: (806) 592-3412

Receiving Date: 12/21/99
Reporting Date: 12/22/99
Project Number: NOT GIVEN
Project Name: ARCO PIPELINE
Project Location: BYRD LINE

Sampling Date: 12/21/99
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99
H4527-1	BOTTOM W. WALL	<50	523	<0.002	<0.002	<0.002	0.008
H4527-2	W. SIDE BOTTOM	230	340	<0.002	0.010	0.009	0.280
Quality Control		1058	992	0.093	0.101	0.102	0.311
True Value QC		1000	1000	0.100	0.100	0.100	0.300
% Recovery		85.4	99.2	92.8	101	102	104
Relative Percent Difference		5.0	10.9	4.6	1.3	3.4	5.1

METHODS: TPH(GRO & DRO) - EPA SW-846 8015 M; BTEX/MTBE-EPA SW-846 8260

Burgess J. A. Cooke, Ph. D.

12/22/99
Date

H4527.XLS

Appendix B
EDR Well Search Report

The EDR-GeoCheck® Report

Arco Pipeline Byrd Line Release
Byrd Line
Hobbs, NM 88240

Inquiry Number: 444323.1s

December 15, 1999

Environmental Data Resources, Inc.
an edr company

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

THE EDR GEOCHECK™ REPORT

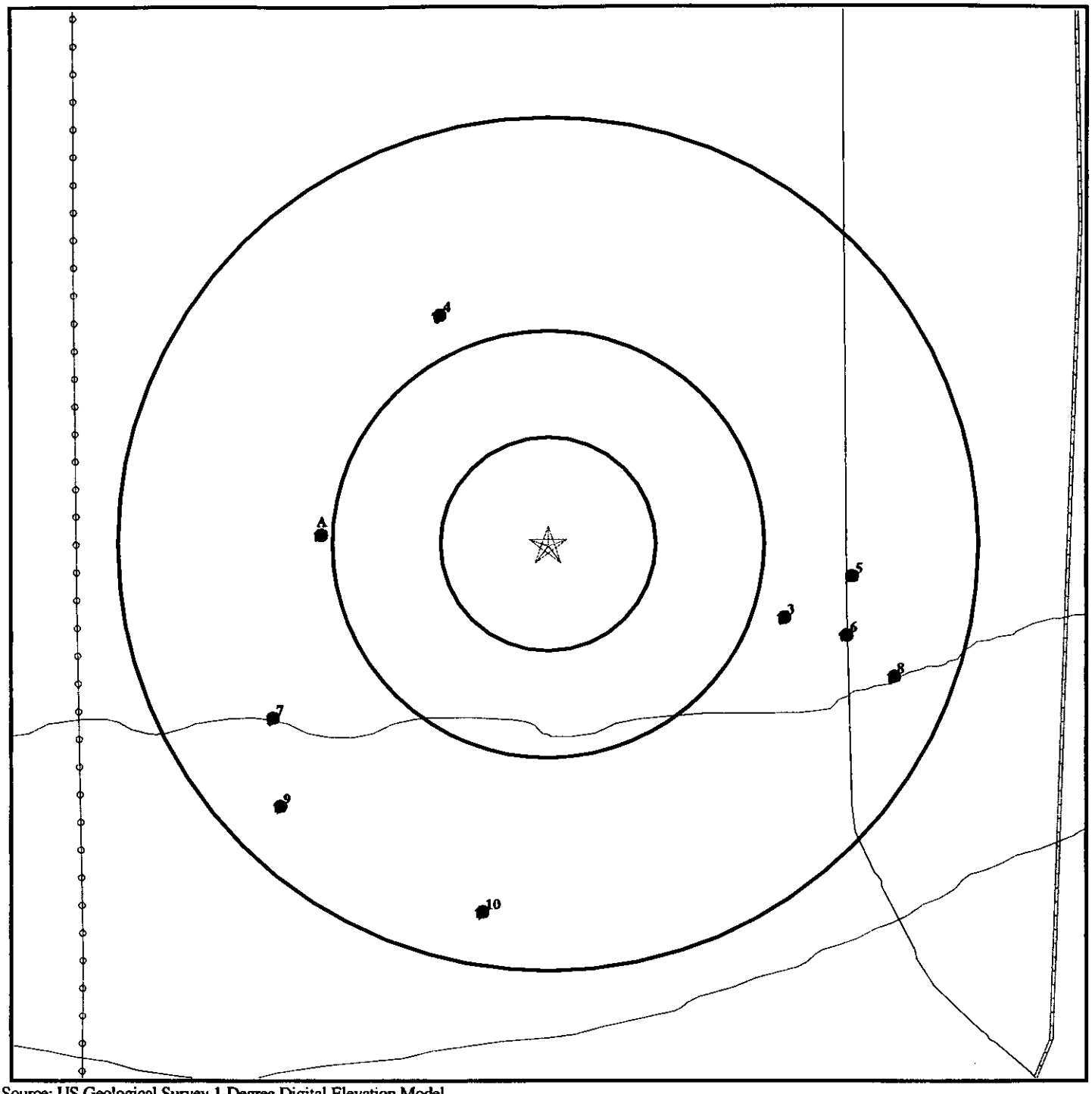
The EDR GeoCheck™ Report is a screening tool designed to assist in the hydrogeological assessment of a particular geographic area based upon publicly available information.

The EDR GeoCheck™ Report consists of the following information within a customer specified radius of the target property.

- topography (25 foot intervals unless otherwise shown)
- major roads
- surface water bodies
- railroad tracks
- flood plains (available in selected counties)
- wetlands (available in selected counties)
- wells including depth to water table and water level variability (in federal and selected state databases)
- public water supply wells (including violations information)
- geologic data
- radon data.

The EDR GeoCheck™ Report is a general area study. It may or may not be accurate at any specific location.

TOPOGRAPHIC MAP –444323.1s –'URS Greiner/Woodward Clyde'



Source: US Geological Survey 1-Degree Digital Elevation Model
Compiled 09/15/92

0 1/4 1/2 1

scale in miles

–Major Roads
–Contour lines (25 foot interval unless otherwise shown)
–Waterways
–Wells within search distance to Target Property
–Earthquake Epicenters (Richter 5 or greater)
–Power lines
–Pipe lines
–Fault lines
–Water

N

TARGET PROPERTY:	Arco Pipeline Byrd Line Release	CUSTOMER:	URS Greiner/Woodward Clyde
ADDRESS:	Byrd Line	CONTACT:	Dennis Hayes
CITY/STATE/ZIP:	Hobbs NM 88240	INQUIRY #:	444323.1s
LAT/LONG:	32.5828 / 103.2763	DATE:	December 15, 1999

WELL SEARCH SUMMARY

GEOLOGIC AGE IDENTIFICATION†

Geologic Code:	Qp
Era:	Cenozoic
System:	Quaternary
Series:	Pleistocene

ROCK STRATIGRAPHIC UNIT†

Category:	Stratifed Sequence

SEARCH DISTANCE RADIUS INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal Database	1.000
State Database	1.000
PWS Database	1.000

FEDERAL DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	323500103170801	1/2 - 1 Mile West
A1	323459103170701	1/2 - 1 Mile West
3	323449103160101	1/2 - 1 Mile ESE
4	323526103165001	1/2 - 1 Mile NNW
5	323454103155101	1/2 - 1 Mile East
6	323447103155201	1/2 - 1 Mile ESE
7	323437103171401	1/2 - 1 Mile WSW
8	323442103154501	1/2 - 1 Mile ESE
9	323426103171301	1/2 - 1 Mile SW
10	323413103164401	1/2 - 1 Mile South

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

NO WELLS FOUND

PUBLIC WATER SUPPLY SYSTEM INFORMATION

NO WELLS FOUND

AREA RADON INFORMATION

Zip Code: 88240

Number of sites tested: 29

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.655 pCi/L	93%	7%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.400 pCi/L	100%	0%	0%

† Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994)

WELL SEARCH FINDINGS

Map ID
Direction
Distance

A2
West
1/2 - 1 Mile

Site ID:	323500103170801	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3552.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	26.37 ft.
Date Measured:	03/29/54

A1
West
1/2 - 1 Mile

Site ID:	323459103170701	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3553.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	25.45 ft.	Water Level:	26.66 ft.	Water Level:	25.22 ft.	Water Level:	22.67 ft.
Date Measured:	03/01/61	Date Measured:	03/03/66	Date Measured:	01/14/71	Date Measured:	02/04/76

3
ESE
1/2 - 1 Mile

Site ID:	323449103160101	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3545.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	25.04 ft.	Water Level:	23.20 ft.	Water Level:	19.92 ft.	Water Level:	19.36 ft.
Date Measured:	03/22/54	Date Measured:	01/14/71	Date Measured:	01/30/76	Date Measured:	02/04/76

WELL SEARCH FINDINGS

Map ID
Direction
Distance

4
NNW
1/2 - 1 Mile

Site ID:	323526103165001	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3556.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	30.42 ft.	Water Level:	30.20 ft.
Date Measured:	09/19/67	Date Measured:	04/10/68

5
East
1/2 - 1 Mile

Site ID:	323454103155101	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3545.50 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	26.54 ft.	Water Level:	26.83 ft.	Water Level:	25.07 ft.
Date Measured:	12/02/66	Date Measured:	04/10/68	Date Measured:	01/18/71

6
ESE
1/2 - 1 Mile

Site ID:	323447103155201	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3543.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	37.90 ft.	Water Level:	40.43 ft.
Date Measured:	02/28/61	Date Measured:	03/03/66

Map ID
Direction
Distance

7
WSW
1/2 - 1 Mile

Site ID:	323437103171401	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3547.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	25.15 ft.	Water Level:	26.50 ft.	Water Level:	26.44 ft.
Date Measured:	03/30/54	Date Measured:	09/19/67	Date Measured:	04/10/68

8
ESE
1/2 - 1 Mile

Site ID:	323442103154501	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3534.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	16.03 ft.	Water Level:	16.67 ft.	Water Level:	15.86 ft.	Water Level:	11.74 ft.
Date Measured:	02/28/61	Date Measured:	03/03/66	Date Measured:	01/18/71	Date Measured:	01/23/76

9
SW
1/2 - 1 Mile

Site ID:	323426103171301	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3548.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	28.62 ft.	Water Level:	28.53 ft.	Water Level:	26.80 ft.
Date Measured:	09/19/67	Date Measured:	01/14/71	Date Measured:	01/27/76

WELL SEARCH FINDINGS

Map ID
Direction
Distance

10
South
1/2 - 1 Mile

Site ID:	323413103164401	Info. Source:	USGS
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Lea
Altitude:	3539.00 ft.	State:	New Mexico
Well Depth:	Not Reported	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Not Reported
Date Measured:	Not Reported	Prim. Use of Water:	Not Reported

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Water Level:	24.86 ft.	Water Level:	26.77 ft.	Water Level:	27.89 ft.	Water Level:	27.26 ft.
Date Measured:	04/01/54	Date Measured:	03/01/61	Date Measured:	03/03/66	Date Measured:	04/10/68
Water Level:	27.85 ft.	Water Level:	25.56 ft.				
Date Measured:	01/14/71	Date Measured:	01/23/76				

NEW MEXICO GOVERNMENT WELL RECORDS SEARCHED

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SWDIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones: Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

Water Dams: National Inventory of Dams
Source: Federal Emergency Management Agency
Telephone: 202-646-2801
National computer database of more than 74,000 dams maintained by the Federal Emergency Management Agency.

Appendix C
Soil Boring/Monitoring Well Construction Logs

Project: APL BYRD LINE RELEASE
Project Location: Hobbs, New Mexico
Project Number: 93-99000162.00-00001

Log of Monitoring Well MW1

Sheet 1 of 1

Date(s) Drilled	11/9/99	Logged By	D. Hayes	Checked By	R.T.Murthy
Drilling Method	HSA	Drilling Contractor	GMI	Total Depth of Borehole	40.0 feet
Drill Rig Type	CME	Drill Bit Size/Type	4-1/4 in. ID HSA	Surface Elevation	
Groundwater Level and Date	28.8 feet on 11/10/99	Sampler Type	5-ft. CME Sampler	Top of PVC Elevation	
Diameter of Hole (inches)	8.25	Diameter of Well (inches) 2	Type of Well Casing	2 in. Schedule 40 PVC	Screen Perforation	0.010 in. machine slotted
Type of Sand Pack	20/40 Silica Sand	Type and Depth of Seal(s)	Hydrated Bentonite Pellets, 14-16 ft.		
Comments					

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Diagram	OVA Reading, ppm	REMARKS
	0			60		SANDY SILT, pale orange, medium dense, dry, non-plastic, very fine grained, moderate to poorly graded.		0	
						SILTY SAND, light brown, loose, dry, very fine to fine, moderate to poorly graded, subangular.		0	
	5			80		CALICHE		0	MW1-4-5 Soil jar Sample
	10			50		SILTY SAND, pale orange, loose, dry, fine grained, moderate to poorly graded, subangular.		0	
						change in color to light brown		0	
	15			55		CALICHE		0	
	20			60		SILTY SAND, pale orange, loose to medium dense, moist, fine grained, moderate to poorly graded, subangular.		0	MW1-19-20 Soil Jar Sample
	25			50		change in color to light brown, saturated		0	
	30			60				0	MW1-29-30 Soil Jar Sample
	35			70		CALICHE, pale orange		0	
						SILTY SAND, light brown, loose, saturated, fine grained, moderate to poorly graded, subangular.		0	
						CALICHE		0	MW1-39-40 Soil Jar Sample
	40					Soil boring terminated at a depth of 40 feet below existing ground. Groundwater encountered after completion of well.		0	
	45								

Report: ENV_23DW; File: BYROLINE.GPJ; 1/10/00

Project: APL BYRD LINE RELEASE
Project Location: Hobbs, New Mexico
Project Number: 93-99000162.00-00001

Log of Monitoring Well MW2

Sheet 1 of 1

Date(s) Drilled	11/10/99	Logged By	D. Hayes	Checked By	R.T.Murthy
Drilling Method	HSA	Drilling Contractor	GMI	Total Depth of Borehole	40.0 feet
Drill Rig Type	CME	Drill Bit Size/Type	4-1/4 In. ID HSA	Surface Elevation	
Groundwater Level and Date	30.98 feet on 11/11/99	Sampler Type	5-ft. CME Sampler	Top of PVC Elevation	
Diameter of Hole (inches)	8.25	Diameter of Well (inches) 2	Type of Well Casing	2 in. Schedule 40 PVC	Screen Perforation	0.010 in, machine slotted
Type of Sand Pack	20/40 Silica Sand	Type and Depth of Seal(s)	Hydrated Bentonite Pellets, 12-14 ft.		
Comments					

Elevation, feet / Depth, feet	SAMPLES Type	Number	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Diagram	OVA Reading, ppm	REMARKS
0			50		SILTY SAND, moderate yellow brown, loose, dry, very fine, poorly graded, subangular.		0	
					SILTY SAND, caliche present, pale orange, loose, dry.		0	
5			50				0	MW2-4-5 Soil Jar Sample
					SILTY SAND, moderate yellow brown, loose, dry, very fine, poorly graded, subangular. caliche nodules present from 10-18 feet.		0	
10			50				0	
15			60				0	
					SILTY SAND, light brown, loose to medium, fine grained, moderate to poorly graded, occasional gravel size caliche nodules present, subangular.		0	
20			70				0	MW2-19-20 Soil Jar Sample
25			80		change in color to light brown, loose, saturated		0	MW2-24-25 Soil Jar Sample
30			80			▽	0	
35			80		SILTY SAND, Caliche nodules present, light brown, loose, saturated, fine grained, moderate to poorly graded, subangular. loose, no caliche present		0	
40					CALICHE		0	MW2-39-40 Soil Jar Sample
					Soil boring terminated at a depth of 40 feet below existing ground. Groundwater encountered after completion of well.			
45								

Report: ENV_23DW; File: BYRDLINE.GPJ; 1/10/00

URS Greiner Woodward Clyde

Project: APL BYRD LINE RELEASE
Project Location: Hobbs, New Mexico
Project Number: 93-99000162.00-00001

Log of Monitoring Well MW3

Sheet 1 of 1

Date(s) Drilled	11/10/99	Logged By	D. Hayes	Checked By	R.T.Murthy
Drilling Method	HSA	Drilling Contractor	GMI	Total Depth of Borehole	40.0 feet
Drill Rig Type	CME	Drill Bit Size/Type	4-1/4 in. ID HSA	Surface Elevation	
Groundwater Level and Date	31.3 on 11/11/99	*Sampler* Type	5-ft. CME Sampler	*Top of PVC* Elevation	
Diameter of Hole (inches)	8.25	Diameter of Well (inches) 2	Type of Well Casing	2 in. Schedule 40 PVC	Screen Perforation	0.010 in. machine slotted
Type of Sand Pack	*20/40 Silica Sand*	Type and Depth of Seal(s)	*Hydrated Bentonite Pellets, 12-14 ft.*		
Comments					

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Diagram	OVA Reading, ppm	REMARKS
	0			70		SILTY SAND, light brown, loose, dry, fine grained, moist, moderate to poorly graded, subangular.		0	
						SILTY SAND, loose, dry, caliche nodules present, fine grained, moderate to poorly graded.		0	
	5			60				0	MW3-4-5 Soil Jar Sample
						SILTY SAND, pale orange, loose, dry, fine grained, moderate to poorly graded, subangular.		0	
	10			70				0	
	15			60		change in color to light brown		0	
	20			70		change in color to pale orange, caliche nodules present		0	MW3-19-20 Soil Jar Sample
						change in color to light brown		0	
	25			60		wet, occasional caliche nodules present		0	
	30			60		saturated	▽	0	MW3-29-30 Soil Jar Sample
	35			60				0	
	40					CALICHE		0	MW3-39-40 Soil Jar Sample
						Soil boring terminated at a depth of 40 feet below existing ground. Groundwater encountered after completion of well.			
	45								

Report: ENV_23DW; File: BYRDLINE.GPJ; 1/10/00

URS Greiner Woodward Clyde

Project: APL BYRD LINE RELEASE
Project Location: Hobbs, New Mexico
Project Number: 93-99000162.00-00001

Log of Monitoring Well MW4

Sheet 1 of 1

Date(s) Drilled	11/10/99	Logged By	D. Hayes	Checked By	R.T.Murthy
Drilling Method	HSA	Drilling Contractor	GMI	Total Depth of Borehole	40.0 feet
Drill Rig Type	CME	Drill Bit Size/Type	4-1/4 in. ID HSA	Surface Elevation	
Groundwater Level and Date	30.96 on 11/11/99	Sampler Type	5-ft. CME Sampler	Top of PVC Elevation	
Diameter of Hole (inches)	8.25	Diameter of Well (inches)	2	Type of Well Casing	2 in. Schedule 40 PVC	Screen Perforation	0.010 in. machine slotted
Type of Sand Pack	20/40 Silica Sand	Type and Depth of Seal(s)	Hydrated Bentonite Pellets, 14-16 ft.		
Comments					

Elevation, feet / Depth, feet	SAMPLES: Type	SAMPLES: Number	SAMPLES: Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Diagram	OVA Reading, ppm	REMARKS
0			70		SILTY SAND, light brown, loose, dry, very fine to fine grained, moderate to poorly grdaed, subangular.		0	
					pale orange, caliche present		0	
5			100				0	MW4-4-5 Soil Jar Sample
					pale orange		0	
					medium dense, some caliche present		0	
10			10				0	
							0	
15			60				0	
							0	
20			50				0	MW4-19-20 Soil Jar Sample
							0	
25			30		CALCITE SILTY SAND, light brown, wet, fine grained, moderate to poorly graded, subangular. saturated		0	MW4-24-25 Soil Jar Sample
					some caliche present		0	
30			100			▽	0	
					some caliche present		0	
35			100		some caliche present, pale orange pale orange		0	
					CALICHE		0	MW4-39-40 Soil Jar Sample
40					Soil boring terminated at a depth of 40 feet below existing ground. Groundwater encountered after completion of well.			
45								

Report: ENV_23DW, File: BYRDLINE.GPJ, 1/10/00

URS Greiner Woodward Clyde

Appendix D
Laboratory Analytical Reports for Subsurface Soil and Groundwater

HOUSTON LABORATORY
6990 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Case Narrative for:

URS Greiner Woodward Clyde

Certificate of Analysis Number:

99110353

Report To:		Project Name:	ARCO/ HOBBS, NM
URS Greiner Woodward Clyde		Site:	HOBBS, NM
Rick Nelson		Site Address:	Byrd Lane Release Site
6200 La Calma			
Suite 210		PO Number:	
Austin		State:	
Texas		State Cert. No.:	
78752-		Date Reported:	12/02/1999
ph (512) 458-1174	fax: (512) 458-9823		

The sampling time on the chain of custody for your sample ID " MW2-39-40" (SPL ID: 99110353-08) was listed as 1:00. Per your request via email on November 16, 1999 use 10:00 am as the time of sampling.

Any other data flags or quality control exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Lynch, Pat
Project Manager

12/08/1999
Date

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

URS Greiner Woodward Clyde

Certificate of Analysis Number:

99110353

Report To:	URS Greiner Woodward Clyde Rick Nelson 6200 La Calma Suite 210 Austin Texas 78752- ph (512) 458-1174 fax: (512) 458-9823	**Project Name:**	ARCO/ HOBBS, NM
		Site:	HOBBS, NM
		Site Address:	
		PO Number:	
		State:	
		State Cert. No.:	
Fax To:	*URS Greiner Woodward Clyde* *Rick Nelson* *fax: (512) 458-9823*	**Date Reported:**	12/02/1999

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW 1-4-5	99110353-01	Soil	11/09/1999 02:40:00 PM	11/13/1999 10:00:00 AM	086304	☐
MW-1-19-20	99110353-02	Soil	11/09/1999 03:00:00 PM	11/13/1999 10:00:00 AM	086304	☐
MW-1-29-30	99110353-03	Soil	11/09/1999 03:25:00 PM	11/13/1999 10:00:00 AM	086304	☐
MW-1-39-40	99110353-04	Soil	11/09/1999 03:30:00 PM	11/13/1999 10:00:00 AM	086304	☐
MW-2-4-5	99110353-05	Soil	11/10/1999 09:00:00 AM	11/13/1999 10:00:00 AM	086304	☐
MW-2-19-20	99110353-06	Soil	11/10/1999 09:30:00 AM	11/13/1999 10:00:00 AM	086304	☐
MW-2-24-25	99110353-07	Soil	11/10/1999 09:50:00 AM	11/13/1999 10:00:00 AM	086304	☐
MW-2-39-40	99110353-08	Soil	11/10/1999 10:00:00 AM	11/13/1999 10:00:00 AM	086304	☐
MW-3-4-5	99110353-09	Soil	11/10/1999 11:15:00 AM	11/13/1999 10:00:00 AM	086304	☐
MW-3-19-20	99110353-10	Soil	11/10/1999 11:30:00 AM	11/13/1999 10:00:00 AM	086304	☐
MW-3-29-30	99110353-11	Soil	11/10/1999 11:40:00 AM	11/13/1999 10:00:00 AM	086305	☐
MW-3-39-40	99110353-12	Soil	11/10/1999 11:50:00 AM	11/13/1999 10:00:00 AM	086305	☐
MW-4-4-5	99110353-13	Soil	11/10/1999 02:40:00 PM	11/13/1999 10:00:00 AM	086305	☐
MW-4-19-20	99110353-14	Soil	11/10/1999 03:00:00 PM	11/13/1999 10:00:00 AM	086305	☐
MW-4-29-30	99110353-15	Soil	11/10/1999 03:10:00 PM	11/13/1999 10:00:00 AM	086305	☐
MW-4-39-40	99110353-16	Soil	11/10/1999 03:30:00 PM	11/13/1999 10:00:00 AM	086305	☐
Trip Blank	99110353-17	Water	11/10/1999	11/13/1999 10:00:00 AM	086305	☐

Lynch, Pat
Project Manager

12/08/1999
Date

Joel Grice
Laboratory Director

Ted Yen
Quality Assurance Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID: MW 1-4-5 **Collected:** 11/9/99 2:40:00 **SPL Sample ID:** 99110353-01

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	94		10		1		11/25/99 4:56	RR	117457
Surr: Pentacosane	78	%	20-154		1		11/25/99 4:56	RR	117457

Run ID/Seq #: HP_V_991125C-117457

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/20/99 10:05	FB	112857
Surr: 1,4-Difluorobenzene	90	%	72-153		1		11/20/99 10:05	FB	112857
Surr: 4-Bromofluorobenzene	95	%	51-149		1		11/20/99 10:05	FB	112857
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/20/99 10:56	FB	112223
Ethylbenzene	ND		1		1		11/20/99 10:56	FB	112223
Toluene	ND		1		1		11/20/99 10:56	FB	112223
Xylenes,Total	ND		1		1		11/20/99 10:56	FB	112223
Surr: 1,4-Difluorobenzene	100	%	59-127		1		11/20/99 10:56	FB	112223
Surr: 4-Bromofluorobenzene	99	%	48-156		1		11/20/99 10:56	FB	112223

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID: MW-1-19-20 **Collected:** 11/9/99 3:00:00 **SPL Sample ID:** 99110353-02

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 6:51	RR	117364
Surr: Pentacosane	70	%	20-154		1		11/25/99 6:51	RR	117364

Run ID/Seq #: HP_V_991125C-117364

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/20/99 11:02	FB	112858
Surr: 1,4-Difluorobenzene	83	%	72-153		1		11/20/99 11:02	FB	112858
Surr: 4-Bromofluorobenzene	98	%	51-149		1		11/20/99 11:02	FB	112858
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/20/99 11:24	FB	112225
Ethylbenzene	ND		1		1		11/20/99 11:24	FB	112225
Toluene	ND		1		1		11/20/99 11:24	FB	112225
Xylenes,Total	ND		1		1		11/20/99 11:24	FB	112225
Surr: 1,4-Difluorobenzene	93	%	59-127		1		11/20/99 11:24	FB	112225
Surr: 4-Bromofluorobenzene	100	%	48-156		1		11/20/99 11:24	FB	112225

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID: MW-1-29-30 **Collected:** 11/9/99 3:25:00 **SPL Sample ID:** 99110353-03

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 7:29	RR	117365
Surr: Pentacosane	54	%	20-154		1		11/25/99 7:29	RR	117365

Run ID/Seq #: HP_V_991125C-117365

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	0.1		0.1		1		11/20/99 11:05	FB	112859
Surr: 1,4-Difluorobenzene	84	%	72-153		1		11/20/99 11:05	FB	112859
Surr: 4-Bromofluorobenzene	110	%	51-149		1		11/20/99 11:05	FB	112859
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/20/99 11:52	FB	112226
Ethylbenzene	ND		1		1		11/20/99 11:52	FB	112226
Toluene	ND		1		1		11/20/99 11:52	FB	112226
Xylenes,Total	ND		1		1		11/20/99 11:52	FB	112226
Surr: 1,4-Difluorobenzene	94	%	59-127		1		11/20/99 11:52	FB	112226
Surr: 4-Bromofluorobenzene	110	%	48-156		1		11/20/99 11:52	FB	112226

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID: MW-1-39-40 **Collected:** 11/9/99 3:30:00 **SPL Sample ID:** 99110353-04

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 8:07	RR	117366
Surr: Pentacosane	65	%	20-154		1		11/25/99 8:07	RR	117366

Run ID/Seq #: HP_V_991125C-117366

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/22/99 11:02	FB	114349
Surr: 1,4-Difluorobenzene	89	%	72-153		1		11/22/99 11:02	FB	114349
Surr: 4-Bromofluorobenzene	130	%	51-149		1		11/22/99 11:02	FB	114349
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/22/99 23:24	CJ	115264
Ethylbenzene	ND		1		1		11/22/99 23:24	CJ	115264
Toluene	ND		1		1		11/22/99 23:24	CJ	115264
Xylenes,Total	1.1		1		1		11/22/99 23:24	CJ	115264
Surr: 1,4-Difluorobenzene	93	%	59-127		1		11/22/99 23:24	CJ	115264
Surr: 4-Bromofluorobenzene	98	%	48-156		1		11/22/99 23:24	CJ	115264

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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(713) 660-0901

Client Sample ID: MW-2-4-5 **Collected:** 11/10/99 9:00:00 **SPL Sample ID:** 99110353-05

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 9:23	RR	117368
Surr: Pentacosane	79	%	20-154		1		11/25/99 9:23	RR	117368

Run ID/Seq #: HP_V_991125C-117368

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/22/99 11:05	FB	114356
Surr: 1,4-Difluorobenzene	82	%	72-153		1		11/22/99 11:05	FB	114356
Surr: 4-Bromofluorobenzene	130	%	51-149		1		11/22/99 11:05	FB	114356
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/22/99 23:52	CJ	115269
Ethylbenzene	ND		1		1		11/22/99 23:52	CJ	115269
Toluene	ND		1		1		11/22/99 23:52	CJ	115269
Xylenes,Total	ND		1		1		11/22/99 23:52	CJ	115269
Surr: 1,4-Difluorobenzene	92	%	59-127		1		11/22/99 23:52	CJ	115269
Surr: 4-Bromofluorobenzene	99	%	48-156		1		11/22/99 23:52	CJ	115269

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-2-19-20 **Collected:** 11/10/99 9:30:00 **SPL Sample ID:** 99110353-06

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 10:01	RR	117369
Surr: Pentacosane	53	%	20-154		1		11/25/99 10:01	RR	117369

Run ID/Seq #: HP_V_991125C-117369

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/23/99 12:02	FB	114360
Surr: 1,4-Difluorobenzene	80	%	72-153		1		11/23/99 12:02	FB	114360
Surr: 4-Bromofluorobenzene	130	%	51-149		1		11/23/99 12:02	FB	114360
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 0:20	CJ	115275
Ethylbenzene	ND		1		1		11/23/99 0:20	CJ	115275
Toluene	ND		1		1		11/23/99 0:20	CJ	115275
Xylenes,Total	ND		1		1		11/23/99 0:20	CJ	115275
Surr: 1,4-Difluorobenzene	89	%	59-127		1		11/23/99 0:20	CJ	115275
Surr: 4-Bromofluorobenzene	92	%	48-156		1		11/23/99 0:20	CJ	115275

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-2-24-25 **Collected:** 11/10/99 9:50:00 **SPL Sample ID:** 99110353-07

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	320		10		1		11/25/99 10:39	RR	117370
Surr: Pentacosane	85	%	20-154		1		11/25/99 10:39	RR	117370

Run ID/Seq #: HP_V_991125C-117370

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/23/99 12:04	FB	114361
Surr: 1,4-Difluorobenzene	85	%	72-153		1		11/23/99 12:04	FB	114361
Surr: 4-Bromofluorobenzene	140	%	51-149		1		11/23/99 12:04	FB	114361
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 0:48	CJ	115281
Ethylbenzene	ND		1		1		11/23/99 0:48	CJ	115281
Toluene	ND		1		1		11/23/99 0:48	CJ	115281
Xylenes,Total	ND		1		1		11/23/99 0:48	CJ	115281
Surr: 1,4-Difluorobenzene	91	%	59-127		1		11/23/99 0:48	CJ	115281
Surr: 4-Bromofluorobenzene	98	%	48-156		1		11/23/99 0:48	CJ	115281

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-2-39-40 **Collected:** 11/10/99 10:00:0 **SPL Sample ID:** 99110353-08

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 11:17	RR	117371
Surr: Pentacosane	76	%	20-154		1		11/25/99 11:17	RR	117371

Run ID/Seq #: HP_V_991125C-117371

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	0.11		0.1		1		11/23/99 1:01	FB	114365
Surr: 1,4-Difluorobenzene	87	%	72-153		1		11/23/99 1:01	FB	114365
Surr: 4-Bromofluorobenzene	140	%	51-149		1		11/23/99 1:01	FB	114365
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 1:16	CJ	115284
Ethylbenzene	2		1		1		11/23/99 1:16	CJ	115284
Toluene	5.7		1		1		11/23/99 1:16	CJ	115284
Xylenes,Total	6.1		1		1		11/23/99 1:16	CJ	115284
Surr: 1,4-Difluorobenzene	92	%	59-127		1		11/23/99 1:16	CJ	115284
Surr: 4-Bromofluorobenzene	99	%	48-156		1		11/23/99 1:16	CJ	115284

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-2-39-40 **Collected:** 11/10/99 10:00:0 **SPL Sample ID:** 99110353-08

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 11:17	RR	117371
Surr: Pentacosane	76	%	20-154		1		11/25/99 11:17	RR	117371

Run ID/Seq #: HP_V_991125C-117371

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	0.11		0.1		1		11/23/99 1:01	FB	114365
Surr: 1,4-Difluorobenzene	87	%	72-153		1		11/23/99 1:01	FB	114365
Surr: 4-Bromofluorobenzene	140	%	51-149		1		11/23/99 1:01	FB	114365
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 1:16	CJ	115284
Ethylbenzene	2		1		1		11/23/99 1:16	CJ	115284
Toluene	5.7		1		1		11/23/99 1:16	CJ	115284
Xylenes,Total	6.1		1		1		11/23/99 1:16	CJ	115284
Surr: 1,4-Difluorobenzene	92	%	59-127		1		11/23/99 1:16	CJ	115284
Surr: 4-Bromofluorobenzene	99	%	48-156		1		11/23/99 1:16	CJ	115284

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-3-4-5 **Collected:** 11/10/99 11:15:0 **SPL Sample ID:** 99110353-09

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 11:55	RR	117372
Surr: Pentacosane	71	%	20-154		1		11/25/99 11:55	RR	117372

Run ID/Seq #: HP_V_991125C-117372

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/23/99 1:04	FB	114376
Surr: 1,4-Difluorobenzene	82	%	72-153		1		11/23/99 1:04	FB	114376
Surr: 4-Bromofluorobenzene	130	%	51-149		1		11/23/99 1:04	FB	114376
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 1:44	CJ	115285
Ethylbenzene	ND		1		1		11/23/99 1:44	CJ	115285
Toluene	ND		1		1		11/23/99 1:44	CJ	115285
Xylenes,Total	ND		1		1		11/23/99 1:44	CJ	115285
Surr: 1,4-Difluorobenzene	96	%	59-127		1		11/23/99 1:44	CJ	115285
Surr: 4-Bromofluorobenzene	96	%	48-156		1		11/23/99 1:44	CJ	115285

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-3-19-20 **Collected:** 11/10/99 11:30:0 **SPL Sample ID:** 99110353-10

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 12:33	RR	117373
Surr: Pentacosane	85	%	20-154		1		11/25/99 12:33	RR	117373

Run ID/Seq #: HP_V_991125C-117373

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/23/99 2:01	FB	114390
Surr: 1,4-Difluorobenzene	84	%	72-153		1		11/23/99 2:01	FB	114390
Surr: 4-Bromofluorobenzene	130	%	51-149		1		11/23/99 2:01	FB	114390
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 2:13	CJ	115287
Ethylbenzene	ND		1		1		11/23/99 2:13	CJ	115287
Toluene	ND		1		1		11/23/99 2:13	CJ	115287
Xylenes,Total	ND		1		1		11/23/99 2:13	CJ	115287
Surr: 1,4-Difluorobenzene	94	%	59-127		1		11/23/99 2:13	CJ	115287
Surr: 4-Bromofluorobenzene	94	%	48-156		1		11/23/99 2:13	CJ	115287

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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8880 INTERCHANGE DRIVE
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Client Sample ID: MW-3-29-30 **Collected:** 11/10/99 11:40:0 **SPL Sample ID:** 99110353-11

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 13:11	RR	117374
Surr: Pentacosane	77	%	20-154		1		11/25/99 13:11	RR	117374

Run ID/Seq #: HP_V_991125C-117374

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/23/99 4:03	FB	114411
Surr: 1,4-Difluorobenzene	79	%	72-153		1		11/23/99 4:03	FB	114411
Surr: 4-Bromofluorobenzene	130	%	51-149		1		11/23/99 4:03	FB	114411
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 4:34	CJ	115289
Ethylbenzene	ND		1		1		11/23/99 4:34	CJ	115289
Toluene	ND		1		1		11/23/99 4:34	CJ	115289
Xylenes,Total	ND		1		1		11/23/99 4:34	CJ	115289
Surr: 1,4-Difluorobenzene	92	%	59-127		1		11/23/99 4:34	CJ	115289
Surr: 4-Bromofluorobenzene	98	%	48-156		1		11/23/99 4:34	CJ	115289

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-3-39-40 **Collected:** 11/10/99 11:50:0 **SPL Sample ID:** 99110353-12

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 13:50	RR	117375
Surr: Pentacosane	92	%	20-154		1		11/25/99 13:50	RR	117375

Run ID/Seq #: HP_V_991126C-117375

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/23/99 5:00	FB	114418
Surr: 1,4-Difluorobenzene	86	%	72-153		1		11/23/99 5:00	FB	114418
Surr: 4-Bromofluorobenzene	140	%	51-149		1		11/23/99 5:00	FB	114418
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 5:02	CJ	115290
Ethylbenzene	ND		1		1		11/23/99 5:02	CJ	115290
Toluene	ND		1		1		11/23/99 5:02	CJ	115290
Xylenes,Total	ND		1		1		11/23/99 5:02	CJ	115290
Surr: 1,4-Difluorobenzene	90	%	59-127		1		11/23/99 5:02	CJ	115290
Surr: 4-Bromofluorobenzene	100	%	48-156		1		11/23/99 5:02	CJ	115290

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-4-4-5 **Collected:** 11/10/99 2:40:00 **SPL Sample ID:** 99110353-13

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				**MCL**	**SW8015B**		**Units: mg/Kg**		
Diesel Range Organics	ND		10		1		11/25/99 14:28	RR	117376
Surr: Pentacosane	83	%	20-154		1		11/25/99 14:28	RR	117376

Run ID/Seq #: HP_V_991125C-117376

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				**MCL**	**SW8015B**		**Units: mg/Kg**		
Gasoline Range Organics	ND		0.1		1		11/23/99 5:03	FB	114426
Surr: 1,4-Difluorobenzene	83	%	72-153		1		11/23/99 5:03	FB	114426
Surr: 4-Bromofluorobenzene	130	%	51-149		1		11/23/99 5:03	FB	114426
PURGEABLE AROMATICS				**MCL**	**SW8021B**		**Units: ug/Kg**		
Benzene	ND		1		1		11/23/99 5:31	CJ	115291
Ethylbenzene	ND		1		1		11/23/99 5:31	CJ	115291
Toluene	ND		1		1		11/23/99 5:31	CJ	115291
Xylenes,Total	ND		1		1		11/23/99 5:31	CJ	115291
Surr: 1,4-Difluorobenzene	90	%	59-127		1		11/23/99 5:31	CJ	115291
Surr: 4-Bromofluorobenzene	98	%	48-156		1		11/23/99 5:31	CJ	115291

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID: MW-4-19-20 **Collected:** 11/10/99 3:00:00 **SPL Sample ID:** 99110353-14

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 15:06	RR	117377
Surr: Pentacosane	79	%	20-154		1		11/25/99 15:06	RR	117377

Run ID/Seq #: HP_V_991125C-117377

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/23/99 5:05	FB	114428
Surr: 1,4-Difluorobenzene	83	%	72-153		1		11/23/99 5:05	FB	114428
Surr: 4-Bromofluorobenzene	140	%	51-149		1		11/23/99 5:05	FB	114428
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 5:59	CJ	115292
Ethylbenzene	ND		1		1		11/23/99 5:59	CJ	115292
Toluene	ND		1		1		11/23/99 5:59	CJ	115292
Xylenes,Total	ND		1		1		11/23/99 5:59	CJ	115292
Surr: 1,4-Difluorobenzene	94	%	59-127		1		11/23/99 5:59	CJ	115292
Surr: 4-Bromofluorobenzene	99	%	48-156		1		11/23/99 5:59	CJ	115292

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID: MW-4-29-30 **Collected:** 11/10/99 3:10:00 **SPL Sample ID:** 99110353-15

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 15:44	RR	117378
Surr: Pentacosane	89	%	20-154		1		11/25/99 15:44	RR	117378
Run ID/Seq #: HP_V_991126C-117378									
Prep Method: SW3550A; Prep Date: 11/16/1999 9:01; Prep Initials: TM									
GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	0.12		0.1		1		11/23/99 6:02	FB	114430
Surr: 1,4-Difluorobenzene	91	%	72-153		1		11/23/99 6:02	FB	114430
Surr: 4-Bromofluorobenzene	140	%	51-149		1		11/23/99 6:02	FB	114430
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 6:27	CJ	115293
Ethylbenzene	1.6		1		1		11/23/99 6:27	CJ	115293
Toluene	6.9		1		1		11/23/99 6:27	CJ	115293
Xylenes,Total	9.6		1		1		11/23/99 6:27	CJ	115293
Surr: 1,4-Difluorobenzene	97	%	59-127		1		11/23/99 6:27	CJ	115293
Surr: 4-Bromofluorobenzene	96	%	48-156		1		11/23/99 6:27	CJ	115293

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID: MW-4-39-40 **Collected:** 11/10/99 3:30:00 **SPL Sample ID:** 99110353-16

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Diesel Range Organics	ND		10		1		11/25/99 16:22	RR	117379
Surr: Pentacosane	92	%	20-154		1		11/25/99 16:22	RR	117379

Run ID/Seq #: HP_V_991125C-117379

Prep Method	Prep Date	Prep Initials
SW3550A	11/16/1999 9:01	TM

GASOLINE RANGE ORGANICS				MCL	SW8015B		Units: mg/Kg		
Gasoline Range Organics	ND		0.1		1		11/23/99 6:05	FB	114431
Surr: 1,4-Difluorobenzene	87	%	72-153		1		11/23/99 6:05	FB	114431
Surr: 4-Bromofluorobenzene	130	%	51-149		1		11/23/99 6:05	FB	114431
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/Kg		
Benzene	ND		1		1		11/23/99 6:55	CJ	115294
Ethylbenzene	ND		1		1		11/23/99 6:55	CJ	115294
Toluene	ND		1		1		11/23/99 6:55	CJ	115294
Xylenes,Total	ND		1		1		11/23/99 6:55	CJ	115294
Surr: 1,4-Difluorobenzene	93	%	59-127		1		11/23/99 6:55	CJ	115294
Surr: 4-Bromofluorobenzene	97	%	48-156		1		11/23/99 6:55	CJ	115294

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID: Trip Blank | **Collected:** 11/10/99 | **SPL Sample ID:** 99110353-17

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/L		
Benzene	ND		1		1		11/23/99 23:29	D_R	115183
Ethylbenzene	ND		1		1		11/23/99 23:29	D_R	115183
Toluene	ND		1		1		11/23/99 23:29	D_R	115183
Xylenes,Total	ND		1		1		11/23/99 23:29	D_R	115183
Surr: 1,4-Difluorobenzene	90	%	72-137		1		11/23/99 23:29	D_R	115183
Surr: 4-Bromofluorobenzene	94	%	48-156		1		11/23/99 23:29	D_R	115183

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

Quality Control Documentation

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Quality Control Report

URS Greiner Woodward Clyde

ARCO/ HOBBS, NM

Analysis: Diesel Range Organics
Method: SW8015B

WorkOrder: 99110353
Lab Batch ID: 1669

Method Blank

RunID: HP_V_991125C-117359 Units: mg/Kg
Analysis Date: 11/25/1999 3:40 Analyst: RR
Preparation Date: 11/16/1999 9:01 Prep By: TM Method: SW3550A

Analyte	Result	Rep Limit
Diesel Range Organics	ND	10
Surr: Pentacosane	107.9	20-154

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110353-01B	MW 1-4-5
99110353-02B	MW-1-19-20
99110353-03B	MW-1-29-30
99110353-04B	MW-1-39-40
99110353-05B	MW-2-4-5
99110353-06B	MW-2-19-20
99110353-07B	MW-2-24-25
99110353-08B	MW-2-39-40
99110353-09B	MW-3-4-5
99110353-10B	MW-3-19-20
99110353-11B	MW-3-29-30
99110353-12B	MW-3-39-40
99110353-13B	MW-4-4-5
99110353-14B	MW-4-19-20
99110353-15B	MW-4-29-30
99110353-16B	MW-4-39-40

Laboratory Control Sample (LCS)

RunID: HP_V_991125C-118453 Units: mg/Kg
Analysis Date: 11/29/1999 17:29 Analyst: RR
Preparation Date: 11/16/1999 9:01 Prep By: TM Method: SW3550A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Diesel Range Organics	166	140	82	77	145

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110353-01
RunID: HP_V_991125C-117458 Units: mg/Kg
Analysis Date: 11/25/1999 5:34 Analyst: RR
Preparation Date: 11/16/1999 9:01 Prep By: TM Method: SW3550A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Diesel Range Organics	94	167	220	74.5	167	170	45.8	47.7	50	21	175

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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HOUSTON, TEXAS 77054
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Quality Control Report

URS Greiner Woodward Clyde

ARCO/ HOBBS, NM

Analysis: Gasoline Range Organics
Method: SW8015B
WorkOrder: 99110353
Lab Batch ID: R5233

Method Blank

RunID: HP_O_991120A-112866 Units: mg/Kg
Analysis Date: 11/20/1999 10:00 Analyst: FB

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110353-01A	MW 1-4-5
99110353-02A	MW-1-19-20
99110353-03A	MW-1-29-30

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	81.8	72-153
Surr: 4-Bromofluorobenzene	95.2	51-149

Laboratory Control Sample (LCS)

RunID: HP_O_991120A-112855 Units: mg/Kg
Analysis Date: 11/20/1999 7:03 Analyst: FB

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1	0.63	63	53	137

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110353-02
RunID: HP_O_991120A-115471 Units: mg/Kg
Analysis Date: 11/22/1999 7:03 Analyst: FB

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	0.9	0.77	85.1	0.9	0.77	85.5	0.456	50	36	163

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

HOUSTON LABORATORY
6680 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Quality Control Report

URS Greiner Woodward Clyde

ARCO/ HOBBS, NM

Analysis: Gasoline Range Organics
Method: SW8015B

WorkOrder: 99110353
Lab Batch ID: R5234

Method Blank

RunID: HP_O_991122A-114342 Units: mg/Kg
Analysis Date: 11/22/1999 10:02 Analyst: FB

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	80.6	72-153
Surr: 4-Bromofluorobenzene	133.5	51-149

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110353-04A	MW-1-39-40
99110353-05A	MW-2-4-5
99110353-06A	MW-2-19-20
99110353-07A	MW-2-24-25
99110353-08A	MW-2-39-40
99110353-09A	MW-3-4-5
99110353-10A	MW-3-19-20
99110353-11A	MW-3-29-30
99110353-12A	MW-3-39-40
99110353-13A	MW-4-4-5
99110353-14A	MW-4-19-20
99110353-15A	MW-4-29-30
99110353-16A	MW-4-39-40

Laboratory Control Sample (LCS)

RunID: HP_O_991122A-112868 Units: mg/Kg
Analysis Date: 11/22/1999 2:00 Analyst: FB

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1	0.68	68	53	137

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110450-01
RunID: HP_O_991122A-114339 Units: mg/Kg
Analysis Date: 11/22/1999 9:03 Analyst: FB

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	0.9	1.2	130	0.9	0.94	104	21.6	50	36	163

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

ARCO/ HOBBS, NM

Analysis: Purgeable Aromatics
Method: SW8021B

WorkOrder: 99110353
Lab Batch ID: R5208

Method Blank

RunID: HP_O_991119B-112220 Units: ug/Kg
Analysis Date: 11/20/1999 10:00 Analyst: FB

Samples In Analytical Batch:

Lab Sample ID	Client Sample ID
99110353-01A	MW 1-4-5
99110353-02A	MW-1-19-20
99110353-03A	MW-1-29-30

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,4-Difluorobenzene	92.9	59-127
Surr: 4-Bromofluorobenzene	96.7	48-156

Laboratory Control Sample (LCS)

RunID: HP_O_991119B-112215 Units: ug/Kg
Analysis Date: 11/20/1999 7:11 Analyst: FB

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	100	100	102	60	116
Ethylbenzene	100	100	105	68	127
Toluene	100	100	101	64	122
Xylenes,Total	300	300	100	68	127

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110419-01
RunID: HP_O_991119B-112216 Units: ug/Kg
Analysis Date: 11/20/1999 8:08 Analyst: FB

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	2.5	100	34	31.0*	100	21	18.1*	52.6*	34	35	139
Ethylbenzene	ND	100	33	33.2	100	30	30.0*	10.2	35	31	137
Toluene	ND	100	27	27.5*	100	16	16.3*	50.8*	28	31	137
Xylenes,Total	ND	300	111	37.0	300	99	33.0	11.4	38	25	139

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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8880 INTERCHANGE DRIVE
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(713) 660-0901

Quality Control Report

URS Greiner Woodward Clyde

ARCO/ HOBBS, NM

Analysis: Purgeable Aromatics
Method: SW8021B
WorkOrder: 99110353
Lab Batch ID: R5298

Method Blank

RunID: HP_O_991122B-115261 Units: ug/Kg
Analysis Date: 11/22/1999 22:28 Analyst: CJ

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,4-Difluorobenzene	91.3	59-127
Surr: 4-Bromofluorobenzene	95.3	48-156

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110353-04A	MW-1-39-40
99110353-05A	MW-2-4-5
99110353-06A	MW-2-19-20
99110353-07A	MW-2-24-25
99110353-08A	MW-2-39-40
99110353-09A	MW-3-4-5
99110353-10A	MW-3-19-20
99110353-11A	MW-3-29-30
99110353-12A	MW-3-39-40
99110353-13A	MW-4-4-5
99110353-14A	MW-4-19-20
99110353-15A	MW-4-29-30
99110353-16A	MW-4-39-40

Laboratory Control Sample (LCS)

RunID: HP_O_991122B-115306 Units: ug/Kg
Analysis Date: 11/22/1999 1:41 Analyst: CJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	50	50	101	60	116
Ethylbenzene	50	54	107	68	127
Toluene	50	52	103	64	122
Xylenes,Total	150	150	100	68	127

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110450-01
RunID: HP_O_991122B-115259 Units: ug/Kg
Analysis Date: 11/22/1999 20:34 Analyst: CJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	19	97.2	20	19	96.2	0.992	34	35	139
Ethylbenzene	ND	20	21	103	20	20	99.0	4.18	35	31	137

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Quality Control Report

URS Greiner Woodward Clyde

ARCO/ HOBBS, NM

Analysis: Purgeable Aromatics
Method: SW8021B

WorkOrder: 99110353
Lab Batch ID: R5298

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110450-01
RunID: HP_O_991122B-115259 Units: ug/Kg
Analysis Date: 11/22/1999 20:34 Analyst: CJ

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Toluene	ND	20	20	101	20	19	97.5	3.59	28	31	137
Xylenes,Total	ND	60	59	98.3	60	58	96.7	1.71	38	25	139

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Quality Control Report

URS Greiner Woodward Clyde

ARCO/ HOBBS, NM

Analysis: Purgeable Aromatics
Method: SW8021B
WorkOrder: 99110353
Lab Batch ID: R5341

Method Blank

RunID: VARE_991123A-115174 Units: ug/L
Analysis Date: 11/23/1999 11:17 Analyst: D_R

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110353-17A	Trip Blank

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,4-Difluorobenzene	100.2	72-137
Surr: 4-Bromofluorobenzene	103.4	48-156

Laboratory Control Sample (LCS)

RunID: VARE_991123A-115173 Units: ug/L
Analysis Date: 11/23/1999 10:22 Analyst: D_R

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	50	51	102	61	119
Ethylbenzene	50	47	95	70	118
Toluene	50	49	99	65	125
Xylenes,Total	150	137	91	72	116

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 9911558-02A
RunID: VARE_991123A-115195 Units: ug/L
Analysis Date: 11/23/1999 23:57 Analyst: D_R

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	17	83.5	20	20	98.4	16.3	21	32	164
Ethylbenzene	ND	20	16	78.9	20	17	86.1	8.79	19	52	142
Toluene	ND	20	18	87.9	20	20	99.0	11.8	20	38	159
Xylenes,Total	ND	60	48	79.4	60	54	89.4	11.8	17	53	143

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

Chain of Custody

And

Sample Receipt Checklist

SPL, Inc.

Analysis Request & Chain of Custody Record

SPL Workorder No: 99110353 | 086304 | page 1 of 2

Client Name: A URSGWC
Address/Phone: 7600 W. TIDWELL #600
Client Contact: Dennis Hayes 713-744-9055
Project Name: APL BYRD LINE
Project Number:
Project Location: HOBBS NEW MEXICO
Invoice To: RICK NELSON (URSGWC

SAMPLE ID	DATE	TIME	comp	grab	matrix (W=water S=soil SL=sludge O=other:)	bottle (P=plastic A=amber glass G=glass V=vial)	size (1=1 liter 4=4oz 40=vial 8=8oz 16=16oz)	pres. (1=HCl 2=HNO3 3=H2SO4 O=other:)	Number of Containers	Requested Analysis: BTEX 8021	Requested Analysis: TPH-GRO/DRO 8015
MW1-4-5	11-9-99	1440		X	S	6	4	ice	2	X	X
MW1-19-20	"	1500		X	S		4				
MW1-29-30	"	1525		X	S		4				
MW1-39-40	"	1530		X	S		4				
MW2-4-5	11-10-99	900		X	S		4				
MW2-19-20	"	930		X	S		4				
MW2-24-25	"	950		X	S		4				
MW2-39-40	"	100		X	S		4				
MW3-4-5	"	1115		X	S		4				
MW3-19-20	"	~~11~~ 1130		X	S		4				

Client/Consultant Remarks:

Laboratory remarks:

Intact? Y N
Temp: 4

Requested TAT

24hr ☐ 72hr ☐
48hr ☐ Standard ☒
Other ☐ _____

Special Reporting Requirements: Fax Results ☒ Raw Data ☐ Standard QC ☒ Level 3 QC ☐ Level 4 QC ☐

Special Detection Limits (specify):

PM review (initial): PL

1. Relinquished by Sampler: Dennis Hayes	date 11/12/99	time	2. Received by:
3. Relinquished by:	date	time	4. Received by:
5. Relinquished by:	date	time	6. Received by Laboratory: 11/13 1000

☒ 8880 Interchange Drive, Houston, TX 77054 (713) 660-0901
☐ 459-Hughes Drive, Traverse City, MI 49684 (616) 947-5777
☐ 500 Ambassador Caffery Parkway, Scott, LA 70583 (318) 237-4775

SPL, Inc.

Analysis Request & Chain of Custody Record

SPL Workorder No: 99110353 | 086305 | page 2 of 2

Client Name: URSGWC
Address/Phone: 7600 W. TIDWELL #200
Client Contact: Dennis Hayes
Project Name: APL BYRD LINE
Project Number:
Project Location: HOBBS NEW MEXICO
Invoice To: RICK NELSON (URSGWC)

matrix: W=water S=soil SL=sludge O=other:
bottle: P=plastic A=amber glass G=glass V=vial
size: 1=1 liter 4=4oz 40=vial 8=8oz 16=16oz
pres.: 1=HCl 2=HNO3 3=H2SO4 O=other:

SAMPLE ID	DATE	TIME	comp	grab	matrix	bottle	size	pres.	Number of Containers	Requested Analysis: BTEX 8021	TPH GRO/DRO 8015
MW3-29-30	11-10-99	1140		X	S	G	4	ICE	2		
MW3-39-40	11-10-99	1150									
MW4-4-5		1440									
MW4-19-20		1500									
MW4-29-30		1510									
MW4-39-40		1530									
TRIP BLANK	+	—			W	GV	40	HCl	1		

Client/Consultant Remarks: TRIP BLANK HAS ONLY 1 VIAL

Laboratory remarks:

Intact? Y N
Temp: 4

Requested TAT
24hr ☐ 72hr ☐
48hr ☐ Standard ☒
Other ☐ _____

Special Reporting Requirements: Fax Results ☒ Raw Data ☐ Standard QC ☒ Level 3 QC ☐ Level 4 QC ☐

Special Detection Limits (specify):

PM review (initial): PL

	date	time
1. Relinquished by Sampler: Dennis Hayes	11-12-99	1700
2. Received by:		
3. Relinquished by:	date	time
4. Received by:		
5. Relinquished by:	date	time
6. Received by Laboratory:	11/13	1000

☐ 8880 Interchange Drive, Houston, TX 77054 (713) 660-0901
☐ 500 Ambassador Caffery Parkway, Scott, LA 70583 (318) 237-4775
☐ 459-Hughes Drive, Traverse City, MI 49684 (616) 947-5777

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Sample Receipt Checklist

Workorder:	99110353	Received by:	Stelly, D'Anna
Date and Time Received:	11/13/99 10:00:00 AM	Carrier name:	FedEx
Temperature:	4		

Shipping container/cooler in good condition?	Yes	☑	No ☐	Not Present	☐
Custody seals intact on shippping container/cooler?	Yes	☑	No ☐	Not Present	☐
Custody seals intact on sample bottles?	Yes	☐	No ☐	Not Present	☑
Chain of custody present?	Yes	☑	No ☐		
Chain of custody signed when relinquished and received?	Yes	☑	No ☐		
Chain of custody agrees with sample labels?	Yes	☑	No ☐		
Samples in proper container/bottle?	Yes	☑	No ☐		
Sample containers intact?	Yes	☑	No ☐		
Sufficient sample volume for indicated test?	Yes	☑	No ☐		
All samples received within holding time?	Yes	☑	No ☐		
Container/Temp Blank temperature in compliance?	Yes	☑	No ☐		
Water - VOA vials have zero headspace?	Yes	☐	No ☐	Not Present	☑
Water - pH acceptable upon receipt?	Yes	☐	No ☑		

Laboratory Analytical Reports
Groundwater

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Case Narrative for:

URS Greiner Woodward Clyde

Certificate of Analysis Number:

99110449

Report To:		Project Name:	BYRD LINE
URS Greiner Woodward Clyde		Site:	HOBBS, NM
Rick Nelson		Site Address:	
6200 La Calma			
Suite 210		PO Number:	
Austin		State:	New Mexico
Texas		State Cert. No.:	
78752-		Date Reported:	12/21/1999
ph (512) 458-1174	fax: (512) 458-9823		

According to the latest promulgated version of Method 8310 for PAH's, confirmation of target compounds can be performed using either a second analytical column with different retention times for the analytes of interest or by use of the Diode Array Detector (DAD). SPL confirms all PAH compounds detected at concentrations exceeding the Practical Quantitation Limit (PQL) by examining the DAD spectra for these compounds. The spectra are compared to the reference spectra from the instrument that is used for these compounds, and a probability match is generated for the peak requiring confirmation. The effectiveness of this method of confirmation is dependent on the relative concentrations of non-target compounds that are co-extracted from the sample.

Your sample ID " MW-1-GW " (SPL ID: 9911449-01) was randomly selected for the use in SPL's quality control program for the Total Metals analysis by SW846 method 6010B. The Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries were outside of the advisable quality control limits for various spiked compounds (Batch ID: 1794 and 1794A), due to matrix interference. A Post Digestion Spike (PDS) and Post Digestion Spike Duplicate (PDSD) was performed, Iron and Calcium recoveries were outside the quality control limits. A Laboratory Control Sample (LCS) was analyzed as a quality control check for the analytical batch and all recoveries were within acceptable limits.

Any other data flags or quality control exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

for Lynch, Pat
Project Manager

12/21/1999
Date

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

URS Greiner Woodward Clyde

Certificate of Analysis Number:

99110449

Report To:	URS Greiner Woodward Clyde Rick Nelson 6200 La Calma Suite 210 Austin Texas 78752- ph: (512) 458-1174 fax: (512) 458-9823	**Project Name:**	BYRD LINE
		Site:	HOBBS, NM
		Site Address:	
		PO Number:	
		State:	New Mexico
		State Cert. No.:	
Fax To:	*URS Greiner Woodward Clyde* *Rick Nelson* *fax: (512) 458-9823*	**Date Reported:**	

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
MW-1-GW	99110449-01	Water	11/17/99 2:25:00 PM	11/19/99 10:00:00 AM	086259	☐
MW-2-GW	99110449-02	Water	11/17/99 2:45:00 PM	11/19/99 10:00:00 AM	086259	☐
MW-3-GW	99110449-03	Water	11/17/99 3:10:00 PM	11/19/99 10:00:00 AM	086259	☐
MW-4-GW	99110449-04	Water	11/17/99 1:50:00 PM	11/19/99 10:00:00 AM	086259	☐
Trip Blank 11/11/99	99110449-05	Trip Blank	11/17/99	11/19/99 10:00:00 AM	086259	☐

Lynch, Pat
Project Manager

12/20/99
Date

Joel Grice
Laboratory Director

Ted Yen
Quality Assurance Officer

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Client Sample ID MW-1-GW **Collected:** 11/17/99 2:25:00 **SPL Sample ID:** 99110449-01

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
CHLORIDE-IC			**MCL**	**E300**		**Units: mg/L**		
Chloride	830		20	100		11/23/99 13:09	ES	118567
DIESEL RANGE ORGANICS			**MCL**	**SW8015B**		**Units: mg/L**		
Diesel Range Organics	ND		0.2	1		11/30/99 2:58	RR	122663
Surr: Pentacosane	20	%	20-131	1	*	11/30/99 2:58	RR	122663

Run ID/Seq #: HP_V_991125A-122663

Prep Method	Prep Date	Prep Initials
SW3510B	11/22/1999 8:14	KL

FLUORIDE-IC			**MCL**	**E300**		**Units: mg/L**		
Fluoride	3.1		0.1	1		11/19/99 12:38	ES	114564
GASOLINE RANGE ORGANICS			**MCL**	**SW8015B**		**Units: mg/L**		
Gasoline Range Organics	ND		0.5	5		11/23/99 2:04	DL	113837
Surr: 1,4-Difluorobenzene	92	%	62-144	5		11/23/99 2:04	DL	113837
Surr: 4-Bromofluorobenzene	95	%	44-153	5		11/23/99 2:04	DL	113837
MERCURY, TOTAL			**MCL**	**SW7470A**		**Units: mg/L**		
Mercury	ND		0.0002	1		12/15/99 10:31	AG	131554

Run ID/Seq #: HGL_991215A-131554

Prep Method	Prep Date	Prep Initials
SW7470A	12/14/1999 16:30	AG

METALS BY METHOD 6010B, TOTAL			**MCL**	**SW6010B**		**Units: mg/L**		
Arsenic	0.0543		0.005	1		11/29/99 14:40	EG	118303
Lead	0.0227		0.005	1		11/29/99 14:40	EG	118303
Selenium	ND		0.005	1		11/29/99 14:40	EG	118303
Aluminum	7.67		0.1	1		11/30/99 19:47	PB	119307
Barium	0.396		0.005	1		11/30/99 19:47	PB	119307
Boron	0.779		0.2	1		11/30/99 19:47	PB	119307
Cadmium	ND		0.005	1		11/30/99 19:47	PB	119307
Calcium	2060		100	10		12/01/99 17:31	PB	120388
Chromium	ND		10	10		12/01/99 17:31	PB	120388
Cobalt	ND		0.01	1		11/30/99 19:47	PB	119307
Copper	ND		0.01	1		11/30/99 19:47	PB	119307
Iron	3.46		0.02	1		11/30/99 19:47	PB	119307
Magnesium	106		0.1	1		11/30/99 19:47	PB	119307
Manganese	0.456		0.005	1		11/30/99 19:47	PB	119307
Molybdenum	ND		0.02	1		11/30/99 19:47	PB	119307
Nickel	ND		0.02	1		11/30/99 19:47	PB	119307
Potassium	20		2	1		11/30/99 19:47	PB	119307

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID MW-1-GW **Collected:** 11/17/99 2:25:00 **SPL Sample ID:** 99110449-01

Site: HOBBS, NM

Analyses/Method	Result	Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
Silver	ND	0.01	1		11/30/99 19:47	PB	119307
Sodium	471	0.5	1		11/30/99 19:47	PB	119307
Zinc	0.0917	0.02	1		11/30/99 19:47	PB	119307

Run ID/Seq #: TJAT_991129B-118303

Prep Method	*Prep Date*	*Prep Initials*
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991130B-119307

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991201B-120388

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

NITROGEN, NITRATE (AS N)		MCL	E300	Units: mg/L		
Nitrogen,Nitrate (As N)	ND	0.1	1	11/19/99 12:38	ES	115363

POLYNUCLEAR AROMATIC HYDROCARBONS			MCL	SW8310	Units: ug/L		
1-Methylnaphthalene	ND	0.2		1	12/05/99 9:53	KA	123430
2-Methylnaphthalene	ND	0.2		1	12/05/99 9:53	KA	123430
Acenaphthene	ND	0.1		1	12/05/99 9:53	KA	123430
Acenaphthylene	ND	0.1		1	12/05/99 9:53	KA	123430
Anthracene	ND	0.1		1	12/05/99 9:53	KA	123430
Benz(a)anthracene	ND	0.1		1	12/05/99 9:53	KA	123430
Benzo(a)pyrene	ND	0.1		1	12/05/99 9:53	KA	123430
Benzo(b)fluoranthene	ND	0.1		1	12/05/99 9:53	KA	123430
Benzo(g,h,i)perylene	ND	0.1		1	12/05/99 9:53	KA	123430
Benzo(k)fluoranthene	ND	0.1		1	12/05/99 9:53	KA	123430
Chrysene	ND	0.1		1	12/05/99 9:53	KA	123430
Dibenzo(a,h)anthracene	ND	0.1		1	12/05/99 9:53	KA	123430
Fluoranthene	ND	0.1		1	12/05/99 9:53	KA	123430
Fluorene	ND	0.1		1	12/05/99 9:53	KA	123430
Indeno(1,2,3-cd)pyrene	ND	0.1		1	12/05/99 9:53	KA	123430
Naphthalene	0.2	0.1		1	12/05/99 9:53	KA	123430
Phenanthrene	ND	0.1		1	12/05/99 9:53	KA	123430
Pyrene	ND	0.1		1	12/05/99 9:53	KA	123430
Surr: 1-Fluoronaphthalene	60 %	30-140		1	12/05/99 9:53	KA	123430
Surr: Phenanthrene-d10	59 %	35-140		1	12/05/99 9:53	KA	123430

Run ID/Seq #: 2_991202B-123430

Prep Method	Prep Date	Prep Initials
SW3510B	11/23/1999 16:02	KL

Qualifiers:

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>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID MW-1-GW **Collected:** 11/17/99 2:25:00 **SPL Sample ID:** 99110449-01

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
PURGEABLE AROMATICS			**MCL**	**SW8021B**		**Units: ug/L**		
Benzene	ND		5	5		11/23/99 2:44	DL	113715
Ethylbenzene	ND		5	5		11/23/99 2:44	DL	113715
Toluene	ND		5	5		11/23/99 2:44	DL	113715
Xylenes,Total	ND		5	5		11/23/99 2:44	DL	113715
Surr: 1,4-Difluorobenzene	96	%	72-137	5		11/23/99 2:44	DL	113715
Surr: 4-Bromofluorobenzene	100	%	48-156	5		11/23/99 2:44	DL	113715
SULFATE			**MCL**	**E300**		**Units: mg/L**		
Sulfate	220		4	20		11/23/99 13:09	ES	118587
TOTAL DISSOLVED SOLIDS			**MCL**	**E160.1**		**Units: mg/L**		
Total Dissolved Solids (Residue,Filterable)	1170		100	10		11/23/99 21:45	GJ	116193

Qualifiers:

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>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID MW-2-GW **Collected:** 11/17/99 2:45:00 **SPL Sample ID:** 99110449-02

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
CHLORIDE-IC				**MCL**	**E300**	**Units: mg/L**		
Chloride	970		20	100		11/23/99 13:09	ES	118570
DIESEL RANGE ORGANICS				**MCL**	**SW8015B**	**Units: mg/L**		
Diesel Range Organics	ND		0.2	1		11/30/99 3:36	RR	122664
Surr: Pentacosane	21	%	20-131	1		11/30/99 3:36	RR	122664
Run ID/Seq #: HP_V_991125A-122664								
Prep Method: SW3510B	Prep Date: 11/22/1999 8:14		Prep Initials: KL					
FLUORIDE-IC				**MCL**	**E300**	**Units: mg/L**		
Fluoride	2.7		0.1	1		11/19/99 12:38	ES	114567
GASOLINE RANGE ORGANICS				**MCL**	**SW8015B**	**Units: mg/L**		
Gasoline Range Organics	ND		0.1	1		11/23/99 3:01	DL	113841
Surr: 1,4-Difluorobenzene	95	%	62-144	1		11/23/99 3:01	DL	113841
Surr: 4-Bromofluorobenzene	97	%	44-153	1		11/23/99 3:01	DL	113841
MERCURY, TOTAL				**MCL**	**SW7470A**	**Units: mg/L**		
Mercury	ND		0.0002	1		12/15/99 10:31	AG	131557
Run ID/Seq #: HGL_991215A-131557								
Prep Method: SW7470A	Prep Date: 12/14/1999 16:30		Prep Initials: AG					
METALS BY METHOD 6010B, TOTAL				**MCL**	**SW6010B**	**Units: mg/L**		
Arsenic	0.0258		0.005	1		11/29/99 15:11	EG	118309
Lead	0.00712		0.005	1		11/29/99 15:11	EG	118309
Selenium	0.0154		0.005	1		11/29/99 15:11	EG	118309
Aluminum	3.07		0.1	1		11/30/99 20:20	PB	119315
Barium	0.249		0.005	1		11/30/99 20:20	PB	119315
Boron	0.56		0.2	1		11/30/99 20:20	PB	119315
Cadmium	ND		0.005	1		11/30/99 20:20	PB	119315
Calcium	859		50	5		12/01/99 17:50	PB	120393
Chromium	ND		0.01	1		12/01/99 17:46	PB	120392
Cobalt	ND		0.01	1		11/30/99 20:20	PB	119315
Copper	ND		0.01	1		11/30/99 20:20	PB	119315
Iron	1.47		0.02	1		11/30/99 20:20	PB	119315
Magnesium	151		0.1	1		11/30/99 20:20	PB	119315
Manganese	0.204		0.005	1		11/30/99 20:20	PB	119315
Molybdenum	ND		0.02	1		11/30/99 20:20	PB	119315
Nickel	ND		0.02	1		11/30/99 20:20	PB	119315
Potassium	5.89		2	1		11/30/99 20:20	PB	119315

Qualifiers:

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D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID MW-2-GW **Collected:** 11/17/99 2:45:00 **SPL Sample ID:** 99110449-02

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
Silver	ND		0.01	1		11/30/99 20:20	PB	119315
Sodium	399		0.5	1		11/30/99 20:20	PB	119315
Zinc	0.0217		0.02	1		11/30/99 20:20	PB	119315

Run ID/Seq #: TJAT_991129B-118309

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991130B-119315

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991201B-120392

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991201B-120393

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

NITROGEN, NITRATE (AS N)			MCL	E300	Units: mg/L		
Nitrogen,Nitrate (As N)	0.71		0.1	1	11/19/99 12:38	ES	115366

POLYNUCLEAR AROMATIC HYDROCARBONS			MCL	SW8310	Units: ug/L		
1-Methylnaphthalene	ND		0.2	1	12/05/99 10:33	KA	123431
2-Methylnaphthalene	ND		0.2	1	12/05/99 10:33	KA	123431
Acenaphthene	ND		0.1	1	12/05/99 10:33	KA	123431
Acenaphthylene	ND		0.1	1	12/05/99 10:33	KA	123431
Anthracene	ND		0.1	1	12/05/99 10:33	KA	123431
Benz(a)anthracene	ND		0.1	1	12/05/99 10:33	KA	123431
Benzo(a)pyrene	ND		0.1	1	12/05/99 10:33	KA	123431
Benzo(b)fluoranthene	ND		0.1	1	12/05/99 10:33	KA	123431
Benzo(g,h,i)perylene	ND		0.1	1	12/05/99 10:33	KA	123431
Benzo(k)fluoranthene	ND		0.1	1	12/05/99 10:33	KA	123431
Chrysene	ND		0.1	1	12/05/99 10:33	KA	123431
Dibenzo(a,h)anthracene	ND		0.1	1	12/05/99 10:33	KA	123431
Fluoranthene	ND		0.1	1	12/05/99 10:33	KA	123431
Fluorene	ND		0.1	1	12/05/99 10:33	KA	123431
Indeno(1,2,3-cd)pyrene	ND		0.1	1	12/05/99 10:33	KA	123431
Naphthalene	ND		0.1	1	12/05/99 10:33	KA	123431
Phenanthrene	ND		0.1	1	12/05/99 10:33	KA	123431
Pyrene	ND		0.1	1	12/05/99 10:33	KA	123431
Surr: 1-Fluoronaphthalene	62	%	30-140	1	12/05/99 10:33	KA	123431
Surr: Phenanthrene-d10	64	%	35-140	1	12/05/99 10:33	KA	123431

Qualifiers:
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D - Surrogate Recovery Unreportable due to Dilution

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Client Sample ID MW-2-GW **Collected:** 11/17/99 2:45:00 **SPL Sample ID:** 99110449-02

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
Run ID/Seq #: 2_991202B-123431								
Prep Method: SW3510B; Prep Date: 11/23/1999 16:02; Prep Initials: KL								
PURGEABLE AROMATICS			MCL	SW8021B		Units: ug/L		
Benzene	ND		1	1		11/23/99 3:15	DL	113716
Ethylbenzene	ND		1	1		11/23/99 3:15	DL	113716
Toluene	ND		1	1		11/23/99 3:15	DL	113716
Xylenes,Total	ND		1	1		11/23/99 3:15	DL	113716
Surr: 1,4-Difluorobenzene	96	%	72-137	1		11/23/99 3:15	DL	113716
Surr: 4-Bromofluorobenzene	100	%	48-156	1		11/23/99 3:15	DL	113716
SULFATE			MCL	E300		Units: mg/L		
Sulfate	300		4	20		11/23/99 13:09	ES	118588
TOTAL DISSOLVED SOLIDS			MCL	E160.1		Units: mg/L		
Total Dissolved Solids (Residue,Filterable)	1480		100	10		11/23/99 21:45	GJ	116194

Qualifiers:

ND/U - Not Detected at the Reporting Limit
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J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

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8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID MW-3-GW **Collected:** 11/17/99 3:10:00 **SPL Sample ID:** 99110449-03

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
CHLORIDE-IC			**MCL**	**E300**		**Units: mg/L**		
Chloride	890		20	100		11/23/99 13:09	ES	118571
DIESEL RANGE ORGANICS			**MCL**	**SW8015B**		**Units: mg/L**		
Diesel Range Organics	ND		0.2	1		11/30/99 1:42	RR	122661
Surr: Pentacosane	23	%	20-131	1		11/30/99 1:42	RR	122661

Run ID/Seq #: HP_V_991125A-122661

Prep Method	Prep Date	Prep Initials
SW3510B	11/22/1999 8:14	KL

FLUORIDE-IC			**MCL**	**E300**		**Units: mg/L**		
Fluoride	2.9		0.1	1		11/19/99 12:38	ES	114568
GASOLINE RANGE ORGANICS			**MCL**	**SW8015B**		**Units: mg/L**		
Gasoline Range Organics	ND		0.1	1		11/23/99 3:04	DL	113843
Surr: 1,4-Difluorobenzene	92	%	62-144	1		11/23/99 3:04	DL	113843
Surr: 4-Bromofluorobenzene	100	%	44-153	1		11/23/99 3:04	DL	113843
MERCURY, TOTAL			**MCL**	**SW7470A**		**Units: mg/L**		
Mercury	ND		0.0002	1		12/15/99 10:31	AG	131558

Run ID/Seq #: HGL_991215A-131558

Prep Method	Prep Date	Prep Initials
SW7470A	12/14/1999 16:30	AG

METALS BY METHOD 6010B, TOTAL			**MCL**	**SW6010B**		**Units: mg/L**		
Arsenic	0.0335		0.005	1		11/29/99 15:16	EG	118310
Lead	0.0128		0.005	1		11/29/99 15:16	EG	118310
Selenium	0.0112		0.005	1		11/29/99 15:16	EG	118310
Aluminum	2.82		0.1	1		11/30/99 20:24	PB	119316
Barium	0.453		0.005	1		11/30/99 20:24	PB	119316
Boron	0.341		0.2	1		11/30/99 20:24	PB	119316
Cadmium	ND		0.005	1		11/30/99 20:24	PB	119316
Calcium	1580		50	5		12/01/99 17:58	PB	120395
Chromium	ND		0.01	1		12/01/99 17:54	PB	120394
Cobalt	ND		0.01	1		11/30/99 20:24	PB	119316
Copper	ND		0.01	1		11/30/99 20:24	PB	119316
Iron	2.39		0.02	1		11/30/99 20:24	PB	119316
Magnesium	132		0.1	1		11/30/99 20:24	PB	119316
Manganese	0.474		0.005	1		11/30/99 20:24	PB	119316
Molybdenum	ND		0.02	1		11/30/99 20:24	PB	119316
Nickel	ND		0.02	1		11/30/99 20:24	PB	119316
Potassium	4.82		2	1		11/30/99 20:24	PB	119316

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID MW-3-GW **Collected:** 11/17/99 3:10:00 **SPL Sample ID:** 99110449-03

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
Silver	ND		0.01	1		11/30/99 20:24	PB	119316
Sodium	258		0.5	1		11/30/99 20:24	PB	119316
Zinc	0.0846		0.02	1		11/30/99 20:24	PB	119316

Run ID/Seq #: TJAT_991129B-118310

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991130B-119316

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991201B-120394

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991201B-120395

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

NITROGEN, NITRATE (AS N)			MCL	E300	Units: mg/L		
Nitrogen,Nitrate (As N)	0.79		0.1	1	11/19/99 12:38	ES	115367

POLYNUCLEAR AROMATIC HYDROCARBONS			MCL	SW8310	Units: ug/L		
1-Methylnaphthalene	ND		0.2	1	12/05/99 11:12	KA	123432
2-Methylnaphthalene	ND		0.2	1	12/05/99 11:12	KA	123432
Acenaphthene	ND		0.1	1	12/05/99 11:12	KA	123432
Acenaphthylene	ND		0.1	1	12/05/99 11:12	KA	123432
Anthracene	ND		0.1	1	12/05/99 11:12	KA	123432
Benz(a)anthracene	ND		0.1	1	12/05/99 11:12	KA	123432
Benzo(a)pyrene	ND		0.1	1	12/05/99 11:12	KA	123432
Benzo(b)fluoranthene	ND		0.1	1	12/05/99 11:12	KA	123432
Benzo(g,h,i)perylene	ND		0.1	1	12/05/99 11:12	KA	123432
Benzo(k)fluoranthene	ND		0.1	1	12/05/99 11:12	KA	123432
Chrysene	ND		0.1	1	12/05/99 11:12	KA	123432
Dibenzo(a,h)anthracene	ND		0.1	1	12/05/99 11:12	KA	123432
Fluoranthene	ND		0.1	1	12/05/99 11:12	KA	123432
Fluorene	ND		0.1	1	12/05/99 11:12	KA	123432
Indeno(1,2,3-cd)pyrene	ND		0.1	1	12/05/99 11:12	KA	123432
Naphthalene	ND		0.1	1	12/05/99 11:12	KA	123432
Phenanthrene	ND		0.1	1	12/05/99 11:12	KA	123432
Pyrene	ND		0.1	1	12/05/99 11:12	KA	123432
Surr: 1-Fluoronaphthalene	55	%	30-140	1	12/05/99 11:12	KA	123432
Surr: Phenanthrene-d10	61	%	35-140	1	12/05/99 11:12	KA	123432

Qualifiers:
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HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID MW-3-GW **Collected:** 11/17/99 3:10:00 **SPL Sample ID:** 99110449-03

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
Run ID/Seq #: 2_991202B-123432									
Prep Method: SW3510B; Prep Date: 11/23/1999 16:02; Prep Initials: KL									
PURGEABLE AROMATICS				MCL	SW8021B		Units: ug/L		
Benzene	ND		1		1		11/23/99 3:44	DL	113717
Ethylbenzene	ND		1		1		11/23/99 3:44	DL	113717
Toluene	ND		1		1		11/23/99 3:44	DL	113717
Xylenes,Total	ND		1		1		11/23/99 3:44	DL	113717
Surr: 1,4-Difluorobenzene	96	%	72-137		1		11/23/99 3:44	DL	113717
Surr: 4-Bromofluorobenzene	100	%	48-156		1		11/23/99 3:44	DL	113717
SULFATE				MCL	E300		Units: mg/L		
Sulfate	110		2		10		11/23/99 13:09	ES	118589
TOTAL DISSOLVED SOLIDS				MCL	E160.1		Units: mg/L		
Total Dissolved Solids (Residue,Filterable)	1090		100		10		11/23/99 21:45	GJ	116195

Qualifiers:

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>MCL - Result Over Maximum Contamination Limit(MCL)
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HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
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Client Sample ID MW-4-GW **Collected:** 11/17/99 1:50:00 **SPL Sample ID:** 99110449-04

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
CHLORIDE-IC				**MCL**	**E300**	**Units: mg/L**		
Chloride	850		20	100		11/23/99 13:09	ES	118572
DIESEL RANGE ORGANICS				**MCL**	**SW8015B**	**Units: mg/L**		
Diesel Range Organics	ND		0.2	1		11/30/99 2:20	RR	122662
Surr: Pentacosane	32	%	20-131	1		11/30/99 2:20	RR	122662
Run ID/Seq #: HP_V_991125A-122662								
Prep Method: SW3510B	Prep Date: 11/22/1999 8:14		Prep Initials: KL					
FLUORIDE-IC				**MCL**	**E300**	**Units: mg/L**		
Fluoride	2.9		0.1	1		11/19/99 12:38	ES	114569
GASOLINE RANGE ORGANICS				**MCL**	**SW8015B**	**Units: mg/L**		
Gasoline Range Organics	ND		0.1	1		11/23/99 0:04	DL	113835
Surr: 1,4-Difluorobenzene	93	%	62-144	1		11/23/99 0:04	DL	113835
Surr: 4-Bromofluorobenzene	96	%	44-153	1		11/23/99 0:04	DL	113835
MERCURY, TOTAL				**MCL**	**SW7470A**	**Units: mg/L**		
Mercury	ND		0.0002	1		12/15/99 10:31	AG	131559
Run ID/Seq #: HGL_991215A-131559								
Prep Method: SW7470A	Prep Date: 12/14/1999 16:30		Prep Initials: AG					
METALS BY METHOD 6010B, TOTAL				**MCL**	**SW6010B**	**Units: mg/L**		
Arsenic	0.00996		0.005	1		11/29/99 15:32	EG	118314
Lead	ND		0.005	1		11/29/99 15:32	EG	118314
Selenium	ND		0.005	1		11/29/99 15:32	EG	118314
Aluminum	1.13		0.1	1		11/30/99 20:28	PB	119317
Barium	0.24		0.005	1		11/30/99 20:28	PB	119317
Boron	0.462		0.2	1		11/30/99 20:28	PB	119317
Cadmium	ND		0.005	1		11/30/99 20:28	PB	119317
Calcium	256		10	1		12/01/99 18:02	PB	120396
Chromium	ND		1	1		12/01/99 18:02	PB	120396
Cobalt	ND		0.01	1		11/30/99 20:28	PB	119317
Copper	ND		0.01	1		11/30/99 20:28	PB	119317
Iron	0.616		0.02	1		11/30/99 20:28	PB	119317
Magnesium	116		0.1	1		11/30/99 20:28	PB	119317
Manganese	0.0545		0.005	1		11/30/99 20:28	PB	119317
Molybdenum	ND		0.02	1		11/30/99 20:28	PB	119317
Nickel	ND		0.02	1		11/30/99 20:28	PB	119317
Potassium	63.2		2	1		11/30/99 20:28	PB	119317

Qualifiers:

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HOUSTON LABORATORY
6880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
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Client Sample ID MW-4-GW **Collected:** 11/17/99 1:50:00 **SPL Sample ID:** 99110449-04

Site: HOBBS, NM

Analyses/Method	Result	Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
Silver	ND	0.01	1		11/30/99 20:28	PB	119317
Sodium	250	0.5	1		11/30/99 20:28	PB	119317
Zinc	ND	0.02	1		11/30/99 20:28	PB	119317

Run ID/Seq #: TJAT_991129B-118314

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991130B-119317

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

Run ID/Seq #: TJA_991201B-120396

Prep Method	Prep Date	Prep Initials
SW3010A	11/22/1999 8:15	ME

NITROGEN, NITRATE (AS N)			MCL	E300	Units: mg/L		
Nitrogen,Nitrate (As N)	ND	0.1		1	11/19/99 12:38	ES	115368

POLYNUCLEAR AROMATIC HYDROCARBONS			MCL	SW8310	Units: ug/L		
1-Methylnaphthalene	ND	0.2		1	12/05/99 11:52	KA	123433
2-Methylnaphthalene	ND	0.2		1	12/05/99 11:52	KA	123433
Acenaphthene	ND	0.1		1	12/05/99 11:52	KA	123433
Acenaphthylene	ND	0.1		1	12/05/99 11:52	KA	123433
Anthracene	ND	0.1		1	12/05/99 11:52	KA	123433
Benz(a)anthracene	ND	0.1		1	12/05/99 11:52	KA	123433
Benzo(a)pyrene	ND	0.1		1	12/05/99 11:52	KA	123433
Benzo(b)fluoranthene	ND	0.1		1	12/05/99 11:52	KA	123433
Benzo(g,h,i)perylene	ND	0.1		1	12/05/99 11:52	KA	123433
Benzo(k)fluoranthene	ND	0.1		1	12/05/99 11:52	KA	123433
Chrysene	ND	0.1		1	12/05/99 11:52	KA	123433
Dibenzo(a,h)anthracene	ND	0.1		1	12/05/99 11:52	KA	123433
Fluoranthene	ND	0.1		1	12/05/99 11:52	KA	123433
Fluorene	ND	0.1		1	12/05/99 11:52	KA	123433
Indeno(1,2,3-cd)pyrene	ND	0.1		1	12/05/99 11:52	KA	123433
Naphthalene	ND	0.1		1	12/05/99 11:52	KA	123433
Phenanthrene	ND	0.1		1	12/05/99 11:52	KA	123433
Pyrene	ND	0.1		1	12/05/99 11:52	KA	123433
Surr: 1-Fluoronaphthalene	59 %	30-140		1	12/05/99 11:52	KA	123433
Surr: Phenanthrene-d10	76 %	35-140		1	12/05/99 11:52	KA	123433

Run ID/Seq #: 2_991202B-123433

Prep Method	Prep Date	Prep Initials
SW3510B	11/23/1999 16:02	KL

Qualifiers:

ND/U - Not Detected at the Reporting Limit
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D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID MW-4-GW **Collected:** 11/17/99 1:50:00 **SPL Sample ID:** 99110449-04

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
PURGEABLE AROMATICS				**MCL**	**SW8021B**		**Units: ug/L**		
Benzene	ND		1		1		11/23/99 0:48	DL	113709
Ethylbenzene	ND		1		1		11/23/99 0:48	DL	113709
Toluene	ND		1		1		11/23/99 0:48	DL	113709
Xylenes,Total	ND		1		1		11/23/99 0:48	DL	113709
Surr: 1,4-Difluorobenzene	95	%	72-137		1		11/23/99 0:48	DL	113709
Surr: 4-Bromofluorobenzene	100	%	48-156		1		11/23/99 0:48	DL	113709
SULFATE				**MCL**	**E300**		**Units: mg/L**		
Sulfate	110		2		10		11/23/99 13:09	ES	118590
TOTAL DISSOLVED SOLIDS				**MCL**	**E160.1**		**Units: mg/L**		
Total Dissolved Solids (Residue,Filterable)	1010		100		10		11/23/99 21:45	GJ	116197

Qualifiers:

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D - Surrogate Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Client Sample ID Trip Blank 11/11/99 **Collected:** 11/17/99 **SPL Sample ID:** 99110449-05

Site: HOBBS, NM

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
GASOLINE RANGE ORGANICS				**MCL**	**SW8015B**		**Units: mg/L**		
Gasoline Range Organics	ND		0.1		1		11/22/99 21:04	DL	113830
Surr: 1,4-Difluorobenzene	90	%	62-144		1		11/22/99 21:04	DL	113830
Surr: 4-Bromofluorobenzene	97	%	44-153		1		11/22/99 21:04	DL	113830
PURGEABLE AROMATICS				**MCL**	**SW8021B**		**Units: ug/L**		
Benzene	ND		1		1		11/22/99 21:47	DL	113705
Ethylbenzene	ND		1		1		11/22/99 21:47	DL	113705
Toluene	ND		1		1		11/22/99 21:47	DL	113705
Xylenes,Total	ND		1		1		11/22/99 21:47	DL	113705
Surr: 1,4-Difluorobenzene	98	%	72-137		1		11/22/99 21:47	DL	113705
Surr: 4-Bromofluorobenzene	100	%	48-156		1		11/22/99 21:47	DL	113705

Qualifiers:

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D - Surrogate Recovery Unreportable due to Dilution

Quality Control Documentation

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Diesel Range Organics
Method: SW8015B

WorkOrder: 99110449
Lab Batch ID: 1791

Method Blank

RunID: HP_V_991125A-117219 Units: mg/L
Analysis Date: 11/25/1999 8:45 Analyst: RR
Preparation Date: 11/22/1999 8:14 Prep By: KL Method SW3510B

Analyte	Result	Rep Limit
Diesel Range Organics	ND	0.20
Surr: Pentacosane	26.6	20-131

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01E	MW-1-GW
99110449-02E	MW-2-GW
99110449-03E	MW-3-GW
99110449-04E	MW-4-GW

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: HP_V_991125A-117220 Units: mg/L
Analysis Date: 11/25/1999 9:23 Analyst: RR
Preparation Date: 11/22/1999 8:14 Prep By: KL Method SW3510B

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Diesel Range Organics	2.5	2.1	84	2.5	1.9	78	7.8	39	53	148

Qualifiers:

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8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Purgeable Aromatics
Method: SW8021B

WorkOrder: 99110449
Lab Batch ID: R5271

Method Blank

RunID: HP_S_991122A-113704 Units: ug/L
Analysis Date: 11/22/1999 21:18 Analyst: DL

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
Xylenes,Total	ND	1.0
Surr: 1,4-Difluorobenzene	98.7	72-137
Surr: 4-Bromofluorobenzene	99.8	48-156

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01A	MW-1-GW
99110449-02A	MW-2-GW
99110449-03A	MW-3-GW
99110449-04A	MW-4-GW
99110449-05A	Trip Blank 11/11/99

Laboratory Control Sample (LCS)

RunID: HP_S_991122A-113703 Units: ug/L
Analysis Date: 11/22/1999 20:48 Analyst: DL

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	50	49	98	61	119
Ethylbenzene	50	51	101	70	118
Toluene	50	50	100	65	125
Xylenes,Total	150	147	98	72	116

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110460-02
RunID: HP_S_991122A-113707 Units: ug/L
Analysis Date: 11/22/1999 22:46 Analyst: DL

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	16	77.7	20	14	70.4	9.95	21	32	164
Ethylbenzene	ND	20	14	69.2	20	12	59.6	14.9	19	52	142
Toluene	ND	20	15	74.2	20	13	64.0	14.7	20	38	159
Xylenes,Total	ND	60	35	58.3	60	28	46.7*	22.2*	17	53	143

Qualifiers:
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* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Gasoline Range Organics
Method: SW8015B
WorkOrder: 99110449
Lab Batch ID: R5277

Method Blank

RunID: HP_S_991122B-113829 Units: mg/L
Analysis Date: 11/22/1999 21:01 Analyst: DL

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	91.3	62-144
Surr: 4-Bromofluorobenzene	96.8	44-153

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01A	MW-1-GW
99110449-02A	MW-2-GW
99110449-03A	MW-3-GW
99110449-04A	MW-4-GW
99110449-05A	Trip Blank 11/11/99

Laboratory Control Sample (LCS)

RunID: HP_S_991122B-113828 Units: mg/L
Analysis Date: 11/22/1999 20:01 Analyst: DL

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1	0.78	78	64	131

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110449-04
RunID: HP_S_991122B-113832 Units: mg/L
Analysis Date: 11/22/1999 23:04 Analyst: DL

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	ND	0.9	0.84	89.4	0.9	0.81	87.0	2.80	36	36	160

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Polynuclear Aromatic Hydrocarbons
Method: SW8310
WorkOrder: 99110449
Lab Batch ID: 1817

Method Blank

RunID: 2_991202B-123423 Units: ug/L
Analysis Date: 12/02/1999 6:02 Analyst: KA
Preparation Date: 11/23/1999 16:02 Prep By: KL Method SW3510B

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01B	MW-1-GW
99110449-02B	MW-2-GW
99110449-03B	MW-3-GW
99110449-04B	MW-4-GW

Analyte	Result	Rep Limit
1-Methylnaphthalene	ND	0.20
2-Methylnaphthalene	ND	0.20
Acenaphthene	ND	0.10
Acenaphthylene	ND	0.10
Anthracene	ND	0.10
Benz(a)anthracene	ND	0.10
Benzo(a)pyrene	ND	0.10
Benzo(b)fluoranthene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Benzo(k)fluoranthene	ND	0.10
Chrysene	ND	0.10
Dibenzo(a,h)anthracene	ND	0.10
Fluoranthene	ND	0.10
Fluorene	ND	0.10
Indeno(1,2,3-cd)pyrene	ND	0.10
Naphthalene	ND	0.10
Phenanthrene	ND	0.10
Pyrene	ND	0.10
Surr: 1-Fluoronaphthalene	56.8	30-140
Surr: Phenanthrene-d10	46.5	35-140

Laboratory Control Sample (LCS)

RunID: 2_991202B-123424 Units: ug/L
Analysis Date: 12/02/1999 6:42 Analyst: KA
Preparation Date: 11/23/1999 16:02 Prep By: KL Method SW3510B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Acenaphthene	0.5	0.39	77	0.01	124
Acenaphthylene	0.5	0.38	76	0.01	139
Anthracene	0.5	0.39	78	0.01	126
Benz(a)anthracene	0.5	0.41	81	12	135
Benzo(a)pyrene	0.5	0.42	84	0.01	128
Benzo(b)fluoranthene	0.5	0.41	83	6	150
Benzo(g,h,i)perylene	0.5	0.4	80	0.01	116
Benzo(k)fluoranthene	0.5	0.41	81	0.01	159
Chrysene	0.5	0.45	90	0.01	199
Dibenzo(a,h)anthracene	0.5	0.41	83	0.01	110
Fluoranthene	0.5	0.39	79	14	123
Fluorene	0.5	0.39	78	0.01	142
Indeno(1,2,3-cd)pyrene	0.5	0.39	79	0.01	116
Naphthalene	0.5	0.38	75	0.01	122

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Polynuclear Aromatic Hydrocarbons **WorkOrder:** 99110449
Method: SW8310 **Lab Batch ID:** 1817

Laboratory Control Sample (LCS)

RunID: 2_991202B-123424 Units: ug/L
Analysis Date: 12/02/1999 6:42 Analyst: KA
Preparation Date: 11/23/1999 16:02 Prep By: KL Method SW3510B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Phenanthrene	0.5	0.4	80	0.01	155
Pyrene	0.5	0.38	76	0.01	140

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110356-04
RunID: 2_991202B-123426 Units: ug/L
Analysis Date: 12/02/1999 9:20 Analyst: KA
Preparation Date: 11/23/1999 16:02 Prep By: Method

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Acenaphthene	1.2	0.5	1.4	58.1	0.5	1.5	78.1	29.4	30	0.01	124
Acenaphthylene	0.91	0.5	0.95	7.98	0.5	1.9	208*	185*	30	0.01	139
Anthracene	ND	0.5	0.36	67.0	0.5	0.37	68.3	1.92	30	0.01	126
Benz(a)anthracene	ND	0.5	0.38	66.6	0.5	0.37	62.9	5.72	30	12	135
Benzo(a)pyrene	ND	0.5	0.26	51.3	0.5	0.23	46.9	8.97	30	0.01	128
Benzo(b)fluoranthene	ND	0.5	0.25	49.8	0.5	0.23	46.4	7.24	30	6	150
Benzo(g,h,i)perylene	ND	0.5	0.17	34.5	0.5	0.15	29.6	15.1	30	0.01	116
Benzo(k)fluoranthene	ND	0.5	0.25	49.1	0.5	0.22	44.0	10.9	30	0.01	159
Chrysene	ND	0.5	0.37	74.6	0.5	0.37	73.1	2.01	30	0.01	199
Dibenzo(a,h)anthracene	ND	0.5	0.17	33.1	0.5	0.15	30.4	8.47	30	0.01	110
Fluoranthene	ND	0.5	0.4	74.0	0.5	0.38	70.5	4.78	30	14	123
Fluorene	7.3	0.5	6.8	-91.4*	0.5	7.7	83.2	4300*	30	0.01	142
Indeno(1,2,3-cd)pyrene	ND	0.5	0.15	29.8	0.5	0.14	28.9	2.96	30	0.01	116
Naphthalene	11	0.5	10	-165*	0.5	12	90.5	685*	30	0.01	122
Phenanthrene	ND	0.5	0	0*	0.5	0	0*	0	30	0.01	155
Pyrene	0.10	0.5	0.41	60.4	0.5	0.39	57.7	4.55	30	0.01	140

Qualifiers:
ND/U - Not Detected at the Reporting Limit
* - Recovery Outside Advisable QC Limits
B - Analyte detected in the associated Method Blank
D - Recovery Unreportable due to Dilution
J - Estimated value between MDL and PQL

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Metals by Method 6010B, Total
Method: SW6010B
WorkOrder: 99110449
Lab Batch ID: 1794

Method Blank

RunID: TJA_991130B-119305 Units: mg/L
Analysis Date: 11/30/1999 19:39 Analyst: PB
Preparation Date: 11/22/1999 8:15 Prep By: ME Method SW3010A

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01C	MW-1-GW
99110449-02C	MW-2-GW
99110449-03C	MW-3-GW
99110449-04C	MW-4-GW

Analyte	Result	Rep Limit
Aluminum	ND	0.1
Barium	ND	0.005
Boron	ND	0.2
Cadmium	ND	0.005
Cobalt	ND	0.01
Copper	ND	0.01
Iron	ND	0.02
Magnesium	ND	0.1
Manganese	ND	0.005
Molybdenum	ND	0.02
Nickel	ND	0.02
Potassium	ND	2
Silver	ND	0.01
Sodium	ND	0.5
Zinc	ND	0.02

Laboratory Control Sample (LCS)

RunID: TJA_991130B-119306 Units: mg/L
Analysis Date: 11/30/1999 19:43 Analyst: PB
Preparation Date: 11/22/1999 8:15 Prep By: ME Method SW3010A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Aluminum	2	2.03	101	80	120
Barium	2	2.05	102	80	120
Boron	4	3.95	99	80	120
Cadmium	2	2	100	80	120
Cobalt	2	2	100	80	120
Copper	2	2.04	102	80	120
Iron	2	2.04	102	80	120
Magnesium	20	20.5	103	80	120
Manganese	2	2.04	102	80	120
Molybdenum	2	2.04	102	80	120
Nickel	2	2.02	101	80	120
Potassium	20	20.6	103	80	120
Silver	2	2.07	104	80	120
Sodium	20	19.4	97	80	120
Zinc	2	2.02	101	80	120

Post Digestion Spike (PDS) / Post Digestion Spike Duplicate (PDSD)

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Metals by Method 6010B, Total
Method: SW6010B
WorkOrder: 99110449
Lab Batch ID: 1794

Sample Spiked: 99110449-01
RunID: TJA_991130B-119313 Units: mg/L
Analysis Date: 11/30/1999 20:12 Analyst: PB

Analyte	Sample Result	PDS Spike Added	PDS Result	PDS % Recovery	PDSD Spike Added	PDSD Result	PDSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Aluminum	7.67	1	8.5	83	1	8.46	79	5.0	20	75	125
Iron	3.46	1	4.32	86	1	4.28	82	5.0	20	75	125
Sodium	471	10	468	-34*	10	464	-69*	70*	20	75	125

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110449-01
RunID: TJA_991130B-119308 Units: mg/L
Analysis Date: 11/30/1999 19:51 Analyst: PB

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Aluminum	7.7	1	9.8	213*	1	8.74	107	66.7*	20	75	125
Barium	0.40	1	1.35	95.8	1	1.34	94.6	1.20	20	75	125
Boron	0.78	2	2.63	92.7	2	2.64	92.8	0.130	20	75	125
Cadmium	ND	1	0.958	95.8	1	0.959	95.9	0.112	20	75	125
Cobalt	ND	1	0.875	87.0	1	0.875	87.0	.0161	20	75	125
Copper	ND	1	0.997	98.9	1	0.991	98.3	0.630	20	75	125
Iron	3.5	1	4.64	117	1	4.07	60.4*	64.0*	20	75	125
Magnesium	110	10	117	106	10	115	90.2	16.6	20	75	125
Manganese	0.46	1	1.37	91.5	1	1.36	90.9	0.760	20	75	125
Molybdenum	ND	1	0.919	91.3	1	0.922	91.6	0.366	20	75	125
Nickel	ND	1	0.878	87.8	1	0.873	87.3	0.522	20	75	125
Potassium	20	10	31.5	115	10	30.8	108	6.10	20	75	125
Silver	ND	1	0.992	99.2	1	0.995	99.5	0.235	20	75	125
Sodium	470	10	481	101	10	475	35.6*	95.6*	20	75	125
Zinc	0.092	1	1.08	99.1	1	1.1	101	2.15	20	75	125

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Metals by Method 6010B, Total
Method: SW6010B
WorkOrder: 99110449
Lab Batch ID: 1794-T

Method Blank

RunID: TJAT_991129B-118301 Units: mg/L
Analysis Date: 11/29/1999 14:30 Analyst: EG
Preparation Date: 11/22/1999 8:15 Prep By: ME Method SW3010A

Analyte	Result	Rep Limit
Arsenic	ND	0.005
Lead	ND	0.005
Selenium	ND	0.005

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01C	MW-1-GW
99110449-02C	MW-2-GW
99110449-03C	MW-3-GW
99110449-04C	MW-4-GW

Laboratory Control Sample (LCS)

RunID: TJAT_991129B-118302 Units: mg/L
Analysis Date: 11/29/1999 14:35 Analyst: EG
Preparation Date: 11/22/1999 8:15 Prep By: ME Method SW3010A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Arsenic	4	4.15	104	80	120
Lead	2	1.97	99	80	120
Selenium	4	4.09	102	80	120

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110449-01
RunID: TJAT_991129B-118304 Units: mg/L
Analysis Date: 11/29/1999 14:45 Analyst: EG

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Arsenic	0.054	2	2.13	104	2	2.13	104	0.326	20	75	125
Lead	0.023	1	0.91	88.7	1	0.907	88.4	0.345	20	75	125
Selenium	ND	2	2.02	101	2	2.02	101	0.305	20	75	125

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Metals by Method 6010B, Total
Method: SW6010B
WorkOrder: 99110449
Lab Batch ID: 1794A

Method Blank

RunID: TJA_991201B-120384 Units: mg/L
Analysis Date: 12/01/1999 17:13 Analyst: PB
Preparation Date: 11/22/1999 8:15 Prep By: ME Method SW3010A

Analyte	Result	Rep Limit
Calcium	ND	10
Chromium	ND	0.01

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01C	MW-1-GW
99110449-02C	MW-2-GW
99110449-03C	MW-3-GW
99110449-04C	MW-4-GW

Laboratory Control Sample (LCS)

RunID: TJA_991201B-120385 Units: mg/L
Analysis Date: 12/01/1999 17:17 Analyst: PB
Preparation Date: 11/22/1999 8:15 Prep By: ME Method SW3010A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Calcium	20	20.5	103	80	120
Chromium	2	2.04	102	80	120

Post Digestion Spike (PDS) / Post Digestion Spike Duplicate (PDSD)

Sample Spiked: 99110449-01
RunID: TJA_991201B-120389 Units: mg/L
Analysis Date: 12/01/1999 17:34 Analyst: PB

Analyte	Sample Result	PDS Spike Added	PDS Result	PDS % Recovery	PDSD Spike Added	PDSD Result	PDSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Calcium	2060	100	2170	115	100	2000	-61	650*	20	75	125
Chromium	ND	10	9.93	99	10	10	100	1.0	20	75	125

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Mercury, Total
Method: SW7470A
WorkOrder: 99110449
Lab Batch ID: 2151

Method Blank

RunID: HGL_991215A-131552 Units: mg/L
Analysis Date: 12/15/1999 10:31 Analyst: AG
Preparation Date: 12/14/1999 16:30 Prep By: AG Method SW7470A

Analyte	Result	Rep Limit
Mercury	ND	0.0002

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01C	MW-1-GW
99110449-02C	MW-2-GW
99110449-03C	MW-3-GW
99110449-04C	MW-4-GW

Laboratory Control Sample (LCS)

RunID: HGL_991215A-131553 Units: mg/L
Analysis Date: 12/15/1999 10:31 Analyst: AG
Preparation Date: 12/14/1999 16:30 Prep By: AG Method SW7470A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Mercury	0.002	0.00192	96	80	120

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110449-01
RunID: HGL_991215A-131555 Units: mg/L
Analysis Date: 12/15/1999 10:31 Analyst: AG
Preparation Date: 12/14/1999 16:30 Prep By: AG Method SW7470A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Mercury	ND	0.002	0.00212	106	0.002	0.002	100	5.58	20	75	125

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Fluoride-IC
Method: E300
WorkOrder: 99110449
Lab Batch ID: R5306

Method Blank

RunID: WET_991119O-114562 Units: mg/L
Analysis Date: 11/19/1999 12:38 Analyst: ES

Analyte	Result	Rep Limit
Fluoride	ND	0.10

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01D	MW-1-GW
99110449-02D	MW-2-GW
99110449-03D	MW-3-GW
99110449-04D	MW-4-GW

Laboratory Control Sample (LCS)

RunID: WET_991119O-114563 Units: mg/L
Analysis Date: 11/19/1999 12:38 Analyst: ES

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Fluoride	10	9.5	95	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110449-01
RunID: WET_991119O-114565 Units: mg/L
Analysis Date: 11/19/1999 12:38 Analyst: ES

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Fluoride	3.1	10	13	96.2	10	13	95.6	0.709	20	80	120

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Nitrogen, Nitrate (As N) **WorkOrder:** 99110449
Method: E300 **Lab Batch ID:** R5352

Method Blank

RunID: WET_991119P-115361 Units: mg/L
Analysis Date: 11/19/1999 12:38 Analyst: ES

Analyte	Result	Rep Limit
Nitrogen,Nitrate (As N)	ND	0.10

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01D	MW-1-GW
99110449-02D	MW-2-GW
99110449-03D	MW-3-GW
99110449-04D	MW-4-GW

Laboratory Control Sample (LCS)

RunID: WET_991119P-115362 Units: mg/L
Analysis Date: 11/19/1999 12:38 Analyst: ES

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Nitrogen,Nitrate (As N)	10	9.4	94	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110449-01
RunID: WET_991119P-115364 Units: mg/L
Analysis Date: 11/19/1999 12:38 Analyst: ES

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Nitrogen,Nitrate (As N)	ND	10	11	111	10	9.5	95.1	15.3	20	86	115

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Total Dissolved Solids
Method: E160.1
WorkOrder: 99110449
Lab Batch ID: R5394A

Method Blank

RunID: WET_991123J-116185 Units: mg/L
Analysis Date: 11/23/1999 21:45 Analyst: GJ

Analyte	Result	Rep Limit
Total Dissolved Solids (Residue,Filterable)	ND	10

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01D	MW-1-GW
99110449-02D	MW-2-GW
99110449-03D	MW-3-GW
99110449-04D	MW-4-GW

Laboratory Control Sample (LCS)

RunID: WET_991123J-116187 Units: mg/L
Analysis Date: 11/23/1999 21:45 Analyst: GJ

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Total Dissolved Solids (Residue,Filtera	450	452	100	80	120

Sample Duplicate

Original Sample: 99110438-04
RunID: WET_991123J-116188 Units: mg/L
Analysis Date: 11/23/1999 21:45 Analyst: GJ

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Total Dissolved Solids (Residue,Filtera	2790	2670	4	20

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

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Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Chloride-IC
Method: E300
WorkOrder: 99110449
Lab Batch ID: R5511

Method Blank

RunID: WET_991123O-118565 Units: mg/L
Analysis Date: 11/23/1999 13:09 Analyst: ES

Analyte	Result	Rep Limit
Chloride	ND	0.20

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01D	MW-1-GW
99110449-02D	MW-2-GW
99110449-03D	MW-3-GW
99110449-04D	MW-4-GW

Laboratory Control Sample (LCS)

RunID: WET_991123O-118566 Units: mg/L
Analysis Date: 11/23/1999 13:09 Analyst: ES

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Chloride	10	9.5	95	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110449-01
RunID: WET_991123O-118568 Units: mg/L
Analysis Date: 11/23/1999 13:09 Analyst: ES

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	830	1000	1900	104	1000	1900	104	.0760	20	80	120

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Quality Control Report

URS Greiner Woodward Clyde

BYRD LINE

Analysis: Sulfate
Method: E300
WorkOrder: 99110449
Lab Batch ID: R5513

Method Blank

RunID: WET_991123P-118585 Units: mg/L
Analysis Date: 11/23/1999 13:09 Analyst: ES

Analyte	Result	Rep Limit
Sulfate	ND	0.20

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
99110449-01D	MW-1-GW
99110449-02D	MW-2-GW
99110449-03D	MW-3-GW
99110449-04D	MW-4-GW

Laboratory Control Sample (LCS)

RunID: WET_991123P-118586 Units: mg/L
Analysis Date: 11/23/1999 13:09 Analyst: ES

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Sulfate	10	9.7	97	90	110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 99110496-01
RunID: WET_991123P-118592 Units: mg/L
Analysis Date: 11/23/1999 13:09 Analyst: ES

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Sulfate	1.1	10	12	106	10	12	107	0.357	20	80	120

Qualifiers:
ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
* - Recovery Outside Advisable QC Limits
D - Recovery Unreportable due to Dilution

Chain of Custody

And

Sample Receipt Checklist

SPL, Inc.

Analysis Request & Chain of Custody Record

SPL Workorder No: 99110449

086259

page 1 of 1

Client Name: URS Greiner Woodward Clyde

Address/Phone: 6200 La Calma Ste. 210, Austin, TX 78752

Client Contact: Dennis Hayes

Project Name: ~~HOBBS~~ BYRD LINE

Project Number: 9399000 HZ-0000001

Project Location: HOBBS NEW MEXICO

Invoice To: URSGWC

SAMPLE ID	DATE	TIME	comp	grab	matrix (W=water S=soil SL=sludge O=other:)	bottle (P=plastic A=amber glass G=glass V=vial)	size (1=1 liter 4=4oz 40=vial 8=8oz 16=16oz)	pres. (1=HCl 2=HNO3 3=H2SO4 O=other:)	Number of Containers	Requested Analysis: BTEX (8021)/GRO	PAH (8310)	metals	TDS, Cl, SO4, F, NO3	DRO (8015)				
MW-1-GW	11/17/99	1425		X	W	P,A,V	1,40	1,2	8	X	X	X	X	X				
MW-2-GW	11/17/99	1445		X	W	P,A,V	1,40	1,2	8	X	X	X	X	X				
MW-3-GW	11/17/99	1510		X	W	P,A,V	1,40	1,2	8	X	X	X	X	X				
MW-4-GW	11/17/99	1350		X	W	P,A,V	1,40	1,2	8	X	X	X	X	X				
TRIP BLANK	~~11/17/99~~	—		X	W	V	40	1	2	X								

RUSH

Client/Consultant Remarks: PM Rec 11-20-99

Laboratory remarks: NM WQS / SAMPLES IN 2 COOLERS

Intact? ☑ Y ☐ N

Temp: 5

Requested TAT

24hr ☐ 72hr ☐

48hr ☐ Standard ☑

Other ☐ _____

Special Reporting Requirements: Fax Results ☒ Raw Data ☐ Standard QC ☑ Level 3 QC ☐ Level 4 QC ☐

Special Detection Limits (specify): NM WQS

PM review (initial): RL

	date	time	
1. Relinquished by Sampler: Dennis Hayes	11-17-99	2200	2. Received by:
3. Relinquished by:	date	time	4. Received by:
5. Relinquished by:	date	time	6. Received by Laboratory: Diana Stelly 11/19 1000

☒ 8880 Interchange Drive, Houston, TX 77054 (713) 660-0901

☐ 500 Ambassador Caffery Parkway, Scott, LA 70583 (318) 237-4775

☐ 459-Hughes Drive, Traverse City, MI 49684 (616) 947-5777

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
(713) 660-0901

Sample Receipt Checklist

Workorder:	99110449	Received by:	Stelly, D'Anna
Date and Time Received:	11/19/99 10:00:00 AM	Carrier name:	FedEx
Temperature:	5		

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	Not Present ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

WORK PLAN

INITIAL SITE CHARACTERIZATION

BYRD LINE RELEASE SITE MONUMENT, NEW MEXICO

Prepared for
ARCO PIPE LINE COMPANY
15600 JFK BLVD. SUITE 300
HOUSTON, TEXAS

October 1, 1999

URS Greiner Woodward Clyde

A Division of URS Corporation

6200 La Calma
Suite 210
Austin, TX 78752

Project No. 93-99000162.00

TABLE OF CONTENTS

Figures

Tables

Appendices

1.0 INTRODUCTION

Arco Pipe Line Company (APL) operates a 4-inch crude oil transfer line in Lea County, New Mexico. The line runs east-west in the area near the town of Monument, New Mexico and is located at (32.35.016N and 103.16.625W) Figure 1-1. In January 1998, an APL aerial patrol noted stained soil at the release site. APL personnel responded and a corrosion related leak with oil stained soil on the surface was observed. The line was clamped and permanent repairs were scheduled. Upon removal of soil during the permanent repairs, APL personnel noted a significantly larger volume of soil stained in the subsurface than originally anticipated.

In November 1998, APL contractors removed approximately 800 yards of stained soil from around the line (photos #1 and #2). Upon removal of the soil from around the line, APL personnel observed oil on the groundwater table at approximately 35 feet below grade. Soil samples collected from the stockpile of the excavated soil indicated total petroleum hydrocarbons (TPH) by EPA Method 418.1 at 20,700 mg/kg. The benzene, toluene, ethyl benzene, and xylenes (BTEX) analysis by EPA Method 8020 indicated benzene at 0.009 milligrams per kilogram (mg/kg), toluene at 0.187 mg/kg, ethyl benzene at 0.317 mg/kg, and total xylenes at 1.172 mg/kg. The composite soil sample was also analyzed by TCLP for metals, TCLP semivolatiles, TCLP volatiles, reactivity (sulfide and cyanide), corrosivity, and ignitability. Appendix A contains the laboratory analytical report for the composite soil sample from the excavated stockpile.

In July 1999, the walls and floor of the 800 yard excavation were sampled and analyzed. Six wall samples and one floor sample were collected for analysis of BTEX by EPA method 8021 and total petroleum hydrocarbons (TPH) by EPA 8015. Additionally, soil samples were collected from small trenches dug on the south and west sides of the large excavation. Figure 1-2 shows the locations of the soil samples. The results of the soil analyses are presented in Table 1 and Table 2. Appendix A contains the laboratory analytical report for the soil samples from the excavation and trenches.

2.0 SITE CHARACTERIZATION ACTIVITIES

Based on site observations and results of the laboratory analysis of the subsurface soils, APL proposes to characterize the groundwater impact from the leak. In order to perform this task APL proposes to drill and sample three soil borings next to the excavation and convert these soil borings to monitoring wells. The locations of the proposed monitoring

wells are shown on Figure 1-2. Soil samples will be collected continuously for lithologic logging purposes and select soil samples (5, 20, and 40 feet below grade) will be collected for laboratory analysis. Groundwater samples will also be collected from the monitoring wells.

Soil samples will be analyzed for TPH by EPA Method 8015 (GRO-DRO) and BTEX by EPA Method 8021. Groundwater samples will be analyzed for BTEX by EPA Method 8021, polynuclear aromatic hydrocarbons (PAH) by EPA Method 8310, major cations and anions, and heavy metals by various EPA 7000 series methods. Additionally, a groundwater sample will be collected for analysis of total dissolved solids.

3.0 DATA EVALUATION

Based on the remaining impact to soil, the soil results will be compared to the New Mexico Oil Conservation Division (NMOCD) target criteria. The groundwater analytical results will be evaluated so as to determine if groundwater has been impacted above the New Mexico Water Quality Control Commission regulations. The soil and groundwater data will provide APL with options as to whether insitu or exsitu remediation is best feasible, if necessary.

4.0 REPORTING

A report describing the findings of the initial site characterization will be prepared for submittal to the NMOCD. The report will include the results of the findings, the well/soil boring logs, the analytical data collected from the site, and a recommendation for the next step.

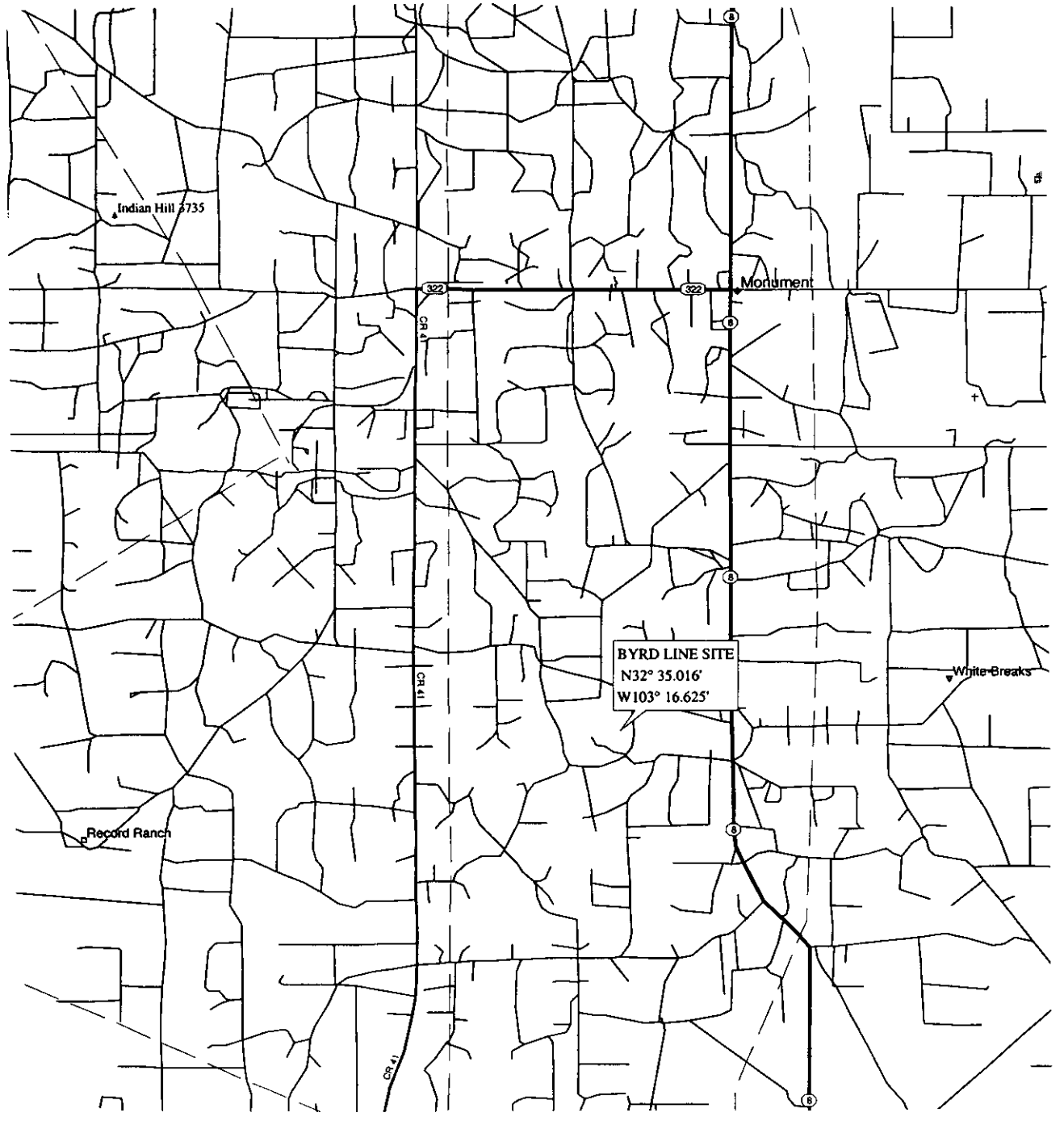
5.0 SOIL BORING AND MONITORING WELL CONSTRUCTION AND SAMPLING

The soil borings will be drilled by using air rotary and sampling methods or hollow-stem auger sampling methods. The borings will be soil sampled continuously for lithologic sampling purposes while soil samples for laboratory analytical analysis will be collected at depths of 5, 20, and 40 feet or just above the encountered water table and the total depth of the boring. The soil samples will be analyzed for the constituents listed in section 2.0.

The monitoring wells will be constructed in the boreholes used for soil sampling. Four-inch diameter schedule 40 PVC well casing and screen (0.010" slots) will used for the wells. The wells will be filter packed with pre-washed silica sand and sealed with 2 feet

of hydrated bentonite chips. Above the bentonite chips to ground surface, the borehole annulus will be filled with a cement\bentonite slurry. The surface completions will be constructed with a 4ft x 4ft x 6in concrete pad and a six inch upright locking well cover.

Groundwater samples will be collected from the monitoring wells after development and purging. Development will consist of surging and bailing followed by over-pumping until the water is clear and the pH, temperature, and conductivity have stabilized. After the development is complete, the wells will be purged prior to sample collection. Purging will be accomplished by pumping at a slow rate (~1 gallon per minute) or until no drawdown is observed. Upon stabilization of the development parameters and the removal of at least three well volumes, the well water will be sampled from the dedicated discharge tubing of the pump. The samples will be placed into the appropriate pre-labeled containers and stored for shipment to the analytical laboratory. Chain-of-custody procedures will be followed during sample handling. The groundwater samples will be analyzed for the constituents listed in section 2.0.



Mag 13.00
Mon Sep 20 14:20 1999
Scale 1:62,500 (at center)

1 Miles

2 KM

- Secondary SR/Road/Hwy Ramp
- Major Connector
- State Route
- Utility/Pipe
- Point of Interest
- Small Town
- Cemetery
- Water
- Intermittent River

ARCO PIPE LINE, CO

BYRD LINE\COOPER LAND
3 MILES SW OF MONUMENT,
NEW MEXICO

URS Greiner Woodward Clyde
Austin, Texas

SCALE: NOTED

DRAWN BY: MSM DATE: 6/28/99

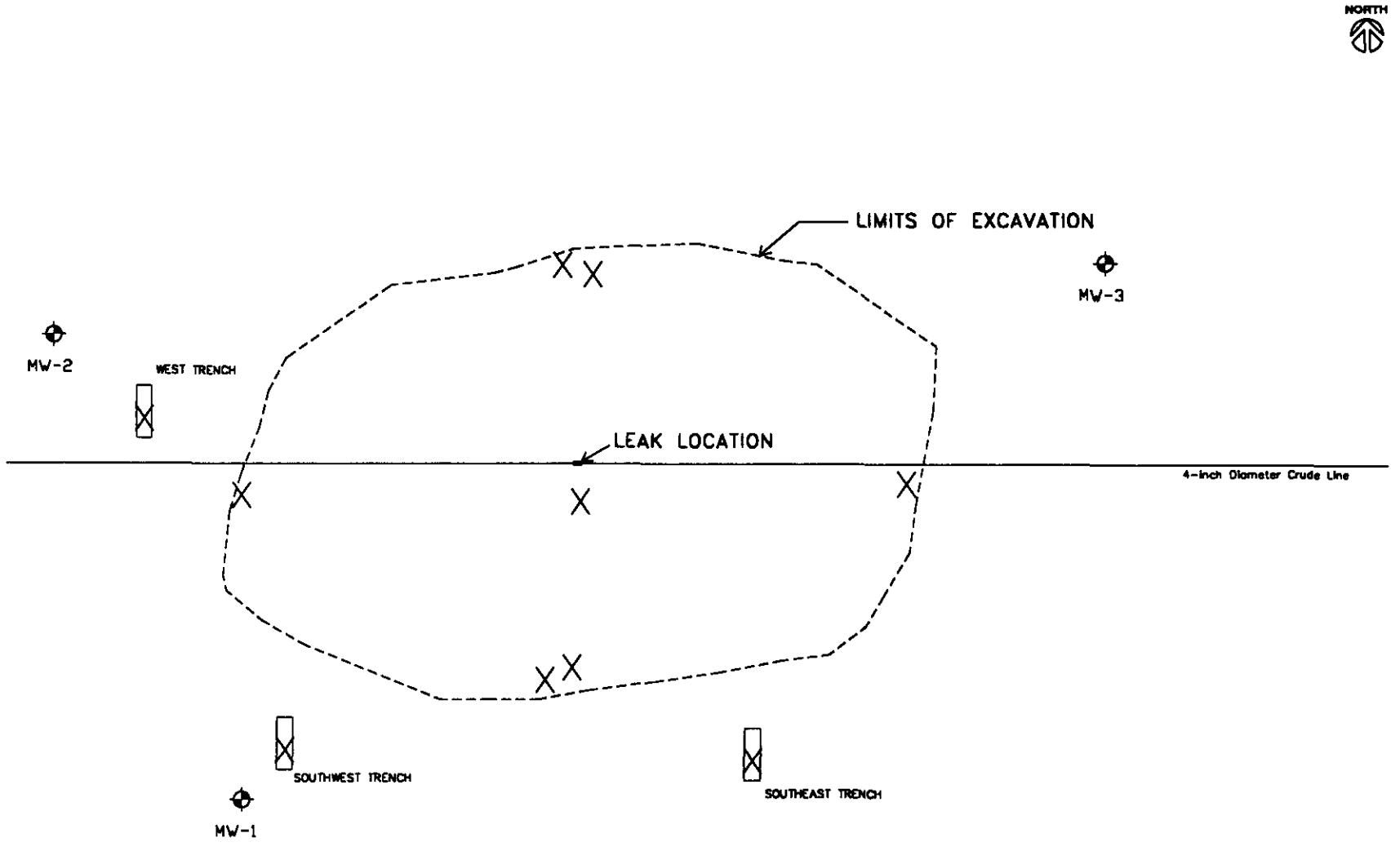
CHECKED BY: RJN DATE: 9/20/99

SITE LOCATION MAP

PROJECT NO. 9399000152.00

FIG. NO. 1-1

i:\ARCO\BYRD\BYRDPUMP\CADD\BORDER.DWG



LEGEND

X = Soil Sample Location

MW-4 Proposed Monitoring Well Location

URS Greiner Woodward Clyde
Austin, Texas

ARCO PIPE LINE COMPANY
BYRD LINE/COOPER LAND

SCALE:	MADE BY: RJN	DATE: 9/20/99	FILE NO.
NOT-TO-SCALE	MOD BY: RJN	DATE: 9/20/99	93-[illegible]

SOIL SAMPLE LOCATIONS

FIGURE 1-2

I:\ARCO\BYRD\COOPER LEAK\WORK PLAN 1\FIG1-2.DWG

ARCO PIPE LINE, CO	URS Greiner Woodward Clyde Austin, Texas	SITE PHOTOS	PROJECT NO. 9399000162.00
BYRD LINE\COOPER LAND 3 MILES SW OF MONUMENT, NEW MEXICO	SCALE: NOTED DRAWN BY: MSM DATE: 6/28/99 CHECKED BY: RJN DATE: 9/20/99		Photos 1 and 2

I:\ARCO\BYRD\BYRDLINE\CADD\BORDER.DWG

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS
PIT WALL AND FLOOR SAMPLES
BYRD LINE RELEASE SITE

	North Wall		South Wall		East Wall	West Wall	FLOOR
	(20 FT)	(26 FT)	(20 FT)	(26 FT)	(20 FT)	(20 FT)	
COMPOUND (mg/kg)	7/6/99	7/6/99	7/6/99	7/6/99	7/6/99	7/6/99	7/6/99
Benzene	<.001	<.001	<.010	<.500	<.001	<.010	<.025
Toluene	<.001	<.001	0.12	8.000	<.001	0.34	2.900
Ethylbenzene	<.001	<.001	0.014	1.100	<.001	<.010	.580
Total Xylene	<.001	0.0035	0.48	25.000	<.001	0.56	2.900
Total Petroleum Hydrocarbons							
Gasoline Range Organics	<.10	0.28	52	1,300	<.10	25	420
Diesel Range Organics	<10	160	5,600	8,500	<10	4,300	2,800

mg/kg - milligram per kilogram

TABLE 2
SOIL ANALYTICAL RESULTS
TRENCH SAMPLES
BYRD LINE RELEASE SITE

	Southeast Trench			Southwest Trench			West Trench		
	(5 FT)	(10 FT)	(20 FT)	(5 FT)	(10 FT)	(20 FT)	(5 FT)	(10 FT)	(20 FT)
COMPOUND (mg/kg)	7/6/99	7/6/99	7/6/99	7/6/99	7/6/99	7/6/99	7/6/99	7/6/99	7/6/99
Benzene	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002
Toluene	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002
Ethylbenzene	0.003	<.002	<.002	<.002	<.002	<.002	<.002	<.002	0.007
Total Xylene	0.012	0.008	<.006	<.006	<.006	<.006	0.008	<.006	0.109
Total Petroleum Hydrocarbons									
Diesel Range organics	<50	<50	<50	<50	<50	308	2,530	616	1,060
Gasoline Range Organics	<50	<50	<50	<50	<50	<50	<50	<50	<50

mg/kg - milligram per kilogram

APPENDIX A
Laboratory Analytical Data

Laboratory Analytical Data – Initial Excavation Stockpile

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CJR CONTRACTORS, INC.
ATTN: J.L. HAM
401 W. BROADWAY
DENVER CITY, TX 79323
FAX TO:

Receiving Date: 04/05/99
Reporting Date: 04/05/99
Project Number: NOT GIVEN
Project Name: ARCO PIPELINE
Project Location: BYRD LINE

Sampling Date: 04/05/99
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NO.	SAMPLE ID	TPH (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)
ANALYSIS DATE:		04/05/99	04/05/99	04/05/99	04/05/99	04/05/99
H4091-1	BYRD LINE	20700	0.009	0.187	0.317	1.172
Quality Control		254	0.091	0.097	0.097	0.289
True Value QC		240	0.100	0.100	0.100	0.300
% Recovery		106	90.7	97.0	97.4	96.5
Relative Percent Difference		1.9	1.1	2.5	4.5	1.8

METHODS: TRPHC - EPA 600/7-79-020, 418.1; BTEX - EPA SW846-8020, 8260

Chemist

4/5/99
Date

H4091.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 · 2111 BEECHWOOD · ABILENE, TX 79603
PHONE (505) 393-2326 · 101 E MARLAND · HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CJR CONTRACTORS
ATTN: J. L. HAM
320 W. 8TH
DENVER CITY, TX 79323
FAX TO:

Receiving Date: 11/24/98
Reporting Date: 12/03/98
Project Number: NOT GIVEN
Project Name: ARCO PIPELINE BYRD LINE
Project Location: MONUMENT, NM

Sampling Date: NOT GIVEN
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	REACTIVITY Sulfide (ppm)	REACTIVITY Cyanide (ppm)	CORROSIVITY (pH)	IGNITABILITY (°F)
ANALYSIS DATE:		12/01/98	12/01/98	12/01/98	12/02/98
h3945-1	BYRD LINE	Not reactive	Not reactive	8.65	Nonflammable
Quality Control		NR	NR	6.99	NR
True Value QC		NR	NR	7.00	NR
% Recovery		NR	NR	99.9	NR
Relative Percent Difference		NR	NR	0.1	NR

METHOD: EPA SW 846-7.3, 7.2, 1010, 1311, *40 CFR 261*

Chemist

12/3/98
Date

H3945-4 XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CJR CONTRACTORS
ATTN: J. L. HAM
320 W. 8TH
DENVER CITY, TX 79323
FAX TO:

Receiving Date: 11/24/98
Reporting Date: 12/03/98
Project Number: NOT GIVEN
Project Name: ARCO PIPELINE BYRD LINE
Project Location: MONUMENT, NM

Sampling Date: NOT GIVEN
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: AH

TCLP METALS

LAB NO	SAMPLE ID	As ppm	Ag ppm	Ba ppm	Cd ppm	Cr ppm	Pb ppm	Hg ppm	Se ppm
ANALYSIS DATE		12/01/98	11/30/98	11/30/98	11/30/98	11/30/98	11/30/98	12/01/98	12/02/98
EPA LIMITS:		5	5	100	1	5	5	0.2	1
H3945-1	BYRD LINE	<1	<3	<5	<1	<1	<1	<0.02	<0.1
Quality Control		0.193	2.072	16.03	0.495	0.960	4.958	0.0100	0.058
True Value QC		0.200	2.000	20.00	0.500	1.000	5.000	0.0100	0.050
% Recovery		97	104	80	99.6	96	99	100	116
Relative Standard Deviation		2.87	4.86	1.41	3.72	1.54	3.30	1.4	0.88
METHODS: EPA 1311, 600/4-91/		206.2	272.1	208.1	213.1	218.1	239.1	245.1	270.2

Chemist

12/3/98
Date

H3945-3.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 · 2111 BEECHWOOD · ABILENE, TX 79603
PHONE (505) 393-2326 · 101 E MARLAND · HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CJR CONTRACTORS
ATTN: J. L. HAM
320 W. 8TH
DENVER CITY, TX 79323
FAX TO:

Receiving Date: 11/24/98
Reporting Date: 12/01/98
Project Number: NOT GIVEN
Project Name: ARCO PIPELINE BYRD LINE
Project Location: MONUMENT, NM
Lab Number: H3945-1
Sample ID: BYRD LINE

Analysis Date: 11/30/98
Sampling Date: NOT GIVEN
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP SEMIVOLATILES (ppm)	EPA LIMIT	Sample Result H3945-1	Method Blank	QC	% Recov.	True Value QC
Pyridine	5.00	<0.005	<0.005	0.014	28	0.050
1,4-Dichlorobenzene	7.50	<0.005	<0.005	0.038	76	0.050
o-Cresol	200	<0.005	<0.005	0.034	68	0.050
m, p-Cresol	200	<0.005	<0.005	0.036	72	0.050
Hexachloroethane	3.00	<0.005	<0.005	0.034	68	0.050
Nitrobenzene	2.00	<0.005	<0.005	0.047	94	0.050
Hexachloro-1,3-butadiene	0.500	<0.005	<0.005	0.037	74	0.050
2,4,6-Trichlorophenol	2.00	<0.005	<0.005	0.042	84	0.050
2,4,5-Trichlorophenol	400	<0.005	<0.005	0.042	84	0.050
2,4-Dinitrotoluene	0.130	<0.005	<0.005	0.048	96	0.050
Hexachlorobenzene	0.130	<0.005	<0.005	0.049	98	0.050
Pentachlorophenol	100	<0.005	<0.005	0.039	78	0.050

	% RECOVERY
Fluorophenol	52
Phenol-d5	47
Nitrobenzene-d5	77
2-Fluorobiphenyl	61
2,4,6-Tribromophenol	77
Terphenyl-d14	82

METHODS: EPA SW 846-8270, 1311

Burgess J. A. Cooke, Ph. D.

12/1/98
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 · 2111 BEECHWOOD · ABILENE, TX 79603
PHONE (505) 393-2326 · 101 E. MARLAND · HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CJR CONTRACTORS
ATTN: J. L. HAM
320 W. 8TH
DENVER CITY, TX 79323
FAX TO:

Receiving Date: 11/24/98
Reporting Date: 12/01/98
Project Number: NOT GIVEN
Project Name: ARCO PIPELINE BYRD LINE
Project Location: MONUMENT, NM
Lab Number: H3945-1
Sample ID: BYRD LINE

Analysis Date: 11/30/98
Sampling Date: NOT GIVEN
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP VOLATILES (ppm)	EPA LIMIT	Sample Result H3945-1	Method Blank	QC	%Recov.	True Value QC
Vinyl Chloride	0.20	<0.005	<0.005	0.092	92	0.100
1,1-Dichloroethylene	0.7	<0.005	<0.005	0.101	101	0.100
Methyl Ethyl Ketone	200	<0.050	<0.050	0.093	93	0.100
Chloroform	6.0	<0.005	<0.005	0.099	99	0.100
1,2-Dichloroethane	0.5	<0.005	<0.005	0.096	96	0.100
Benzene	0.5	<0.005	<0.005	0.097	97	0.100
Carbon Tetrachloride	0.5	<0.005	<0.005	0.099	99	0.100
Trichloroethylene	0.5	<0.005	<0.005	0.097	97	0.100
Tetrachloroethylene	0.7	<0.005	<0.005	0.095	95	0.100
Chlorobenzene	100	<0.005	<0.005	0.097	97	0.100
1,4-Dichlorobenzene	7.5	<0.005	<0.005	0.096	96	0.100

	% RECOVERY
Dibromofluoromethane	102
Toluene-d8	95
Bromofluorobenzene	101

METHODS EPA SW 846-8260, 1311

Burgess J. A. Cooke, Ph D

12/1/98
Date

Laboratory Analytical Data – Pit Wall and Floor Samples

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

July 21, 1999

Mr. Rick Nelson
URS GREINER WOODWARD CLYDE
6200 La Calma #200
Austin, TX 78752

The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on July 7, 1999. The sample(s) was assigned to Certificate of Analysis No. (s) 9907175 and analyzed for all parameters as listed on the chain of custody.

Any data flags or quality control exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis No. during any inquiries.

Again, SPL is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Southern Petroleum Laboratories

Bernadette A. Fini
Senior Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 99-07-175

Approved for Release by:

Bernadette A. Fini, Senior Project Manager — 7-21-99 Date

Joel Grice
Laboratory Director

Ted Yen
Corporate Quality Assurance Director

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-01

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: S. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 11:53:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	52	1.0 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	600MI		
1,4-Difluorobenzene	87		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	10 P	ug/kg
TOLUENE	120	10 P	ug/kg
ETHYLBENZENE	14	10 P	ug/kg
TOTAL XYLENE	480	10 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	614		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	160MI		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	5600	1200 P	mg/kg
Surrogate	**% Recovery**		

(P) - Practical Quantitation Limit MI - Matrix interference.
ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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Certificate of Analysis No. H9-9907175-01

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: S. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 11:53:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
n-Pentacosane	D		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/14/99 04:16:00			
Sonication Extraction of DRO by 8015A	07/08/99		
Method 3550B ***			
Analyzed by: GT			
Date: 07/08/99 16:00:00			

D - Diluted, limits not applicable.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-02

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: E. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 11:58:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	ND	0.10 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	93		
1,4-Difluorobenzene	90		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	1.0 P	ug/kg
TOLUENE	ND	1.0 P	ug/kg
ETHYLBENZENE	ND	1.0 P	ug/kg
TOTAL XYLENE	ND	1.0 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	107		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	ND	10 P	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	96		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/20/99 09:28:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-02

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: E. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 11:58:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sonication Extraction of DRO by 8015A Method 3550B ***	07/08/99		
Analyzed by: GT			
Date: 07/08/99 16:00:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-03

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: N. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 12:05:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	ND	0.10 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	90		
1,4-Difluorobenzene	93		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	1.0 P	ug/kg
TOLUENE	ND	1.0 P	ug/kg
ETHYLBENZENE	ND	1.0 P	ug/kg
TOTAL XYLENE	ND	1.0 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	107		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	ND	10 P	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	140		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 07:55:00			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-03

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: N. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 12:05:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sonication Extraction of DRO by 8015A Method 3550B ***	07/08/99		
Analyzed by: GT			
Date: 07/08/99 16:00:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-04

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: W. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 12:11:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	25	1.0 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	400MI		
1,4-Difluorobenzene	87		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	10 P	ug/kg
TOLUENE	340	10 P	ug/kg
ETHYLBENZENE	ND	10 P	ug/kg
TOTAL XYLENE	560	10 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	900		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	277MI		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	4300	500 P	mg/kg
Surrogate	**% Recovery**		

(P) - Practical Quantitation Limit MI - Matrix interference.
ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-04

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: W. Wall (20 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 12:11:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
n-Pentacosane	D		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 08:39:00			
Sonication Extraction of DRO by 8015A	07/08/99		
Method 3550B ***			
Analyzed by: GT			
Date: 07/08/99 16:00:00			

D - Diluted, limits not applicable.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-05

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: S. Wall (26 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:08:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	1300	50 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	293MI		
1,4-Difluorobenzene	80		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/16/99			
BENZENE	ND	500 P	ug/kg
TOLUENE	8000	500 P	ug/kg
ETHYLBENZENE	1100	500 P	ug/kg
TOTAL XYLENE	25000	500 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	34100		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	73		
4-Bromofluorobenzene	140		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	8500	500 P	mg/kg
Surrogate	**% Recovery**		

(P) - Practical Quantitation Limit MI - Matrix interference.
ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-05

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: S. Wall (26 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:08:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
n-Pentacosane	D		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 03:15:00			
Sonication Extraction of DRO by 8015A	07/08/99		
Method 3550B ***			
Analyzed by: GT			
Date: 07/08/99 16:00:00			

D - Diluted, limits not applicable.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-06

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: N. Wall (26 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:10:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	0.28	0.10 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	107		
1,4-Difluorobenzene	100		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/13/99			
BENZENE	ND	1.0 P	ug/kg
TOLUENE	ND	1.0 P	ug/kg
ETHYLBENZENE	ND	1.0 P	ug/kg
TOTAL XYLENE	3.5	1.0 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	3.5		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	97		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	160	10 P	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	134		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 08:24:00			

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-06

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: N. Wall (26 ft)

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:10:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sonication Extraction of DRO by 8015A Method 3550B ***	07/08/99		
Analyzed by: GT			
Date: 07/08/99 16:00:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-07

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: Floor

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:30:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Gasoline Range Organics	420	10 P	mg/kg
Surrogate	**% Recovery**		
4-Bromofluorobenzene	330MI		
1,4-Difluorobenzene	73		
Method 8015B *** for Gasoline			
Analyzed by: FAB			
Date: 07/16/99			
BENZENE	ND	25 P	ug/kg
TOLUENE	2900	25 P	ug/kg
ETHYLBENZENE	580	25 P	ug/kg
TOTAL XYLENE	2900	25 P	ug/kg
TOTAL VOLATILE AROMATIC HYDROCARBONS	6380		ug/kg
Surrogate	**% Recovery**		
1,4-Difluorobenzene	79		
4-Bromofluorobenzene	187MI		
Method 8021B ***			
Analyzed by: FAB			
Date: 07/11/99			
Total Petroleum Hydrocarbons-Diesel	2800	100 P	mg/kg
Surrogate	**% Recovery**		
n-Pentacosane	152		
Method 8015B *** for Diesel			
Analyzed by: RR			
Date: 07/15/99 09:08:00			

(P) - Practical Quantitation Limit MI - Matrix interference.
ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-07

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: URS Greiner Woodward-Clyde
SAMPLE ID: Floor

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99 14:30:00
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sonication Extraction of DRO by 8015A Method 3550B ***	07/08/99		
Analyzed by: GT			
Date: 07/08/99 16:00:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9907175-08

URS Greiner Woodward Clyde
6200 La Calma #200
Austin, TX 78752
ATTN: Rick Nelson

DATE: 07/21/99

PROJECT: APL-Cooper
SITE: Momentum, NM. (APL Cooper)
SAMPLED BY: Provided by SPL
SAMPLE ID: Trip Blank 6/29/99

PROJECT NO: 9399000162.00
MATRIX: SOIL
DATE SAMPLED: 07/06/99
DATE RECEIVED: 07/07/99

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1.0 P	ug/L
TOLUENE	ND	1.0 P	ug/L
ETHYLBENZENE	ND	1.0 P	ug/L
TOTAL XYLENE	ND	1.0 P	ug/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		ug/L

Surrogate	% Recovery
1,4-Difluorobenzene	87
4-Bromofluorobenzene	93

Method 8021B ***
Analyzed by: CJ/
Date: 07/09/99

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

QUALITY CONTROL

DOCUMENTATION

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Modified 8015B***

Matrix: Soil
Units: mg/kg

Batch Id: HP_0990713025700

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Gasoline Range Organics	ND	1.0	0.83	83.0	53 - 137

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
GASOLINE RANGE ORGANICS	ND	0.9	0.66	73.3	0.59	65.6	11.1	50	36 - 163

Analyst: fab
Sequence Date: 07/13/99
SPL ID of sample spiked: 9907159-18A
Sample File ID: 00G2041.TX0
Method Blank File ID:
Blank Spike File ID: 00G2035.TX0
Matrix Spike File ID: 00G2038.TX0
Matrix Spike Duplicate File ID: 00G2039.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (1st Q.'97)
(***) = Source: SPL-Houston Historical Data(1st Q.'97)

SAMPLES IN BATCH(SPL ID): 9907175-01A 9907175-04A 9907175-02A 9907175-03A
9907175-06A 9907175-05A 9907175-07A

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Modified 8015B***

Matrix: Soil
Units: mg/kg

Batch Id: HP_0990715210600

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Gasoline Range Organics	ND	1.0	0.85	85.0	53 - 137

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
GASOLINE RANGE ORGANICS	ND	0.9	0.75	83.3	0.72	80.0	4.04	50	36 - 163

Analyst: fab
Sequence Date: 07/15/99
SPL ID of sample spiked: 9907401-06A
Sample File ID: 00G2150.TX0
Method Blank File ID:
Blank Spike File ID: 00G2144.TX0
Matrix Spike File ID: 00G2147.TX0
Matrix Spike Duplicate File ID: 00G2148.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (1st Q.'97)
(***) = Source: SPL-Houston Historical Data(1st Q.'97)

SAMPLES IN BATCH(SPL ID): 9907175-07A 9907175-05A

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Method 8021B ***

Matrix: Soil
Units: ug/kg

Batch Id: HP_0990710170401

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	47	94.0	61 - 119
Toluene	ND	50	48	96.0	65 - 125
EthylBenzene	ND	50	49	98.0	70 - 118
O Xylene	ND	50	48	96.0	72 - 117
M & P Xylene	ND	100	96	96.0	72 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
BENZENE	ND	20	20	100	21	105	4.88	21	32 - 164
TOLUENE	ND	20	19	95.0	21	105	10.0	20	38 - 159
ETHYLBENZENE	ND	20	20	100	22	110	9.52	19	52 - 142
O XYLENE	3.4	20	23	98.0	29	128	26.5 *	18	53 - 143
M & P XYLENE	2.5	40	42	98.8	47	111	11.6	17	53 - 144

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL Historical Limits-1st Qtr.'97
(***) = Source: SPL Historical Limits-1st Qtr.'97

Analyst: fab
Sequence Date: 07/10/99
SPL ID of sample spiked: 9907279-04A
Sample File ID: O_G1184.TXO
Method Blank File ID:
Blank Spike File ID: O_G1177.TXO
Matrix Spike File ID: O_G1179.TXO
Matrix Spike Duplicate File ID: O_G1180.TXO

SAMPLES IN BATCH(SPL ID): 9907175-06A 9907175-01A 9907175-04A 9907175-07A 9907175-05A 9907175-02A 9907175-03A

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8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Method 8021B ***

Matrix: Aqueous
Units: ug/L

Batch Id: HP_R990708210820

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	47	94.0	72 - 128
Benzene	ND	50	51	102	61 - 119
Toluene	ND	50	51	102	65 - 125
EthylBenzene	ND	50	52	104	70 - 118
O Xylene	ND	50	51	102	72 - 117
M & P Xylene	ND	100	100	100	72 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	ND	20	20	100	20	100	0	20	39 - 150
BENZENE	ND	20	20	100	20	100	0	21	32 - 164
TOLUENE	ND	20	19	95.0	19	95.0	0	20	38 - 159
ETHYLBENZENE	ND	20	19	95.0	19	95.0	0	19	52 - 142
O XYLENE	ND	20	18	90.0	18	90.0	0	18	53 - 143
M & P XYLENE	ND	40	35	87.5	34	85.0	2.90	17	53 - 144

Analyst: CJ/
Sequence Date: 07/08/99
SPL ID of sample spiked: 9907104-05A
Sample File ID: R_G1114.TXO
Method Blank File ID:
Blank Spike File ID: R_G1106.TXO
Matrix Spike File ID: R_G1108.TXO
Matrix Spike Duplicate File ID: R_G1109.TXO

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (1st Q '97)
(***) = Source: SPL-Houston Historical Data (1st Q '97)

SAMPLES IN BATCH(SPL ID): 9907188-05A 9907175-08A

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
Method Modified 8015B***

Matrix: Soil
Units: mg/kg

Batch Id: HPVV990714033300

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Diesel	ND	166	210	127	77 - 145

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
DIESEL	2819	166	2701.23	NC	4904	NC	NC	50	21 - 175

Analyst: RR
Sequence Date: 07/14/99
SPL ID of sample spiked: 9907175-07B
Sample File ID: VVG1057.TXO
Method Blank File ID:
Blank Spike File ID: VVG1018.TXO
Matrix Spike File ID: VVG1047.TXO
Matrix Spike Duplicate File ID: VVG1142.TXO

* = Values outside QC Range due to Matrix Interference (except RPD)
« = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (4TH Q '97)
(***) = Source: SPL-Houston Historical Data (4th Q '97)

SAMPLES IN BATCH(SPL ID): 9907175-06B 9907175-07B 9907175-01B 9907175-03B
9907175-04B 9907175-05B 9907175-02B 9907179-01B

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

SPL, Inc.

Analysis Request & Chain of Custody Record

SPL Workorder No: 9907175 | 089550 | page 1 of 1

Client Name: URS GROINOR Woodward Clyde
Address/Phone: 6200 La Calma dr Austin TX 78752 5210
Client Contact: RICK NELSON (512) 458-1174
Project Name: APL Cooper
Project Number: 93000162.00
Project Location: MONUMENT NM. (APL-Cooper)
Invoice To: Rick Nelson

SAMPLE ID	DATE	TIME	comp	grab	matrix (W=water S=soil SL=sludge O=other:)	bottle (P=plastic A=amber glass G=glass V=vial)	size (1=1 liter 4=4oz 40=vial 8=8oz 16=16oz)	pres. (1=HCl 2=HNO3 3=H2SO4 O=other:)	Number of Containers	Requested Analysis: BTEX 8021	TPH 8015 DRO & GRO	PAH 8310 Staff	8 RCRA Metals Staff						
S Wall (20')	7/6/99	11:53	X		S	G	4	ice		X	X								
E Wall (20')		11:58								X	X								
N Wall (20')		12:05								X	X								
W Wall (20')		12:11								X	X								
S Wall (26')		14:08								X	X								
N Wall (26')		14:10								X	X								
FLOOR		14:30								X	X								

Client/Consultant Remarks:

Laboratory remarks:

Intact? Y N
Temp: 3

Requested TAT: 24hr ☐ 72hr ☐ 48hr ☐ Standard ☒ Other ☐ _____

Special Reporting Requirements: Fax Results ☒ Raw Data ☐ Standard QC ☐ Level 3 QC ☐ Level 4 QC ☐

Special Detection Limits (specify):

PM review (initial): BAF

	date	time	
1. Relinquished by Sampler: Richard M. Nelson	7/6/99	9:00	2. Received by: Federal EXPRESS
3. Relinquished by:	date	time	4. Received by:
5. Relinquished by:	date	time	6. Received by Laboratory: Donna Kelly 7/7/99 1000

☒ 8880 Interchange Drive, Houston, TX 77054 (713) 660-0901
☐ 459-Hughes Drive, Traverse City, MI 49684 (616) 947-5777
☐ 500 Ambassador Caffery Parkway, Scott, LA 70583 (318) 237-4775

SPL Houston Environmental Laboratory

Sample Login Checklist

Date:	Time:
7/7/99	1000

SPL Sample ID: 9907175

			Yes	No
1	Chain-of-Custody (COC) form is present.		✓	
2	COC is properly completed.		✓	
3	If no, Non-Conformance Worksheet has been completed.			
4	Custody seals are present on the shipping container.		✓	
5	If yes, custody seals are intact.		✓	
6	All samples are tagged or labeled.		✓	
7	If no, Non-Conformance Worksheet has been completed.			
8	Sample containers arrived intact		✓	
9	Temperature of samples upon arrival:		3 C	
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)	811305336785	
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name:	Date:
Dianna Dudley	7/7/99

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
CJR CONTRACTORS, INC.
ATTN: J.L. HAM
P.O. BOX 1080
DENVER CITY, TX 79323
FAX TO: (806) 592-3412

Receiving Date: 08/11/99
Reporting Date: 08/13/99
Project Owner: ARCO PIPELINE
Project Name: COOPER RANCH
Project Location: MONUMENT, NM

Sampling Date: 08/11/99
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		08/12/99	08/12/99	08/11/99	08/11/99	08/11/99	08/11/99
H4274-1	S/E 5' DEEP	<50	<50	<0.002	<0.002	0.003	0.012
H4274-2	S/E 10' DEEP	<50	<50	<0.002	<0.002	<0.002	0.008
H4274-3	S/E 20' DEEP	<50	<50	<0.002	<0.002	<0.002	<0.006
H4274-4	S/W 5' DEEP	<50	<50	<0.002	<0.002	<0.002	<0.006
H4274-5	S/W 10' DEEP	<50	<50	<0.002	<0.002	<0.002	<0.006
H4274-6	S/W 20' DEEP	<50	308	<0.002	<0.002	<0.002	<0.006
H4274-7	WEST 5' DEEP	<50	2530	<0.002	<0.002	<0.002	0.008
H4274-8	WEST 10' DEEP	<50	616	<0.002	<0.002	<0.002	<0.006
H4274-9	WEST 20' DEEP	<50	1060	<0.002	<0.002	0.007	0.109
Quality Control		859	797	0.095	0.100	0.099	0.309
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		107	99.6	95.2	99.6	99.3	103
Relative Percent Difference		10.5	5.0	2.8	1.5	9.3	9.1

METHODS: TPH(GRO & DRO) - EPA SW-846 8015 M. BTEX/MTBE-EPA SW-846 8260

Burgess J. A. Cooke, Ph. D.

8/13/99
Date

H4274.XLS