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REPORTS

DATE:

3/95

SOIL AND GROUNDWATER ASSESSMENT

PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
***SECOR* PROJECT NO. B0106-001-01**

Prepared For:

PHILLIPS PETROLEUM COMPANY
NORTH AMERICAN PRODUCTION
PERMIAN BASIN REGION
4001 PENBROOK
ODESSA, TX 79762

Prepared By:

***SECOR* INTERNATIONAL INCORPORATED**
355 Union Boulevard Suite 200
Lakewood, Colorado 80228-1500
(303) 763-8800

March 13, 1995

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1.0 INTRODUCTION

1.1 BACKGROUND

This report summarizes the findings of a soil and groundwater assessment at the Phillips Petroleum Company (Phillips) South Four Lakes Unit (the Unit). This assessment was performed for Phillips by the Lakewood, Colorado office of *SECOR* International Incorporated (*SECOR*).

Phillips Petroleum Company (Phillips) owns and operates the South Four Lakes Unit (Unit) located in Lea County, New Mexico, just north of U. S. Highway 380 approximately 12 miles northwest of the town of Tatum (Figure 1). The Unit is an oil and gas lease containing three active producing wells, one saltwater disposal well, and associated production tank battery. Land covered by the tank battery portion (approximately five acres) of the lease is owned by the State of New Mexico. The tank battery is surrounded by relatively flat grazing lands. Regionally, topography gently slopes to the east-southeast and is sparsely vegetated.

Phillips acquired the Unit from EXXON Company, U. S. A. in November, 1990. As part of Phillips' due diligence effort during the acquisition, a Phase I and II environmental assessment was completed on the lease and associated facilities. Eight soil borings were drilled for the purposes of soil screening and sampling. Four monitor wells (Figure 2; MW-1 through MW-4) were installed in four of the eight soil borings. The four monitor wells were sampled for BTEX (Benzene, Toluene, Ethlybenzene, and total Xylenes) in mid-October, 1990. The groundwater sample collected from MW-1, located adjacent to the northwest corner of a closed EXXON production pit, detected low levels of dissolved Toluene, Ethlybenzene and Xylene (39, 100, and 390 µg/L, respectively). No other monitor well detected dissolved or free-phase petroleum hydrocarbons (FPPH). Upon acquiring the lease from EXXON, Phillips dismantled the old EXXON tank battery and constructed a new tank battery in its place.

As part of a second environmental due diligence effort for the sale of the Unit, the four monitor wells were sampled again in September, 1994. This sampling event detected approximately 2.5 feet of FPPH within MW-1. No other monitor well detected dissolved or FPPH. Upon detection of the FPPH in MW-1, Phillips initiated a source identification effort which included four tasks: 1) a production storage tank integrity evaluation; 2) excavation of an adjacent Amoco crude oil

pipeline; 3) a comparative analysis (fingerprinting) of crude oil produced from the Unit with the FPPH discovered within MW-1; and 4) a focused soil and groundwater assessment in the area of the closed EXXON production pit (Figure 2).

Internal inspection of the two crude storage tanks indicated that the tanks had not leaked. Furthermore, excavation of the Amoco crude oil pipeline indicated that the Amoco pipeline had not leaked (see photographs, Appendix A). The comparative analysis of the crude oil samples produced from the Unit with the FPPH discovered within MW-1 indicated that the oils are essentially the same. One minor but expected difference between the produced crude oils and the oil from MW-1 is that the MW-1 oil has experienced minor evaporation, waterwashing and biodegradation as suggested by the loss of light-end petroleum hydrocarbons (C_4-C_8).

1.2 PURPOSE AND SCOPE

The purpose of the soil and groundwater assessment was to define the vertical and horizontal extent of: 1) the free-phase (free-phase plume) and dissolved-phase (dissolved plume) petroleum hydrocarbons in groundwater; and 2) residual petroleum hydrocarbons in subsurface soil (caliche). Information obtained from this assessment was used to determine the groundwater flow direction, gradient, and velocity (e. g. aquifer parameters) and to evaluate the potential for FPPH recovery. The soil and groundwater assessment included the following five tasks:

1. Drilling nine soil borings and installing groundwater monitor wells;
2. Analyzing nine soil samples for BTEX/ Total Petroleum Hydrocarbons (TPH);
3. Surveying Unit monitor wells and pertinent site features:
4. Analyzing ten groundwater samples for BTEX/TPH/Naphthalene/Total Dissolved Solids/Major Cation & Anions/dissolved Manganese; and
5. Evaluation of FPPH recovery potential.

This report contains four sections: 1) Section 1.0 - Introduction; 2) Section 2.0 - Site Hydrogeology; 3) Section 3.0 - Field Program; and 4) Section 4.0 - Results.

2.0 SITE HYDROGEOLOGY

The Unit is located in the High Plains portion of the Great Plains physiographic province where flat-laying sedimentary rocks, ranging in age from Permian to Miocene, dominate. Ground elevations at the Unit ranges from 4,150 feet to 4,148 feet above mean sea level. The surficial soils consist of caliche hardened materials from the Tertiary Ogallala Formation, caprock of the High Plains aquifer, and is present across the entire Unit. These weathered deposits are made up of sands and gravels that were carried eastward from the Southern Rocky Mountains as braided fluvial deposits. The upper 34 feet of the Ogallala formation encountered at the Unit consists of clays, very fine-grained sands, some gravels and occasional lenses of calcite-cemented sands and clays.

The average rainfall for this area is six to 12 inches per year. Of that total, approximately 85 percent is lost to evapotranspiration and 10 percent to surface runoff, leaving only five percent available for groundwater recharge (approximately 0.6 inches). The majority of the Unit is covered with a shallow soil horizon (Kimbrough-Lea Complex; sandy loams overlying caliche) and sparsely vegetated with grasses, and brush.

Borings drilled at the Unit encountered groundwater at approximately 24 feet below ground surface (bgs). Sediments encountered at the water bearing zone from 22.5 feet bgs to 34 feet bgs are comprised of fine to very-fine grained, well-sorted interbedded sands and silts. Groundwater flow in the surfical portion of the Ogallala is to the east-southeast and is discussed further in Section 3.4.

Soil samples were collected at depths from 24 feet bgs to 25.5 feet bgs in wells MW-7, MW-8 and MW-12 for analysis of physical properties. The horizontal hydraulic conductivity ranged from a low of 1.88×10^{-4} centimeters per second (cm/s) to a high of 9.98×10^{-4} cm/s (0.532 feet per day (ft/d)). The effective porosity of the respective soil samples ranged from 39.2 to 46.3 percent. With a groundwater gradient of 0.0002 feet per foot (ft/ft) and a porosity of 39 an estimated average groundwater velocity is computed to be 0.000272 ft/d or 0.099 feet per year (ft/yr). Calculations for this value are presented in Appendix B.

3.0 FIELD PROGRAM

Field activities were performed from December 13 through 16, 1994 and January 17 & 18, 1995. The field activities included the installation of nine monitor wells, collection of groundwater elevation information and collection and analysis of associated soil and groundwater samples. The monitor wells were positioned to define the free-phase plume, groundwater flow direction, gradient, and velocity.

A pre-assessment walk through of the Unit was conducted on December 13, 1994. A safety meeting was conducted to explain the hazards of Hydrogen Sulfide (H_2S) gas and the required H_2S monitoring.

3.1 SOIL BORINGS AND MONITOR WELL INSTALLATIONS

The proposed field activities were to include seven soil borings to be completed as 2-inch monitor wells and one additional soil boring completed as a 4-inch monitor well. One additional boring was added to the field program to ensure sufficient plume delineation. Soil borings and monitor well installation began on December 13, 1994. Prior to drilling activities, a safety meeting was held and below-grade utilities were cleared by Phillips. Pool Environmental Drilling of Roswell, New Mexico, was contracted by *SECOR* to drill and install nine monitor wells. Boring locations were staked and drilling operations began at soil boring location MW-5. A sufficient number of clean and decontaminated auger flights were brought to the Unit to drill the nine proposed borings without having to decontaminate auger flights between boring locations. The locations of the soil borings and associated monitor wells installed as part of this assessment are shown on Figure 3. MW-1 through MW-4 were installed by LAW Environmental in October, 1990. MW-5 through MW-13 were installed during this field program.

Borings were drilled utilizing hollow stem auger techniques with a truck mounted CME 75 drill rig. The nine boring locations were drilled to a maximum depth of 34 feet bgs, continuous coring methods were used when possible to obtain a complete stratigraphic record from each soil boring. Photographs of site work and typical core samples are provided in Appendix A.

A complete description of the cores are provided on the boring logs provided in Appendix C. A PhotoIonization Detector (PID) Model PGM-75K/SV, manufactured by RAE Systems was used to screen on a foot-by-foot basis for presence of volatile organic hydrocarbons in recovered soils from each core. A representative portion of each core sample was broken up, placed in a plastic bag and sealed. Each sample was allowed to volatilize and equilibrate at 70° F prior to sampling the headspace. All field PID measurements are noted on the boring logs (Appendix C) and the headspace readings are presented in Table 1.

After advancement of the augers to the pre-determined installation depth (approximately 34 feet bgs), approximately 15 feet of 0.020 mill slotted Schedule 40 PVC screen and 20 feet of PVC blank riser casing was lowered inside the hollow stem augers to total depth with approximately 2½ feet of PVC casing stickup. A filter pack was installed incrementally in the annulus around the monitor well screen as the augers were withdrawn. The filter pack consisted of clean 10/20 grit sand and was installed from the bottom of the bore hole to 1½ to 2½ feet above the top of the screen in each well bore. To prevent bridging, a weighted tape measure was used continuously to monitor the filter pack installation.

A representative of the State of New Mexico Oil Conservation Division (OCD), Hobbs, New Mexico office, was present during various periods of the field program. A log was provided to the OCD representative upon completion of each well, summarizing materials and lithologic observations.

Borings (MW-5 through MW-13) were completed using two-inch Schedule 40 flush joint PVC casing; 15 feet of 0.020 inch slotted screen and 20 feet of blank riser. Depth to groundwater in the monitor wells averaged 24 feet bgs. All wells were constructed in accordance with State of New Mexico OCD guidelines dated February 1993, with a minimum of five feet of well screen above the water table to accommodate for seasonal fluctuations in the static groundwater elevation. Boring and Completion logs are presented in Appendix C.

Boring MW-6 was drilled just north of the tank battery (Figure 3). The boring was advanced to a total depth of 34 feet bgs. The last flight of augers had visible oil staining. Subsequent liquid-level gauging within the well indicated approximately 0.78 feet of FPPH.

Boring (RW-11) was completed in the apparent south side of the former disposal pit (Figure 3). This boring encountered impacted soils from surface to a total depth of 34 feet bgs. This boring was over drilled to 36 feet bgs and completed as a 4-inch monitor well using flush joint Schedule 40 PVC; 15 feet of 0.020 inch slotted screen and 20 feet of blank riser. The casing was set to a total depth of 31 feet due to sloughing of the boring walls. Subsequent liquid-level gauging detected 3.25 feet of FPPH. Drill cuttings from this boring were placed into two 55 gallon DOT approved drums, labeled, and stored inside the fenced area of the tank battery.

No other boring encountered FPPH during the installation phase of this investigation. During additional gauging events on January 4, 1995, 0.73 feet of FPPH was gauged in MW-12, approximately 19 days after installation.

3.2 SOIL SAMPLING

Soil samples were collected from each boring at, or just above, the water table and sent under Chain-Of-Custody procedures (Appendix D) to Technology Laboratories, Inc., located in Fort Collins, Colorado. Soil samples collection depths are noted on the respective boring logs (Appendix C). Soil samples were analyzed for:

Constituent	Analytical Method
BTEX	USEPA 8020
TPH	Modified USEPA 8015
Oil & Grease	USEPA 413.1

3.3 PHYSICAL SOIL PROPERTY SAMPLING

Three sleeved drive point samples were collected from MW-7, MW-8 and MW-12 (24 to 25.5 feet bgs) and analyzed for horizontal hydraulic conductivity including native state permeability to water (horizontal), native state permeability to air (horizontal), total porosity, grain and bulk density, and moisture content. The samples were collected, labeled, preserved in an ice filled cooler and transported to PTS Laboratories, Inc., located in Santa Fe Springs, California under Chain-Of-Custody procedures.

The results indicate hydraulic conductivity of site soil in the range of 1.88 x 10^{-4} centimeters per second (cm/sec) to 9.98 x 10^{-4} cm/sec and a total porosity in the range of 39.2 percent to 46.3 percent. Laboratory results are summarized in Table 3 and laboratory reports and Chain-Of-Custody documentation are included as Appendix D.

3.4 MONITOR WELL DEVELOPMENT AND GROUNDWATER SAMPLING

Monitor well development and groundwater sampling occurred on January 17 and 18, 1995. The wells with measurable amounts of FPPH were not developed. On January 17, 1995, each well was gauged for determination of the presence of FPPH and to determine groundwater elevation (Table 4). New monitor wells installed at the Unit were developed to restore natural permeability of the surrounding formation and to purge sediment and groundwater affected by construction activities. To ensure natural permeability around the well bores each new well was purged of a minimum of five casing volumes of groundwater and monitored until the pH, specific conductivity and temperature stabilized and turbidity reduced to the greatest extent possible.

Groundwater samples were collected on January 18, 1995, from MW-2, 3, 4, 5, 7, 8, 9, 10 and 13 using disposable bailers. Each sample was placed in laboratory supplied 40-milliliter VOA vials. Groundwater samples were labeled, preserved in an ice filled cooler and transported under Chain-Of-Custody procedures (Appendix D) to Quanterra in Arvada, Colorado. Groundwater samples were analyzed for:

Constituent	Analytical Method
Volatile Organic Compounds (including Naphthalene)	USEPA 8260
Major Cations and Anions:	
Calcium (Ca^{2+})	USEPA 6010
Iron (total)	USEPA 6010
Magnesium (Mg^{2+})	USEPA 6010
Potassium (K^{+})	USEPA 6010
Sodium (Na^{+})	USEPA 6010
Manganese (Mn^{2+})	USEPA 6010
Chloride (Cl^{-})	USEPA 310.1
Sulfate (SO_4^{2-})	USEPA 300.0
Fluoride (F^{-})	USEPA 340.2
Total Alkalinity (as $CaCO_3$)	USEPA 310.1

Bicarbonate (HCO_3^-)	USEPA 310.1
Carbonate (CO_3^{2-})	USEPA 310.1
Hydroxide (OH^-)	USEPA 310.1
pH	USEPA 9040
Total Dissolved Solids (TDS)	USEPA 160.1
Specific Conductance	USEPA 120.1

In addition to the Unit monitor well network, a groundwater sample was collected from a windmill located approximately 0.4 miles (2,100 feet) east-northeast of the tank battery. The windmill groundwater sample was analyzed for the same suite of constituents referenced above.

On January 17, 1995, four monitor wells contained FPPH. The monitor well locations included MW-1, 6, 12 and RW-11. Corrected depth to groundwater indicates a east to southeastern groundwater flow direction (Figure 4).

3.5 SITE SURVEY

P. R. Patton & Associates, professional land survey of Roswell, New Mexico, was contracted by *SECOR* to provide an accurate site map including casing elevations to the nearest 0.01 foot, monitor well locations, and important site features. This work was performed on December 16, 22 and 27, 1994.

4.0 RESULTS

4.1 RELEASE MECHANISMS AND HYDROCARBON IN SOILS

An evaluation of the soil analytical data combined with field-screening PID measurements and visual observations of the sediment cores from soil borings provided a better understanding of the subsurface hydrocarbon migration and delineation of the FPPH and dissolved plume as well as residual hydrocarbon present in vadose zone soils. Furthermore, this evaluation resulted in the source identification for the FPPH present at the water table. Figures 7, 8 and 9 (and associated index maps depicted in Figures 6 A - C) are stratigraphic cross-sections provided to clarify interpretations discussed below.

Field-screening PID measurements (Table 1) and visual observations of the sediment cores from soil borings (Appendix C) suggest that two historic hydrocarbon release mechanisms exist at the tank battery. The first and primary mechanism is a subsurface release to soil and groundwater from the closed production pit located north of the tank battery. The second mechanism is a relatively shallow subsurface release to soil from historic surface spills of produced liquids (e.g. crude oil and produced water).

FPPH present in MW-1 (installed by LAW Environmental in October 1990), MW-6 and MW-12 is a result of horizontal hydrocarbon migration along the water table and associated capillary fringe and not vertical migration from the surface through the vadose zone, to the water table. Field PID readings and visual observations of the core from MW-6 and MW-12 indicate that hydrocarbon has not migrated from the surface to the water table from the surface spill areas (Figures 7, 8 and 9). In MW-6, the subsurface impacts of historic spills are evident from the surface to a depth of approximately 16 feet bgs. However, at 16 feet clean sediments are encountered to a depth of approximately 23 feet bgs. At 23 feet, just two feet above the water table, impacts from the FPPH plume begin to appear in the form of organic vapors (e.g. elevated PID readings: Figures 7 and 8).

Contrary to MW-1, MW-6 and MW-12, the FPPH present in RW-11 is a result of downward vertical migration of hydrocarbon from the closed production pit. A review of the boring log and associated field PID readings from both RW-11 and LAW Environmental's B-5 (Appendix C)

indicates hydrocarbon-impacted soil from the surface to just below the water table. B-5, drilled in the closed production pit to a depth of 15 feet bgs by LAW Environmental in October 1990, encountered hydrocarbon-impacted soils throughout the extent of the boring.

A hydrocarbon "smear zone" straddles the water table in the area of MW-1, RW-11, MW-6 and MW-12 (Table 2; Appendix B). This hydrocarbon smear zone is the result of residual hydrocarbon from the FPPH plume becoming trapped in soil pore spaces in response to seasonal water table fluctuations. TPH values in soil samples collected at or near the water table in these borings ranged from 74.5 to 2336 mg/Kg (Table 2). Total BTEX ranged from 27.77 to 195 mg/Kg in the smear zone borings (e.g. RW-11, MW-6 and MW-12).

Low levels of organic constituents were also detected in soil samples collected at or near the water table in borings MW-7 and MW-13. MW-7 and MW-13 are located outside the FPPH plume but within different areas of the dissolved plume (Figures 4 and 5). TPH values ranged from 1.0 mg/Kg at 30 feet in MW-13 to 253 mg/Kg at 24 feet in MW-7 (Table 2). For the same sample intervals with MW-7 and MW-13, total BTEX ranged from 9.55 to 0.05 mg/Kg, respectively (Table 2).

4.2 HYDROCARBON AND INORGANICS IN GROUNDWATER

Figure 4 depicts the horizontal extent of the FPPH plume. The FPPH plume covers and area of approximately 20,000 square feet (ft^2) and contains an estimated 1,375 barrels (BBLS) of crude oil. This conservatively rough volume estimate is based on an integration of the areas and associated soil volumes encompassed by the four FPPH thickness contours depicted on Figure 4. The areas were assumed to be rectangular in shape, with 35 percent porosity and 100 percent oil saturation.

American Petroleum Institute (API) gravities of the two crude oils produced from the Unit range from 46.0° to 48.8° (Appendix E). Free-product collected from MW-1 has an API gravity of 43.8°. This minor difference in the API gravities of the produced oil and oil present in MW-1 is attributed to light-end hydrocarbon losses from volatilization, waterwashing, and biodegradation of the oil in the subsurface. Natural weathering (e.g. volatilization, waterwashing, and

biodegradation of the crude oil in the subsurface. Natural weathering (e.g. volatilization, waterwashing, biodegradation) of crude oil decreases API gravity through loss of light-end hydrocarbons. Table 5 summarizes the organic and inorganic groundwater quality data for the Unit monitor well network. Monitor wells containing measurable FPPH (MW-1, MW-6, RW-11 and MW-12) were not sampled for organics or inorganics.

Dissolved organics (BEX and Naphthalene) were detected in MW-7, MW-8 and MW-13. Highest BEX values in MW-13 located immediately downgradient of the FPPH plume (Figure 5). Toluene was not detected in any monitor well. Xylene is limited to MW-8 and MW-13. Benzene values ranged from 13 µg/L on the east-northeast fringe of the dissolved plume to 2,200 µg/l in the center of the dissolved plume. Two anomalous compounds, Acetone and Methlyene Chloride, were also detected by the USEPA Method 8260 analysis.

Methylene Chloride, detected at 1.1 µg/L in MW-9, is considered to be a laboratory artifact/contaminant. Methylene Chloride is used extensively by analytical laboratories for cleaning and extractions. The three method blanks analyzed by Quanterra (Appendix D) as part of their daily QA/QC program all detected Methylene Chloride at levels ranging from 0.28 to 0.92 µg/L (refer to Method Blank QC Runs 24 Jan 95-B, 25 Jan 95-B and 27 Jan 95-L in Appendix D). Acetone in MW-7 and MW-13 is most likely an intermediate by-product of hydrocarbon metabolism (natural biodegradation) in the dissolved portion of the organic plume. Methane-utilizing bacteria (e.g. methanotrophic bacteria) produce Acetone as a metabolic intermediate during the natural biodegradation of hydrocarbon.

The inorganic groundwater quality indicated that the surficial portion of the Ogallala aquifer beneath the site is typical of this portion of the Lea County. TDS values ranged from 497 to 2480 mg/L.

NEW MEXICO

QUADRANGLE LOCATION

U.S.G.S. 7.5 MINUTE SERIES (TOPOGRAPHIC)

SIMANOLA VALLEY QUADRANGLE
NEW MEXICO

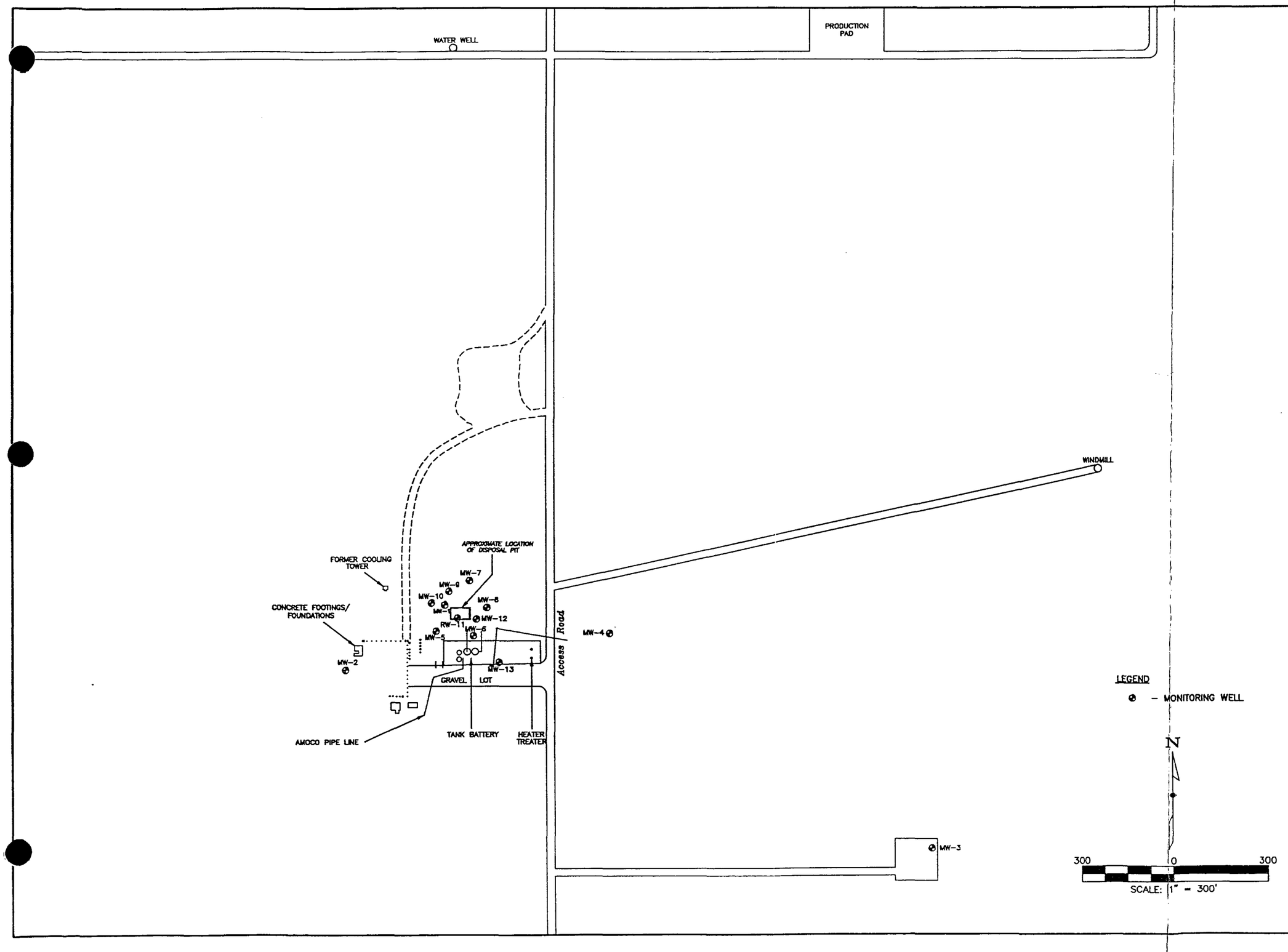
2,000 0 2,000

SCALE: 1" = 2,000'
CONTOUR INTERVAL: 5 FEET
PHOTO DATE: 1970

N

Figure 1 *Site Location Map*	PHILLIPS PETROLEUM COMPANY South Four Lakes Unit Lea County, New Mexico

SECOR 355 Union Boulevard Suite 200 Lakewood, Colorado 80228	DWN SDP APPR TRS DATE 02/14/95 JOB NO. b0106-001-01



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PROJECT MGR:	
CLIENT:	

PREPARED BY:
SECOR INTERNATIONAL INCORPORATED

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LAKEWOOD, COLORADO 80228

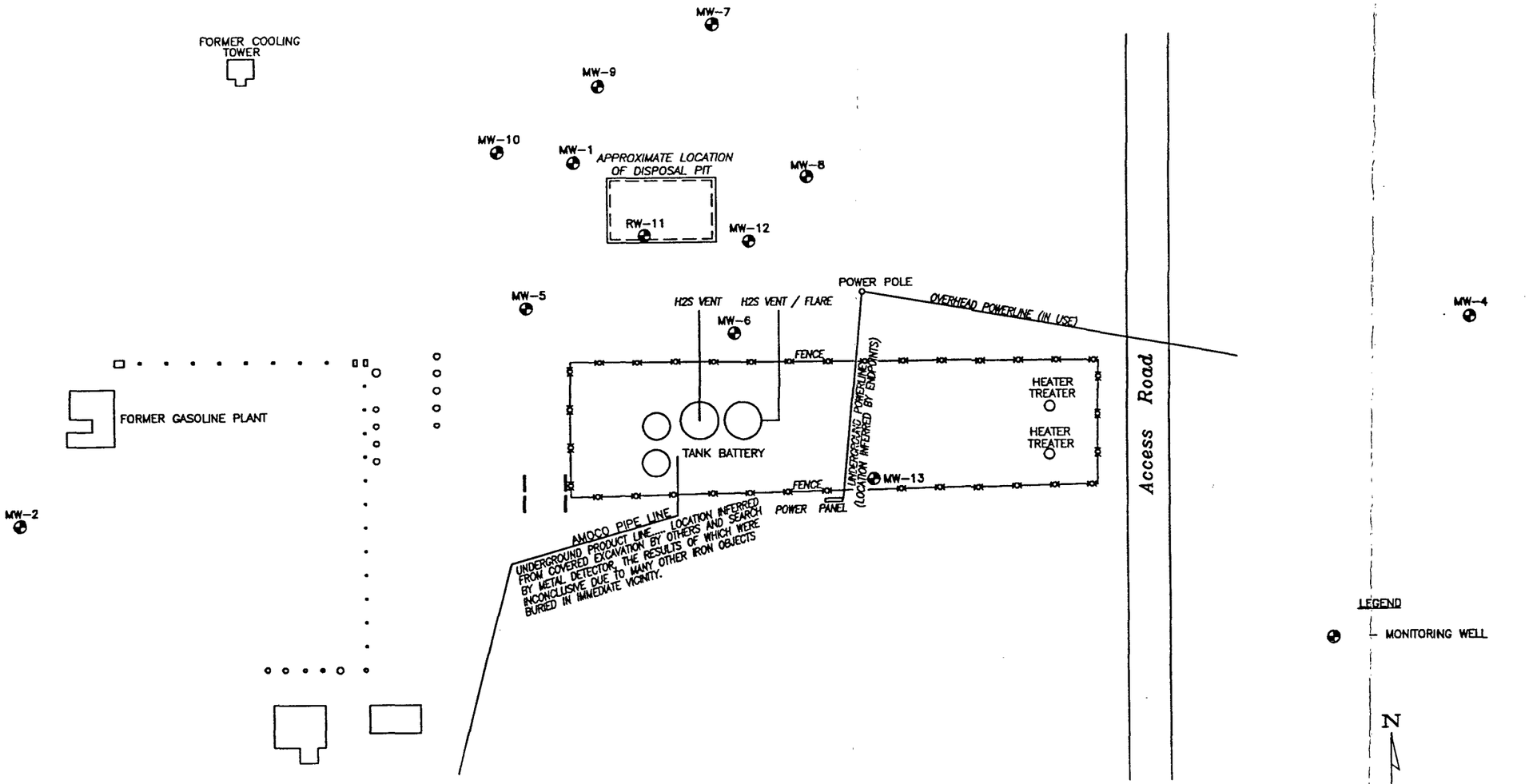
PREPARED FOR:
PHILLIPS PETROLEUM COMPANY
NORTH AMERICA PRODUCTION
PERMIAN BASIN REGION

SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

SITE VICINITY MAP

DESIGNED BY:	DETAILED BY: SDP/DJZ	CHECKED BY:
DATE: 03/09/95	ACAD FILE: 11178106	
PROJECT NO.: 80106-001-01	PLOT SCALE: 1" = 1'	

FIGURE 2



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PERMIAN BASIN REGION

SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

MONITORING WELL LOCATION MAP

DESIGNED BY:	DETAILED BY: SDP	CHECKED BY:
DATE: 02/08/95	ACAD FILE: 1117BASE	
PROJECT NO.: 80106-001-01	PLOT SCALE: 1" = 1'	

FIGURE 3

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NO.	DATE	INIT.	REVISION

LEGEND

- MONITORING WELL
- (4123.40) – GROUNDWATER ELEVATION (FT/MSL)
- 3.81 – PRODUCT THICKNESS (FT)
- GROUNDWATER CONTOUR CI=0.25'
- ND – PRODUCT NOT DETECTED
- GROUNDWATER FLOW DIRECTION
- PRODUCT THICKNESS = 0' – 1'
- PRODUCT THICKNESS = 1' – 2'
- PRODUCT THICKNESS = 2' – 3'
- PRODUCT THICKNESS = >3'

N

30 0 30

SCALE: 1" = 30'

SIGNATURE	DATE
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PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

PREPARED BY:

SCIENCE & ENGINEERING ANALYSIS CORPORATION

SECOR

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PREPARED FOR:

PHILLIPS PETROLEUM COMPANY

NORTH AMERICA PRODUCTION PERMIAN BASIN REGION

SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

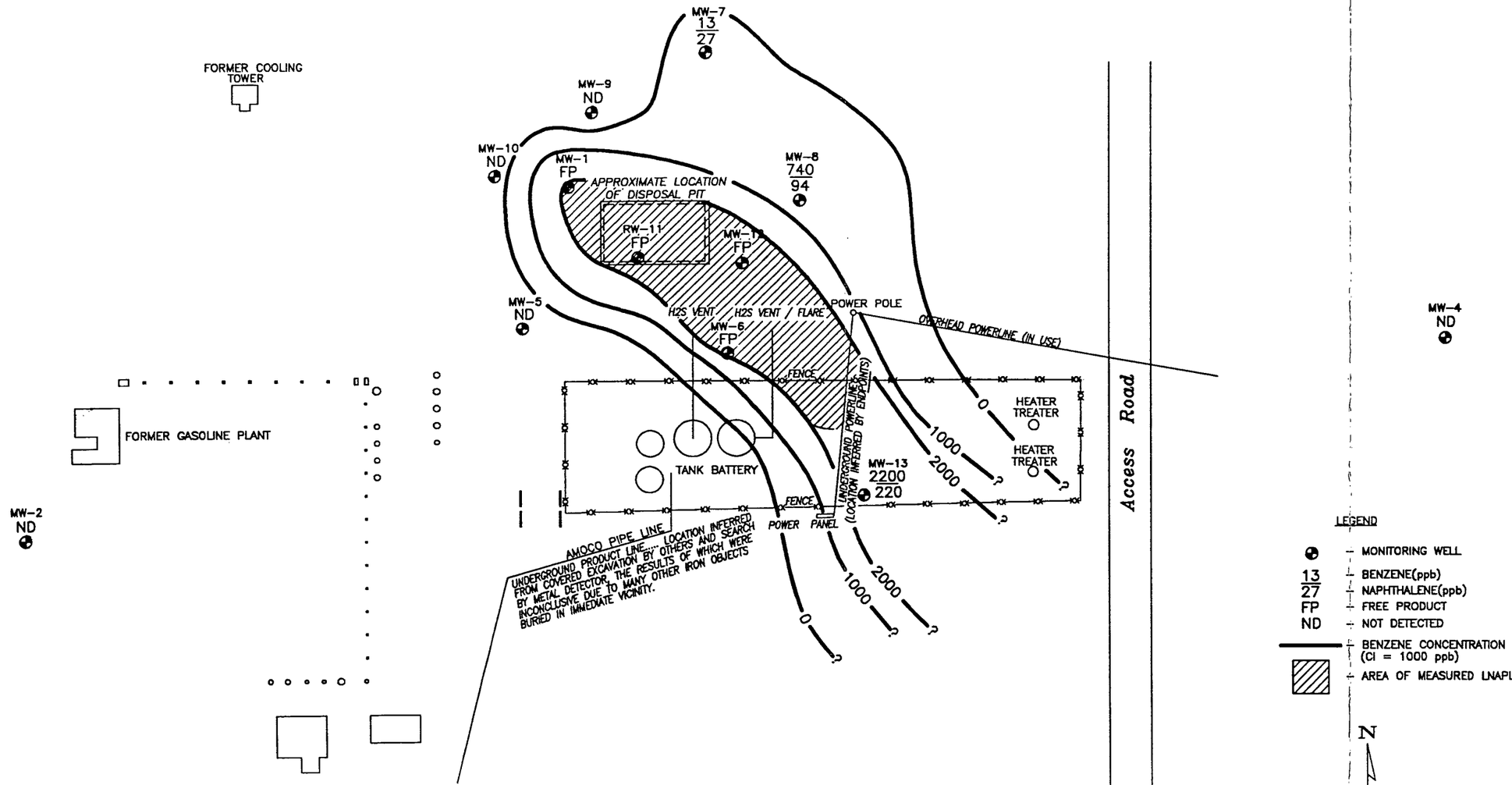
JANUARY 17, 1995

GROUNDWATER CONTOUR AND PRODUCT THICKNESS MAP

DESIGNED BY:	DETAILED BY:	CHECKED BY:
	SDP/DJZ	

DATE:	ACAD FILE:
03/06/95	B0106JAN
PROJECT NO.:	PLOT SCALE:
B0106-001-01	1" = 1'

FIGURE 4



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NORTH AMERICA PRODUCTION
PERMIAN BASIN REGION

SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

BENZENE ISOCONCENTRATION MAP

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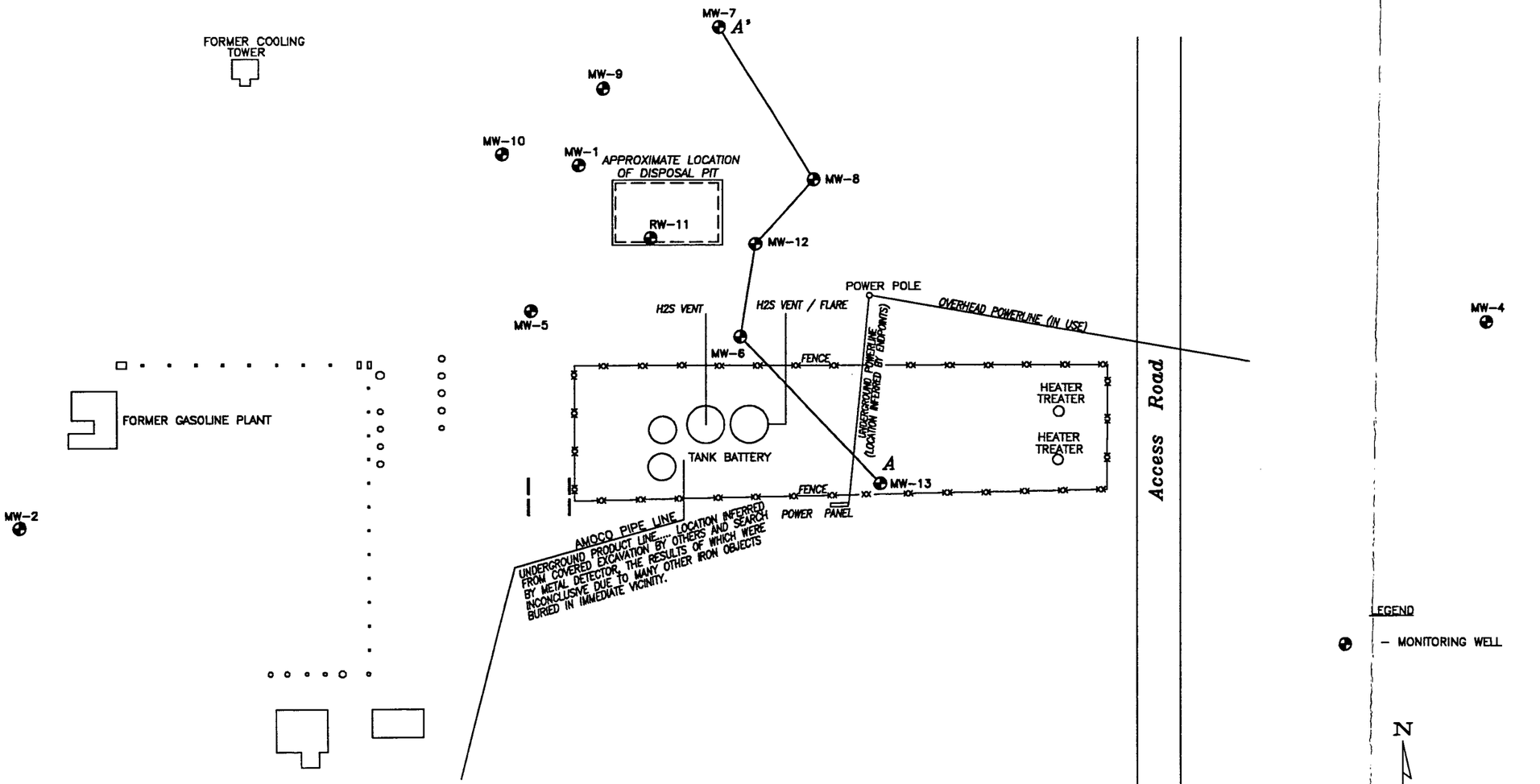
	SDP	

DATE:	ACAD FILE:
02/15/95	1117B106
PROJECT NO.: B0106-001-01	PLOT SCALE: 1" = 1'

FIGURE 5



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PHILLIPS PETROLEUM COMPANY
NORTH AMERICA PRODUCTION
PERMIAN BASIN REGION

SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

CROSS SECTION INDEX MAP

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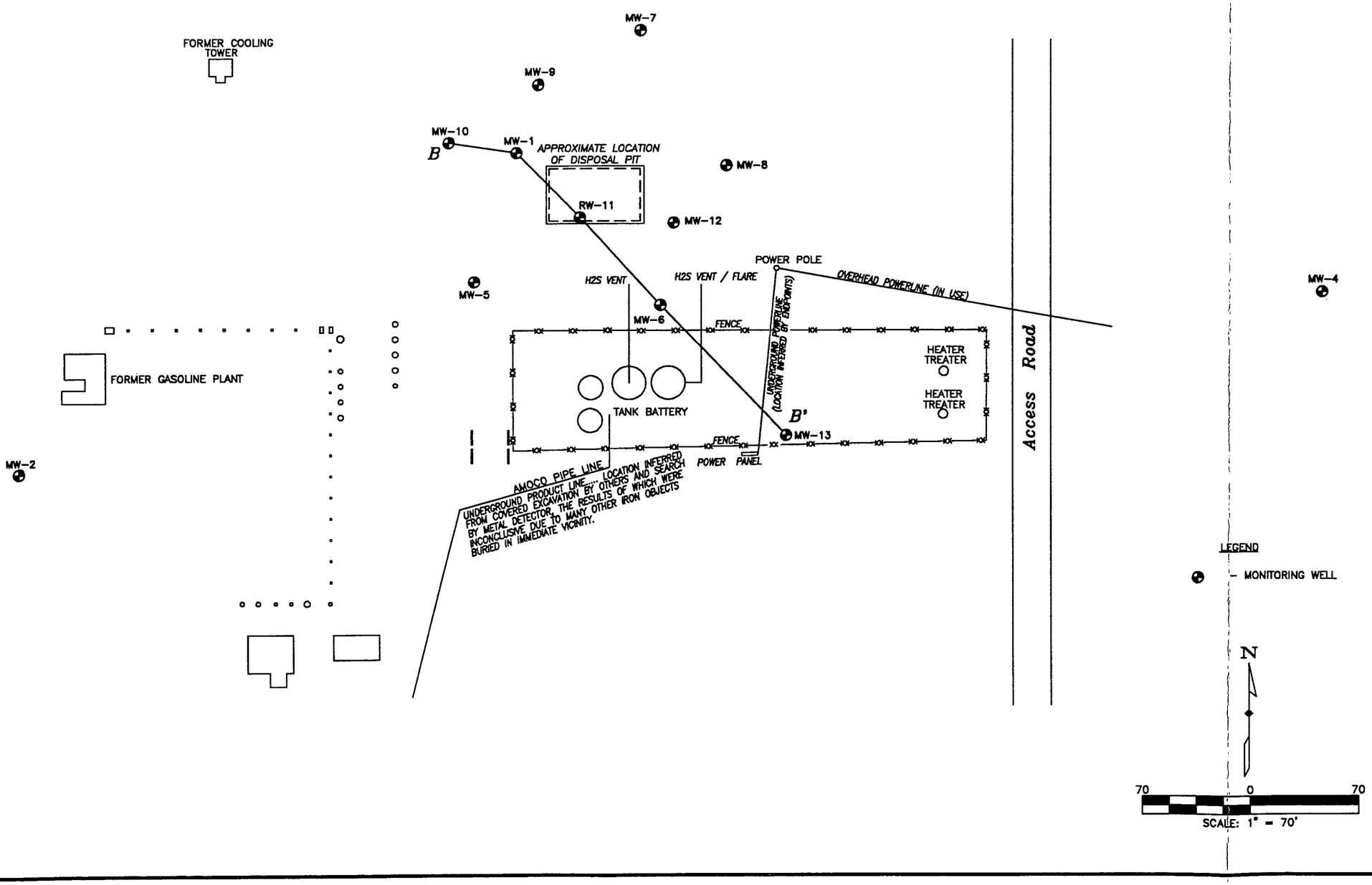
DATE: 02/15/95	ACAD FILE: 1117B106	
PROJECT NO.: 80106-001-01	PLOT SCALE: 1" = 1'	

FIGURE 6A



LEGEND

● – MONITORING WELL

N

70 0 70

SCALE: 1" = 70'

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PREPARED FOR:

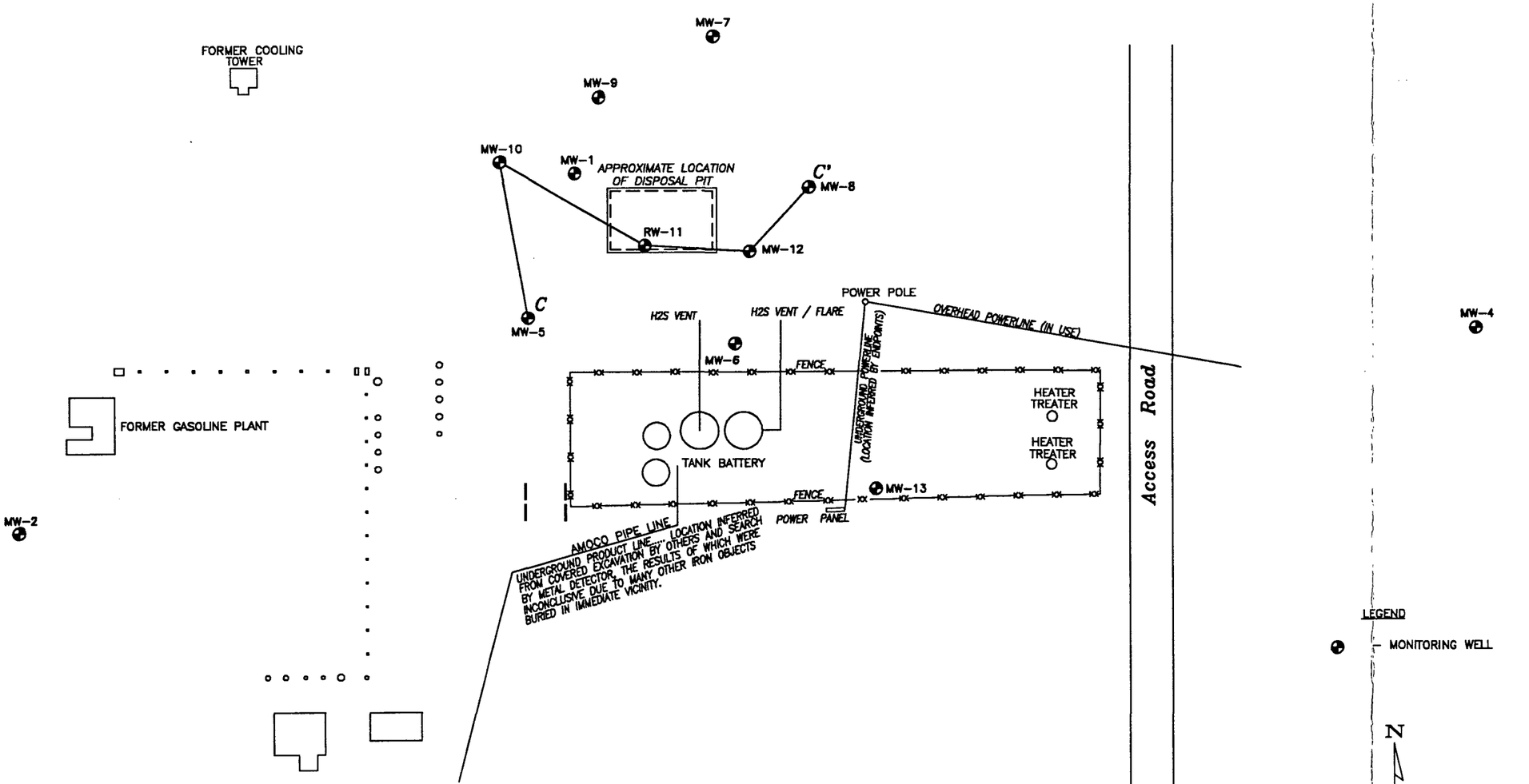
PHILLIPS PETROLEUM COMPANY
NORTH AMERICA PRODUCTION
PERMIAN BASIN REGION

SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

CROSS SECTION INDEX MAP

DESIGNED BY:	DETAILED BY:	CHECKED BY:
	SDP	
DATE: 02/15/95		ACAD FILE: 1117B106
PROJECT NO.: 80105-001-01		PLOT SCALE: 1" = 1'

FIGURE 6B



NO.	DATE	INIT.	REVISION

NO.	DATE	INIT.	REVISION

NOTES/COMMENTS:

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

PREPARED BY:

SECOR INTERNATIONAL INCORPORATED

SECOR

365 UNION BOULEVARD
SUITE 200
LAKEWOOD, COLORADO 80228

PREPARED FOR:

PHILLIPS PETROLEUM COMPANY
NORTH AMERICA PRODUCTION
PERMIAN BASIN REGION

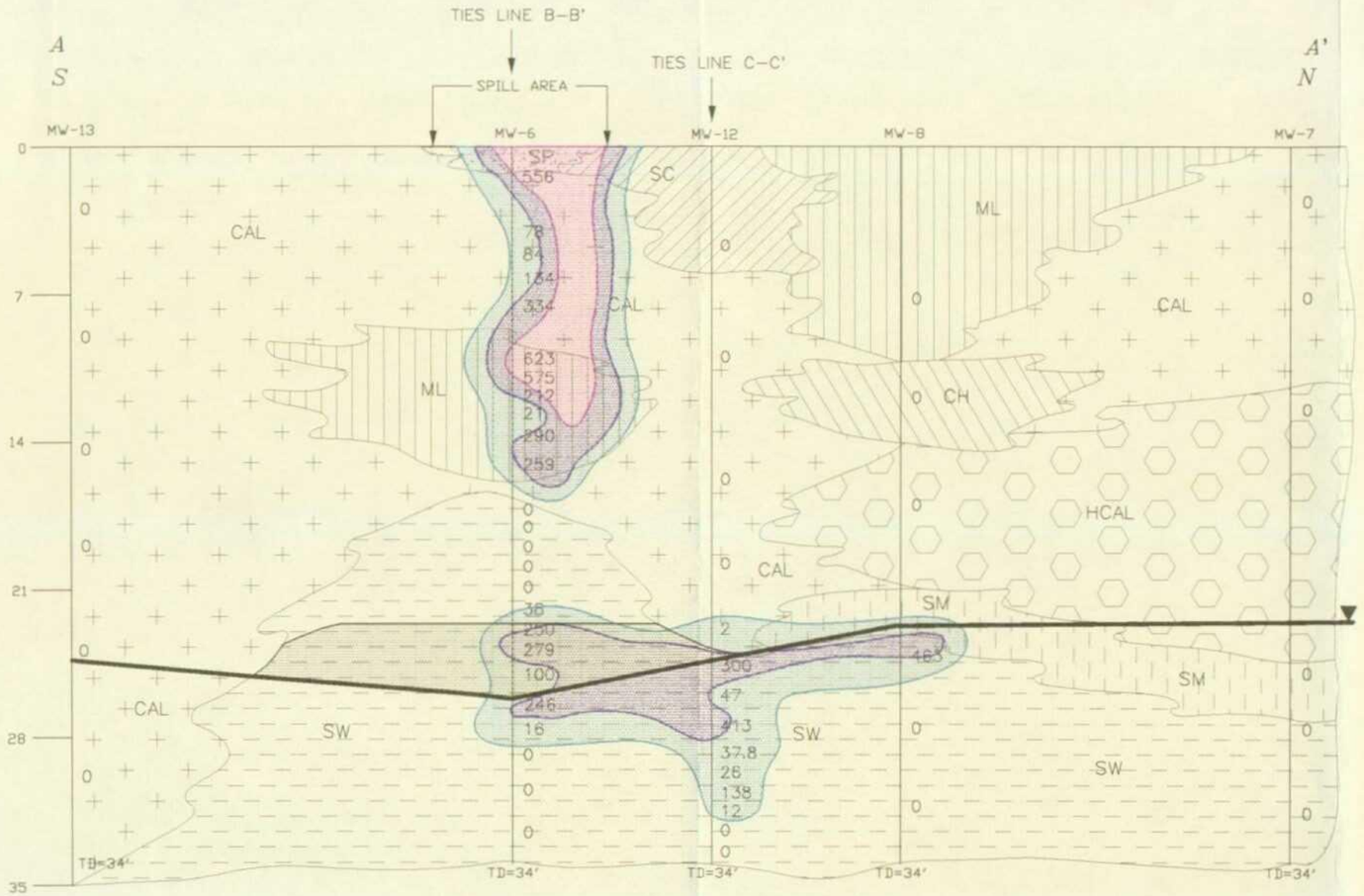
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

CROSS SECTION INDEX MAP

DESIGNED BY:	DETAILED BY: SDP	CHECKED BY:
DATE: 02/15/95	ACAD FILE: 11178106	
PROJECT NO.: 80106-001-01	PLOT SCALE: 1" = 1'	

FIGURE 6C

NOTE: THIS DRAWING REPRESENTS FOR ILLUSTRATION PURPOSES ONLY. PID VALUES COLLECTED DURING DRILLING. AN INTERPRETATION OF THE HEADSPACE



LEGEND

- APPARENT LNAPL THICKNESS
- CONCENTRATION >500 ppm PID
- CONCENTRATION 250 – 500 ppm PID
- CONCENTRATION 1 – 250 ppm PID

- CAL – CALCITE CEMENTED SAND
- CH – INORGANIC CLAY OF HIGH PLASTICITY, FAT CLAYS
- HCAL – HARD CALCITE CEMENTED SAND

- ML – INORGANIC SILTS, AND VERY FINE SANDS ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SILTY OR CLAYEY SILTS WITH SLIGHT PLASTICITY
- SC – CLAYEY SANDS, POORLY GRADED SAND–CLAY MIXTURES
- SM – SILTY SANDS, POORLY GRADED SAND – SILT MIXTURES

- SP – POORLY GRADED SANDS, GRAVELLY SANDS
- SW – WELL GRADED SANDS, GRAVELLY SANDS
- TD – TOTAL DEPTH
- 246 – PPM–PID FIELD SCREEN READING
- GROUNDWATER LEVEL

NO.	DATE	INIT.	REVISION	NO.	DATE	INIT.	REVISION

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	
NOTES/COMMENTS:	

40 0 40
HORIZONTAL SCALE: 1" = 40'
7 0 7
VERTICAL SCALE: 1" = 7'

PREPARED FOR:
PHILLIPS PETROLEUM COMPANY
NORTH AMERICA PRODUCTION
PERMIAN BASIN REGION
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

CROSS-SECTION A-A'

PREPARED BY:
SECOR INTERNATIONAL INCORPORATED

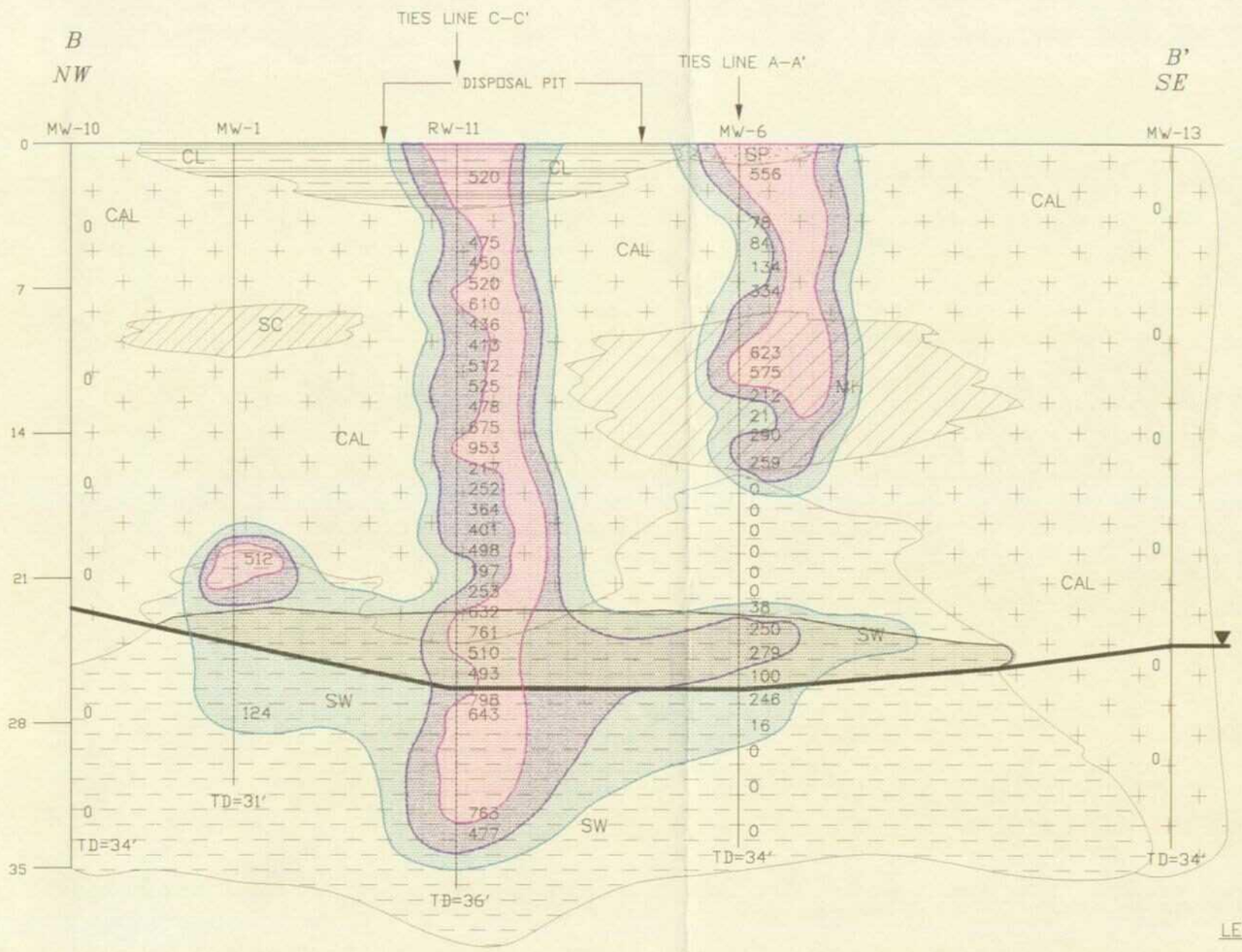
SECOR

355 UNION BOULEVARD
SUITE 200
LAKEWOOD, COLORADO 80228

DESIGNED BY:	DETAILED BY: SDP/DJZ	CHECKED BY:
DATE: 03/10/95		ACAD FILE: CROS-NM3
PROJECT NO.: B0106-001-01		PLOT SCALE: 1" = 1'

FIGURE 7

NOTE: THIS DRAWING REPRESENTS FOR ILLUSTRATION PURPOSES ONLY. PID VALUES COLLECTED DURING DRILLING. AN INTERPRETATION OF THE HEADSPACE.



LEGEND

- – APPARENT LNAPL THICKNESS
- – CONCENTRATION >500 ppm PID
- – CONCENTRATION 250 – 500 ppm PID
- – CONCENTRATION 1 – 250 ppm PID

- CAL – CALCITE CEMENTED SAND
- CL – INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
- MH – INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
- 246 – PPM–PID FIELD SCREEN READING
- SC – CLAYEY SANDS, POORLY GRADED SAND–CLAY MIXTURES
- SP – POORLY GRADED SANDS, GRAVELLY SANDS
- SW – WELL GRADED SANDS, GRAVELLY SANDS
- TD – TOTAL DEPTH
- – GROUNDWATER LEVEL

NO.	DATE	INT.	REVISION	NO.	DATE	INT.	REVISION

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	
NOTES/COMMENTS:	

40 0 40
HORIZONTAL SCALE: 1" = 40'

7 0 7
VERTICAL SCALE: 1" = 7'

PREPARED FOR:
PHILLIPS PETROLEUM COMPANY
NORTH AMERICA PRODUCTION
PERMIAN BASIN REGION
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

CROSS-SECTION B-B'

PREPARED BY:
SECOR INTERNATIONAL INCORPORATED

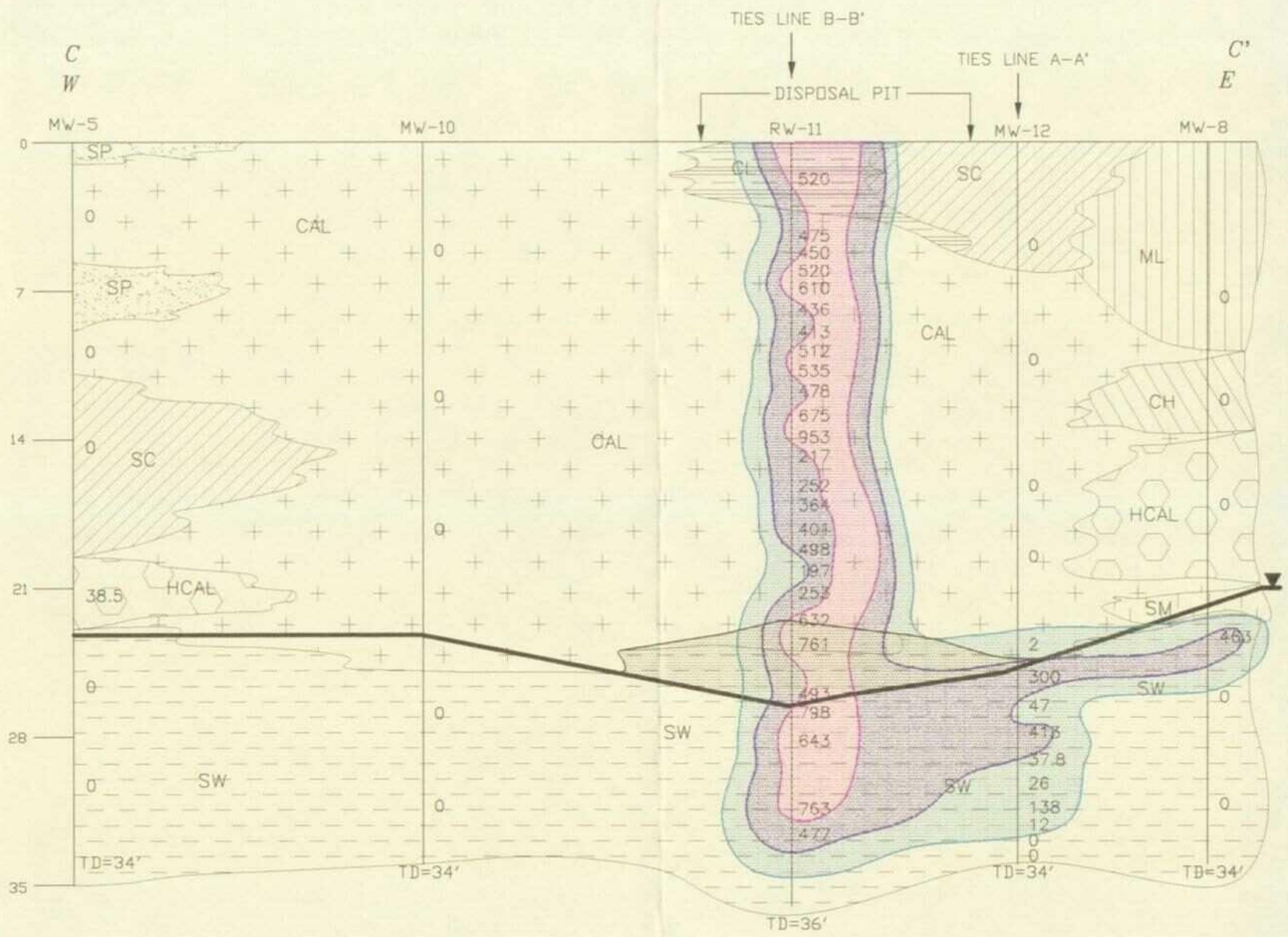
SECOR

355 UNION BOULEVARD
SUITE 200
LAKEWOOD, COLORADO 80228

DESIGNED BY:	DRAFTED BY: SDP/DJZ	CHECKED BY:
DATE: 03/09/95	ACAD FILE: CROS-NM1	
PROJECT NO.: B0106-001-01	PLOT SCALE: 1" = 1'	

FIGURE 8

NOTE: THIS DRAWING REPRESENTS FOR ILLUSTRATION PURPOSES ONLY. PID VALUES COLLECTED DURING DRILLING AN INTERPRETATION OF THE HEADSPACE



LEGEND

- APPARENT LNAPL THICKNESS
- CONCENTRATION >500 ppm PID
- CONCENTRATION 250 – 500 ppm PID
- CONCENTRATION 1 – 250 ppm PID

CAL – CALCITE CEMENTED SAND

CL – INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS

CH – INORGANIC CLAY OF HIGH PLASTICITY FAT CLAYS

246 – PPM–PID FIELD SCREEN READING

HCAL– HARD CALCITE CEMENTED SAND

ML – INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY SILTS WITH SLIGHT PLASTICITY

SC – CLAYEY SANDS, POORLY GRADED SAND–CLAY MIXTURES

TD – TOTAL DEPTH

SM – SILTY SANDS, POORLY GRADED SAND–SILT MIXTURES

SP – POORLY GRADED SANDS, GRAVELLY SANDS

SW – WELL GRADED SANDS, GRAVELLY SANDS

– GROUNDWATER LEVEL

NO.	DATE	INIT.	REVISION	NO.	DATE	INIT.	REVISION

SIGNATURE	DATE
REVIEW ENGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	
NOTES/COMMENTS:	

40 0 40
HORIZONTAL SCALE: 1" = 40'

7 0 7
VERTICAL SCALE: 1" = 7'

PREPARED FOR:
PHILLIPS PETROLEUM COMPANY
NORTH AMERICA PRODUCTION
PERMIAN BASIN REGION
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO

CROSS-SECTION C-C'

PREPARED BY:
SECOR INTERNATIONAL INCORPORATED

SECOR

355 UNION BOULEVARD
SUITE 200
LAKEWOOD, COLORADO 80228

DESIGNED BY:	DETAILED BY: SDP/DJZ	CHECKED BY:
DATE: 03/10/95	ACAD FILE: CROS-NM2	
PROJECT NO.: 80106-001-01	PLOT SCALE: 1" = 1'	

FIGURE 9

TABLE 1

SUMMARY OF FIELD HEADSPACE PID READINGS
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA 0511

Sample Number and Depth	Date Sampled	PID Reading
MW-5 5' - 6.5'	12/13/94	0.0
MW-5 9' - 11'	12/13/94	0.0
MW-5 11' - 15'	12/13/94	0.0
MW-5 15' - 19'	12/13/94	0.0
MW-5 19' - 23'	12/13/94	0.0
MW-5 23' - 27.5''	12/13/94	0.0
MW-5 27.5' - 34'	12/13/94	0.0
MW-6 0.5' - 2'	12/13/94	556.0
MW-6 4'	12/13/94	78.0
MW-6 5'	12/13/94	84.0
MW-6 6'	12/13/94	112.0
MW-6 7'	12/13/94	134.0
MW-6 8'	12/13/94	334.0
MW-6 10'	12/13/94	623.0
MW-6 11'	12/13/94	575.0
MW-6 12'	12/13/94	212.0
MW-6 13'	12/13/94	21.0
MW-6 14'	12/13/94	290.0
MW-6 15'	12/13/94	259.0
MW-6 16'	12/13/94	6.4
MW-6 17' - 22'	12/13/94	0.0
MW-6 23'	12/13/94	38.0
MW- 6 24'	12/13/94	250.0
MW-6 25'	12/13/94	279.0
MW-6 26'	12/13/94	100.0
MW-6 27'	12/13/94	246.0
MW-6 28'	12/13/94	16.0
MW-6 29' - 34'	12/13/94	0.0
MW-7 7' - 9'	12/14/94	0.0

TABLE 1 (continued)

SUMMARY OF FIELD HEADSPACE PID READINGS
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA 0511

Sample Number and Depth	Date Sampled	PID Reading
MW-7 9' - 11'	12/14/94	0.0
MW-7 14' - 16'	12/14/94	0.0
MW-7 24' - 26'	12/14/94	0.0
MW-7 26' - 30'	12/14/94	0.0
MW-7 30' - 34'	12/14/94	0.0
MW-8 4' - 9'	12/14/94	0.0
MW-8 9' - 14'	12/14/94	0.0
MW-8 19' - 23'	12/14/94	0.0
MW-8 23' - 24'	12/14/94	463.0
MW-8 24' - 29'	12/14/94	0.0
MW-8 29' - 34'	12/14/94	0.0
MW-9 3' - 9'	12/14/94	0.0
MW-9 9' - 12'	12/14/94	0.0
MW-9 19' - 24'	12/15/94	0.0
MW-9 24' - 29'	12/15/94	0.0
MW-9 28' - 34'	12/15/94	0.0
MW-10 4' - 9'	12/15/94	0.0
MW-10 9' - 14'	12/15/94	0.0
MW-10 14' - 19'	12/15/94	0.0
MW-10 19' - 24'	12/15/94	0.0
MW-10 24' - 28'	12/15/94	0.0
MW-10 28' - 34'	12/15/94	0.0
RW-11 4'	12/15/94	475.0
RW-11 5'	12/15/94	450.0
RW-11 6'	12/15/94	520.0
RW-11 7'	12/15/94	610.0
RW-11 8'	12/15/94	436.0
RW-11 9'	12/15/94	413.0
RW-11 10'	12/15/94	512.0

TABLE 1 (continued)

SUMMARY OF FIELD HEADSPACE PID READINGS
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA 0511

Sample Number and Depth	Date Sampled	PID Reading
RW-11 11'	12/15/94	535.0
RW-11 12'	12/15/94	478.0
RW-11 13'	12/15/94	675.0
RW-11 14'	12/15/94	953.0
RW-11 15'	12/15/94	217.0
RW-11 16'	12/15/94	252.0
RW-11 17'	12/15/94	364.0
RW-11 18'	12/15/94	401.0
RW-11 19'	12/15/94	498.0
RW-11 20'	12/15/94	197.0
RW-11 21'	12/15/94	253.0
RW-11 22'	12/15/94	632.0
RW-11 23'	12/15/94	761.0
RW-11 24'	12/15/94	493.0
RW-11 25'	12/15/94	798.0
RW-11 26	12/15/94	643.0
RW-11 32'	12/15/94	763.0
RW-11 33'	12/15/94	477.0
MW-12 4' - 9'	12/16/94	0.0
MW-12 9' - 14'	12/16/94	0.0
MW-12 14' - 19'	12/16/94	0.0
MW-12 19' - 24'	12/16/94	2.0
MW-12 24'	12/16/94	300.0
MW-12 26'	12/16/94	47.0
MW-12 27'	12/16/94	413.0
MW-12 28'	12/16/94	37.8
MW-12 29'	12/16/94	26.0
MW-12 30'	12/16/94	0.0
MW-12 31'	12/16/94	138.0

TABLE 1 (continued)

SUMMARY OF FIELD HEADSPACE PID READINGS
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA 0511

Sample Number and Depth	Date Sampled	PID Reading
MW-12 32'	12/16/94	12.0
MW-12 33' - 34'	12/16/94	0.0
MW-13 4' - 9'	12/16/94	0.0
MW-13 9' - 14'	12/16/94	0.0
MW-13 14' - 19'	12/16/94	0.0
MW-13 19' - 24'	12/16/94	0.0
MW-13 24' - 28'	12/16/94	0.0
MW-13 29' - 34'	12/16/94	0.0

Note: All readings in ppm calibrated to 100 ppm Isobutylene.

TABLE 2

SUMMARY OF PETROLEUM HYDROCARBONS IN SOIL
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA 0511

Sample ID	Date Sampled	Benzene	Toluene	Ethly Benzene	Xylenes	TVPH Prugeable	Oil and Grease
MW-5 34'	12/13/94	<0.002	<0.002	<0.002	<0.002	1.6	NA
MW-6 25'	12/13/94	<0.002	3.98	3.92	19.87	74.5	865
MW-7 24'	12/14/94	<0.002	0.568	1.141	7.845	253	NA
MW-8 23'	12/14/94	0.004	0.004	0.006	0.045	<0.5	NA
MW-9 24'	12/15/94	<0.002	<0.002	<0.002	<0.002	<0.5	NA
MW-10 24'	12/15/94	<0.002	<0.002	<0.002	<0.002	<0.5	165
RW-11 23'	12/15/94	18.8	34.6	26.7	87.8	2,336	15,980
MW-12 23'	12/16/94	0.185	3.883	3.57	20.1	687	1,430
MW-13 30'	12/16/94	0.020	0.007	0.008	0.010	1.0	21

Note: All values reported in mg/Kg
NA = not analyzed

TABLE 3

SUMMARY OF SOIL PHYSICAL PROPERTIES DATA PHILLIPS PETROLEUM COMPANY SOUTH FOUR LAKES UNIT LEA COUNTY, NEW MEXICO *SECOR* PROJECT NO. B0106-001-01 SA 0511

Sample ID	Depth	Sample Orient.	Moisture Content[1]	Bulk Density[2]	Grain Density[3]	Effect. Porosity[4]	Water Sat.[5]	Contam. Sat.[6]	Perm to Air**	Air Conduct.*	Perm to Water**	K*
MW-7	24 -24.5'	Horz.	17.1	1.61	2.64	39.2	73.3	ND	13.9	9.13E-07	210	1.88E-04
MW-8	24.5'-25'	Horz	22.2	1.57	2.62	39.9	85.5	ND	14.2	9.35E-07	1,120	9.98E-04
MW-12	24.5'-25'	Horz	25.9	1.40	2.61	46.3	77.0	ND	13.0	8.55E-07	340	3.06E-04

Note:
1. -value in percent by weight
2. -value in grams per cubic cemtimeter
3. -value in grams per cubic centimeter
4. -percent of bulk volume, cc
5. -0.9982 gm/cc used to calculate water saturation
6. -0.7500 gm/cc used to calculate contaminant saturation

* -reported in millidarcy

** -reported in centimeter per second

K = hydraulic conductivity

ND = nondetect

TABLE 4

SUMMARY OF GROUNDWATER LEVEL MEASUREMENTS
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA 0511

Monitor Well No.	Date of Measurement	Casing Elevation	Depth to Groundwater (ft)	Groundwater Elevation (ft)	Free Product Thickness (ft)
MW-1	01/04/95	4149.13	26.05	4124.33	1.55
	01/17/95		26.37	4124.34	1.96
MW-2	01/04/95	4151.50	26.64	4124.86	ND
	01/17/95		26.61	4124.89	ND
MW-3	01/04/95	4146.80	NM	NM	ND
	01/17/95		25.74	4121.06	ND
MW-4	01/04/95	4148.58	25.14	4123.44	ND
	01/17/95		25.18	4123.40	ND
MW-5	01/04/95	4150.40	26.04	4126.36	ND
	01/17/95		25.98	4124.42	ND
MW-6	01/04/95	4149.90	28.88	4123.99	3.68
	01/17/95		28.93	4124.04	3.81
MW-7	01/04/95	4149.16	24.85	4124.31	ND
	01/17/95		24.85	4124.31	ND
MW-8	01/04/95	4148.81	24.66	4124.15	ND
	01/17/95		24.66	4124.15	ND
MW-9	01/04/95	4149.63	25.20	4124.43	ND
	01/17/95		25.16	4124.47	ND
MW-10	01/04/95	4149.98	25.45	4124.53	ND
	01/17/95		25.45	4124.53	ND
RW-11	01/04/95	4149.86	28.40	4124.06	3.22
	01/17/95		28.76	4124.07	3.69
MW-12	01/04/95	4149.15	25.30	4124.13	0.35
	01/17/95		25.58	4124.16	0.73

TABLE 4 (continued)

SUMMARY OF GROUNDWATER LEVEL MEASUREMENTS
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA 0511

Monitor Well No.	Date of Measurement	Casing Elevation	Depth to Groundwater (ft)	Groundwater Elevation (ft)	Free Product Thickness (ft)
MW-13	01/04/95	4150.31	26.42	4123.89	ND
	01/17/95		26.39	4123.92	ND

Note: ND = Not detected
NM = Not measured.
Correction equation for free-phase is Casing Elevation - Depth to Water +(0.0802 x Product Thickness).

TABLE 5

SUMMARY OF GROUNDWATER CHEMISTRY
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA0511

	Sample Location									
Parameter	MW-2	MW-3	MW-4	MW-5	MW-7	MW-8	MW-9	MW-10	MW-13	WINDMILL
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	180	ND	ND	ND	630	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinly chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 5 (continued)

SUMMARY OF GROUNDWATER CHEMISTRY
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA0511

	Sample Location									
Parameter	MW-2	MW-3	MW-4	MW-5	MW-7	MW-8	MW-9	MW-10	MW-13	WINDMILL
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	**13**	**740**	ND	ND	**2200**	ND
Naphthalene	ND	ND	ND	ND	**27**	**94**	ND	ND	**220**	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethlybenzene	ND	ND	ND	ND	**26**	**100**	ND	ND	**360**	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	ND	**330**	ND	ND	**1600**	ND
Vinyl acetate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calicum (Ca^{2+})	187	231	94.3	926	491	810	932	797	3240	129
Iron (Fe^{2+})	2	0.16	2.2	13.2	15.6	49.9	17.6	19.9	38.2	0.18
Magmesium (Mg^{2+})	41.1	45.8	10	38.6	35	49.3	33.4	50.2	114	21.2
Potassium (K)	ND	16	20.4	5.3	56.1	22	7.2	8.9	ND	ND
Sodium (Na)	79.9	635	586	63.4	214	195	73.2	144	330	90.2
Manganese (aq) (Mn^{2+})	0.38	ND	0.09	0.051	0.18	2	0.02	0.093	0.64	ND

TABLE 5 (continued)

SUMMARY OF GROUNDWATER CHEMISTRY
PHILLIPS PETROLEUM COMPANY
SOUTH FOUR LAKES UNIT
LEA COUNTY, NEW MEXICO
SECOR PROJECT NO. B0106-001-01 SA0511

	Sample Location									
Parameter	MW-2	MW-3	MW-4	MW-5	MW-7	MW-8	MW-9	MW-10	MW-13	WINDMILL
Alkalinity, Total	261	442	371	233	373	315	213	212	500	183
Alkalinity, Bicarb(HCO^-_3)	261	442	371	233	373	315	213	212	500	183
Alkalinity Carb.(CO^{-2}_3)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alkalinity Hydrox (OH^-)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloride (Cl^-)	109	1180	790	48.5	255	563	58.2	359	647	149
Fluoride (F)	1	0.97	4.8	1.5	0.65	0.32	0.96	0.97	1.3	1
pH	7.3	7	7.5	7.5	7.4	7	7.6	7.6	7.3	8.1
Sulfate (SO_4^{2+})	145	131	121	109	222	81.2	192	176	20.2	181
Sp Conductance	1230	4320	3210	777	1970	2490	953	1920	2880	1200
TDS	760	2480	1880	497	1190	1460	636	1190	1640	751

Notes: all VOC values reported in µg/L
all other values reported in mg/L
pH reported in units
Sp. Conductance reported in µmhos/cm

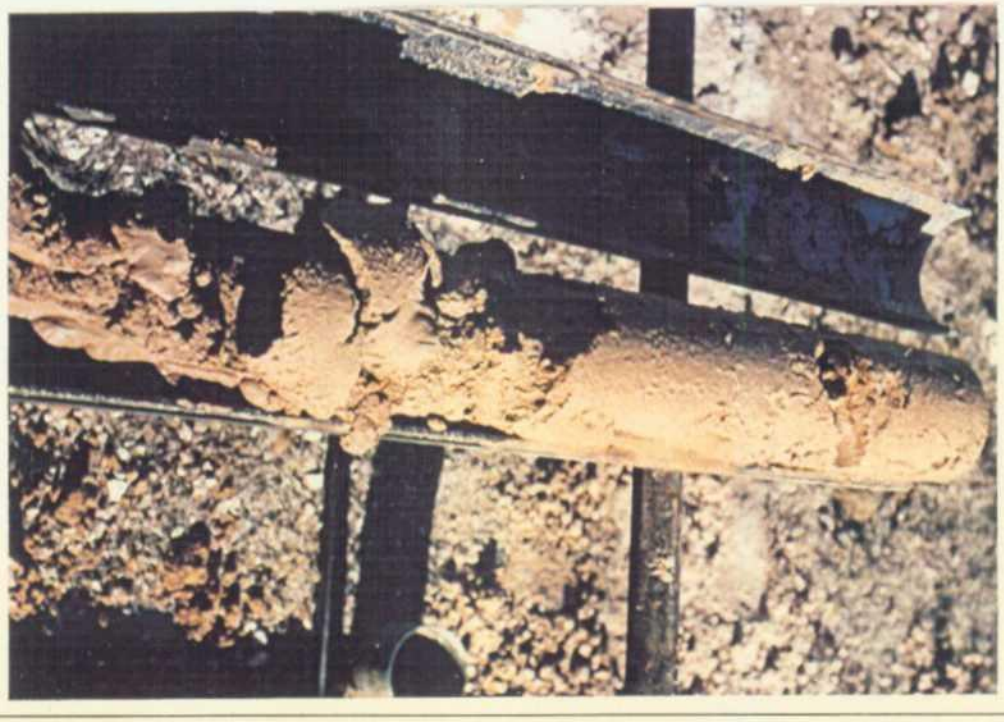
APPENDIX A

SITE PHOTOGRAPHS

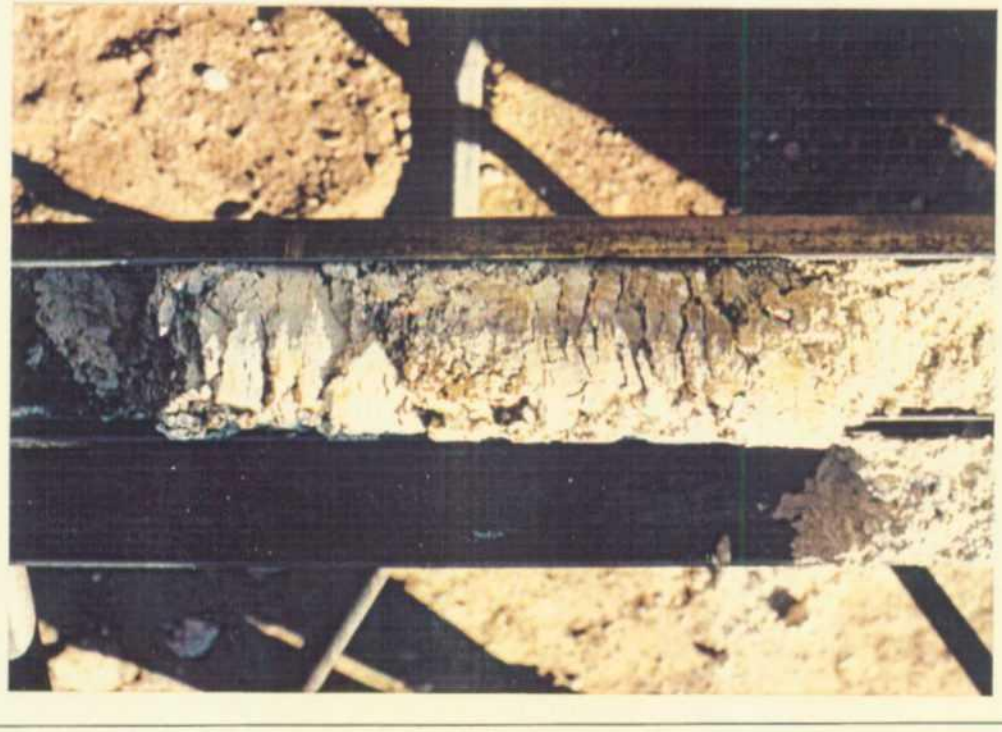
PHOTOGRAPH NO.	CAPTION
Photograph No. 1	Site Drilling Operations.
Photograph No. 2	Drilling MW - 6.
Photograph No. 3	Water Sand MW - 9 24' - 28'.
Photograph No. 4	Typical Caliche, MW - 12.
Photograph No. 5	Drilling MW - 12.
Photograph No. 6	Drilling MW - 5.
Photograph No. 7	Exposed Production Pipe Line looking east.
Photograph No. 8	Exposed Pipe Line looking west.
Photograph No. 9	Exposed Production Pipe Line looking north.
Photograph No. 10	Exposed Pipe Line looking south.

Photograph No. 1 Site Drilling Operations

Photograph No. 2 Drilling MW - 6



Photograph No. 3 Water sand MW - 9 24' - 28'.



Photograph No. 4 Typical Caliche, MW - 12.

Photograph No. 5 Drilling MW - 12.

Photograph No. 6 Drilling of MW - 5.

Photograph No. 7 Exposed Production Pipe Line looking east.

Photograph No. 8 Exposed Pipe Line looking west.

Photograph No. 9 Exposed Production Pipe Line looking north.

Photograph No. 10 Exposed Pipe Line looking south.

APPENDIX B

GROUNDWATER VELOCITY EQUATIONS

The following equations and conversion factors are used to calculate the estimated average groundwater velocity at the Phillips Petroleum South Four Lakes Unit using the physical parameter data included in Appendix C:

$1.88 \times 10^{-4} cm / \sec \times 2830 = 0.532 ft / d$. **2830** is the conversion factor to convert centimeters per second to feet per day.

The estimated average groundwater velocity equation is as follows:

$$v = \frac{K\Delta h}{n}$$

Where v = estimated average groundwater velocity
K = hydraulic conductivity = 0.532 ft/d
Δh = hydraulic gradient = 0.0002 ft/ft (on January 17, 1995)
n = effective porosity = 0.39

$$v = \frac{(0.532 ft / d)(0.0002 ft / ft)}{0.39} = 0.000272 ft/d$$

Using these values, the calculated estimated average groundwater velocity is 0.00027 ft/d or 0.099 ft/yr.

Utilizing this velocity estimate and estimating the total LNAPL to extend approximately 100 to 140 feet downgradient from the former disposal pit, the time required to travel this distance is 9.9 to 13 years. This dates this release sometime around 1981 or 1985 and assumes no retardation factor (e.g. the time it takes a water molecule to travel this distance of 100 to 140 feet).

APPENDIX C

BOREHOLE LOGS

AND

WELL CONSTRUCTION DIAGRAMS

SOIL TEST BORING RECORD

LAW ENGINEERING, INC. HOUSTON, TEXAS	BORING NUMBER: B-1	SHEET 1 OF 1

EQUIPMENT & METHODS:	LOCATION:
SPLIT SPOON SAMPLING, PUSHED, NOT DRIVEN AIR DRILLING	TANK BATTERY DISPOSAL PIT SOUTH FOUR LAKES UNIT, LEA CO., NEW MEXICO

CLIENT/OWNER:	GROUND LEVEL:	COORDINATES:	DATE:
PHILLIPS PETROLEUM CO.	EST. 4150 FT. MSL		OCT 1990

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS: DEPTH (ft)	SAMPLE: TYPE	SAMPLE: NO.	TEST: dd	TEST: pf
Soft Brown Soil with Roots, No Odor, OVM = 1		.0	4150.0	1.3		1		
		2.0	4148.0					
Hard White Sandy CALICHE, No Odor, OVM = 1				3.5		2		
				7.5		3		
		8.0	4142.0					
Soft Red Sandy SILT								
		10.0	4140.0					
Soft, White Sandy CALICHE, Moist, No Odor, OVM = 1				11.3		4		
				17.5		5		
-no odor, OVM = 1								
		20.0	4130.0					
Soft Red Sandy SILT, Strong Hydrocarbon Odor, OVM = 517				21.3		6		
				25.5		7		
-OVM = 124								
		28.0	4122.0					
Soft White Sandy CALICHE, OVM = 11				30.3		8		
		31.0	4119.0					
Boring Terminated at 31.0 ft.								

PL (%) NM (%) LL (%)
COHESION (100 psf)
PENETRATION (bpf)
RQD
CORE RECOVERY
10 20 30 40 50 60 70 80 90

REMARKS:	DRILLED BY:	DATE STARTED:
Legend for samples: X = samples from cuttings Z = split-spoon	HI PLAINS	10/9/90
	LOGGED BY: MAP	DATE COMPLETED: 10/9/90
	CHECKED BY: MAP	JOB NUMBER: 71-0606-T02

MW -2

SOIL TEST BORING RECORD

LAW ENGINEERING, INC.
HOUSTON, TEXAS

BORING NUMBER: B-2 | SHEET 1 OF 1

EQUIPMENT & METHODS:
SPLIT-SPOON SAMPLING, PUSHED, NOT DRIVEN
AIR DRILLING

LOCATION:
FORMER GASOLINE PLANT DISPOSAL PIT
SOUTH FOUR LAKES UNIT, LEA CO., NEW MEXICO

CLIENT/OWNER: PHILLIPS PETROLEUM CO.

GROUND LEVEL: EST. 4150 FT. MSL

COORDINATES:

DATE: OCT 1990

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS: DEPTH (ft)	SAMPLE: TYPE	SAMPLE: NO.	TEST: dd	TEST: pf
Brown Soil with Roots		0	4150.0	1.3		1		
Hard White CALICHE				3.3		2		
-becomes sandy				6.0		3		
				9.3		4		
-few sand stringers				12.5		5		
				17.5		6		
-high sand content, moist		20.0	4130.0					
Soft, Brown Silty SAND		23.0	4127.0	23.3		7		
Hard White Sandy CALICHE		27.0	4123.0	27.0		8		
Boring Terminated at 33.0 ft.		33.0	4117.0					

PL (X) NM (X) LL (X)
COHESION (100 psf)
PENETRATION (bpf)
ROD
CORE RECOVERY
10 20 30 40 50 60 70 80 90

REMARKS:
Legend for samples:
X = samples from cuttings
Z = split-spoon
No odor and OVM = 0 in all samples.

DRILLED BY: HI PLAINS

DATE STARTED: 10/9/90

LOGGED BY: MAP

DATE COMPLETED: 10/9/90

CHECKED BY: MAP

JOB NUMBER: 71-0606-T02

MW-3

SOIL TEST BORING RECORD

LAW ENGINEERING, INC. HOUSTON, TEXAS	BORING NUMBER: B-3	SHEET 1 OF 1
EQUIPMENT & METHODS: SPLIT-SPOON SAMPLING, PUSHED, NOT DRIVEN AIR DRILLING	LOCATION: SOUTH FOUR LAKES UNIT LEA COUNTY, NEW MEXICO	
CLIENT/OWNER: PHILLIPS PETROLEUM CO.	GROUND LEVEL: EST. 4145 FT. MSL	COORDINATES:
		DATE: OCT 1990

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS: DEPTH (ft)	SAMPLE: TYPE	SAMPLE: NO.	TEST: dd	TEST: pf
9" Brown Soil Hard White CALICHE, No Odor, OVM = 2		.0	4145.0	1.3		1		
				3.5		2		
-becomes sandy, no odor, OVM = 0				7.5		3		
				12.5		4		
-no odor, OVM = 1				17.5		5		
-no odor, OVM = 1								
-moist, near water table, no odor, OVM = 0				22.3		6		
Boring Terminated at 32.0 ft.		32.0	4113.0					

PL (X) NM (X) LL (X)
△⊗⊕ COHESION (100 psf)
● PENETRATION (bpf)
□ RQD
◇ CORE RECOVERY
10 20 30 40 50 60 70 80 90

REMARKS:	DRILLED BY:	DATE STARTED:
Legend for samples: X = samples from cuttings Z = split-spoon	HI PLAINS	10/9/90
	LOGGED BY: MAP	DATE COMPLETED: 10/9/90
	CHECKED BY: MAP	JOB NUMBER: 71-0606-T02

MW-4

SOIL TEST BORING RECORD

LAW ENGINEERING, INC.
HOUSTON, TEXAS

BORING NUMBER: B-4 | SHEET 1 OF 1

EQUIPMENT & METHODS:
SPLIT-SPOON SAMPLING, PUSHED, NOT DRIVEN
AIR DRILLING

LOCATION:
FORMER TANK BATTERY AREA
SOUTH FOUR LAKES UNIT, LEA CO., NEW MEXICO

CLIENT/OWNER: PHILLIPS PETROLEUM CO.

GROUND LEVEL: EST. 4160 FT. MSL

COORDINATES:

DATE: OCT 1990

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS: DEPTH (ft)	SAMPLE: TYPE	SAMPLE: NO.	TEST: dd	TEST: pf
Soft Brown Clayey SILT, No Odor, OVM = 2		.0	4150.0	1.3		1		
				3.3		2		
				5.3		3		
-moist, no odor, OVM = 1		7.0	4143.0	7.3		4		
				9.3		5		
White Sandy CALICHE, Dry, No Odor, OVM = 1				12.5		6		
-no odor, OVM = 0								
				17.5		7		
-hydrocarbon stained sand stringer, slight odor, moist				22.3		8		
				26.5		9		
-with few brown sandy silt stringers, wet		32.0	4118.0					
Boring Terminated at 32.0 ft.								

PL (%) NM (%) LL (%)
COHESION (100 psf)
PENETRATION (bpf)
ROD
CORE RECOVERY
10 20 30 40 50 60 70 80 90

REMARKS:
Legend for samples:
X = samples from cuttings
Z = split-spoon

DRILLED BY: HI PLAINS

DATE STARTED: 10/10/90

LOGGED BY: MAP

DATE COMPLETED: 10/10/90

CHECKED BY: MAP

JOB NUMBER: 71-0606-T02

Law's Production Pit Boring to 15 feet

SOIL TEST BORING RECORD

LAW ENGINEERING, INC.
HOUSTON, TEXAS

BORING NUMBER: B-5 | SHEET 1 OF 1

EQUIPMENT & METHODS:
SPLIT SPOON SAMPLING
TUBES PUSHED, NOT DRIVEN

LOCATION:
TANK BATTERY DISPOSAL PIT
SOUTH FOUR LAKES UNIT, LEA CO., NEW MEXICO

CLIENT/OWNER: PHILLIPS PETROLEUM CO.

GROUND LEVEL: EST. 4150 FT. MSL

COORDINATES:

DATE: OCT 1990

DESCRIPTION	LEGEND	DEPTH (ft)	ELEVATION	SAMPLES / TESTS: DEPTH (ft)	SAMPLE: TYPE	SAMPLE: NO.	TEST: dd	TEST: pf
Soft, Brown Clayey SILT with Caliche Cobbles, OVM = 22		.0	4150.0	1.3	Z	1		
-black oil saturated, OVM = 245				3.3	Z	2		
-bottom pit at 5 feet, OVM = 411		5.0	4145.0	5.3	Z	3		
Soft, Black Stained Sandy CALICHE				7.3	Z	4		
-staining decreases, OVM = 392				9.3	Z	5		
-decreasing hydrocarbon staining, OVM = 531				11.3	Z	6		
-staining reduced but not absent, OVM = 205								
		15.0	4135.0					
Boring Terminated at 15.0 ft.								

PL (%) NM (%) LL (%)
COHESION (100 psf)
PENETRATION (bpf)
ROD
CORE RECOVERY
10 20 30 40 50 60 70 80 90

REMARKS:
Legend for samples:
Z = split-spoon

DRILLED BY: HI PLAINS

DATE STARTED: 10/10/90

LOGGED BY: MAP

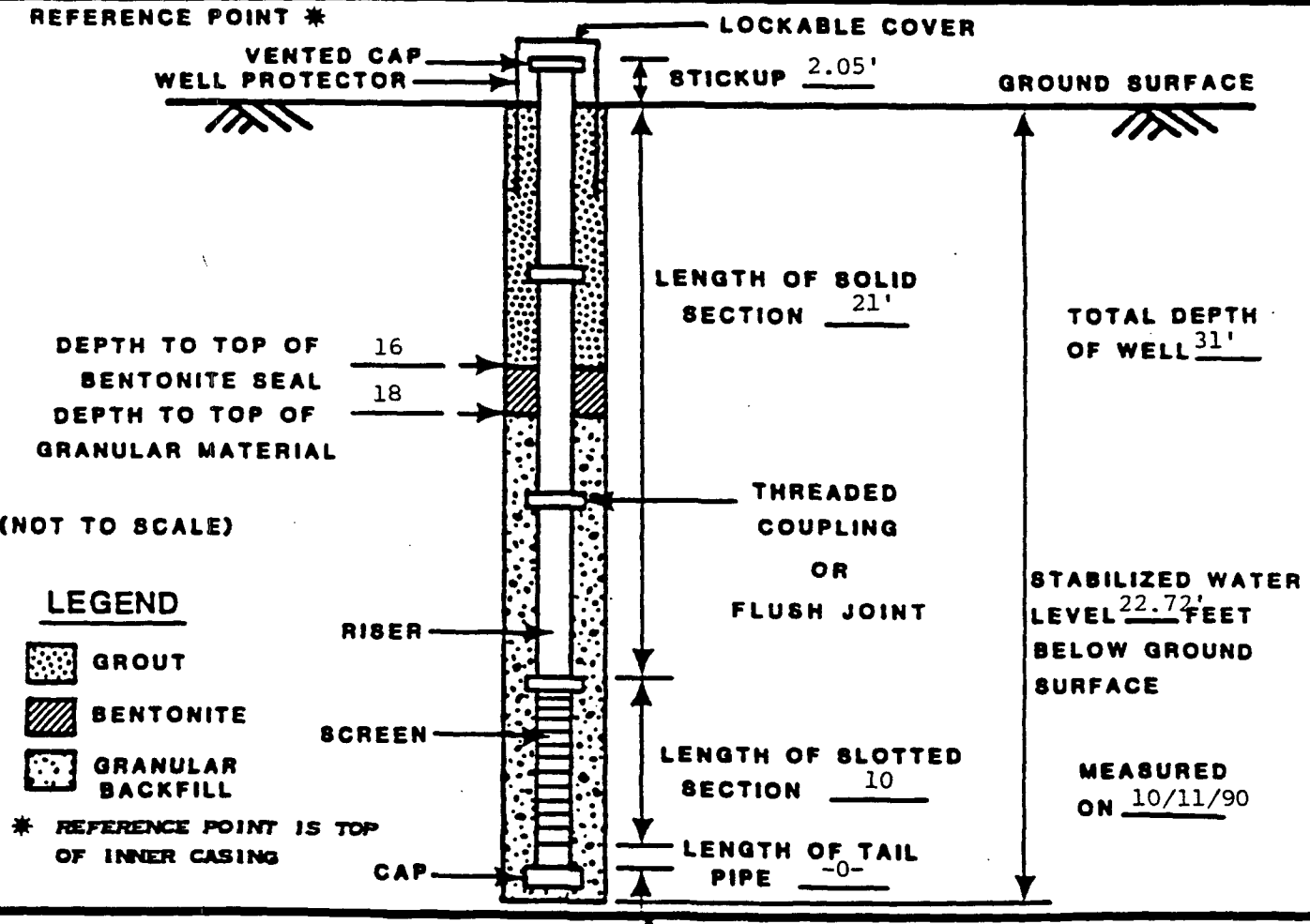
DATE COMPLETED: 10/10/90

CHECKED BY: MAP

JOB NUMBER: 71-0606-T02

TYPE II MONITORING WELL INSTALLATION RECORD

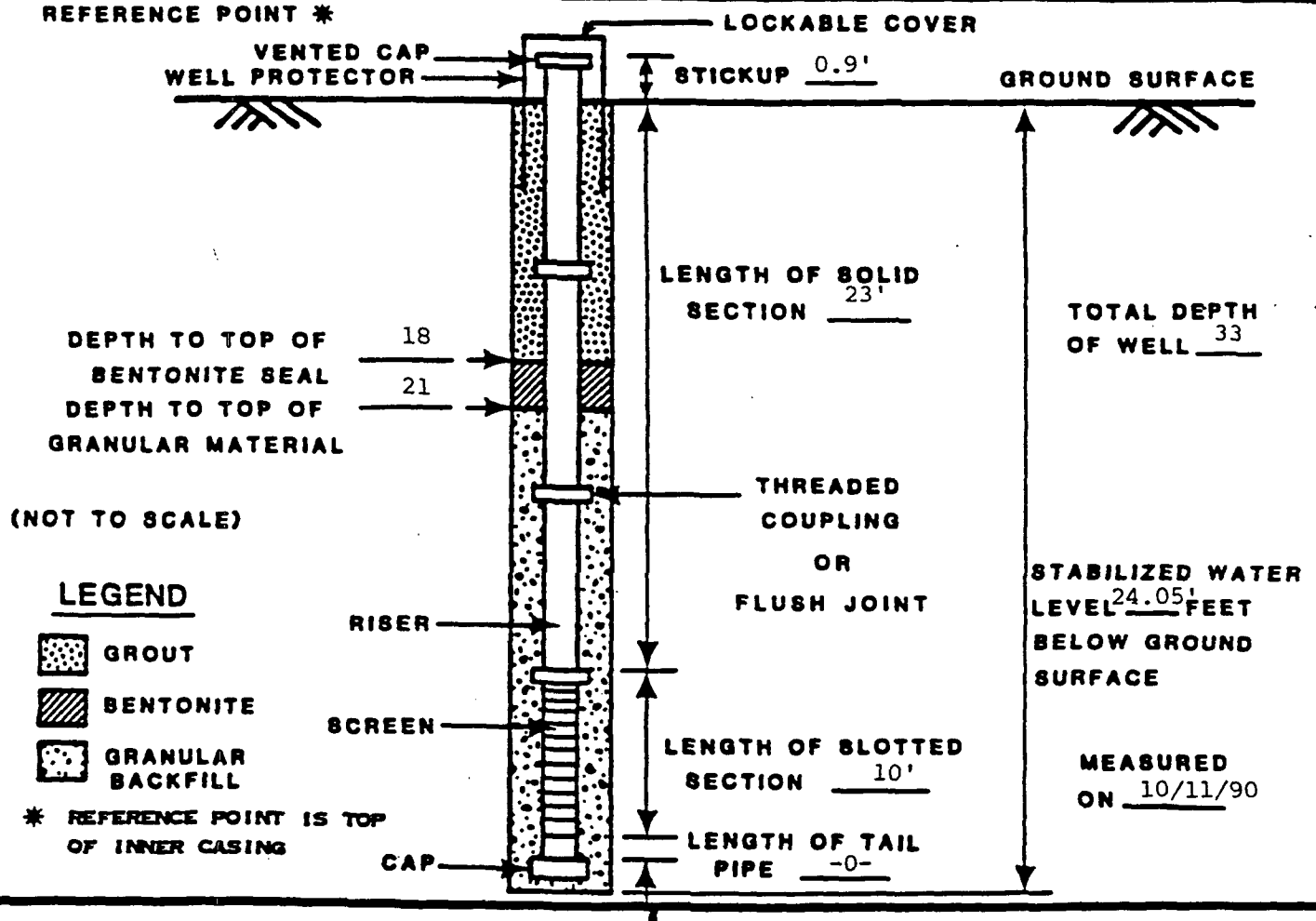
JOB NAME	Phillips Petroleum Company	**JOB NUMBER**	71-0606 Task 02
WELL NUMBER	MW-1	**INSTALLATION DATE**	10/09/90
LOCATION	Tank Battery Disposal Pit		
GROUND SURFACE ELEVATION	99.3'	**REFERENCE POINT ELEVATION**	100'
GRANULAR BACKFILL MATERIAL	Texblast #1	**SLOT SIZE**	.020 inch
SCREEN MATERIAL	Schedule 40 PVC	**SCREEN DIAMETER**	2 inch
RISER MATERIAL	Schedule 40 PVC	**RISER DIAMETER**	2 inch
DRILLING TECHNIQUE	Air Drill	**DRILLING CONTRACTOR**	Hi Plains
BOREHOLE DIAMETER	6 inch	**LAW FIELD REPRESENTATIVE**	MAP
LOCK BRAND	Dolphin	**SIZE/MODEL**	
KEY CODE/COMBINATION	Key		



LAW ENVIRONMENTAL, INC.
13105 NORTHWEST FREEWAY
SUITE 800
HOUSTON, TX 77040
(713) 462-7275

TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME Phillips Petroleum Company
JOB NUMBER 71-0606 Task 02
WELL NUMBER MW-2
INSTALLATION DATE 10/09/90
LOCATION Former Gasoline Plant Disposal Pit
GROUND SURFACE ELEVATION 102.3'
REFERENCE POINT ELEVATION 100'
GRANULAR BACKFILL MATERIAL Texblast #1
SLOT SIZE .020 inch
SCREEN MATERIAL Schedule 40 PVC
SCREEN DIAMETER 2 inch
RISER MATERIAL Schedule 40 PVC
RISER DIAMETER 2 inch
DRILLING TECHNIQUE Air Drill
DRILLING CONTRACTOR Hi Plains
BOREHOLE DIAMETER 6 inch
LAW FIELD REPRESENTATIVE MAP
LOCK BRAND Dolphin
SIZE/MODEL
KEY CODE/COMBINATION Key



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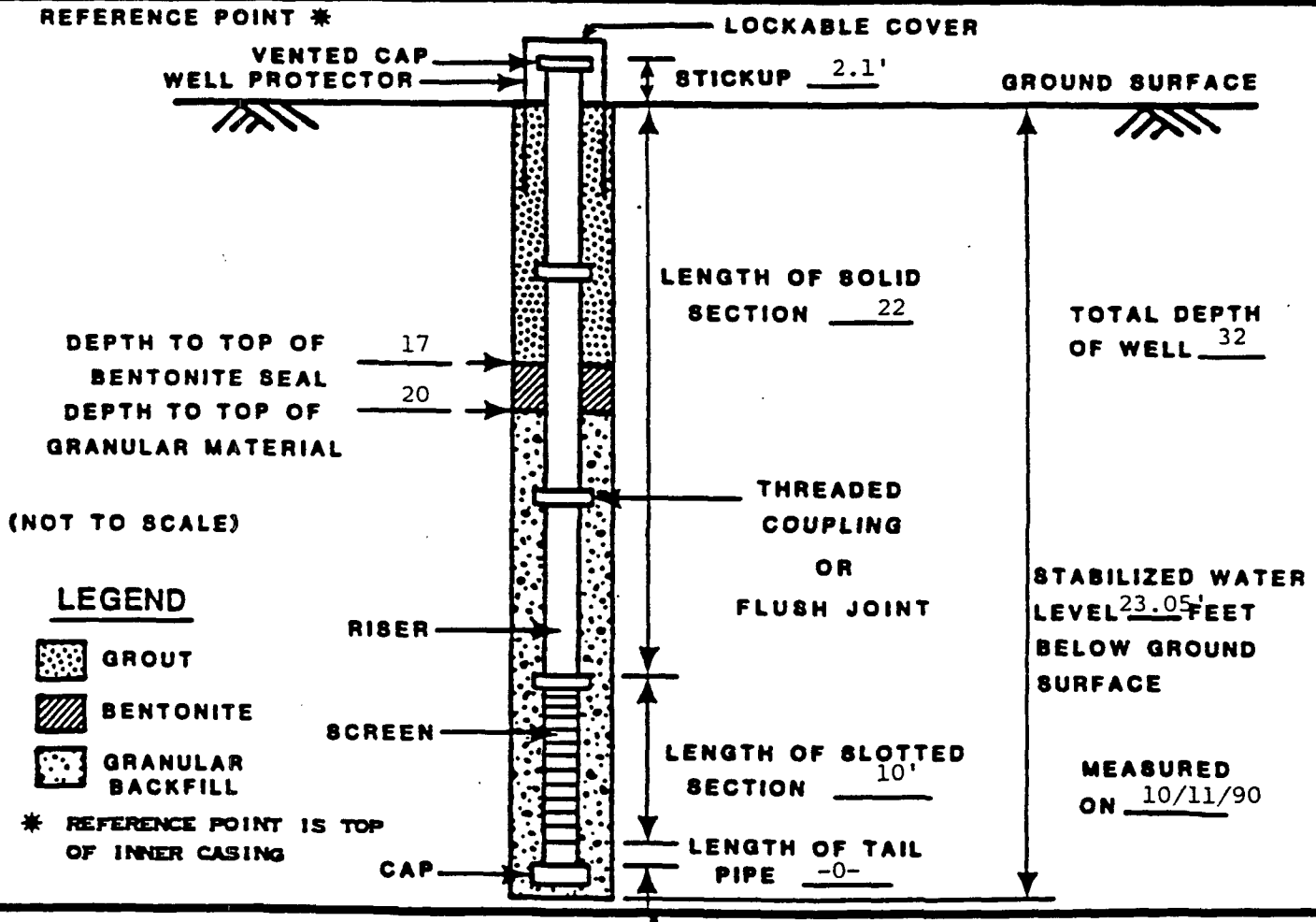
13105 NORTHWEST FREEWAY
SUITE 800
HOUSTON, TX 77040
(713) 462-7275

TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME	Phillips Petroleum Company	**JOB NUMBER**	71-0606 Task 02
WELL NUMBER	MW-3	**INSTALLATION DATE**	10/09/90
LOCATION	Salt Water Disposal Well		
GROUND SURFACE ELEVATION	96.18 '	**REFERENCE POINT ELEVATION**	100 '
GRANULAR BACKFILL MATERIAL	Texblast #1	**SLOT SIZE**	.020 inch
SCREEN MATERIAL	Schedule 40 PVC	**SCREEN DIAMETER**	2 inch
RISER MATERIAL	Schedule 40 PVC	**RISER DIAMETER**	2 inch
DRILLING TECHNIQUE	Air Drill	**DRILLING CONTRACTOR**	Hi Plains
BOREHOLE DIAMETER	6 inch	**LAW FIELD REPRESENTATIVE**	MAP
LOCK BRAND	Dolphin	**SIZE/MODEL**	
KEY CODE/COMBINATION	Key		



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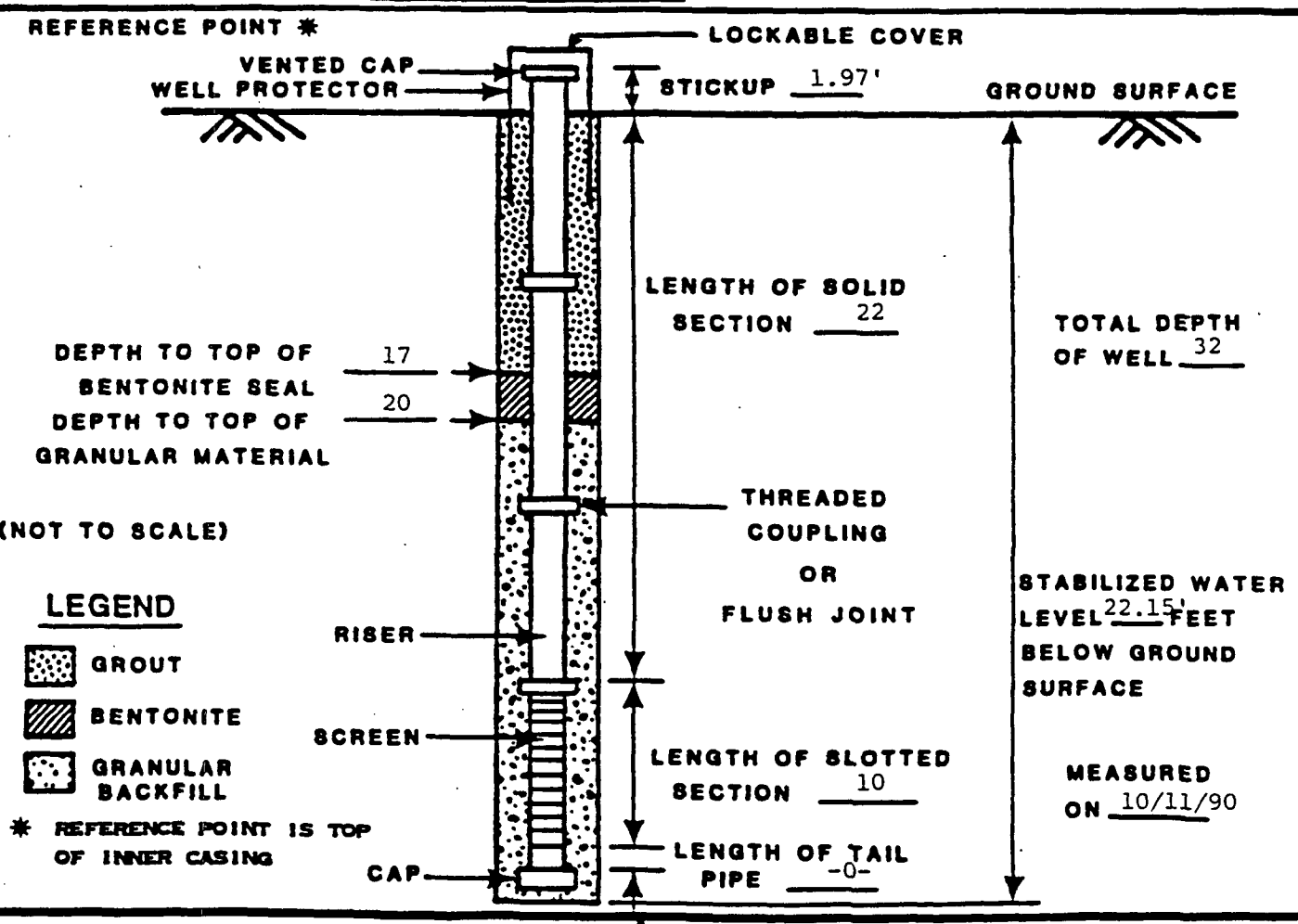
SUITE 800
HOUSTON, TX 77040
(713) 462-7275

TYPE II MONITORING WELL INSTALLATION RECORD

JOB NAME: Phillips Petroleum Company
JOB NUMBER: 71-0606 Task 02
WELL NUMBER: MW-4
INSTALLATION DATE: 10/10/90
LOCATION: Former Tank Battery
GROUND SURFACE ELEVATION: 98.95'
REFERENCE POINT ELEVATION: 100'
GRANULAR BACKFILL MATERIAL: Texblast #1
SLOT SIZE: .020 inch
SCREEN MATERIAL: Schedule 40 PVC
SCREEN DIAMETER: 2 inch
RISER MATERIAL: Schedule 40 PVC
RISER DIAMETER: 2 inch
DRILLING TECHNIQUE: Air Drill
DRILLING CONTRACTOR: Hi Plains
BOREHOLE DIAMETER: 6 inch
LAW FIELD REPRESENTATIVE: MAP
LOCK BRAND: Dolphin
SIZE/MODEL:
KEY CODE/COMBINATION: Key



LAW ENVIRONMENTAL, INC.
13105 NORTHWEST FREEWAY
SUITE 800
HOUSTON, TX 77040
(713) 462-7275

Monitoring Well No. MW-5

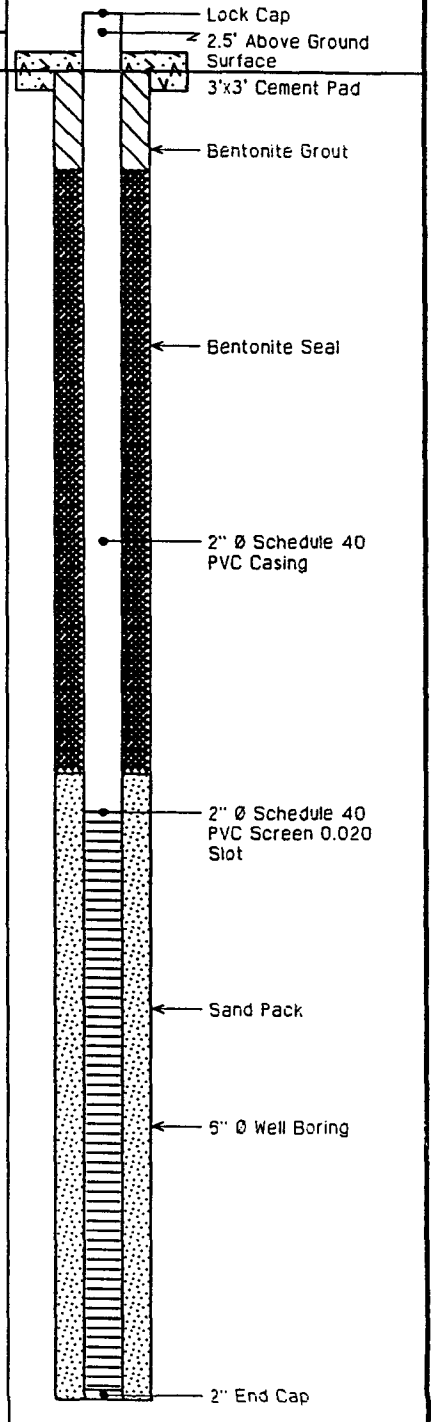
PROJECT: Phillips Petroleum Company
DRILL RIG: Pool Environmental, Roswell, NM.
INITIAL GW DEPTH: 25.01 ft.

DATE: 12/13/94
HOLE DIA.: 6.0 in.
FINAL GW: 25.01 ft.

LOGGED BY: Tom Stotler
SAMPLER: Continuous
CASING ELEV.: 4150.40

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	PID ppm
SAND: Brown, Fine Grained, Loose, Roots, No PHC Odor.	SP		0		
CALICHE: Sandy, Very Fine Grained Soft, White, Dry, No PHC Odor, Drilled 0 to 5'.			1		0.0
			2		
			3		
			4		
			5		
SAND: Light Brown, Very Fine Grained, Some Caliche, Dry, No PHC Odor, Drilled 6.5' to 9.5'.	SP		6		0.0
			7		
			8		
			9		
CALICHE: Sandy, Very Fine Grained, Tan to Light Brown, Soft, Dry.			10		0.0
SAND: As Above, Clayey, Moist, No PHC Odor.	SC		11		
			12		
			13		0.0
			14		
SAND: As Above.	SC		15		
			16		
			17		0.0
			18		
			19		
Hard CALICHE: Sandy, Very Fine Grain, White to Tan, No Stain or Odor, Moist.			20		0.0
			21		38.5
			22		
			23		
SAND: Well Sorted Red. Very Fine Grain, Interbedded, Wet, No PHC Odor.	SW		24		
▼ Groundwater Elevation 25.01'			25		0.0
			26		
			27		
SAND: As Above, Interbedded, Calcite Inclusions Becoming Hard at 32 Feet.	SW		28		
			29		
			30		0.0
			31		
			32		
			33		*
TOTAL DEPTH = 34.0 FEET			34		
			35		

WELL CONSTRUCTION DETAIL



SECOR

SECOR International Incorporated
Denver, Colorado

Notes:
* - *Sample Sent for Analytical Analysis.*

Project No.
B0106-001-01

Monitoring Well No. MW-6

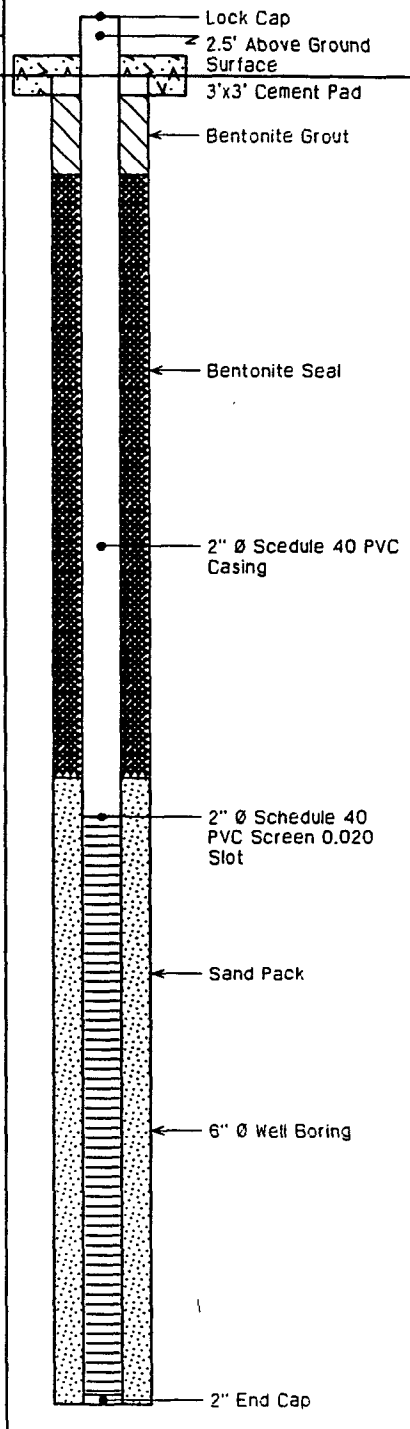
PROJECT: Phillips Petroleum Company | **DATE:** 12/13/94 | **LOGGED BY:** Tom Stotler

DRILL RIG: Pool Environmental, Roswell, NM. | **HOLE DIA.:** 6.0 in. | **SAMPLER:** Continuous

INITIAL GW DEPTH: 25.26 ft. | **FINAL GW:** 25.26 ft. | **CASING ELEV.:** 4149.90

DESCRIPTION	USCS CLASS	DEPTH	PID ppm
SAND: Sandy Soil, Very Fine Grain, Lower 1.5' Stained Black Odor. (2/4/6)	SP	0–1	556
50 Blows		2–3	
CALICHE: Sandy, Clayey, Very Fine Grained, White Moist, No Stain, Slight Odor.		4	78
		5	84
		6	112
		7	134
Silty CLAY: Sandy Clay, Moist.	MH	8–9	334
Silty CLAY: White to Light Gray, Some Laminations, Moist, No Stain, Strong Odor.	MH	10	623
		11	575
		12	212
		13	21.0
Silty CLAY: As Above.	MH	14	290
CLAY: Became Hard Caliche, Green Laminations in Lower Foot.		15	259
Silty SAND: Red, Very Fine Grain, Well Sorted, Moist, Strong Odor, No Visible Stain.	SW	16	6.4
		17	0.0
		18	0.0
		19	0.0
		20	0.0
SAND: Red, Very Fine Grain, Well Sorted, Wet, Strong Odor, Grades into Hard Sand.	SW	21	0.0
		22	0.0
	SW	23	38.0
		24	250
▼ Groundwater Elevation 25.26.		25	279*
		26	100
		27	246
SAND: Red, Very Fine Grain, Well Sorted, No Visible Bedding, Wet, Melted at Bottom of Core.	SW	28	16.0
		29	0.0
		30	0.0
		31	0.0
		32	0.0
FREE PRODUCT NOTED ON AUGERS WHEN PULLED.		33	0.0
TOTAL DEPTH = 34.0 FEET		34–35	

WELL CONSTRUCTION DETAIL



SECOR

SECOR International Incorporated
Denver, Colorado

Notes:

** – Sample Sent for Analytical Analysis*

Project No.
B0108-001-01

Monitoring Well No. MW-7

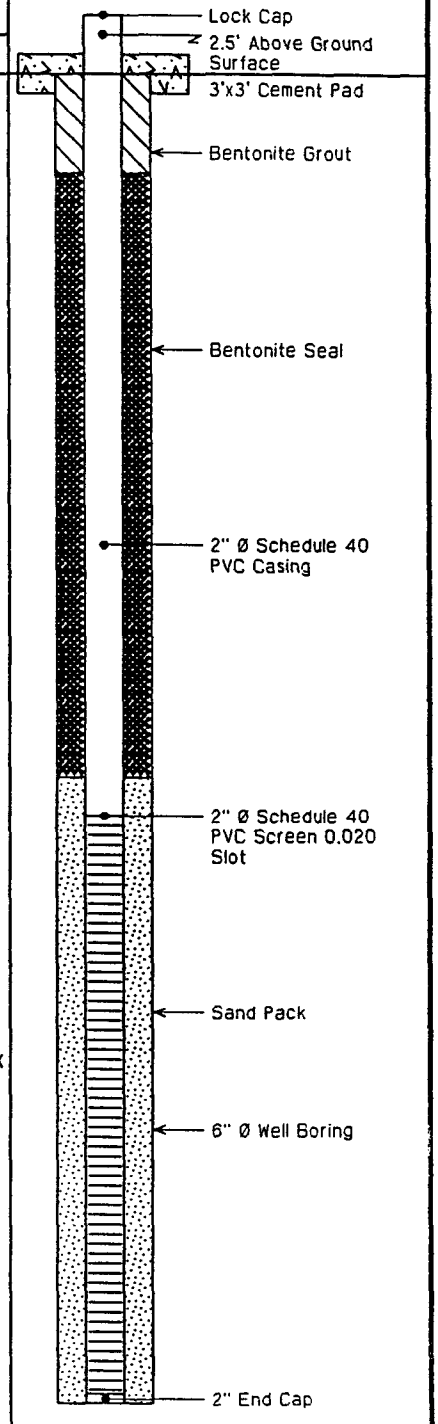
PROJECT: Phillips Petroleum Company
DRILL RIG: Pool Environmental, Roswell, NM.
INITIAL GW DEPTH: 22.77 ft.

DATE: 12/14/94
HOLE DIA.: 6.0 in.
FINAL GW: 22.77 ft.

LOGGED BY: Tom Stotler
SAMPLER: Continuous
CASING ELEV.: 4149.16

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	PID ppm
CALICHE: Tan, Clayey, Dry, Drilled from 0 to7'.			0–7		
CALICHE: Red, Clayey, Moist, Some Calcite Inclusions Grades to White Caliche, Very Hard.			7–11		0.0 / 0.0
REFUSAL			11–17		NR / 0.0
Drilled From 17' to 24'			17–24		NR
▼ Groundwater Elevation 22.77'			22.77		
SAND: Light Gray, Very Fine Grain, Some Silty Layers, Wet.	SM		24–25		0.0*x
SAND: As Above, Gray, Hard, Wet.	SM		25–28		0.0
SAND: Red, Very Fine Grain, Well Sorted, Loose, Wet, No Stain or Odor.	SW		28–34		0.0
TOTAL DEPTH = 34.0 FEET			34		

WELL CONSTRUCTION DETAIL



SECOR

SECOR International Incorporated
Denver, Colorado

Notes:
*x – Sample Submitted For Rock Properties. * – Sample Submitted for Analytical Analysis.*

Project No.
B0106-001-01

Monitoring Well No. MW-8

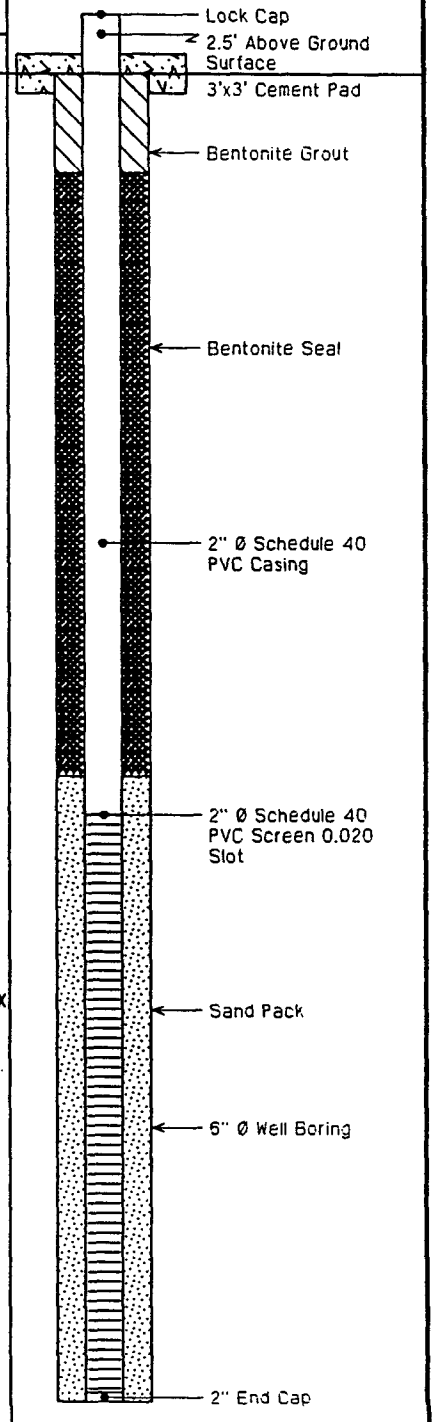
PROJECT: Phillips Petroleum Company | **DATE:** 12/14/94 | **LOGGED BY:** Tom Stotler

DRILL RIG: Pool Environmental, Roswell, NM. | **HOLE DIA.:** 6.0 in. | **SAMPLER:** Continuous

INITIAL GW DEPTH: 24 ft. | **FINAL GW:** 24 ft. | **CASING ELEV.:** 4148.81

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	PID ppm
CLAY: Sandy, Tan, Dry, Drilled 0 to 4'.	ML		0–4		
CLAY: Tan, Caliche, Sandy Clay Filled, Very Fine Grained, Becomes Hard at 9.0'.	ML		5–9		0.0
CLAY: Tan to Red, Balls When Drilled, Moist, No Stain or Odor.	CH		10–14		0.0
CALICHE: Sandy, Very Fine Grained, Rock Frays, Very Hard, Dry, Drilled from 14' to 19'.			15–19		0.0
SAND/CLAY: Green-Brown, Caliche, Soft, Moist, No Stain or Odors. SAND: Red, Very Fine Grained, Soft, Wet.	SM		20–23		0.0
SAND: Dark Band of Stain, Slight Odor, (13/18/21).	SW		24		463*x
▼ Groundwater Elevation 24.0'. SAND: Red to Brown, Very Fine Grain, Well Sorted, Loose, No Visible Stain or Odor, Some Inclusions.			25–28		0.0
SAND: As Above, Wet. SAND: As Above, Moist.	SW		29–34		0.0
TOTAL DEPTH = 34.0 FEET			35		

WELL CONSTRUCTION DETAIL



SECOR

SECOR International Incorporated
Denver, Colorado

Notes:

*x - Sample Submitted For Rock Properties,. * - Sample Submitted For Analytical Analysis*

Project No.
B0106-001-01

Monitoring Well No. MW-9

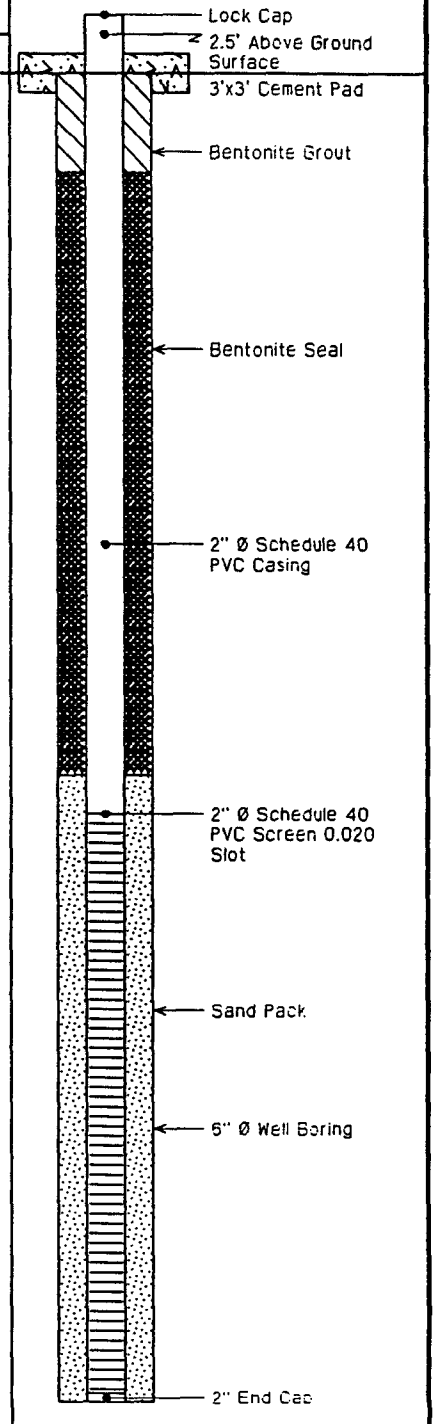
PROJECT: Phillips Petroleum Company
DRILL RIG: Pool Environmental, Roswell, NM.
INITIAL GW DEPTH: 24.45 ft.

DATE: 12/14-15/94
HOLE DIA.: 6.0 in.
FINAL GW: 24.45 ft.

LOGGED BY: Tom Stotler
SAMPLER: Continuous
CASING ELEV.: 4149.63

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	PID ppm
CLAY: Dark Brown, Top Soil, Very Fine Grained, Clayey, Dry, Drilled 0 to 4'.	CL		0-5		0.0
CALICHE: Clay Filled, Laminated, Very Fine Grain, White, No Stain or Odor.			6-10		0.0
CALICHE: Sandy, Soft, Dry, Crumbles.			11-12		0.0
REFUSAL @16:42, 12/15/94 Drilled With Center Auger.					
CALICHE: Sandy, Hard, Very Fine Grain, White, Dry, No Stain or Odor, Drilled from 12.5' to 19'.			13-18		NR 0.0
CALICHE: Sandy, Very Fine Grain, Clay Filled, Soft, White, Some Hard Inclusions.			19-23		0.0
SAND: Red, Very Fine Grain, Well Sorted, Wet, No Stain or Odor.	SW		24		*
▼ Groundwater Elevation 24.45'.			25-28		0.0
SAND: As Above, Very Wet.	SW		29-33		0.0
TOTAL DEPTH = 34.0'.			34-35		

WELL CONSTRUCTION DETAIL



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SECOR International Incorporated
Denver, Colorado

Notes:
* - *Sample Submitted for Analytical Analysis.*

Project No.
B0136-001-01

Page 1 of 1

Monitoring Well No. MW-10

PROJECT: Phillips Petroleum Company
DATE: 12/15/94
LOGGED BY: Tom Stotler
DRILL RIG: Pool Environmental, Roswell, NM.
HOLE DIA.: 6.0 in.
SAMPLER: Continuous
INITIAL GW DEPTH: 24 ft.
FINAL GW: 24 ft.
CASING ELEV.: 4149.98

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	PID ppm
CALICHE: Hard, White, No Stain or Odor, drilled from 0 to 4'.			0		
			1		0.0
			2		
			3		
CALICHE: As Above.			4		
			5		
			6		0.0
			7		
CALICHE: Sandy, Very Fine Grain, Some Clay Fill, White.			8		
			9		
CALICHE: As Above, Changes Color to Light Brown-Buff, Very Fine Grain.			10		
			11		
			12		0.0
			13		
			14		
CALICHE: As Above, Cream Color, Very Fine Grain, Talic Like Flour, Very Soft, No Stain or Odor.			15		
			16		
			17		0.0
			18		
CALICHE: As Above, Color Changes to Tan, Dry.			19		
			20		
			21		
			22		0.0
			23		
▼ Groundwater Elevation 24.0'.			24		
SAND: Red, Very Fine Grain, Well Sorted, Wet, No Stain or Odor.	SW		25		*
			26		
			27		0.0
SAND: As Above, Some Hard Inclusions.			28		
	SW		29		
			30		
			31		0.0
			32		
SAND: Hard.			33		
	SW		34		
TOTAL DEPTH = 34.0'.			35		

WELL CONSTRUCTION DETAIL

- Lock Cap
- 2.5' Above Ground Surface
- 3'x3' Cement Pad
- Bentonite Grout
- Bentonite Seal
- 2" Ø Schedule 40 PVC Casing
- 2" Ø Schedule 40 PVC Screen 0.020 Slot
- Sand Pack
- 6" Ø Well Boring
- 2" End Cap

SECOR

SECOR International Incorporated
Denver, Colorado

Notes:
** - Sample Submitted for Analytical Analysis.*

Project No.
B0106-001-01

Monitoring Well No. RW-11

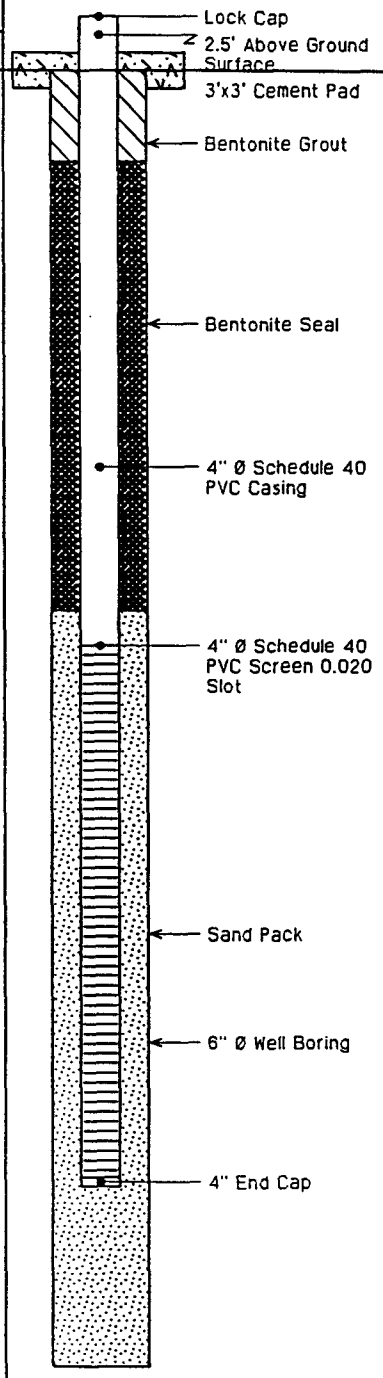
PROJECT: Phillips Pipe Line | **DATE:** 12/16/94 | **LOGGED BY:** Tom Stotler

DRILL RIG: Pool Environmental, Roswell, NM. | **HOLE DIA.:** 6.0 in. | **SAMPLER:** Continuous

INITIAL GW DEPTH: 22.5 ft. | **FINAL GW:** 22.5 ft. | **CASING ELEV.:** 4149.86

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	PID ppm
CLAY: Soils, Clayey, Black Stain, Very Strong Odor, Soils Becoming Saturated With Oil, Sticking to Augers, Drilled from 0 to 4'.	CL		0-3		520
CALICHE: Sandy Very Fine Grained, Stained Black, Very Strong Odor.			4		475
			5		450
			6		520
			7		610
			8		436
CALICHE: Sandy, Very Fine Grained, Dark Gray Staining, Very Stong Odor , Grades to a Light Gray Sandy Caliche.			9		413
			10		512
			11		535
			12		478
			13		675
CALICHE: Sandy, Yellow Stained, Very Strong Odor.			14		953
			15		217
			16		252
			17		364
			18		401
CALICHE: Sandy, Gray, Very Fine Grained, Stained.			19		498
CALICHE: As Above, Black Stained, Strong PHC Odor.			20		197
			21		253
			22		632
▼ Groundwater Elevation 22.5'.			23		*
			24		761
SAND: Core Barrel Dripping With Oil, Lower 2' of Core is Oil, Saturated.	SW		24		493
			25		798
			26		643
			27		
SAND: Very Fine Grain, Well Sorted, Saturated With Oil.	SW		28		NR
			29		
SAND: Oil Saturated, Very Fine Grained, Soft. Core Barrel Covered with Oil.			30		
			31		
			32		763
SAND: As Above, Heavely Stained.			33		477
			34		
			35		
			36		
Over Drilled 2 Feet for Open Hole Completion @17:00			37		
TOTAL DEPTH = 38.0 FEET			38		

WELL CONSTRUCTION DETAIL



SECOR

SECOR International Incorporated
Denver, Colorado

Notes:

* - *Sample Submitted for Analytical Analysis.*

Project No.
B0106-001-01

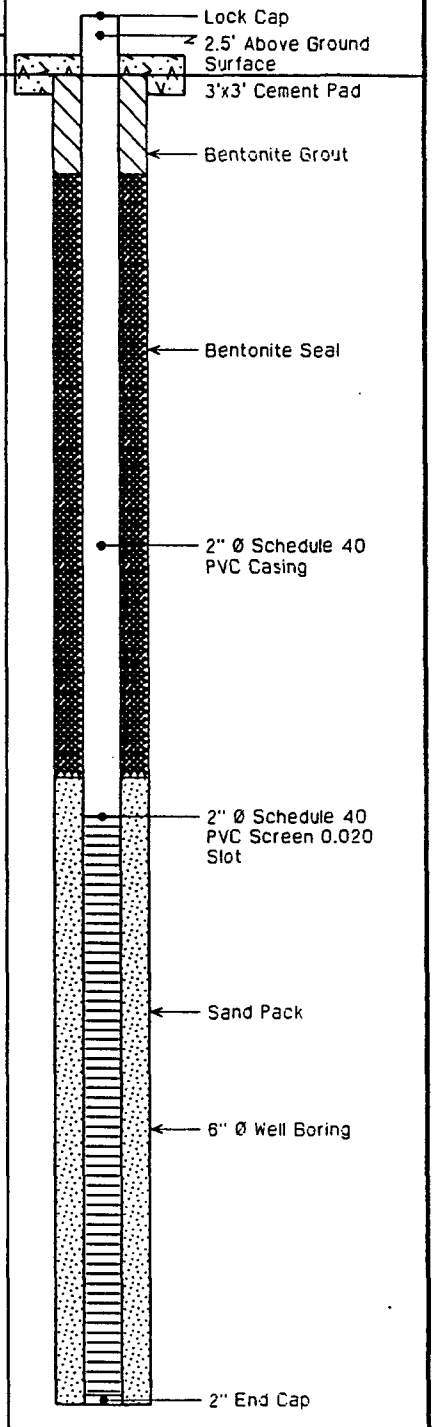
Page 1 of 1

Monitoring Well No. MW-12

PROJECT: Phillips Petroleum Company
DATE: 12/16/94
LOGGED BY: Tom Stotler
DRILL RIG: Pool Environmental, Roswell, NM.
HOLE DIA.: 6.0 in.
SAMPLER: Continuous
INITIAL GW DEPTH: 24.12 ft.
FINAL GW: 24.12 ft.
CASING ELEV.: 4149.15

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	PID ppm
SAND: Clayey, Very Fine Grained, Poorly Sorted, Dry, Drilled from 0 to 4'.	SC		0–5		
CALICHE: Sandy, Very Fine Grain, Tan, Soft, Dry.			5–10		0.0
CALICHE: Sandy, Very Fine Grain, White, Grades to Moist Clayey Caliche.			10–15		0.0
CALICHE: Sandy, Some Clay, Soft, Moist, No Visible Stain or Odor.			15–20		0.0
CALICHE: Sandy, Grades to Sand, Gray Laminated, Very Fine Grain, White, Red. Some Odor and Stain.			20–23		0.0 0.0 0.0 2.0*
SAND: Red, Very Fine Grain, Well Sorted, Wet, Visible Stain.	SW		24–26		300 x 47.0
▼ Groundwater Elevation 24.12'			26–29		413 37.8 26.0
SAND: As Above, Grades to Hard Sandy Caliche at 32.0'.	SW		30–34		0.0 138 12.0 0.0 0.0
TOTAL DEPTH = 34.0 FEET			35		

WELL CONSTRUCTION DETAIL



SECOR

SECOR International Incorporated
Denver, Colorado

Notes:
*x – Sample Submitted For Rock Properties Analysis. * – Sample Submitted For Analytical Analysis.*

Project No.
B0106-001-01

APPENDIX D

LABORATORY REPORTS

AND

CHAIN-OF-CUSTODY DOCUMENTATION

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs • CA 90670
Phone (310) 907-3607 • Fax (310) 907-3610

January 10, 1995

Scott Andrews
Secor
355 Union Blvd., Suite 200
Lakewood, CO 80228-1500

Re: Purchase Order No.: 011-0326
PTS File No: 24134

Dear Mr. Andrews:

Enclosed are final data for petrophysical analyses conducted on samples submitted from your Phillips Project, Project No: B0106-001-01. All analysis were performed by applicable ASTM, EPA or API methodology. Samples will be retained at our facility for 30 days before disposal unless prior arrangements are made.

We appreciate the opportunity to be of service and trust these data will prove beneficial in the development of this project. Should you have any questions or comments, please feel free to call me at the above number.

Sincerely,

PTS Laboratories, Inc.

Larry Kunkel
Project Manager

LAK:lk
encl.

CC: Tom Statler

PTS Laboratories, Inc.

CLIENT: SECOR

FILE NO: 24134
DATE: JANUARY 1995
PROJ. NAME: PHILLIPS
PROJ. NO: B0106-001-01

TABLE 1
PHYSICAL PROPERTIES DATA
(METHODOLOGY: ASTM D2216, API RP40, EPA 9100)

									CONDUCTED AT 25.0 PSI CONFINING STRESS AND 62 F			
				DENSITY			PORE FLUID SATURATION, % Pv		NATIVE STATE EFFECTIVE PERMEABILITY TO AIR	NATIVE STATE EFFECTIVE AIR CONDUCTIVITY	NATIVE STATE EFFECTIVE PERMEABILITY TO WATER	NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENT. (1)	MOISTURE CONTENT, (% wt)	BULK (g/cc)	GRAIN (g/cc)	EFFECTIVE POROSITY, % Vb	WATER (2)	CONTAMINANT (3)	(millidarcy)	(cm/s)	(millidarcy)	(cm/s)
MW-7	24-24.5	H	17.1	1.61	2.64	39.2	73.3	ND	13.9	9.13E-07	210	1.88E-04
MW-8	24.5-25	H	22.2	1.57	2.62	39.9	85.5	ND	14.2	9.35E-07	1,120	9.98E-04
MW-12	24.5-25	H	25.9	1.40	2.61	46.3	77.0	ND	13.0	8.55E-07	340	3.06E-04

(1) SAMPLE ORIENTATION:
H = HORIZONTAL
V = VERTICAL

(2) 0.9986 gm/cc USED TO CALCULATE WATER SATURATION
(3) 0.7500 gm/cc USED TO CALCULATE CONTAMINANT SATURATION

ND = NOT DETECTED
Vb = BULK VOLUME, cc

Pv = PORE VOLUME, cc

TECHNOLOGY LABORATORY, INC.

CENTRE FOR ADVANCED TECHNOLOGY
2401 Research Boulevard, Suite 204
Fort Collins, Colorado 80526
(303) 490-1414

SOIL ANALYSIS REPORT

SECOR
355 Union Boulevard, Suite 200
Lakewood, Colorado 80228-1500

Date Received: 12/19/94
Date Analyzed: 12/21/94
Project No.: B0106-001-01

Lab ID	Sample ID	Date Sampled	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Xylenes mg/Kg	TVPH-Purgeable mg/Kg	Oil & Grease mg/Kg
8663-1	PZ-1-34(MW5)	12/13/94	<0.002	<0.002	<0.002	<0.002	1.6	
8663-2	PZ-Z-25(MW6)	12/13/94	<0.002	3.98	3.92	19.87	74.5	865
8663-3	MW-7-24	12/14/94	<0.002	0.568	1.141	7.845	253	
8663-4	MW-8-23	12/14/94	0.004	0.004	0.006	0.045	<0.5	
8663-5	MW-9-24	12/15/94	<0.002	<0.002	<0.002	<0.002	<0.5	
8663-6	MW-10-24	12/15/94	<0.002	<0.002	<0.002	<0.002	<0.5	165
8663-7	MW-11-23	12/15/94	18.8	34.6	26.7	87.8	2,336	15,980
8663-8	MW-12-23	12/16/94	0.185	3.883	3.57	20.1	678	1,430
8663-9	MW-13-30	12/16/94	0.020	0.007	0.008	0.010	1.0	21

BTEX Method: EPA-8020
TVPH-Purgeable Method: EPA-8015 (Modified)

TECHNOLOGY LABORATORY, INC.

cc: TOM STOTLER

TECHNOLOGY LABORATORY, INC.

CENTRE FOR ADVANCED TECHNOLOGY
2401 Research Boulevard, Suite 204
Fort Collins, Colorado 80526
(303) 490-1414

SOIL ANALYSIS REPORT
QA/QC SURROGATE RECOVERY

SECOR
355 Union Boulevard, Suite 200
Lakewood, Colorado 80228-1500

Date Received: 12/19/94
Date Analyzed: 12/21/94
Project No.: B0106-001-01

(% Recovery)

Lab ID	Sample ID	Fluorobenzene (75-125%)	Bromofluorobenzene (75-125%)
8663-1	PZ-1-34(MW5)	100	104
8663-2	PZ-Z-25(MW6)	87	103
8663-3	MW-7-24	107	117
8663-4	MW-8-23	104	110
8663-5	MW-9-24	106	111
8663-6	MW-10-24	108	105
8663-7	MW-11-23	86	113
8663-8	MW-12-23	105	109
8663-9	MW-13-30	99	111

TECHNOLOGY LABORATORY, INC.

Chain-of-Custody Number:

SEACOR Chain-of-Custody Record

Field Office: SECOR
Address: 355 UNION BLVD #200
Lakewood, Co 80228

☐ Additional documents are attached, and are a part of this Record.

Job Name: Phillips
Location: TATUM New Mexico
South 4 - Lakes

Project # BA106-001-01 Task # 9A0511
Project Manager SCOTT ANDREWS
Laboratory TECH LABS
Turnaround Time STANDARD

Sampler's Name Thomas R. STOTLER
Sampler's Signature Thomas R. Stotler

Sample ID	Date	Time	Matrix	HCID	TPHg/BTEX/MTPH-G 8015 (modified)/8020	TPHd/WTPH-D 8015 (modified)	TPH 418.1/WTPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCBs 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	FINGER PRINT	413.1 ~~TPH~~ O&G	Comments/ Instructions	Number of Containers
PZ-1-34 (MW5)	12/13	1145	Soil		X														1
PZ-2-25 (MW6)	12/13	1513	Soil														X	If Enough Run 8020/8015	1
MW-7-24	12/14	0956	Soil		X														1
MW-8-23	12/14	1312	Soil		X														1
MW-9-24	12/15	0930	Soil		X														1
MW-10-24	12/15	1325	Soil														X	If Enough Run 8015/8020	1
MW-11-23	12/15	1600	Soil														X	" "	1
MW-12-23	12/16	1030	Soil														X	" "	1
MW-13-30	12/16	1445	Soil														X	" "	1
MW-1	12/16	1600	oil													X		HOLD	1

Special Instructions/Comments:
FAX Results To:
303-763-8844
ATTN: Tom STOTLER

Relinquished by: Thomas R. STOTLER
Sign Thomas R. Stotler
Print Thomas R. STOTLER
Company SECOR
Time 0630 Date 12/19/94

Received by:
Sign
Print
Company
Time Date

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers:
Chain of custody seals:
Rec'd. good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone:

SEACOR CUSTREC Rev. 12/93

Date: 12/19/94 Page 1 of 2

Chain-of-Custody Number:

SEACOR Chain-of-Custody Record

Field Office: SECOR

Address: 355 UNION BLVD #200
LAKEWOOD CO 80228

☐ Additional documents are attached, and are a part of this Record.

Job Name: Phillips

Location: TATUM, N. MEXICO
South 4-Lakes

Project # 5016-001-01 Task # SA0511

Project Manager SCOTT ANDREWS

Laboratory TECH LABS

Turnaround Time STANDARD

Sampler's Name Thomas R Stotler

Sampler's Signature Thomas R Stotler

Analysis Request

Sample ID	Date	Time	Matrix	HCID	TPHg/BTEX/WTPH-G 8015 (modified)/8020	TPHd/WTPH-D 8015 (modified)	TPH 418.1/WTPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCBs 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals			Comments/ Instructions	Number of Containers
MW-6	12/16	1605	OIL	X														HOLD	1
RW-11	12/16	1610	OIL	X														HOLD	

Special Instructions/Comments:

FAX Results TO
303-763-8544
ATTN: Tom Stotler.

Relinquished by: Thomas R Stotler
Sign Thomas R Stotler
Print Thomas R Stotler
Company SECOR
Time 0630 Date 12/19/94

Received by: _____
Sign _____
Print _____
Company _____
Time _____ Date _____

Relinquished by: _____
Sign _____
Print _____
Company _____
Time _____ Date _____

Received by: _____
Sign _____
Print _____
Company _____
Time _____ Date _____

Sample Receipt

Total no. of containers:	
Chain of custody seals:	
Rec'd. good condition/cold:	
Conforms to record:	

Client: _____

Client Contact: _____

Client Phone: _____

SEACOR CUSTREC Rev. 12/93

Date: 12-19-94 Page 2 of 2

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra
Environmental Services

February 13, 1995

Mr. Tom Stotler
SECOR
355 Union Blvd.
Suite 200
Lakewood, CO 80228

Dear Mr. Stotler:

Enclosed is the report for 11 samples received at Quanterra Environmental Services, Denver laboratory on January 19, 1995.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interferences or analytes present at concentrations above the linear calibration curve, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required. Samples 040208-0005, -0006, and -0009 were analyzed at dilutions for the method 8260 analysis. Sample 040208-0009 was analyzed at a dilution for the method 6010 analysis. Samples 040208-0002 and -0003 were analyzed at dilutions for the TDS analysis due to target analytes exceeding linear range. Sample 040208-0005 was analyzed at a dilution for the method 300.0 sulfate analysis. Samples 040208-0001 through -0003, -0005, -0006, and -0008 through -0010 were analyzed at dilutions for the method 300.0 chloride analysis.

It was determined after the method 8260 analysis was performed that naphthalene was a requested compound. The laboratory was directed to perform a mass chromatogram search on the samples to determine the presence of naphthalene. Quantitation of mass chromatograms are based on the total ionization peak area relative to an internal standard, assuming a response factor of one. Accordingly, the reported concentration is an estimate.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Mark D Davis for

Susan A. Davis
Project Administrator

Enclosures

Quanterra's Denver laboratory #040208
SECOR Project #:B0106-001-01 SA0512
Site: South 4 Lakes, NM

Quanterra
Environmental Services

ANALYTICAL RESULTS

FOR

SECOR

QUANTERRA ENVIRONMENTAL SERVICES

DENVER NO. 040208

FEBRUARY 13, 1995

Reviewed by: Susan A Davis

Susan A. Davis

SECOR Project #B0106-001-01
Task: SA0512
Site: South 4 Lakes, NM

Quanterra
Environmental
Services

SAMPLE DESCRIPTION INFORMATION
for
Science & Engineering Analysis Corporation-SEACOR

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
040208-0001-SA	B0106-MW2	AQUEOUS	18 JAN 95	09:20	19 JAN 95
040208-0002-SA	B0106-MW3	AQUEOUS	18 JAN 95	07:40	19 JAN 95
040208-0003-SA	B0106-MW4	AQUEOUS	18 JAN 95	08:30	19 JAN 95
040208-0004-SA	B0106-MW5	AQUEOUS	18 JAN 95	10:05	19 JAN 95
040208-0005-SA	B0106-MW7	AQUEOUS	18 JAN 95	11:50	19 JAN 95
040208-0006-SA	B0106-MW8	AQUEOUS	18 JAN 95	12:20	19 JAN 95
040208-0007-SA	B0106-MW9	AQUEOUS	18 JAN 95	11:20	19 JAN 95
040208-0008-SA	B0106-MW10	AQUEOUS	18 JAN 95	10:45	19 JAN 95
040208-0009-SA	B0106-MW13	AQUEOUS	18 JAN 95	13:00	19 JAN 95
040208-0010-SA	B0106-WINDMILL	AQUEOUS	18 JAN 95	08:45	19 JAN 95
040208-0011-TB	TRIP BLANK	AQUEOUS	18 JAN 95		19 JAN 95

Quanterra
Environmental Services

ANALYTICAL TEST REQUESTS
for
Science & Engineering Analysis Corporation-SEACOR

Lab ID: 040208	Group Code	Analysis Description	Custom Test?
0001 - 0010	A	Chloride, Ion Chromatography	N
		Sulfate, Ion Chromatography	N
		Fluoride, Electrode	N
		Total Dissolved Solids (TDS)	N
		pH	N
		Specific Conductance	N
		Alkalinity,	N
		Total/Carbonate/Bicarbonate/Hydroxide	N
		ICP Metals (Dissolved)	Y
		Volatile Organics Target Compound List (TCL)	N
		Prep-Volatile Organics by GC/MS	N
		ICP Metals (Total)	Y
		Prep - Total Metals, ICP	N
0011	B	Gasoline Range Organics and Selected Components	N

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): Volatile Organics Target Compound List (TCL)

Method 8260

CLIENT ID:		B0106-MW2		B0106-MW3		B0106-MW4	
ENSECO ID:		040208-0001-SA		040208-0002-SA		040208-0003-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Chloromethane	ug/L	ND		ND		ND	
Acetone	ug/L	ND		ND		ND	
Bromomethane	ug/L	ND		ND		ND	
Vinyl chloride	ug/L	ND		ND		ND	
Chloroethane	ug/L	ND		ND		ND	
Methylene chloride	ug/L	ND		ND		ND	
1,1-Dichloroethene	ug/L	ND		ND		ND	
1,1-Dichloroethane	ug/L	ND		ND		ND	
2-Hexanone	ug/L	ND		ND		ND	
Chlorobenzene	ug/L	ND		ND		ND	
1,2-Dichloroethene (cis/trans)	ug/L	ND		ND		ND	
4-Methyl-2-pentanone (MIBK)	ug/L	ND		ND		ND	
Chloroform	ug/L	ND		ND		ND	
1,2-Dichloroethane	ug/L	ND		ND		ND	
2-Butanone (MEK)	ug/L	ND		ND		ND	
Carbon disulfide	ug/L	ND		ND		ND	
1,1,1-Trichloroethane	ug/L	ND		ND		ND	
Carbon tetrachloride	ug/L	ND		ND		ND	
Bromodichloromethane	ug/L	ND		ND		ND	
1,2-Dichloropropane	ug/L	ND		ND		ND	
Trichloroethene	ug/L	ND		ND		ND	
Dibromochloromethane	ug/L	ND		ND		ND	
cis-1,3-Dichloropropene	ug/L	ND		ND		ND	
trans-1,3-Dichloropropene	ug/L	ND		ND		ND	
1,1,2-Trichloroethane	ug/L	ND		ND		ND	
Benzene	ug/L	ND		ND		ND	
Bromoform	ug/L	ND		ND		ND	
1,1,2,2-Tetrachloroethane	ug/L	ND		ND		ND	
Tetrachloroethene	ug/L	ND		ND		ND	
Toluene	ug/L	ND		ND		ND	
Ethylbenzene	ug/L	ND		ND		ND	
Styrene	ug/L	ND		ND		ND	
Xylenes (total)	ug/L	ND		ND		ND	
Naphthalene	ug/L	ND		ND		ND	
Vinyl acetate	ug/L	ND		ND		ND	

ND = Not detected
NA = Not analyzed

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): Volatile Organics Target Compound List (TCL)

Method 8260

CLIENT ID:		B0106-MW5		B0106-MW7		B0106-MW8	
ENSECO ID:		040208-0004-SA		040208-0005-SA		040208-0006-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Chloromethane	ug/L	ND		ND		ND	
Acetone	ug/L	ND		180		ND	
Bromomethane	ug/L	ND		ND		ND	
Vinyl chloride	ug/L	ND		ND		ND	
Chloroethane	ug/L	ND		ND		ND	
Methylene chloride	ug/L	ND		ND		ND	
1,1-Dichloroethene	ug/L	ND		ND		ND	
1,1-Dichloroethane	ug/L	ND		ND		ND	
2-Hexanone	ug/L	ND		ND		ND	
Chlorobenzene	ug/L	ND		ND		ND	
1,2-Dichloroethene (cis/trans)	ug/L	ND		ND		ND	
4-Methyl-2-pentanone (MIBK)	ug/L	ND		ND		ND	
Chloroform	ug/L	ND		ND		ND	
1,2-Dichloroethane	ug/L	ND		ND		ND	
2-Butanone (MEK)	ug/L	ND		ND		ND	
Carbon disulfide	ug/L	ND		ND		ND	
1,1,1-Trichloroethane	ug/L	ND		ND		ND	
Carbon tetrachloride	ug/L	ND		ND		ND	
Bromodichloromethane	ug/L	ND		ND		ND	
1,2-Dichloropropane	ug/L	ND		ND		ND	
Trichloroethene	ug/L	ND		ND		ND	
Dibromochloromethane	ug/L	ND		ND		ND	
cis-1,3-Dichloropropene	ug/L	ND		ND		ND	
trans-1,3-Dichloropropene	ug/L	ND		ND		ND	
1,1,2-Trichloroethane	ug/L	ND		ND		ND	
Benzene	ug/L	ND		13		740	
Bromoform	ug/L	ND		ND		ND	
1,1,2,2-Tetrachloroethane	ug/L	ND		ND		ND	
Tetrachloroethene	ug/L	ND		ND		ND	
Toluene	ug/L	ND		ND		ND	
Ethylbenzene	ug/L	ND		26		100	
Styrene	ug/L	ND		ND		ND	
Xylenes (total)	ug/L	ND		ND		330	
Naphthalene	ug/L	ND		27		94	
Vinyl acetate	ug/L	ND		ND		ND	

ND = Not detected
NA = Not analyzed

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): Volatile Organics Target Compound List (TCL)

Method 8260

CLIENT ID:		B0106-MW9		B0106-MW10		B0106-MW13	
ENSECO ID:		040208-0007-SA		040208-0008-SA		040208-0009-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Chloromethane	ug/L	ND		ND		ND	
Acetone	ug/L	ND		ND		630	
Bromomethane	ug/L	ND		ND		ND	
Vinyl chloride	ug/L	ND		ND		ND	
Chloroethane	ug/L	ND		ND		ND	
Methylene chloride	ug/L	1.1		ND		ND	
1,1-Dichloroethene	ug/L	ND		ND		ND	
1,1-Dichloroethane	ug/L	ND		ND		ND	
2-Hexanone	ug/L	ND		ND		ND	
Chlorobenzene	ug/L	ND		ND		ND	
1,2-Dichloroethene (cis/trans)	ug/L	ND		ND		ND	
4-Methyl-2-pentanone (MIBK)	ug/L	ND		ND		ND	
Chloroform	ug/L	ND		ND		ND	
1,2-Dichloroethane	ug/L	ND		ND		ND	
2-Butanone (MEK)	ug/L	ND		ND		ND	
Carbon disulfide	ug/L	ND		ND		ND	
1,1,1-Trichloroethane	ug/L	ND		ND		ND	
Carbon tetrachloride	ug/L	ND		ND		ND	
Bromodichloromethane	ug/L	ND		ND		ND	
1,2-Dichloropropane	ug/L	ND		ND		ND	
Trichloroethene	ug/L	ND		ND		ND	
Dibromochloromethane	ug/L	ND		ND		ND	
cis-1,3-Dichloropropene	ug/L	ND		ND		ND	
trans-1,3-Dichloropropene	ug/L	ND		ND		ND	
1,1,2-Trichloroethane	ug/L	ND		ND		ND	
Benzene	ug/L	ND		ND		2200	
Bromoform	ug/L	ND		ND		ND	
1,1,2,2-Tetrachloroethane	ug/L	ND		ND		ND	
Tetrachloroethene	ug/L	ND		ND		ND	
Toluene	ug/L	ND		ND		ND	
Ethylbenzene	ug/L	ND		ND		360	
Styrene	ug/L	ND		ND		ND	
Xylenes (total)	ug/L	ND		ND		1600	
Naphthalene	ug/L	ND		ND		220	
Vinyl acetate	ug/L	ND		ND		ND	

ND = Not detected
NA = Not analyzed

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): Volatile Organics Target Compound List (TCL)

Method 8260

CLIENT ID:		B0106-WINDMILL		TRIP BLANK	
ENSECO ID:		040208-0010-SA		040208-0011-TB	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Chloromethane	ug/L	ND		NA	
Acetone	ug/L	ND		NA	
Bromomethane	ug/L	ND		NA	
Vinyl chloride	ug/L	ND		NA	
Chloroethane	ug/L	ND		NA	
Methylene chloride	ug/L	ND		NA	
1,1-Dichloroethene	ug/L	ND		NA	
1,1-Dichloroethane	ug/L	ND		NA	
2-Hexanone	ug/L	ND		NA	
Chlorobenzene	ug/L	ND		NA	
1,2-Dichloroethene (cis/trans)	ug/L	ND		NA	
4-Methyl-2-pentanone (MIBK)	ug/L	ND		NA	
Chloroform	ug/L	ND		NA	
1,2-Dichloroethane	ug/L	ND		NA	
2-Butanone (MEK)	ug/L	ND		NA	
Carbon disulfide	ug/L	ND		NA	
1,1,1-Trichloroethane	ug/L	ND		NA	
Carbon tetrachloride	ug/L	ND		NA	
Bromodichloromethane	ug/L	ND		NA	
1,2-Dichloropropane	ug/L	ND		NA	
Trichloroethene	ug/L	ND		NA	
Dibromochloromethane	ug/L	ND		NA	
cis-1,3-Dichloropropene	ug/L	ND		NA	
trans-1,3-Dichloropropene	ug/L	ND		NA	
1,1,2-Trichloroethane	ug/L	ND		NA	
Benzene	ug/L	ND		NA	
Bromoform	ug/L	ND		NA	
1,1,2,2-Tetrachloroethane	ug/L	ND		NA	
Tetrachloroethene	ug/L	ND		NA	
Toluene	ug/L	ND		NA	
Ethylbenzene	ug/L	ND		NA	
Styrene	ug/L	ND		NA	
Xylenes (total)	ug/L	ND		NA	
Naphthalene	ug/L	ND		NA	
Vinyl acetate	ug/L	ND		NA	

ND = Not detected
NA = Not analyzed

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

Volatile Organics Target Compound List (TCL)
Method 8260

Enseco Sample ID	040208-0001-SA	040208-0002-SA	040208-0003-SA	040208-0004-SA
Client Sample ID	B0106-MW2	B0106-MW3	B0106-MW4	B0106-MW5
Volatile Organics Target Compound List (TCL)				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date	20 JAN 95	20 JAN 95	20 JAN 95	20 JAN 95
Analysis Date	24 JAN 95	24 JAN 95	24 JAN 95	24 JAN 95
Extraction HT Met?	NA	NA	NA	NA
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS

Enseco Sample ID	040208-0005-SA	040208-0006-SA	040208-0007-SA	040208-0008-SA
Client Sample ID	B0106-MW7	B0106-MW8	B0106-MW9	B0106-MW10
Volatile Organics Target Compound List (TCL)				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date	20 JAN 95	20 JAN 95	20 JAN 95	20 JAN 95
Analysis Date	25 JAN 95	25 JAN 95	24 JAN 95	24 JAN 95
Extraction HT Met?	NA	NA	NA	NA
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	5.0	17	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS

Quanterra Environmental Services

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCEC007

Volatile Organics Target Compound List (TCL)
Method 8260

Enseco Sample ID	040208-0009-SA	040208-0010-SA		
Client Sample ID	B0106-MW13	B0106-WINDMILL		
Volatile Organics Target Compound List (TCL)				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date	20 JAN 95	20 JAN 95		
Analysis Date	27 JAN 95	25 JAN 95		
Extraction HT Met?	NA	NA		
Analytical HT Met?	Yes	Yes		
Dilution Factor	62	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		

ANALYTICAL RESULTS

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

Volatile Organics Target Compound List (TCL)
Method 8260

Enseco Sample ID / Client Sample ID		040208-0001-SA B0106-MW2		040208-0002-SA B0106-MW3		040208-0003-SA B0106-MW4		040208-0004-SA B0106-MW5	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Chloromethane	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Acetone	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Bromomethane	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Vinyl chloride	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Chloroethane	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Methylene chloride	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,1-Dichloroethene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,1-Dichloroethane	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
2-Hexanone	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Chlorobenzene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,2-Dichloroethene (cis/trans)	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
4-Methyl-2-pentanone (MIBK)	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Chloroform	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,2-Dichloroethane	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
2-Butanone (MEK)	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Carbon disulfide	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,1,1-Trichloroethane	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Carbon tetrachloride	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Bromodichloromethane	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,2-Dichloropropane	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Trichloroethene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Dibromochloromethane	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
cis-1,3-Dichloropropene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
trans-1,3-Dichloropropene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,1,2-Trichloroethane	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Benzene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Bromoform	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Tetrachloroethene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Toluene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Ethylbenzene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Styrene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Xylenes (total)	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Naphthalene	ug/L	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Vinyl acetate	ug/L	ND	2.0	ND	2.0	ND	2.0	ND	2.0
------Surrogate(s):------	----------								
Toluene-d8	%	98	88-110	100	88-110	103	88-110	101	88-110
4-Bromofluorobenzene	%	105	86-115	104	86-115	104	86-115	102	86-115
1,2-Dichloroethane-d4	%	97	76-114	94	76-114	98	76-114	98	76-114

ND = Not Detected. NC = Not Calculated; See discussion. NA = Not Applicable.
All results rounded to two significant figures.

Quanterra Environmental Services

Client Name: Science & Engineering Analysis Corporat
Client ID: SCEC007

ANALYTICAL RESULTS
Volatile Organics Target Compound List (TCL)
Method 8260

Enseco Sample ID Client Sample ID		040208-0005-SA B0106-MW7		040208-0006-SA B0106-MW8		040208-0007-SA B0106-MW9		040208-0008-SA B0106-MW10	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Chloromethane	ug/L	ND	10	ND	33	ND	2.0	ND	2.0
Acetone	ug/L	180	10	ND	33	ND	2.0	ND	2.0
Bromomethane	ug/L	ND	10	ND	33	ND	2.0	ND	2.0
Vinyl chloride	ug/L	ND	10	ND	33	ND	2.0	ND	2.0
Chloroethane	ug/L	ND	10	ND	33	ND	2.0	ND	2.0
Methylene chloride	ug/L	ND	5.0	ND	17	1.1	1.0	ND	1.0
1,1-Dichloroethene	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
1,1-Dichloroethane	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
2-Hexanone	ug/L	ND	10	ND	33	ND	2.0	ND	2.0
Chlorobenzene	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
1,2-Dichloroethene (cis/trans)	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10	ND	33	ND	2.0	ND	2.0
Chloroform	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
1,2-Dichloroethane	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
2-Butanone (MEK)	ug/L	ND	10	ND	33	ND	2.0	ND	2.0
Carbon disulfide	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
1,1,1-Trichloroethane	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Carbon tetrachloride	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Bromodichloromethane	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
1,2-Dichloropropane	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Trichloroethene	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Dibromochloromethane	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
cis-1,3-Dichloropropene	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
trans-1,3-Dichloropropene	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
1,1,2-Trichloroethane	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Benzene	ug/L	13	5.0	740	17	ND	1.0	ND	1.0
Bromoform	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
1,1,2,2-Tetrachloroethane	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Tetrachloroethene	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Toluene	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Ethylbenzene	ug/L	26	5.0	100	17	ND	1.0	ND	1.0
Styrene	ug/L	ND	5.0	ND	17	ND	1.0	ND	1.0
Xylenes (total)	ug/L	ND	5.0	330	17	ND	1.0	ND	1.0
Naphthalene	ug/L	27	5.0	94	17	ND	1.0	ND	1.0
Vinyl acetate	ug/L	ND	10	ND	33	ND	2.0	ND	2.0
------Surrogate(s):------	----------								
Toluene-d8	%	105	88-110	96	88-110	103	88-110	100	88-110
4-Bromofluorobenzene	%	103	86-115	98	86-115	109	86-115	99	86-115
1,2-Dichloroethane-d4	%	97	76-114	89	76-114	96	76-114	90	76-114

ND = Not Detected. NC = Not Calculated; See discussion. NA = Not Applicable.
All results rounded to two significant figures.

Quanterra
Environmental Services

ANALYTICAL RESULTS

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

Volatile Organics Target Compound List (TCL)
Method 8260

Enseco Sample ID		040208-0009-SA		040208-0010-SA					
Client Sample ID		B0106-MW13		B0106-WINDMILL					
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit				
Chloromethane	ug/L	ND	120	ND	2.0				
Acetone	ug/L	630	120	ND	2.0				
Bromomethane	ug/L	ND	120	ND	2.0				
Vinyl chloride	ug/L	ND	120	ND	2.0				
Chloroethane	ug/L	ND	120	ND	2.0				
Methylene chloride	ug/L	ND	62	ND	1.0				
1,1-Dichloroethene	ug/L	ND	62	ND	1.0				
1,1-Dichloroethane	ug/L	ND	62	ND	1.0				
2-Hexanone	ug/L	ND	120	ND	2.0				
Chlorobenzene	ug/L	ND	62	ND	1.0				
1,2-Dichloroethene (cis/trans)	ug/L	ND	62	ND	1.0				
4-Methyl-2-pentanone (MIBK)	ug/L	ND	120	ND	2.0				
Chloroform	ug/L	ND	62	ND	1.0				
1,2-Dichloroethane	ug/L	ND	62	ND	1.0				
2-Butanone (MEK)	ug/L	ND	120	ND	2.0				
Carbon disulfide	ug/L	ND	62	ND	1.0				
1,1,1-Trichloroethane	ug/L	ND	62	ND	1.0				
Carbon tetrachloride	ug/L	ND	62	ND	1.0				
Bromodichloromethane	ug/L	ND	62	ND	1.0				
1,2-Dichloropropane	ug/L	ND	62	ND	1.0				
Trichloroethene	ug/L	ND	62	ND	1.0				
Dibromochloromethane	ug/L	ND	62	ND	1.0				
cis-1,3-Dichloropropene	ug/L	ND	62	ND	1.0				
trans-1,3-Dichloropropene	ug/L	ND	62	ND	1.0				
1,1,2-Trichloroethane	ug/L	ND	62	ND	1.0				
Benzene	ug/L	2200	62	ND	1.0				
Bromoform	ug/L	ND	62	ND	1.0				
1,1,2,2-Tetrachloroethane	ug/L	ND	62	ND	1.0				
Tetrachloroethene	ug/L	ND	62	ND	1.0				
Toluene	ug/L	ND	62	ND	1.0				
Ethylbenzene	ug/L	360	62	ND	1.0				
Styrene	ug/L	ND	62	ND	1.0				
Xylenes (total)	ug/L	1600	62	ND	1.0				
Naphthalene	ug/L	220	62	ND	1.0				
Vinyl acetate	ug/L	ND	120	ND	2.0				
------Surrogate(s):------	----------								
Toluene-d8	%	98	88-110	105	88-110				
4-Bromofluorobenzene	%	100	86-115	100	86-115				
1,2-Dichloroethane-d4	%	98	76-114	94	76-114				

ND = Not Detected. NC = Not Calculated; See discussion. NA = Not Applicable.
All results rounded to two significant figures.

Quanterra Environmental Services

QUALITY CONTROL REPORT
Blanks

Client Name: Science & Engineering Analysis Corporat
Client ID: SCEC007

Gasoline Range Organics and Selected Components
Method API GRO

		040208-0011-TB TRIP BLANK							
Analyte	Units	Blank Value	Reporting Limit						
Benzene	ug/L	ND	0.50						
Toluene	ug/L	ND	0.50						
Ethylbenzene	ug/L	ND	0.50						
Xylenes (total)	ug/L	ND	0.50						
Gasoline Range Organics	ug/L	ND r	10						
------Surrogate(s):------	----------								
a,a,a-Trifluorotoluene	%	101	20-160						

ND = Not Detected. NC = Not Calculated; See discussion. NA = Not Applicable.
All results rounded to two significant figures.

Quanterra Environmental Services

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): Gasoline Range Organics and Selected Components

Method API GRO

CLIENT ID:		B0106-MW2	B0106-MW3	B0106-MW4
ENSECO ID:		040208-0001-SA	040208-0002-SA	040208-0003-SA
PARAMETER	UNITS	RESULT FOOTNOTE	RESULT FOOTNOTE	RESULT FOOTNOTE
Benzene	ug/L	NA	NA	NA
Toluene	ug/L	NA	NA	NA
Ethylbenzene	ug/L	NA	NA	NA
Xylenes (total)	ug/L	NA	NA	NA
Gasoline Range Organics	ug/L	NA	NA	NA

CLIENT ID:		B0106-MW5	B0106-MW7	B0106-MW8
ENSECO ID:		040208-0004-SA	040208-0005-SA	040208-0006-SA
PARAMETER	UNITS	RESULT FOOTNOTE	RESULT FOOTNOTE	RESULT FOOTNOTE
Benzene	ug/L	NA	NA	NA
Toluene	ug/L	NA	NA	NA
Ethylbenzene	ug/L	NA	NA	NA
Xylenes (total)	ug/L	NA	NA	NA
Gasoline Range Organics	ug/L	NA	NA	NA

CLIENT ID:		B0106-MW9	B0106-MW10	B0106-MW13
ENSECO ID:		040208-0007-SA	040208-0008-SA	040208-0009-SA
PARAMETER	UNITS	RESULT FOOTNOTE	RESULT FOOTNOTE	RESULT FOOTNOTE
Benzene	ug/L	NA	NA	NA
Toluene	ug/L	NA	NA	NA
Ethylbenzene	ug/L	NA	NA	NA
Xylenes (total)	ug/L	NA	NA	NA
Gasoline Range Organics	ug/L	NA	NA	NA

ND = Not detected
NA = Not analyzed

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): Gasoline Range Organics and Selected Components

Method API GRO

CLIENT ID:		B0106-WINDMILL		TRIP BLANK	
ENSECO ID:		040208-0010-SA		040208-0011-TB	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Benzene	ug/L	NA		ND	
Toluene	ug/L	NA		ND	
Ethylbenzene	ug/L	NA		ND	
Xylenes (total)	ug/L	NA		ND	
Gasoline Range Organics	ug/L	NA		ND	1

1 = Gasoline Range Organics is equal to Total Volatile Petroleum Hydrocarbons within the n-alkane range C6-C10.
ND = Not detected
NA = Not analyzed

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): Metals

Total Metals

CLIENT ID:		B0106-MW2		B0106-MW3		B0106-MW4	
ENSECO ID:		040208-0001-SA		040208-0002-SA		040208-0003-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Calcium	mg/L	187		231		94.3	
Iron	mg/L	2.0		0.16		2.2	
Magnesium	mg/L	41.1		45.8		10.0	
Potassium	mg/L	ND		16.0		20.4	
Sodium	mg/L	79.9		635		586	

CLIENT ID:		B0106-MW5		B0106-MW7		B0106-MW8	
ENSECO ID:		040208-0004-SA		040208-0005-SA		040208-0006-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Calcium	mg/L	926		491		810	
Iron	mg/L	13.2		15.6		49.9	
Magnesium	mg/L	38.6		35.0		49.3	
Potassium	mg/L	5.3		56.1		22.0	
Sodium	mg/L	63.4		214		195	

CLIENT ID:		B0106-MW9		B0106-MW10		B0106-MW13	
ENSECO ID:		040208-0007-SA		040208-0008-SA		040208-0009-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Calcium	mg/L	932		797		3240	
Iron	mg/L	17.6		19.9		38.2	
Magnesium	mg/L	33.4		50.2		114	
Potassium	mg/L	7.2		8.9		ND	
Sodium	mg/L	73.2		144		330	

CLIENT ID:		B0106-WINDMILL		TRIP BLANK	
ENSECO ID:		040208-0010-SA		040208-0011-TB	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Calcium	mg/L	129		NA	
Iron	mg/L	0.18		NA	
Magnesium	mg/L	21.2		NA	
Potassium	mg/L	ND		NA	
Sodium	mg/L	90.2		NA	

ND = Not detected
NA = Not analyzed

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): Metals

Dissolved Metals

CLIENT ID:		B0106-MW2	B0106-MW3	B0106-MW4
ENSECO ID:		040208-0001-SA	040208-0002-SA	040208-0003-SA
PARAMETER	UNITS	RESULT FOOTNOTE	RESULT FOOTNOTE	RESULT FOOTNOTE
Manganese	mg/L	0.38	ND	0.090

CLIENT ID:		B0106-MW5	B0106-MW7	B0106-MW8
ENSECO ID:		040208-0004-SA	040208-0005-SA	040208-0006-SA
PARAMETER	UNITS	RESULT FOOTNOTE	RESULT FOOTNOTE	RESULT FOOTNOTE
Manganese	mg/L	0.051	0.18	2.0

CLIENT ID:		B0106-MW9	B0106-MW10	B0106-MW13
ENSECO ID:		040208-0007-SA	040208-0008-SA	040208-0009-SA
PARAMETER	UNITS	RESULT FOOTNOTE	RESULT FOOTNOTE	RESULT FOOTNOTE
Manganese	mg/L	0.020	0.093	0.64

CLIENT ID:		B0106-WINDMILL	TRIP BLANK
ENSECO ID:		040208-0010-SA	040208-0011-TB
PARAMETER	UNITS	RESULT FOOTNOTE	RESULT FOOTNOTE
Manganese	mg/L	ND	NA

ND = Not detected
NA = Not analyzed

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

Metals
Total Metals

Enseco Sample ID	040208-0001-SA	040208-0002-SA	040208-0003-SA	040208-0004-SA
Client Sample ID	B0106-MW2	B0106-MW3	B0106-MW4	B0106-MW5
ICP Metals (Total)				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date	23 JAN 95	23 JAN 95	23 JAN 95	23 JAN 95
Analysis Date	24 JAN 95	24 JAN 95	24 JAN 95	24 JAN 95
Extraction HT Met?	NA	NA	NA	NA
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS

Enseco Sample ID	040208-0005-SA	040208-0006-SA	040208-0007-SA	040208-0008-SA
Client Sample ID	B0106-MW7	B0106-MW8	B0106-MW9	B0106-MW10
ICP Metals (Total)				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date	23 JAN 95	23 JAN 95	23 JAN 95	23 JAN 95
Analysis Date	24 JAN 95	24 JAN 95	24 JAN 95	24 JAN 95
Extraction HT Met?	NA	NA	NA	NA
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS

Enseco Sample ID	040208-0009-SA	040208-0010-SA		
Client Sample ID	B0106-MW13	B0106-WINDMILL		
ICP Metals (Total)				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date	23 JAN 95	23 JAN 95		
Analysis Date	24 JAN 95	24 JAN 95		
Extraction HT Met?	NA	NA		
Analytical HT Met?	Yes	Yes		
Dilution Factor	5.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

Metals
Dissolved Metals

Enseco Sample ID	040208-0001-SA	040208-0002-SA	040208-0003-SA	040208-0004-SA
Client Sample ID	B0106-MW2	B0106-MW3	B0106-MW4	B0106-MW5
ICP Metals (Dissolved)				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	25 JAN 95	25 JAN 95	25 JAN 95	25 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS

Enseco Sample ID	040208-0005-SA	040208-0006-SA	040208-0007-SA	040208-0008-SA
Client Sample ID	B0106-MW7	B0106-MW8	B0106-MW9	B0106-MW10
ICP Metals (Dissolved)				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	25 JAN 95	25 JAN 95	25 JAN 95	25 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS

Enseco Sample ID	040208-0009-SA	040208-0010-SA		
Client Sample ID	B0106-MW13	B0106-WINDMILL		
ICP Metals (Dissolved)				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date				
Analysis Date	25 JAN 95	25 JAN 95		
Extraction HT Met?				
Analytical HT Met?	Yes	Yes		
Dilution Factor	1.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		

Quanterra Environmental Services

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

ANALYTICAL RESULTS
Metals
Total Metals

Enseco Sample ID		040208-0001-SA		040208-0002-SA		040208-0003-SA		040208-0004-SA	
Client Sample ID		B0106-MW2		B0106-MW3		B0106-MW4		B0106-MW5	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Calcium	mg/L	187	0.20	231	0.20	94.3	0.20	926	0.20
Iron	mg/L	2.0	0.10	0.16	0.10	2.2	0.10	13.2	0.10
Magnesium	mg/L	41.1	0.20	45.8	0.20	10.0	0.20	38.6	0.20
Potassium	mg/L	ND	5.0	16.0	5.0	20.4	5.0	5.3	5.0
Sodium	mg/L	79.9	5.0	635	5.0	586	5.0	63.4	5.0

Enseco Sample ID		040208-0005-SA		040208-0006-SA		040208-0007-SA		040208-0008-SA	
Client Sample ID		B0106-MW7		B0106-MW8		B0106-MW9		B0106-MW10	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Calcium	mg/L	491	0.20	810	0.20	932	0.20	797	0.20
Iron	mg/L	15.6	0.10	49.9	0.10	17.6	0.10	19.9	0.10
Magnesium	mg/L	35.0	0.20	49.3	0.20	33.4	0.20	50.2	0.20
Potassium	mg/L	56.1	5.0	22.0	5.0	7.2	5.0	8.9	5.0
Sodium	mg/L	214	5.0	195	5.0	73.2	5.0	144	5.0

Enseco Sample ID		040208-0009-SA		040208-0010-SA					
Client Sample ID		B0106-MW13		B0106-WINDMILL					
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit				
Calcium	mg/L	3240	1.0	129	0.20				
Iron	mg/L	38.2	0.50	0.18	0.10				
Magnesium	mg/L	114	1.0	21.2	0.20				
Potassium	mg/L	ND	25.0	ND	5.0				
Sodium	mg/L	330	25.0	90.2	5.0				

Anteera Environmental Services

ND = Not Detected. NC = Not Calculated; See discussion. NA = Not Applicable.
All results rounded to two significant figures.

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

ANALYTICAL RESULTS
Metals
Dissolved Metals

Enseco Sample ID / Client Sample ID		040208-0001-SA B0106-MW2		040208-0002-SA B0106-MW3		040208-0003-SA B0106-MW4		040208-0004-SA B0106-MW5	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Manganese	mg/L	0.38	0.010	ND	0.010	0.090	0.010	0.051	0.010

Enseco Sample ID / Client Sample ID		040208-0005-SA B0106-MW7		040208-0006-SA B0106-MW8		040208-0007-SA B0106-MW9		040208-0008-SA B0106-MW10	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Manganese	mg/L	0.18	0.010	2.0	0.010	0.020	0.010	0.093	0.010

Enseco Sample ID / Client Sample ID		040208-0009-SA B0106-MW13		040208-0010-SA B0106-WINDMILL					
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit				
Manganese	mg/L	0.64	0.010	ND	0.010				

ND = Not Detected. NC = Not Calculated; See discussion. NA = Not Applicable.
All results rounded to two significant figures.

Quanterra Environmental Services

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): General Inorganics

CLIENT ID:		B0106-MW2		B0106-MW3		B0106-MW4	
ENSECO ID:		040208-0001-SA		040208-0002-SA		040208-0003-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	261		442		371	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	261		442		371	
Alkalinity, Carb. as CaCO3 at pH 8.3	mg/L	ND		ND		ND	
Alkalinity, Hydrox. as CaCO3	mg/L	ND		ND		ND	
Chloride	mg/L	109	t	1180	t	790	t
Fluoride	mg/L	1.0		0.97		4.8	
pH	units	7.3		7.0		7.5	
Sulfate	mg/L	145		131		121	
Specific Conductance at 25 deg C	umhos/cm	1230		4320		3210	
Total Dissolved Solids	mg/L	760		2480	t	1880	t

CLIENT ID:		B0106-MW5		B0106-MW7		B0106-MW8	
ENSECO ID:		040208-0004-SA		040208-0005-SA		040208-0006-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	233		373		315	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	233		373		315	
Alkalinity, Carb. as CaCO3 at pH 8.3	mg/L	ND		ND		ND	
Alkalinity, Hydrox. as CaCO3	mg/L	ND		ND		ND	
Chloride	mg/L	48.5		255	t	563	t
Fluoride	mg/L	1.5		0.65		0.32	
pH	units	7.5		7.4		7.0	
Sulfate	mg/L	109		222	t	81.2	
Specific Conductance at 25 deg C	umhos/cm	777		1970		2490	
Total Dissolved Solids	mg/L	497		1190		1460	

t = Sample diluted due to the concentration of target compounds.
ND = Not detected
NA = Not analyzed

Quanterra
Environmental Services

ANALYTICAL RESULTS SUMMARY
ENSECO-RMAL PROJECT NO. 040208

MATRIX: AQUEOUS
TEST(s): General Inorganics

CLIENT ID:		B0106-MW9		B0106-MW10		B0106-MW13	
ENSECO ID:		040208-0007-SA		040208-0008-SA		040208-0009-SA	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	213		212		500	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	213		212		500	
Alkalinity, Carb. as CaCO3 at pH 8.3	mg/L	ND		ND		ND	
Alkalinity, Hydrox. as CaCO3	mg/L	ND		ND		ND	
Chloride	mg/L	58.2		359	t	647	t
Fluoride	mg/L	0.96		0.97		1.3	
pH	units	7.6		7.6		7.3	
Sulfate	mg/L	192		176		20.2	
Specific Conductance at 25 deg C	umhos/cm	953		1920		2880	
Total Dissolved Solids	mg/L	636		1190		1640	

CLIENT ID:		B0106-WINDMILL		TRIP BLANK	
ENSECO ID:		040208-0010-SA		040208-0011-TB	
PARAMETER	UNITS	RESULT	FOOTNOTE	RESULT	FOOTNOTE
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	183		NA	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	183		NA	
Alkalinity, Carb. as CaCO3 at pH 8.3	mg/L	ND		NA	
Alkalinity, Hydrox. as CaCO3	mg/L	ND		NA	
Chloride	mg/L	149	t	NA	
Fluoride	mg/L	1.0		NA	
pH	units	8.1		NA	
Sulfate	mg/L	181		NA	
Specific Conductance at 25 deg C	umhos/cm	1200		NA	
Total Dissolved Solids	mg/L	751		NA	

t = Sample diluted due to the concentration of target compounds.
ND = Not detected
NA = Not analyzed

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

General Inorganics

Enseco Sample ID Client Sample ID	040208-0001-SA B0106-MW2	040208-0002-SA B0106-MW3	040208-0003-SA B0106-MW4	040208-0004-SA B0106-MW5
Alkalinity, Total/Carbonate/ Bicarbonate/Hydroxide				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Chloride, Ion Chromatography				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	20 JAN 95	20 JAN 95	20 JAN 95	20 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Fluoride, Electrode				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	21 JAN 95	21 JAN 95	21 JAN 95	21 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
pH				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

General Inorganics

(cont.)

Enseco Sample ID Client Sample ID	040208-0001-SA B0106-MW2	040208-0002-SA B0106-MW3	040208-0003-SA B0106-MW4	040208-0004-SA B0106-MW5
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Sulfate, Ion Chromatography				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	20 JAN 95	20 JAN 95	20 JAN 95	20 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Specific Conductance				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Total Dissolved Solids (TDS)				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	23 JAN 95	23 JAN 95	23 JAN 95	23 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	5.0	5.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCEC007

General Inorganics

Enseco Sample ID Client Sample ID	040208-0005-SA B0106-MW7	040208-0006-SA B0106-MW8	040208-0007-SA B0106-MW9	040208-0008-SA B0106-MW10
Alkalinity, Total/Carbonate/ Bicarbonate/Hydroxide				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Chloride, Ion Chromatography				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	20 JAN 95	20 JAN 95	20 JAN 95	20 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Fluoride, Electrode				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	21 JAN 95	21 JAN 95	21 JAN 95	21 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
pH				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

General Inorganics

(cont.)

Enseco Sample ID Client Sample ID	040208-0005-SA B0106-MW7	040208-0006-SA B0106-MW8	040208-0007-SA B0106-MW9	040208-0008-SA B0106-MW10
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Sulfate, Ion Chromatography				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	20 JAN 95	20 JAN 95	20 JAN 95	20 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Specific Conductance				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS
Total Dissolved Solids (TDS)				
Sample Date	18 JAN 95	18 JAN 95	18 JAN 95	18 JAN 95
Received Date	19 JAN 95	19 JAN 95	19 JAN 95	19 JAN 95
Extraction Date				
Analysis Date	23 JAN 95	23 JAN 95	23 JAN 95	23 JAN 95
Extraction HT Met?				
Analytical HT Met?	Yes	Yes	Yes	Yes
Dilution Factor	1.0	1.0	1.0	1.0
Sample Matrix	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCEC007

General Inorganics

Enseco Sample ID	040208-0009-SA	040208-0010-SA		
Client Sample ID	B0106-MW13	B0106-WINDMILL		
Alkalinity, Total/Carbonate/ Bicarbonate/Hydroxide				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95		
Extraction HT Met?				
Analytical HT Met?	Yes	Yes		
Dilution Factor	1.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		
Chloride, Ion Chromatography				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date				
Analysis Date	20 JAN 95	21 JAN 95		
Extraction HT Met?				
Analytical HT Met?	Yes	Yes		
Dilution Factor	1.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		
Fluoride, Electrode				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date				
Analysis Date	21 JAN 95	21 JAN 95		
Extraction HT Met?				
Analytical HT Met?	Yes	Yes		
Dilution Factor	1.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		
pH				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95		
Extraction HT Met?				
Analytical HT Met?	Yes	Yes		

Quanterra Environmental Services

Sample Chronology

Client Name: Science & Engineering Analysis Corporat
Client ID: SCEC007

General Inorganics

(cont.)

Enseco Sample ID	040208-0009-SA	040208-0010-SA		
Client Sample ID	B0106-MW13	B0106-WINDMILL		
Dilution Factor	1.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		
Sulfate, Ion Chromatography				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date				
Analysis Date	20 JAN 95	21 JAN 95		
Extraction HT Met?				
Analytical HT Met?	Yes	Yes		
Dilution Factor	1.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		
Specific Conductance				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date				
Analysis Date	19 JAN 95	19 JAN 95		
Extraction HT Met?				
Analytical HT Met?	Yes	Yes		
Dilution Factor	1.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		
Total Dissolved Solids (TDS)				
Sample Date	18 JAN 95	18 JAN 95		
Received Date	19 JAN 95	19 JAN 95		
Extraction Date				
Analysis Date	23 JAN 95	23 JAN 95		
Extraction HT Met?				
Analytical HT Met?	Yes	Yes		
Dilution Factor	1.0	1.0		
Sample Matrix	AQUEOUS	AQUEOUS		

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

ANALYTICAL RESULTS
General Inorganics

Enseco Sample ID		040208-0001-SA		040208-0002-SA		040208-0003-SA		040208-0004-SA	
Client Sample ID		B0106-MW2		B0106-MW3		B0106-MW4		B0106-MW5	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	261	5.0	442	5.0	371	5.0	233	5.0
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	261	5.0	442	5.0	371	5.0	233	5.0
Alkalinity, Carb. as CaCO3 at pH 8.3	mg/L	ND	5.0	ND	5.0	ND	5.0	ND	5.0
Alkalinity, Hydrox. as CaCO3	mg/L	ND	5.0	ND	5.0	ND	5.0	ND	5.0
Chloride	mg/L	109 t	15.0	1180 t	60.0	790 t	30.0	48.5	3.0
Fluoride	mg/L	1.0	0.10	0.97	0.10	4.8	0.10	1.5	0.10
pH	units	7.3	--	7.0	--	7.5	--	7.5	--
Sulfate	mg/L	145	5.0	131	5.0	121	5.0	109	5.0
Specific Conductance at 25 deg C	umhos/cm	1230	1.0	4320	1.0	3210	1.0	777	1.0
Total Dissolved Solids	mg/L	760	10.0	2480 t	50.0	1880 t	50.0	497	10.0

Enseco Sample ID		040208-0005-SA		040208-0006-SA		040208-0007-SA		040208-0008-SA	
Client Sample ID		B0106-MW7		B0106-MW8		B0106-MW9		B0106-MW10	
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	373	5.0	315	5.0	213	5.0	212	5.0
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	373	5.0	315	5.0	213	5.0	212	5.0
Alkalinity, Carb. as CaCO3 at pH 8.3	mg/L	ND	5.0	ND	5.0	ND	5.0	ND	5.0
Alkalinity, Hydrox. as CaCO3	mg/L	ND	5.0	ND	5.0	ND	5.0	ND	5.0
Chloride	mg/L	255 t	15.0	563 t	30.0	58.2	3.0	359 t	15.0
Fluoride	mg/L	0.65	0.10	0.32	0.10	0.96	0.10	0.97	0.10
pH	units	7.4	--	7.0	--	7.6	--	7.6	--
Sulfate	mg/L	222 t	25.0	81.2	5.0	192	5.0	176	5.0
Specific Conductance at 25 deg C	umhos/cm	1970	1.0	2490	1.0	953	1.0	1920	1.0
Total Dissolved Solids	mg/L	1190	10.0	1460	10.0	636	10.0	1190	10.0

ND = Not Detected. NC = Not Calculated; See discussion. NA = Not Applicable.
All results rounded to two significant figures.

Quanterra Environmental Services

Client Name: Science & Engineering Analysis Corporat
Client ID: SCECO07

ANALYTICAL RESULTS
General Inorganics

Enseco Sample ID		040208-0009-SA		040208-0010-SA					
Client Sample ID		B0106-MW13		B0106-WINDMILL					
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit				
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	500	5.0	183	5.0				
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	500	5.0	183	5.0				
Alkalinity, Carb. as CaCO3 at pH 8.3	mg/L	ND	5.0	ND	5.0				
Alkalinity, Hydrox. as CaCO3	mg/L	ND	5.0	ND	5.0				
Chloride	mg/L	647 t	30.0	149 t	15.0				
Fluoride	mg/L	1.3	0.10	1.0	0.10				
pH	units	7.3	--	8.1	--				
Sulfate	mg/L	20.2	5.0	181	5.0				
Specific Conductance at 25 deg C	umhos/cm	2880	1.0	1200	1.0				
Total Dissolved Solids	mg/L	1640	10.0	751	10.0				

ND = Not Detected. NC = Not Calculated; See discussion. NA = Not Applicable.
All results rounded to two significant figures.

Quanterra Environmental Services

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Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW2
Lab ID: 040208-0001-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	2.0
Acetone	ND	ug/L	2.0
Bromomethane	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Chloroethane	ND	ug/L	2.0
Methylene chloride	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
2-Hexanone	ND	ug/L	2.0
Chlorobenzene	ND	ug/L	1.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
2-Butanone (MEK)	ND	ug/L	2.0
Carbon disulfide	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Benzene	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Styrene	ND	ug/L	1.0
Xylenes (total)	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0
Naphthalene	ND	ug/L	1.0

Surrogate	Recovery	
Toluene-d8	98	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

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Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW2
Lab ID: 040208-0001-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	105	%
1,2-Dichloroethane-d4	97	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW3
Lab ID: 040208-0002-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	2.0
Acetone	ND	ug/L	2.0
Bromomethane	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Chloroethane	ND	ug/L	2.0
Methylene chloride	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
2-Hexanone	ND	ug/L	2.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
2-Butanone (MEK)	ND	ug/L	2.0
Carbon disulfide	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Benzene	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Styrene	ND	ug/L	1.0
Xylenes (total)	ND	ug/L	1.0
Naphthalene	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0

Surrogate	Recovery	
Toluene-d8	100	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW3
Lab ID: 040208-0002-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	104	%
1,2-Dichloroethane-d4	94	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW4
Lab ID: 040208-0003-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	2.0
Acetone	ND	ug/L	2.0
Bromomethane	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Chloroethane	ND	ug/L	2.0
Methylene chloride	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
2-Hexanone	ND	ug/L	2.0
Chlorobenzene	ND	ug/L	1.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
2-Butanone (MEK)	ND	ug/L	2.0
Carbon disulfide	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Benzene	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Styrene	ND	ug/L	1.0
Xylenes (total)	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0
Naphthalene	ND	ug/L	1.0

Surrogate	Recovery	
Toluene-d8	103	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW4
Lab ID: 040208-0003-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	104	%
1,2-Dichloroethane-d4	98	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW5
Lab ID: 040208-0004-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	2.0
Acetone	ND	ug/L	2.0
Bromomethane	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Chloroethane	ND	ug/L	2.0
Methylene chloride	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
2-Hexanone	ND	ug/L	2.0
Chlorobenzene	ND	ug/L	1.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
2-Butanone (MEK)	ND	ug/L	2.0
Carbon disulfide	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Benzene	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Styrene	ND	ug/L	1.0
Xylenes (total)	ND	ug/L	1.0
Naphthalene	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0

Surrogate	Recovery	
Toluene-d8	101	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW5
Lab ID: 040208-0004-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	102	%
1,2-Dichloroethane-d4	98	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW7
Lab ID: 040208-0005-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 25 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	10
Acetone	180	ug/L	10
Bromomethane	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Chloroethane	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
2-Hexanone	ND	ug/L	10
Chlorobenzene	ND	ug/L	5.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	5.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Chloroform	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
2-Butanone (MEK)	ND	ug/L	10
Carbon disulfide	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Dibromochloromethane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Benzene	13	ug/L	5.0
Bromoform	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
Ethylbenzene	26	ug/L	5.0
Styrene	ND	ug/L	5.0
Xylenes (total)	ND	ug/L	5.0
Naphthalene	27	ug/L	5.0
Vinyl acetate	ND	ug/L	10

Surrogate	Recovery	
Toluene-d8	105	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW7
Lab ID: 040208-0005-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 25 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	103	%
1,2-Dichloroethane-d4	97	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW8
Lab ID: 040208-0006-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 25 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	33
Acetone	ND	ug/L	33
Bromomethane	ND	ug/L	33
Vinyl chloride	ND	ug/L	33
Chloroethane	ND	ug/L	33
Methylene chloride	ND	ug/L	17
1,1-Dichloroethene	ND	ug/L	17
1,1-Dichloroethane	ND	ug/L	17
2-Hexanone	ND	ug/L	33
Chlorobenzene	ND	ug/L	17
1,2-Dichloroethene (cis/trans)	ND	ug/L	17
4-Methyl-2-pentanone (MIBK)	ND	ug/L	33
Chloroform	ND	ug/L	17
1,2-Dichloroethane	ND	ug/L	17
2-Butanone (MEK)	ND	ug/L	33
Carbon disulfide	ND	ug/L	17
1,1,1-Trichloroethane	ND	ug/L	17
Carbon tetrachloride	ND	ug/L	17
Bromodichloromethane	ND	ug/L	17
1,2-Dichloropropane	ND	ug/L	17
Trichloroethene	ND	ug/L	17
Dibromochloromethane	ND	ug/L	17
cis-1,3-Dichloropropene	ND	ug/L	17
trans-1,3-Dichloropropene	ND	ug/L	17
1,1,2-Trichloroethane	ND	ug/L	17
Benzene	740	ug/L	17
Bromoform	ND	ug/L	17
1,1,2,2-Tetrachloroethane	ND	ug/L	17
Tetrachloroethene	ND	ug/L	17
Toluene	ND	ug/L	17
Ethylbenzene	100	ug/L	17
Styrene	ND	ug/L	17
Xylenes (total)	330	ug/L	17
Vinyl acetate	ND	ug/L	33
Naphthalene	94	ug/L	17

Surrogate	Recovery	
Toluene-d8	96	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW8
Lab ID: 040208-0006-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 25 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	98	%
1,2-Dichloroethane-d4	89	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW9
Lab ID: 040208-0007-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	2.0
Acetone	ND	ug/L	2.0
Bromomethane	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Chloroethane	ND	ug/L	2.0
Methylene chloride	1.1	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
2-Hexanone	ND	ug/L	2.0
Chlorobenzene	ND	ug/L	1.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
2-Butanone (MEK)	ND	ug/L	2.0
Carbon disulfide	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Benzene	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Styrene	ND	ug/L	1.0
Xylenes (total)	ND	ug/L	1.0
Naphthalene	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0

Surrogate	Recovery	
Toluene-d8	103	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW9
Lab ID: 040208-0007-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	109	%
1,2-Dichloroethane-d4	96	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW10
Lab ID: 040208-0008-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	2.0
Acetone	ND	ug/L	2.0
Bromomethane	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Chloroethane	ND	ug/L	2.0
Methylene chloride	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
2-Hexanone	ND	ug/L	2.0
Chlorobenzene	ND	ug/L	1.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
2-Butanone (MEK)	ND	ug/L	2.0
Carbon disulfide	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Benzene	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Styrene	ND	ug/L	1.0
Xylenes (total)	ND	ug/L	1.0
Naphthalene	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0

Surrogate	Recovery	
Toluene-d8	100	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW10
Lab ID: 040208-0008-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 24 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	99	%
1,2-Dichloroethane-d4	90	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW13
Lab ID: 040208-0009-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 27 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	120
Acetone	630	ug/L	120
Bromomethane	ND	ug/L	120
Vinyl chloride	ND	ug/L	120
Chloroethane	ND	ug/L	120
Methylene chloride	ND	ug/L	62
1,1-Dichloroethene	ND	ug/L	62
1,1-Dichloroethane	ND	ug/L	62
2-Hexanone	ND	ug/L	120
Chlorobenzene	ND	ug/L	62
1,2-Dichloroethene (cis/trans)	ND	ug/L	62
4-Methyl-2-pentanone (MIBK)	ND	ug/L	120
Chloroform	ND	ug/L	62
1,2-Dichloroethane	ND	ug/L	62
2-Butanone (MEK)	ND	ug/L	120
Carbon disulfide	ND	ug/L	62
1,1,1-Trichloroethane	ND	ug/L	62
Carbon tetrachloride	ND	ug/L	62
Bromodichloromethane	ND	ug/L	62
1,2-Dichloropropane	ND	ug/L	62
Trichloroethene	ND	ug/L	62
Dibromochloromethane	ND	ug/L	62
cis-1,3-Dichloropropene	ND	ug/L	62
trans-1,3-Dichloropropene	ND	ug/L	62
1,1,2-Trichloroethane	ND	ug/L	62
Benzene	2200	ug/L	62
Bromoform	ND	ug/L	62
1,1,2,2-Tetrachloroethane	ND	ug/L	62
Tetrachloroethene	ND	ug/L	62
Toluene	ND	ug/L	62
Ethylbenzene	360	ug/L	62
Styrene	ND	ug/L	62
Xylenes (total)	1600	ug/L	62
Naphthalene	220	ug/L	62
Vinyl acetate	ND	ug/L	120

Surrogate	Recovery	
Toluene-d8	98	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Mike Hoffman Approved By: Karen Kuiken

Quanterra Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW13
Lab ID: 040208-0009-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 27 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	100	%
1,2-Dichloroethane-d4	98	%

ND = Not detected
NA = Not applicable

Reported By: Mike Hoffman Approved By: Karen Kuiken

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-WINDMILL
Lab ID: 040208-0010-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 25 JAN 95

Parameter	Result	Units	Reporting Limit
Chloromethane	ND	ug/L	2.0
Acetone	ND	ug/L	2.0
Bromomethane	ND	ug/L	2.0
Vinyl chloride	ND	ug/L	2.0
Chloroethane	ND	ug/L	2.0
Methylene chloride	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
2-Hexanone	ND	ug/L	2.0
Chlorobenzene	ND	ug/L	1.0
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
2-Butanone (MEK)	ND	ug/L	2.0
Carbon disulfide	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
Carbon tetrachloride	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
1,2-Dichloropropane	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Dibromochloromethane	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
Benzene	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Styrene	ND	ug/L	1.0
Xylenes (total)	ND	ug/L	1.0
Vinyl acetate	ND	ug/L	2.0
Naphthalene	ND	ug/L	1.0

Surrogate	Recovery	
Toluene-d8	105	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Volatile Organics Target Compound List (TCL) (CONT.)

Method 8260

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-WINDMILL
Lab ID: 040208-0010-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: 20 JAN 95 Analyzed: 25 JAN 95

Surrogate	Recovery	
4-Bromofluorobenzene	100	%
1,2-Dichloroethane-d4	94	%

ND = Not detected
NA = Not applicable

Reported By: Steven Francis Approved By: Audrey Verniero

Quanterra
Environmental Services

Gasoline Range Organics and Selected Components

Method API GRO

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: TRIP BLANK
Lab ID: 040208-0011-TB
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: NA Analyzed: 20 JAN 95

Parameter	Result	Units	Reporting Limit	
Benzene	ND	ug/L	0.50	
Toluene	ND	ug/L	0.50	
Ethylbenzene	ND	ug/L	0.50	
Xylenes (total)	ND	ug/L	0.50	
Gasoline Range Organics	ND	ug/L	10	1

Surrogate	Recovery	
a,a,a-Trifluorotoluene	101	%

Note 1 : Gasoline Range Organics is equal to Total Volatile Petroleum Hydrocarbons within the n-alkane range C6-C10.

ND = Not detected
NA = Not applicable

Reported By: Anne Yardy Approved By: Mark Pokorny

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW2
Lab ID: 040208-0001-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	187	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	2.0	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	41.1	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	ND	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	79.9	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier

Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW3
Lab ID: 040208-0002-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	231	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	0.16	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	45.8	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	16.0	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	635	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW4
Lab ID: 040208-0003-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	94.3	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	2.2	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	10.0	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	20.4	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	586	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier

Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW5
Lab ID: 040208-0004-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	926	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	13.2	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	38.6	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	5.3	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	63.4	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW7
Lab ID: 040208-0005-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	491	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	15.6	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	35.0	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	56.1	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	214	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW8
Lab ID: 040208-0006-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	810	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	49.9	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	49.3	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	22.0	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	195	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW9
Lab ID: 040208-0007-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	932	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	17.6	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	33.4	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	7.2	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	73.2	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW10
Lab ID: 040208-0008-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	797	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	19.9	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	50.2	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	8.9	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	144	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW13
Lab ID: 040208-0009-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	3240	mg/L	1.0	6010	23 JAN 95	24 JAN 95
Iron	38.2	mg/L	0.50	6010	23 JAN 95	24 JAN 95
Magnesium	114	mg/L	1.0	6010	23 JAN 95	24 JAN 95
Potassium	ND	mg/L	25.0	6010	23 JAN 95	24 JAN 95
Sodium	330	mg/L	25.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Total Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-WINDMILL
Lab ID: 040208-0010-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	129	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Iron	0.18	mg/L	0.10	6010	23 JAN 95	24 JAN 95
Magnesium	21.2	mg/L	0.20	6010	23 JAN 95	24 JAN 95
Potassium	ND	mg/L	5.0	6010	23 JAN 95	24 JAN 95
Sodium	90.2	mg/L	5.0	6010	23 JAN 95	24 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Norma Baier Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW2
Lab ID: 040208-0001-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	0.38	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW3
Lab ID: 040208-0002-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	ND	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer

Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW4
Lab ID: 040208-0003-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	0.090	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW5
Lab ID: 040208-0004-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	0.051	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW7
Lab ID: 040208-0005-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	0.18	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW8
Lab ID: 040208-0006-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	2.0	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW9
Lab ID: 040208-0007-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	0.020	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW10
Lab ID: 040208-0008-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	0.093	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer

Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW13
Lab ID: 040208-0009-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	0.64	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer Approved By: Richard Persichitte

Quanterra
Environmental Services

Metals

Dissolved Metals

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-WINDMILL
Lab ID: 040208-0010-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Manganese	ND	mg/L	0.010	6010	NA	25 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Doug Gomer Approved By: Richard Persichitte

Quanterra Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW2
Lab ID: 040208-0001-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Alkalinity, Total as CaCO3 at pH 4.5	261	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	261	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Chloride	109	mg/L	15.0	300.0	NA	20 JAN 95	t
Fluoride	1.0	mg/L	0.10	340.2	NA	21 JAN 95	
pH	7.3	units	--	9040	NA	19 JAN 95	
Sulfate	145	mg/L	5.0	300.0	NA	20 JAN 95	
Specific Conductance at 25 deg C	1230	umhos/cm	1.0	120.1	NA	19 JAN 95	
Total Dissolved Solids	760	mg/L	10.0	160.1	NA	23 JAN 95	

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra
Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW3
Lab ID: 040208-0002-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total as CaCO3 at pH 4.5	442	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Bicarb. as CaCO3 at pH 4.5	442	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95
Chloride	1180	mg/L	60.0	300.0	NA	20 JAN 95 t
Fluoride	0.97	mg/L	0.10	340.2	NA	21 JAN 95
pH	7.0	units	--	9040	NA	19 JAN 95
Sulfate	131	mg/L	5.0	300.0	NA	20 JAN 95
Specific Conductance at 25 deg C	4320	umhos/cm	1.0	120.1	NA	19 JAN 95
Total Dissolved Solids	2480	mg/L	50.0	160.1	NA	23 JAN 95 t

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW4
Lab ID: 040208-0003-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Alkalinity, Total as CaCO3 at pH 4.5	371	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	371	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Chloride	790	mg/L	30.0	300.0	NA	20 JAN 95	t
Fluoride	4.8	mg/L	0.10	340.2	NA	21 JAN 95	
pH	7.5	units	--	9040	NA	19 JAN 95	
Sulfate	121	mg/L	5.0	300.0	NA	20 JAN 95	
Specific Conductance at 25 deg C	3210	umhos/cm	1.0	120.1	NA	19 JAN 95	
Total Dissolved Solids	1880	mg/L	50.0	160.1	NA	23 JAN 95	t

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra
Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW5
Lab ID: 040208-0004-SA
Matrix: AQUEOUS
Sampled: 18 JAN 95
Received: 19 JAN 95
Authorized: 19 JAN 95
Prepared: See Below
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total as CaCO3 at pH 4.5	233	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Bicarb. as CaCO3 at pH 4.5	233	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95
Chloride	48.5	mg/L	3.0	300.0	NA	20 JAN 95
Fluoride	1.5	mg/L	0.10	340.2	NA	21 JAN 95
pH	7.5	units	--	9040	NA	19 JAN 95
Sulfate	109	mg/L	5.0	300.0	NA	20 JAN 95
Specific Conductance at 25 deg C	777	umhos/cm	1.0	120.1	NA	19 JAN 95
Total Dissolved Solids	497	mg/L	10.0	160.1	NA	23 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder
Approved By: Roxanne Sullivan

Quanterra Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW7
Lab ID: 040208-0005-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Alkalinity, Total as CaCO3 at pH 4.5	373	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	373	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Chloride	255	mg/L	15.0	300.0	NA	20 JAN 95	t
Fluoride	0.65	mg/L	0.10	340.2	NA	21 JAN 95	
pH	7.4	units	--	9040	NA	19 JAN 95	
Sulfate	222	mg/L	25.0	300.0	NA	20 JAN 95	t
Specific Conductance at 25 deg C	1970	umhos/cm	1.0	120.1	NA	19 JAN 95	
Total Dissolved Solids	1190	mg/L	10.0	160.1	NA	23 JAN 95	

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW8
Lab ID: 040208-0006-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Alkalinity, Total as CaCO3 at pH 4.5	315	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	315	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Chloride	563	mg/L	30.0	300.0	NA	20 JAN 95	t
Fluoride	0.32	mg/L	0.10	340.2	NA	21 JAN 95	
pH	7.0	units	--	9040	NA	19 JAN 95	
Sulfate	81.2	mg/L	5.0	300.0	NA	20 JAN 95	
Specific Conductance at 25 deg C	2490	umhos/cm	1.0	120.1	NA	19 JAN 95	
Total Dissolved Solids	1460	mg/L	10.0	160.1	NA	23 JAN 95	

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra
Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW9
Lab ID: 040208-0007-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total as CaCO3 at pH 4.5	213	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Bicarb. as CaCO3 at pH 4.5	213	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95
Chloride	58.2	mg/L	3.0	300.0	NA	20 JAN 95
Fluoride	0.96	mg/L	0.10	340.2	NA	21 JAN 95
pH	7.6	units	--	9040	NA	19 JAN 95
Sulfate	192	mg/L	5.0	300.0	NA	20 JAN 95
Specific Conductance at 25 deg C	953	umhos/cm	1.0	120.1	NA	19 JAN 95
Total Dissolved Solids	636	mg/L	10.0	160.1	NA	23 JAN 95

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra
Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW10
Lab ID: 040208-0008-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Alkalinity, Total as CaCO3 at pH 4.5	212	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	212	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Chloride	359	mg/L	15.0	300.0	NA	20 JAN 95	t
Fluoride	0.97	mg/L	0.10	340.2	NA	21 JAN 95	
pH	7.6	units	--	9040	NA	19 JAN 95	
Sulfate	176	mg/L	5.0	300.0	NA	20 JAN 95	
Specific Conductance at 25 deg C	1920	umhos/cm	1.0	120.1	NA	19 JAN 95	
Total Dissolved Solids	1190	mg/L	10.0	160.1	NA	23 JAN 95	

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-MW13
Lab ID: 040208-0009-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Alkalinity, Total as CaCO3 at pH 4.5	500	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	500	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Chloride	647	mg/L	30.0	300.0	NA	20 JAN 95	t
Fluoride	1.3	mg/L	0.10	340.2	NA	21 JAN 95	
pH	7.3	units	--	9040	NA	19 JAN 95	
Sulfate	20.2	mg/L	5.0	300.0	NA	20 JAN 95	
Specific Conductance at 25 deg C	2880	umhos/cm	1.0	120.1	NA	19 JAN 95	
Total Dissolved Solids	1640	mg/L	10.0	160.1	NA	23 JAN 95	

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra Environmental Services

General Inorganics

Client Name: Science & Engineering Analysis Corporation-SEACOR
Client ID: B0106-WINDMILL
Lab ID: 040208-0010-SA
Matrix: AQUEOUS Sampled: 18 JAN 95 Received: 19 JAN 95
Authorized: 19 JAN 95 Prepared: See Below Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	
Alkalinity, Total as CaCO3 at pH 4.5	183	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Bicarb. as CaCO3 at pH 4.5	183	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Alkalinity, Hydrox. as CaCO3	ND	mg/L	5.0	310.1	NA	19 JAN 95	
Chloride	149	mg/L	15.0	300.0	NA	21 JAN 95	t
Fluoride	1.0	mg/L	0.10	340.2	NA	21 JAN 95	
pH	8.1	units	--	9040	NA	19 JAN 95	
Sulfate	181	mg/L	5.0	300.0	NA	21 JAN 95	
Specific Conductance at 25 deg C	1200	umhos/cm	1.0	120.1	NA	19 JAN 95	
Total Dissolved Solids	751	mg/L	10.0	160.1	NA	23 JAN 95	

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Ken Schroeder Approved By: Roxanne Sullivan

Quanterra
Environmental Services

QC LOT ASSIGNMENT REPORT
Volatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040208-0001-SA	AQUEOUS	8260-A	24 JAN 95-B	24 JAN 95-B
040208-0002-SA	AQUEOUS	8260-A	24 JAN 95-B	24 JAN 95-B
040208-0003-SA	AQUEOUS	8260-A	24 JAN 95-B	24 JAN 95-B
040208-0004-SA	AQUEOUS	8260-A	24 JAN 95-B	24 JAN 95-B
040208-0005-SA	AQUEOUS	8260-A	25 JAN 95-B	25 JAN 95-B
040208-0006-SA	AQUEOUS	8260-A	25 JAN 95-B	25 JAN 95-B
040208-0007-SA	AQUEOUS	8260-A	24 JAN 95-B	24 JAN 95-B
040208-0008-SA	AQUEOUS	8260-A	24 JAN 95-B	24 JAN 95-B
040208-0009-SA	AQUEOUS	8260-A	27 JAN 95-L	27 JAN 95-L
040208-0010-SA	AQUEOUS	8260-A	24 JAN 95-B	24 JAN 95-B

Quanterra
Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limits
Category: 8260-A Matrix: AQUEOUS QC Lot: 24 JAN 95-B Concentration Units: ug/L								
1,1-Dichloroethene	10.0	10.7	9.76	10.2	102	59-129	9.2	21
Benzene	10.0	9.93	10.1	10.0	100	68-123	1.7	15
Chlorobenzene	10.0	10.1	10.3	10.2	102	66-125	2.0	15
Toluene	10.0	10.3	10.1	10.2	102	67-124	2.0	20
Trichloroethene	10.0	9.14	9.22	9.18	92	71-124	0.9	16
Category: 8260-A Matrix: AQUEOUS QC Lot: 25 JAN 95-B Concentration Units: ug/L								
1,1-Dichloroethene	10.0	10.5	10.5	10.5	105	59-129	0.0	21
Benzene	10.0	10.4	10.4	10.4	104	68-123	0.0	15
Chlorobenzene	10.0	10.2	10.6	10.4	104	66-125	3.8	15
Toluene	10.0	9.92	10.1	10.0	100	67-124	1.8	20
Trichloroethene	10.0	9.29	8.98	9.14	91	71-124	3.4	16
Category: 8260-A Matrix: AQUEOUS QC Lot: 27 JAN 95-L Concentration Units: ug/L								
1,1-Dichloroethene	10.0	10.5	9.55	10.0	100	59-129	9.5	21
Benzene	10.0	9.92	9.71	9.82	98	68-123	2.1	15
Chlorobenzene	10.0	10.8	10.3	10.6	106	66-125	4.7	15
Toluene	10.0	9.75	9.45	9.60	96	67-124	3.1	20
Trichloroethene	10.0	9.62	9.37	9.50	95	71-124	2.6	16

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

Quanterra
Environmental Services

SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC/MS

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) SCS	Accuracy(%) Limits
Category: 8260-A				
Matrix: AQUEOUS				
QC Lot: 24 JAN 95-B QC Run: 24 JAN 95-B				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	10.0	9.05	90	84-109
Toluene-d8	10.0	10.5	105	90-109
4-Bromofluorobenzene	10.0	10.3	103	85-111
Category: 8260-A				
Matrix: AQUEOUS				
QC Lot: 25 JAN 95-B QC Run: 25 JAN 95-B				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	10.0	9.61	96	84-109
Toluene-d8	10.0	9.12	91	90-109
4-Bromofluorobenzene	10.0	9.83	98	85-111
Category: 8260-A				
Matrix: AQUEOUS				
QC Lot: 27 JAN 95-L QC Run: 27 JAN 95-L				
Concentration Units: ug/L				
1,2-Dichloroethane-d4	10.0	9.66	97	84-109
Toluene-d8	10.0	9.79	98	90-109
4-Bromofluorobenzene	10.0	10.1	101	85-111

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

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Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS

Analyte	Result	Units	Reporting Limit	
Test: 8260-TCL-AP				
Matrix: AQUEOUS				
QC Lot: 24 JAN 95-B QC Run: 24 JAN 95-B				
Chloromethane	ND	ug/L	2.0	
Acetone	ND	ug/L	2.0	
Bromomethane	ND	ug/L	2.0	
Vinyl chloride	ND	ug/L	2.0	
Chloroethane	ND	ug/L	2.0	
Methylene chloride	0.92	ug/L	1.0	J
1,1-Dichloroethene	ND	ug/L	1.0	
1,1-Dichloroethane	ND	ug/L	1.0	
2-Hexanone	ND	ug/L	2.0	
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0	
Chlorobenzene	ND	ug/L	1.0	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0	
Chloroform	ND	ug/L	1.0	
1,2-Dichloroethane	ND	ug/L	1.0	
2-Butanone (MEK)	ND	ug/L	2.0	
Carbon disulfide	ND	ug/L	1.0	
1,1,1-Trichloroethane	ND	ug/L	1.0	
Carbon tetrachloride	ND	ug/L	1.0	
Bromodichloromethane	ND	ug/L	1.0	
1,2-Dichloropropane	ND	ug/L	1.0	
Trichloroethene	ND	ug/L	1.0	
Dibromochloromethane	ND	ug/L	1.0	
cis-1,3-Dichloropropene	ND	ug/L	1.0	
trans-1,3-Dichloropropene	ND	ug/L	1.0	
1,1,2-Trichloroethane	ND	ug/L	1.0	
Benzene	ND	ug/L	1.0	
Bromoform	ND	ug/L	1.0	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	
Tetrachloroethene	ND	ug/L	1.0	
Toluene	ND	ug/L	1.0	
Ethylbenzene	ND	ug/L	1.0	
Styrene	ND	ug/L	1.0	
Xylenes (total)	ND	ug/L	1.0	
Vinyl acetate	ND	ug/L	2.0	
Naphthalene	ND	ug/L	1.0	

J = Result is detected below the reporting limit or is an estimated concentration.

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Environmental Services

METHOD BLANK REPORT
Volatile Organics by GC/MS (cont.)

Test: 8260-TCL-AP
Matrix: AQUEOUS
QC Lot: 25 JAN 95-B QC Run: 25 JAN 95-B

Analyte	Result	Units	Reporting Limit	
Chloromethane	ND	ug/L	2.0	
Acetone	ND	ug/L	2.0	
Bromomethane	ND	ug/L	2.0	
Vinyl chloride	ND	ug/L	2.0	
Chloroethane	ND	ug/L	2.0	
Methylene chloride	0.50	ug/L	1.0	J
1,1-Dichloroethene	ND	ug/L	1.0	
1,1-Dichloroethane	ND	ug/L	1.0	
2-Hexanone	ND	ug/L	2.0	
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0	
Chlorobenzene	ND	ug/L	1.0	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0	
Chloroform	ND	ug/L	1.0	
1,2-Dichloroethane	ND	ug/L	1.0	
2-Butanone (MEK)	ND	ug/L	2.0	
Carbon disulfide	ND	ug/L	1.0	
1,1,1-Trichloroethane	ND	ug/L	1.0	
Carbon tetrachloride	ND	ug/L	1.0	
Bromodichloromethane	ND	ug/L	1.0	
1,2-Dichloropropane	ND	ug/L	1.0	
Trichloroethene	ND	ug/L	1.0	
Dibromochloromethane	ND	ug/L	1.0	
cis-1,3-Dichloropropene	ND	ug/L	1.0	
trans-1,3-Dichloropropene	ND	ug/L	1.0	
1,1,2-Trichloroethane	ND	ug/L	1.0	
Benzene	ND	ug/L	1.0	
Bromoform	ND	ug/L	1.0	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	
Tetrachloroethene	ND	ug/L	1.0	
Toluene	ND	ug/L	1.0	
Ethylbenzene	ND	ug/L	1.0	
Styrene	ND	ug/L	1.0	
Xylenes (total)	ND	ug/L	1.0	
Vinyl acetate	ND	ug/L	2.0	
Naphthalene	ND	ug/L	1.0	

J = Result is detected below the reporting limit or is an estimated concentration.

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METHOD BLANK REPORT
Volatile Organics by GC/MS (cont.)

Test: 8260-TCL-AP
Matrix: AQUEOUS
QC Lot: 27 JAN 95-L QC Run: 27 JAN 95-L

Analyte	Result	Units	Reporting Limit	
Chloromethane	ND	ug/L	2.0	
Acetone	ND	ug/L	2.0	
Bromomethane	ND	ug/L	2.0	
Vinyl chloride	ND	ug/L	2.0	
Chloroethane	ND	ug/L	2.0	
Methylene chloride	0.28	ug/L	1.0	J
1,1-Dichloroethene	ND	ug/L	1.0	
1,1-Dichloroethane	ND	ug/L	1.0	
2-Hexanone	ND	ug/L	2.0	
1,2-Dichloroethene (cis/trans)	ND	ug/L	1.0	
Chlorobenzene	ND	ug/L	1.0	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0	
Chloroform	ND	ug/L	1.0	
1,2-Dichloroethane	ND	ug/L	1.0	
2-Butanone (MEK)	ND	ug/L	2.0	
Carbon disulfide	ND	ug/L	1.0	
1,1,1-Trichloroethane	ND	ug/L	1.0	
Carbon tetrachloride	ND	ug/L	1.0	
Bromodichloromethane	ND	ug/L	1.0	
1,2-Dichloropropane	ND	ug/L	1.0	
Trichloroethene	ND	ug/L	1.0	
Dibromochloromethane	ND	ug/L	1.0	
cis-1,3-Dichloropropene	ND	ug/L	1.0	
trans-1,3-Dichloropropene	ND	ug/L	1.0	
1,1,2-Trichloroethane	ND	ug/L	1.0	
Benzene	ND	ug/L	1.0	
Bromoform	ND	ug/L	1.0	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	
Tetrachloroethene	ND	ug/L	1.0	
Toluene	ND	ug/L	1.0	
Ethylbenzene	ND	ug/L	1.0	
Styrene	ND	ug/L	1.0	
Xylenes (total)	ND	ug/L	1.0	
Vinyl acetate	ND	ug/L	2.0	
Naphthalene	ND	ug/L	1.0	

J = Result is detected below the reporting limit or is an estimated concentration.

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QC LOT ASSIGNMENT REPORT
Organics by Chromatography

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040208-0011-TB	AQUEOUS	8020-G-A	20 JAN 95-A	20 JAN 95-A

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DUPLICATE CONTROL SAMPLE REPORT
Organics by Chromatography

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: 8020-G-A								
Matrix: AQUEOUS								
QC Lot: 20 JAN 95-A								
Concentration Units: ug/L								
Benzene	5.00	4.44	4.33	4.38	88	70-120	2.5	10
Toluene	47.0	44.8	44.3	44.6	95	71-126	1.1	10
Ethylbenzene	24.0	23.2	23.1	23.2	96	74-119	0.4	10
Xylenes (total)	73.0	69.8	70.0	69.9	96	72-122	0.3	10
Gasoline Range Organics	500	384	391	388	78	50-100	1.8	10

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

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SINGLE CONTROL SAMPLE REPORT
Organics by Chromatography

Analyte	Concentration Spiked	Measured	Accuracy(%) SCS	Limits
Category: 8020-G-A				
Matrix: AQUEOUS				
QC Lot: 20 JAN 95-A QC Run: 20 JAN 95-A				
Concentration Units: ug/L				
a,a,a-Trifluorotoluene	30.0	28.7	96	81-120

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

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METHOD BLANK REPORT
Organics by Chromatography

Analyte	Result	Units	Reporting Limit
Test: 8020-GRO-AP			
Matrix: AQUEOUS			
QC Lot: 20 JAN 95-A QC Run: 20 JAN 95-A			
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	ND	ug/L	0.50
Gasoline Range Organics	ND	ug/L	10

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Environmental Services

QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040208-0001-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0001-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0002-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0002-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0003-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0003-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0004-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0004-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0005-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0005-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0006-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0006-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0007-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0007-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0008-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0008-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0009-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0009-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L
040208-0010-SA	AQUEOUS	ICP-AD	25 JAN 95-9A	-
040208-0010-SA	AQUEOUS	ICP-AT	23 JAN 95-9L	23 JAN 95-9L

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DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Limits	Precision (RPD) DCS	Limit
Category: ICP-AD								
Matrix: AQUEOUS								
QC Lot: 25 JAN 95-9A								
Concentration Units: mg/L								
Aluminum	5.00	5.13	5.03	5.08	102	90-110	1.9	20
Antimony	0.500	0.504	0.494	0.499	100	90-110	1.9	20
Arsenic	0.500	0.509	0.501	0.505	101	90-110	1.6	20
Barium	0.500	0.520	0.516	0.518	104	90-110	0.7	20
Beryllium	0.500	0.523	0.521	0.522	104	90-110	0.4	20
Cadmium	0.500	0.500	0.494	0.497	99	90-110	1.2	20
Calcium	20.0	20.2	20.0	20.1	100	90-110	1.3	20
Chromium	0.500	0.510	0.505	0.507	101	90-110	0.9	20
Cobalt	0.500	0.523	0.515	0.519	104	90-110	1.6	20
Copper	0.500	0.513	0.505	0.509	102	90-110	1.7	20
Iron	5.00	5.12	5.06	5.09	102	90-110	1.2	20
Lead	0.500	0.530	0.498	0.514	103	90-110	6.3	20
Magnesium	20.0	19.8	19.2	19.5	98	90-110	2.9	20
Manganese	0.500	0.524	0.513	0.518	104	90-110	2.2	20
Nickel	0.500	0.519	0.507	0.513	103	90-110	2.4	20
Potassium	50.0	49.0	48.4	48.7	97	90-110	1.3	20
Silver	0.500	0.516	0.507	0.511	102	90-110	1.9	20
Sodium	200	201	197	199	100	90-110	1.8	20
Vanadium	0.500	0.521	0.511	0.516	103	90-110	1.9	20
Zinc	0.500	0.509	0.503	0.506	101	90-110	1.3	20
Category: ICP-AT								
Matrix: AQUEOUS								
QC Lot: 23 JAN 95-9L								
Concentration Units: mg/L								
Aluminum	2.00	1.96	1.96	1.96	98	80-116	0.2	10
Antimony	0.500	0.465	0.468	0.467	93	80-115	0.7	14
Arsenic	0.500	0.491	0.483	0.487	97	80-115	1.6	17
Barium	2.00	1.78	1.79	1.78	89	80-114	0.5	10
Beryllium	0.0500	0.0501	0.0503	0.0502	100	80-120	0.6	10
Boron	10	9.40	9.43	9.41	94	80-120	0.3	10
Cadmium	0.0500	0.0426	0.0481	0.0454	91	80-119	12	16
Calcium	100	102	102	102	102	80-114	0.8	10
Chromium	0.200	0.192	0.192	0.192	96	80-116	0.3	11
Cobalt	0.500	0.497	0.487	0.492	98	80-114	2.1	10
Copper	0.250	0.248	0.243	0.245	98	80-120	2.0	10
Iron	1.00	0.996	0.993	0.994	99	80-120	0.3	11
Lead	0.500	0.493	0.490	0.491	98	80-119	0.6	10

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

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DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: ICP-AT								
Matrix: AQUEOUS								
QC Lot: 23 JAN 95-9L								
Concentration Units: mg/L								
Magnesium	50.0	51.7	52.0	51.8	104	81-120	0.6	10
Manganese	0.500	0.515	0.491	0.503	101	80-116	4.7	10
Nickel	0.500	0.493	0.479	0.486	97	80-114	3.0	10
Potassium	50.0	51.8	52.4	52.1	104	80-120	1.0	13
Selenium	0.500	0.534	0.536	0.535	107	80-120	0.4	20
Silver	0.050	0.0476	0.0482	0.0479	96	80-119	1.4	15
Sodium	100	104	105	105	105	80-120	1.0	10
Tin	0.500	0.481	0.483	0.482	96	80-120	0.4	20
Vanadium	0.500	0.480	0.479	0.480	96	80-116	0.2	10
Zinc	0.500	0.495	0.483	0.489	98	80-120	2.5	13

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

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METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICP-AT			
Matrix: AQUEOUS			
QC Lot: 23 JAN 95-9L QC Run: 23 JAN 95-9L			
Calcium	ND	mg/L	0.20
Iron	ND	mg/L	0.10
Magnesium	ND	mg/L	0.20
Potassium	ND	mg/L	5.0
Sodium	ND	mg/L	5.0

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Environmental Services

QC LOT ASSIGNMENT REPORT
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040208-0001-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0001-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0001-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0001-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0001-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0001-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0001-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0002-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0002-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0002-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0002-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0002-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0002-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0002-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0003-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0003-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0003-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0003-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0003-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0003-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0003-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0004-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0004-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0004-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0004-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0004-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0004-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0004-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0005-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0005-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0005-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0005-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0005-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0005-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0005-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0006-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0006-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0006-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0006-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0006-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0006-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0006-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0007-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0007-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0007-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0007-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0007-SA	AQUEOUS	PH-A	19 JAN 95-9D	-

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QC LOT ASSIGNMENT REPORT
Wet Chemistry Analysis and Preparation (cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
040208-0007-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0007-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0008-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0008-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0008-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0008-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0008-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0008-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0008-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0009-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0009-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0009-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0009-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0009-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0009-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0009-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-
040208-0010-SA	AQUEOUS	CL-IC-A	20 JAN 95-6A	-
040208-0010-SA	AQUEOUS	SO4-IC-A	20 JAN 95-6A	-
040208-0010-SA	AQUEOUS	F-A	21 JAN 95-T6	-
040208-0010-SA	AQUEOUS	TDS-A	23 JAN 95-6B	23 JAN 95-6B
040208-0010-SA	AQUEOUS	PH-A	19 JAN 95-9D	-
040208-0010-SA	AQUEOUS	COND-A	19 JAN 95-9D	-
040208-0010-SA	AQUEOUS	ALK-A	19 JAN 95-9D	-

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DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Limits	Precision (RPD) DCS	Precision Limit
Category: CL-IC-A Matrix: AQUEOUS QC Lot: 20 JAN 95-6A Concentration Units: mg/L								
Chloride	50	48.9	49.4	49.2	98	90-110	0.9	10
Category: SO4-IC-A Matrix: AQUEOUS QC Lot: 20 JAN 95-6A Concentration Units: mg/L								
Sulfate	100	104	104	104	104	90-110	0.4	10
Category: F-A Matrix: AQUEOUS QC Lot: 21 JAN 95-T6 Concentration Units: mg/L								
Fluoride	8.24	7.77	8.22	8.00	97	88-112	5.6	15
Category: TDS-A Matrix: AQUEOUS QC Lot: 23 JAN 95-6B Concentration Units: mg/L								
Total Dissolved Solids	974	948	952	950	98	87-107	0.4	10
Category: PH-A Matrix: AQUEOUS QC Lot: 19 JAN 95-9D Concentration Units: units								
pH	9.05	8.96	8.97	8.96	99	97-102	0.1	10

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

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Environmental Services

DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation (cont.)

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Measured AVG	Accuracy Average(%) DCS	Accuracy Average(%) Limits	Precision (RPD) DCS	Precision (RPD) Limit
Category: COND-A Matrix: AQUEOUS QC Lot: 19 JAN 95-9D Concentration Units: umhos/cm								
Specific Conductance at 25 deg C	1220	1260	1260	1260	103	90-110	0.2	10
Category: ALK-A Matrix: AQUEOUS QC Lot: 19 JAN 95-9D Concentration Units: mg/L								
Alkalinity, Total as CaCO3 at pH 4.5	139	141	142	142	102	91-111	0.7	10

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

Quanterra
Environmental Services

METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: TDS-BAL-A			
Matrix: AQUEOUS			
QC Lot: 23 JAN 95-6B QC Run: 23 JAN 95-6B			
Total Dissolved Solids	ND	mg/L	10.0

CHAIN OF CUSTODY

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

SAMPLE SAFE™ CONDITIONS

QUANTERRA CLIENT: SECOR	PACKED BY
PROJECT: B0106-001-01 SA 0512	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY
SAMPLING COMPANY	SEALED FOR SHIPPING BY
SAMPLING SITE: South 4 Lakes N Mi.	SEAL NUMBER
TEAM LEADER: Scott Andrews (763-8844 FAX)	SEAL INTACT UPON RECEIPT BY LAB. ☐ Yes ☐ No

SEAL NUMBER

CONDITION OF CONTENTS

INITIAL CONTENTS TEMP. °C

SAMPLING STATUS ☐ Done ☐ Continuing Until

CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

DATE	TIME	SAMPLE ID/DESCRIPTION		SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
1/18/95	0920	B0106-MW2	1	Wtr	4	8260/TDS/Alw Dissolv Major Cations/Anions	
	0910	B0106-MW3	2	Wtr		"	
	0930	B0106-MW4	3	Wtr		"	
	1005	B0106-MW5	4	Wtr		"	
	1150	B0106-MW7	5	Wtr		"	
	1220	B0106-MW8	6	Wtr		"	
	1120	B0106-MW9	7	Wtr		"	
	1015	B0106-MW10	8	Wtr		"	
	1300	B0106-MW13	9	Wtr		"	
	0945	B0106-WINDMILL	10	Wtr		"	

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[illegible]		1/18	1400

SHIPPING DETAILS

DELIVERED TO SHIPPER BY

METHOD OF SHIPMENT

AIRBILL NUMBER

RECEIVED FOR LAB: QES, D

SIGNED: Bonnie Major

DATE/TIME: 1/19/95 0830

QUANTERRA PROJECT NUMBER: 40208

QUA-4119

White - CLIENT Pink - LAB

CHAIN OF CUSTODY

Quanterra Inc., Inc.
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

Quanterra Environmental Services

QUANTERRA CLIENT: SECOR	SAMPLE SAFE™ CONDITIONS
PROJECT: B0106-001-01 SA0512	PACKED BY / SEAL NUMBER
SAMPLING COMPANY	SEAL INTACT UPON RECEIPT BY SAMPLING COMPANY / CONDITION OF CONTENTS
SAMPLING SITE: South 4 Lakes N.M.	SEALED FOR SHIPPING BY / INITIAL CONTENTS TEMP. °C
TEAM LEADER: Scott Andrews (713-8844 (FAX)	SEAL NUMBER / SAMPLING STATUS ☐ Done ☐ Continuing Until
	SEAL INTACT UPON RECEIPT BY LAB. ☐ Yes ☐ No / CONTENTS TEMPERATURE UPON RECEIPT BY LAB. °C

DATE	TIME	SAMPLE ID/DESCRIPTION	SAMPLE TYPE	# CONTAINERS	ANALYSIS PARAMETERS	REMARKS
1/18/95		Trip Blank II	Wtr	1	BTEX/TVPH	8020/8015 M

CUSTODY TRANSFERS PRIOR TO SHIPPING

RELINQUISHED BY (SIGNED)	RECEIVED BY (SIGNED)	DATE	TIME
[illegible]		1/18/95	1630

SHIPPING DETAILS

DELIVERED TO SHIPPER BY

METHOD OF SHIPMENT / AIRBILL NUMBER

RECEIVED FOR LAB	SIGNED	DATE/TIME
QESD	Bonnie Magor	1/19/95 0830

QUANTERRA PROJECT NUMBER: 40208

QUA-4119

White – CLIENT Pink – LAB

APPENDIX E

COMPARATIVE ANALYSIS

AND

FINGERPRINTING OF OILS

December 29, 1994

TO: S. DeAlbuquerque
RM 1058, Houston Office

RE: Hydrocarbon Fingerprinting of Oils from the South Four Lakes Unit, Lea County, NM.

FROM: D. Boatwright
RM 248 GB, Bartlesville

As per your request of 10/07/94, the geochemical fingerprinting of three crude oil samples from the South Four Lakes Unit area has been completed and is reported herein. Analyses included bulk properties, whole oil gas chromatography (WOGC), C15+ saturate gas chromatography (SATGC) and high resolution gas chromatography (HRGC). The results are presented in tabular and graphic form following the interpretative discussion.

Special effort was made to evaluate the effects, if any, of biodegradation and waterwashing on the composition of the monitor well sample relative to the oil well production samples. Also, the compositions of the two production oils were compared to determine if they were genetically related.

CONCLUSIONS

1. Whole oil hydrocarbon fingerprints of two South Four Lakes Unit oils and one oil recovered from a water monitor well have been obtained and are available for forensic evidence.

2. The two production oils (Well #2 and #8) are identical and represent the same oil reservoired in different formations.

3. The oil from the monitor well is the same as the production oils, but has experienced minor waterwashing and possibly some biodegradation.

DISCUSSION

The bulk properties (TABLE I) show the identical nature of the two production oils. The differences seen for the monitor well oil are minor and attributed to waterwashing/biodegradation losses as a result of its contact with the ground water.

The WOGC traces of the production oils (Figures 1 and 2) show that although the oils are considered the same there are minor differences in their hydrocarbon compositions. Considering that they are atmospheric crudes collected at the well head in open containers, the differences in their patterns are minor and

believed to be artifacts of the sampling history. The WOGC of the monitor well oil shows the C10+ fraction to be identical to the production oils, however the light fraction (C4-8) shows considerable losses.

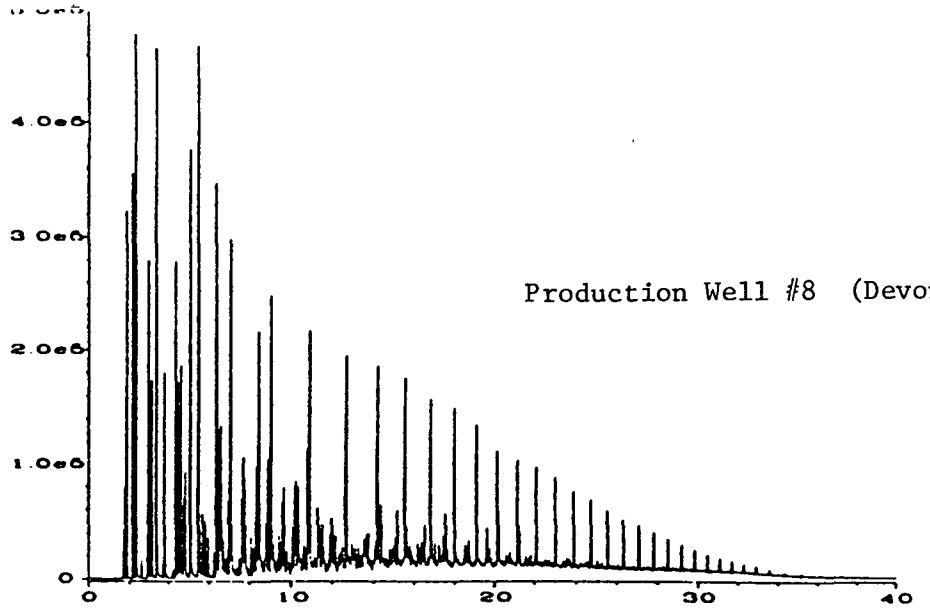
The exclusive loss of light hydrocarbons could be the result of evaporation, waterwashing and/or biodegradation. Because of the nature of the sample collection in this study, selective evaporative loss cannot be discounted. This option is considered unlikely after assurances from the field operative, David Harmes (E&P, Odessa) that all oils were collected and handled in like manner.

Some combination of waterwashing and biodegradation is believed to be the most probable cause of the loss of lights from this sample. The limited range of hydrocarbons (C4-8) affected suggests the degradative processes involved are recent and minor and consistent with minor waterwashing. The solubilities of C4-8 hydrocarbons is quite high and sufficient to explain the losses without invoking biodegradation. Also, the selected reductions of benzene (B) vs. nC7, toluene (T) vs. nC8 and the xylenes (X) vs. nC9 (Figures 1,2 and 4) are typical of solubility losses, but just opposite of what would be expected for biodegradation. However, if waterwashing was the only process affecting the oil, one would not expect the large methylcyclohexane (MCH) peak observed. This pattern has been noted in some biodegraded oils by K.F.M. Thompson (1988, and references therein).

cc: W.D.Byrd (r) K.R.Sundberg, w/encl.
E&P Records, w/encl.

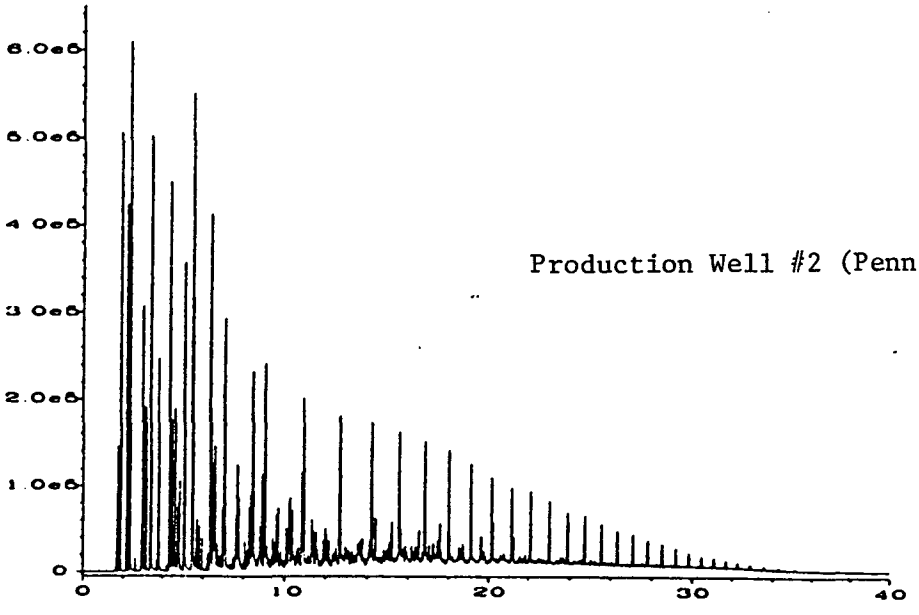
TABLE I

TEST	WELL #2	WELL #8	MONITOR WELL
API	46.8	46.0	43.8
POUR POINT (F)	-38	-36	- 63
VIS @100 F	25.6	25.0	Not Determined
VIS @70 F	26.1	25.0	25.0
MWT	155	151	162
S (wt%)	0.12	0.11	0.12



Production Well #8 (Devonian)

Sig. 1 in C:\HPCHEM\1\DATA\WO94CKO.D



Production Well #2 (Pennsylvanian)

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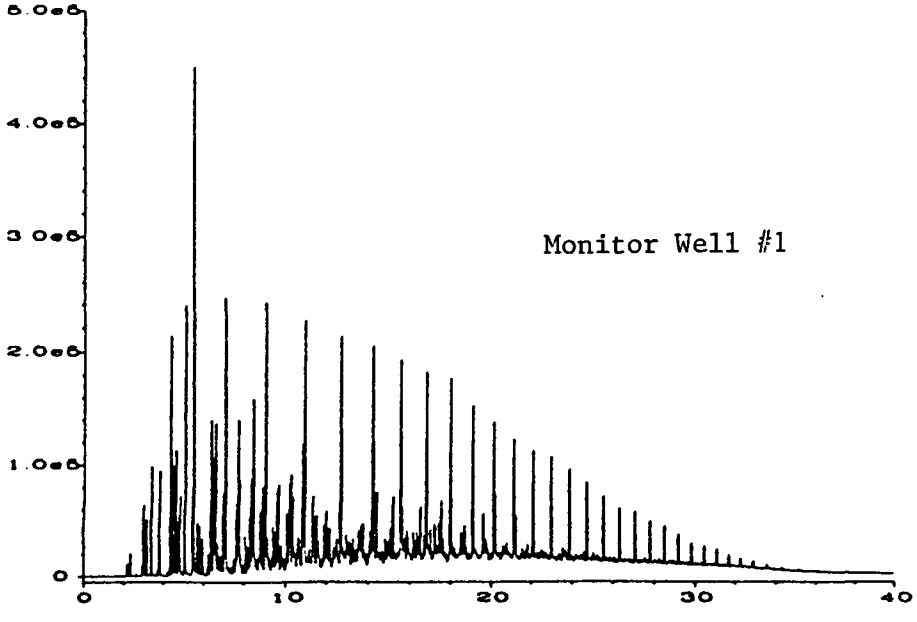


Monitor Well #1

Sig. 1 in C:\HPCHEM\1\DATA\WO94CBX.D

Figure 1.

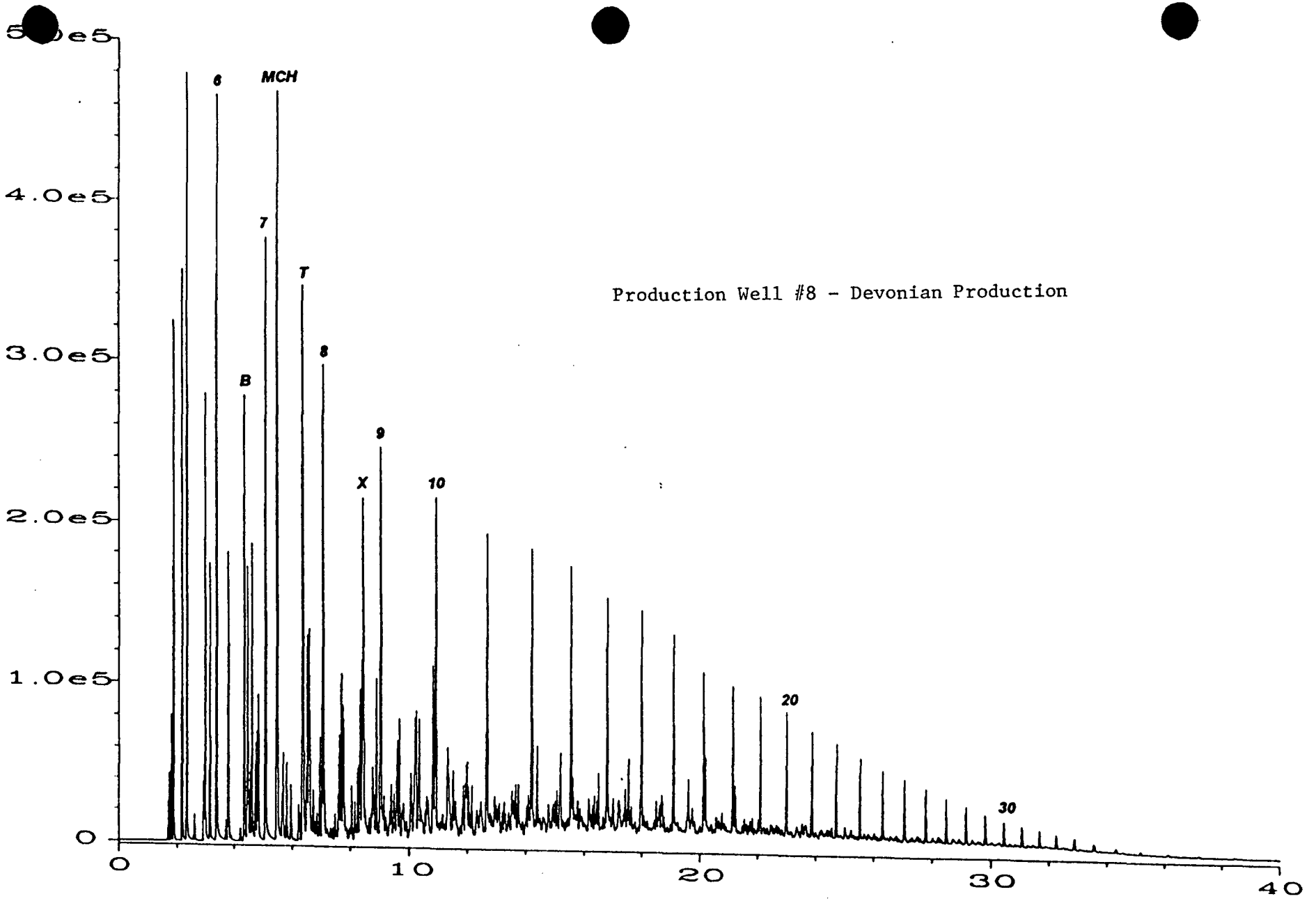

Production Well #8 - Devonian Production
6
MCH
7
T
8
B
9
X
10
20
30
4.0e5
3.0e5
2.0e5
1.0e5
0
0
10
20
30
40
Sig. 1 in C:\HPCHEM\1\DATA\W094CK0.D

Figure 2a.

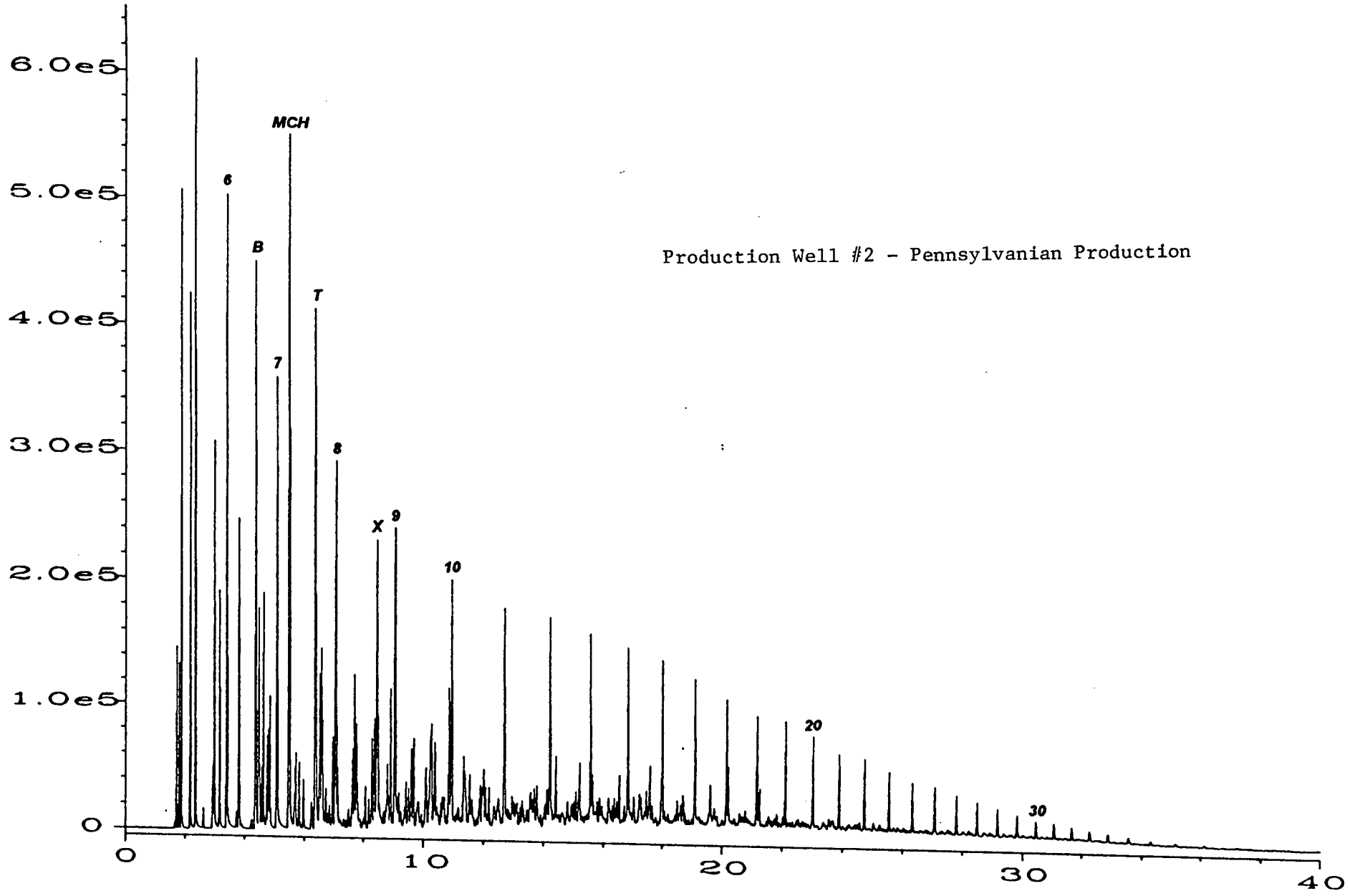

Production Well #2 - Pennsylvanian Production
6.0e5
5.0e5
4.0e5
3.0e5
2.0e5
1.0e5
0
MCH
6
B
T
7
8
X
9
10
20
30
0
10
20
30
40
Sig. 1 in C:\HPCHEM\1\DATA\W094CKP.D

Figure 2b.

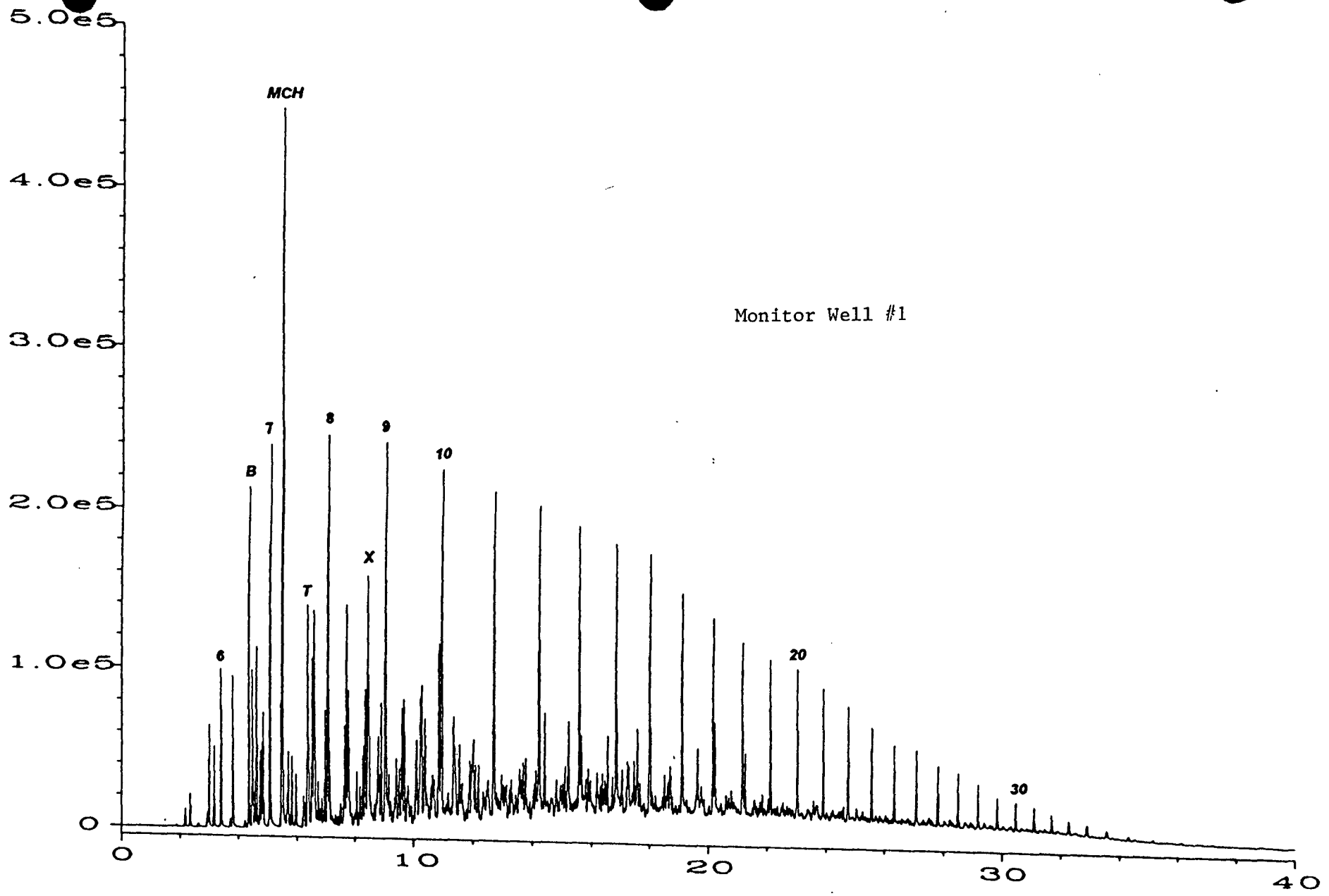
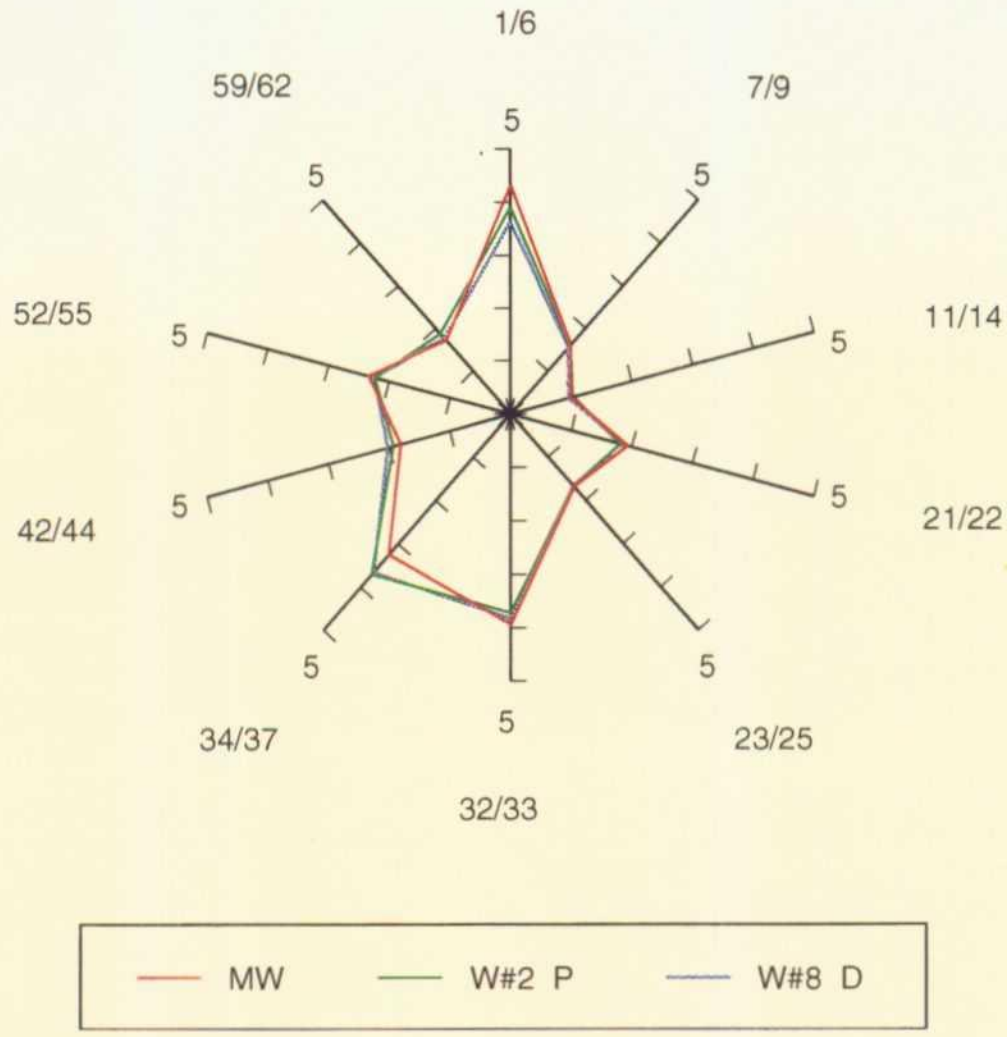

5.0e5
4.0e5
3.0e5
2.0e5
1.0e5
0
MCH
B
7
8
9
10
X
T
6
20
30
Monitor Well #1
0
10
20
30
40
Sig. 1 in C:\HPCHEM\1\DATA\W094CBX.D

Figure 2c.



COMPARISON OF HYDROCARBON FINGERPRINTS

SOUTH FOUR LAKES OILS

MW : monitor well
W#2 P : unit well #2, Pennsylvanian production
W#8 D : unit well #8, Devonian production
1/6, 7/9, 11/14, . . . GC peak ratios.

Figure 3.

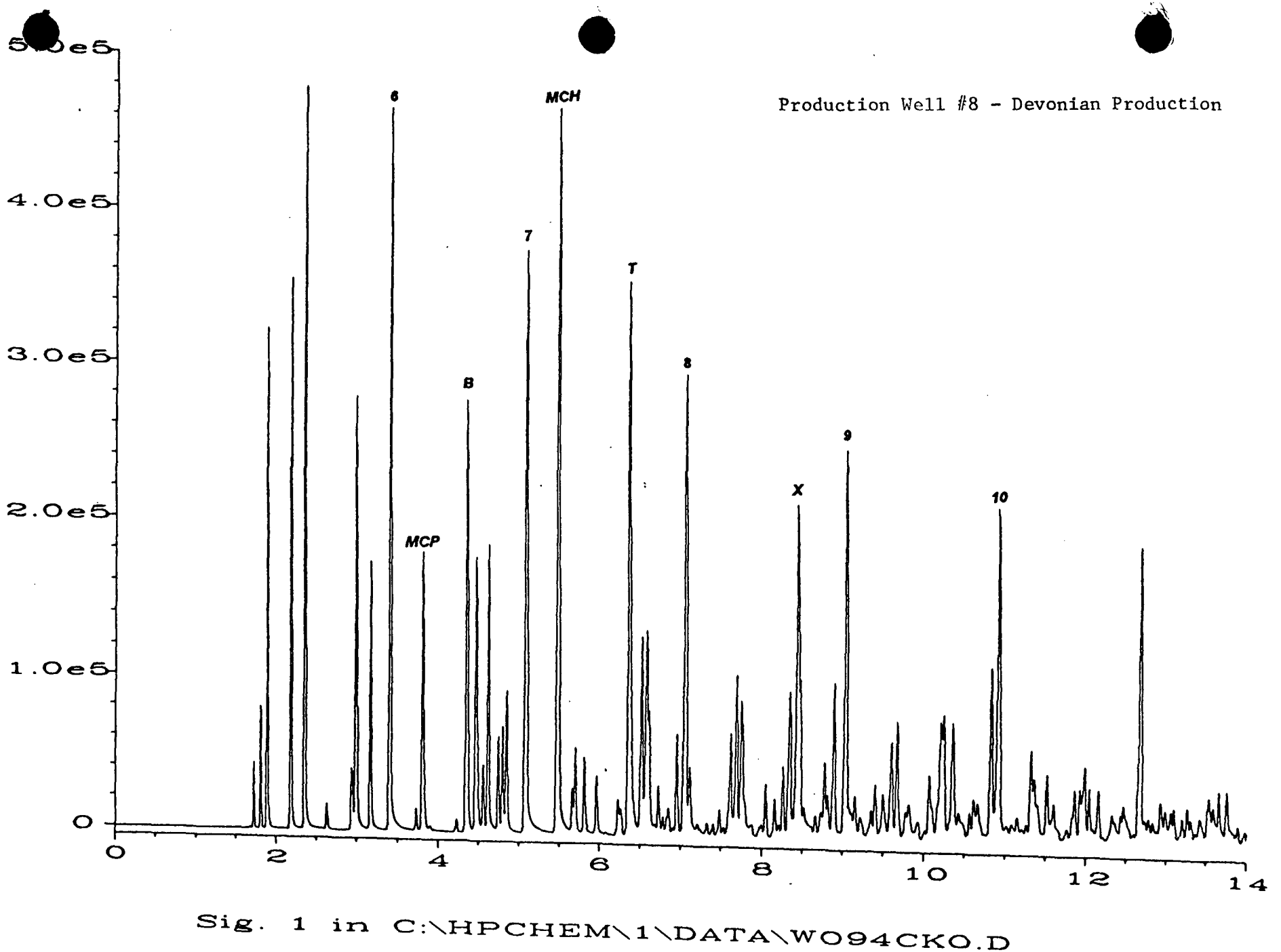

Production Well #8 - Devonian Production
6
MCH
7
T
8
B
MCP
X
9
10
4.0e5
3.0e5
2.0e5
1.0e5
0
0
2
4
6
8
10
12
14
Sig. 1 in C:\HPCHEM\1\DATA\W094CKO.D

Figure 4a.

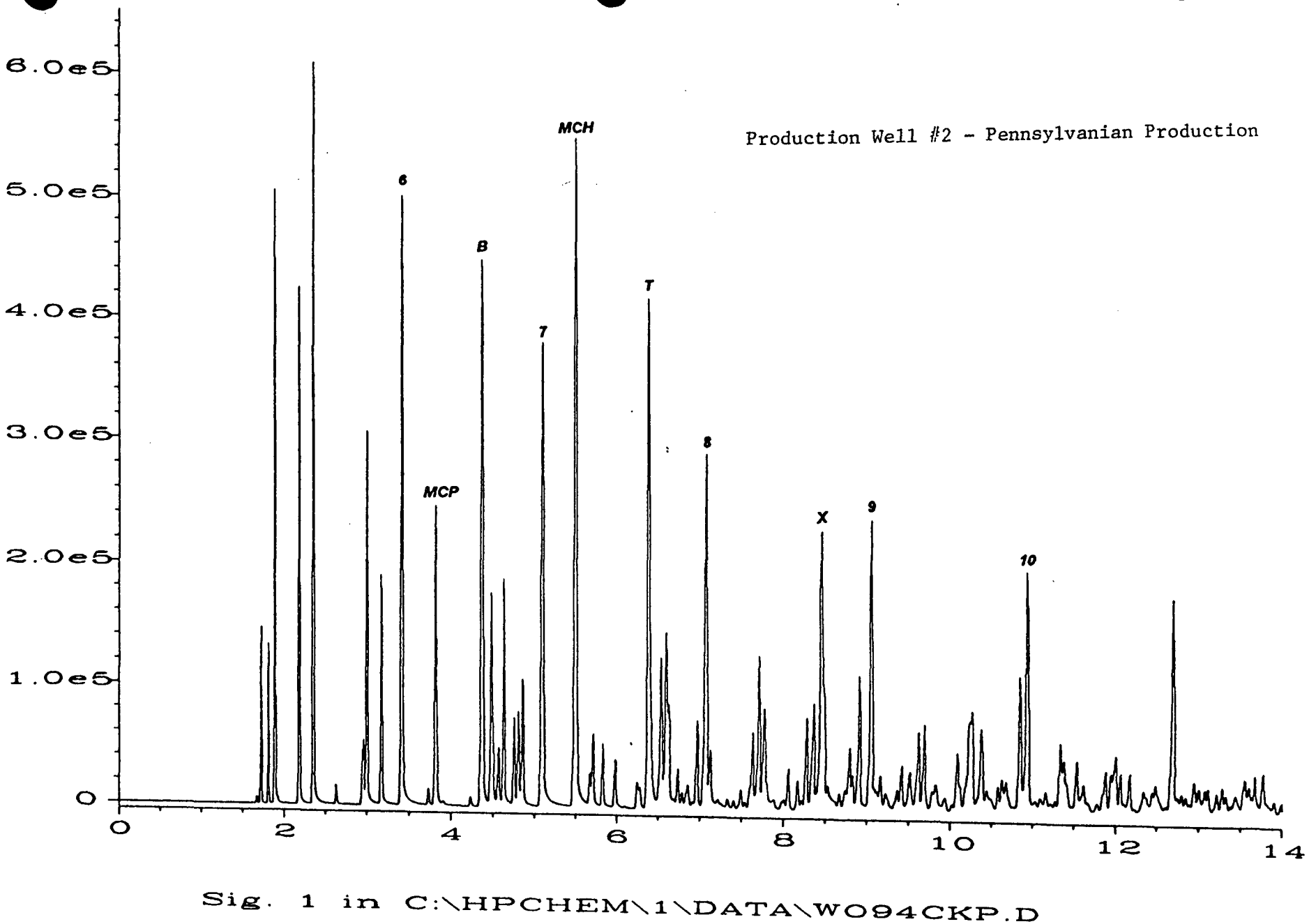
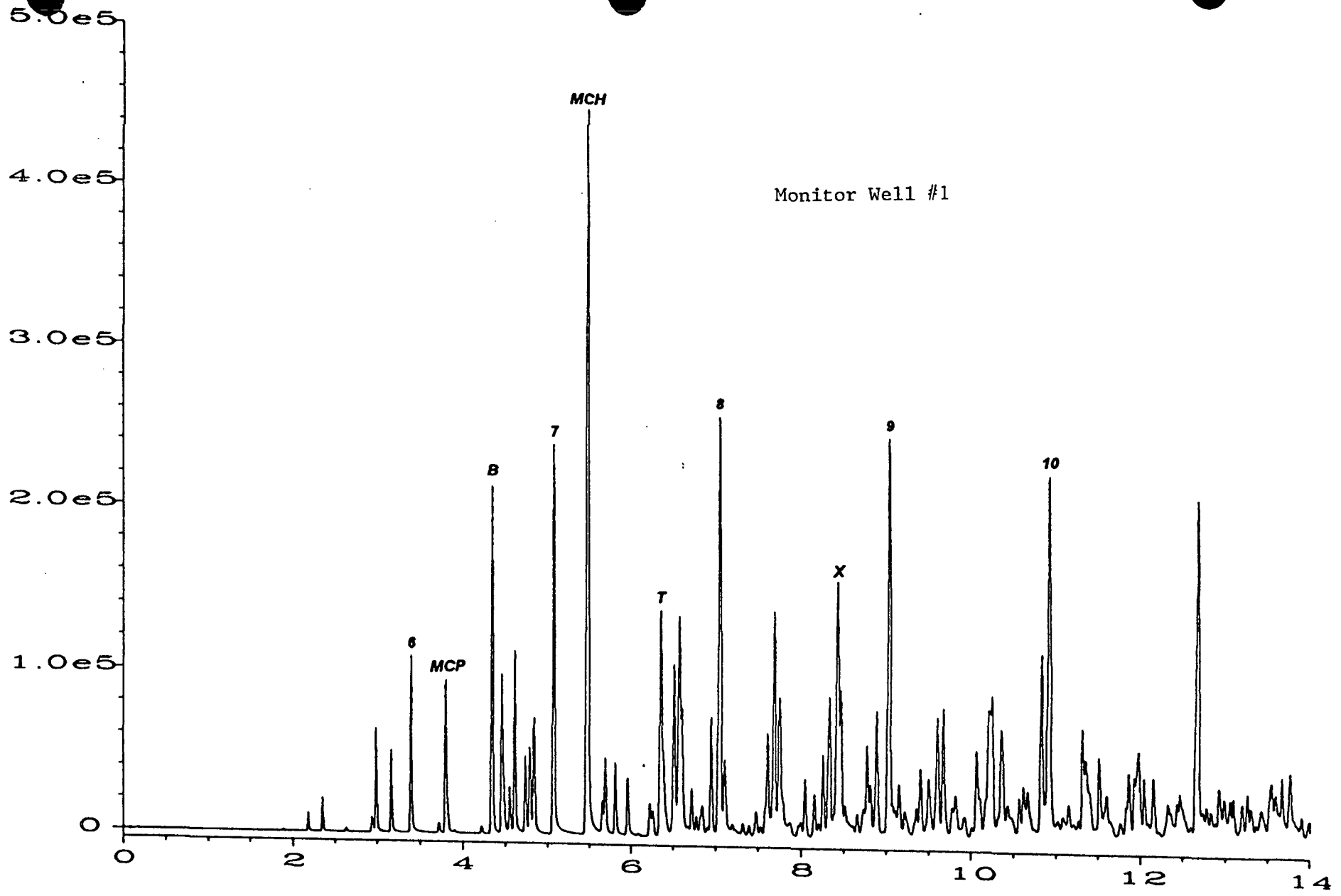

Production Well #2 - Pennsylvanian Production
6.0e5
5.0e5
4.0e5
3.0e5
2.0e5
1.0e5
0
MCH
6
B
T
7
8
MCP
X
9
10
0
2
4
6
8
10
12
14
Sig. 1 in C:\HPCHEM\1\DATA\WO94CKP.D

Figure 4b.



Sig. 1 in C:\HPCHEM\1\DATA\W094CBX.D

Figure 4c.