GW - 114

4/91

WORK PLANS

SITE INVESTIGATION

SITE INVESTIGATION
DOWELL SCHLUMBERGER INCORPORATED
ARTESIA, NEW MEXICO

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Western Water Consultants, Inc.

ARTESIA REPORT
TABLE OF CONTENTS

ARTESIA REPORT
TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Dowell Schlumberger Inc. (DS) owns an oil field service facility located at 500 East Richey Avenue in Artesia, New Mexico which has been in operation since 1969. DS purchased the property in 1972; prior to this date, the property had been leased. Western Water Consultants, Inc. (WWC) was hired by DS to conduct an investigation to confirm soil and ground-water contamination, to track the extent of impact north and east of the facility, and to sample existing monitoring wells on the property. This work is a continuation of the site investigation and underground storage tank removal conducted by Reed and Associates, Inc. (RAI), a Geraghty and Miller affiliate, of Austin, Texas.

After obtaining an access agreement from the adjacent property owner, fieldwork commenced in late January 1991. Four ground-water monitoring wells and two boreholes were installed north and east of the DS facility. Soil samples were collected during drilling, and ground-water was sampled from all boreholes and from new and existing monitoring wells. Free product present in the existing monitoring well in the northeast corner of the property was sampled in lieu of ground-water from this well.

The facility is underlain by Quaternary alluvium. Lithology and stratigraphy are consistent across the site. The typical vertical sequence comprises approximately 15 feet of red gypsiferous silty clay to clay, which overlies an interbedded silty clay/gypsum interval. Gypsum layers in this interval become increasingly "rubblized" with depth, probably due to dissolution and/or fracturing. The majority of the ground-water appears to be transported in these rubble zones rather than in the less permeable silty clay. Saturated zones are

encountered at depths of 20 to 26 feet below surface, and flow direction is to the northeast. Static water levels are approximately 17 feet below surface.

Ground-water contaminants upgradient from the shop are aromatic hydrocarbons possibly derived from leaking former fuel USTs. A separate possible source associated with the abandoned sump and/or shop cleaning and equipment maintenance is indicated by the presence of chlorinated hydrocarbons downgradient from the shop. More extensive volatile hydrocarbon contamination in soil and ground-water extends off-site to the northeast from the former underground wastewater tanks in the northeast corner of the property. Soil contamination appears to be restricted to an area within 75 feet of the north property boundary. Ground-water contamination, particularly by chlorinated hydrocarbons in the low parts per billion range, is more widespread. Off-site contamination from the acid dock, and from fuel spills and leakage from a diesel generator west of the acid dock, appear to be minimal.

Further ground-water sampling is recommended to define trends in contaminant concentrations and migration pathways. Additional investigation, including aquifer testing, will be necessary to determine the most effective method of remediation. Further delineation of the chlorinated hydrocarbon contamination east and northeast of the shop also may be advisable.

INTRODUCTION

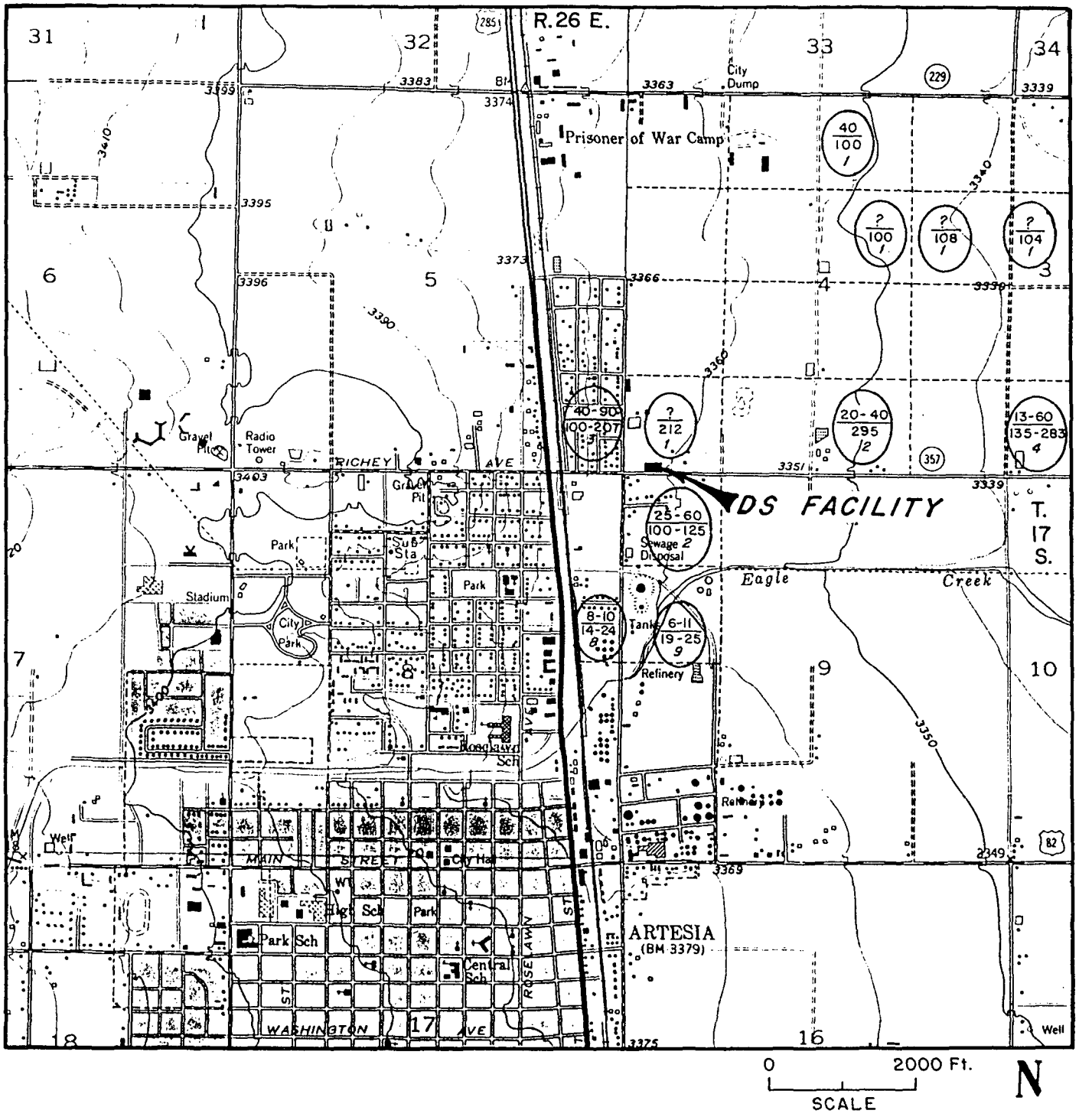
1.0 INTRODUCTION

1.1 Background

Western Water Consultants, Inc. (WWC) was contracted by Dowell Schlumberger Inc. (DS) to conduct an investigation to assess soil and ground-water conditions, to track the extent of impact north and east of the DS facility in Artesia, New Mexico, and to sample eight existing ground-water monitoring wells. This work is a continuation of a site investigation conducted by Reed and Associates, Inc. (RAI), a Geraghty and Miller company, located in Austin, Texas.

The facility is located at 500 East Richey Avenue in Artesia, New Mexico (Figure 1-1) and has been in operation since 1969. Dowell, a division of The Dow Chemical Company, purchased the property in 1972; prior to that date the property had been leased by Dowell. DS was formed in 1984. The facility serves as a distribution point for cement and frac sand used in oil field operations. Prior to 1989, hydrochloric acid and acid additives were stored, mixed and loaded into trucks at the facility. The acid and additive tanks, and the mixing and loading plant are still extant, but are no longer in use. The facility also includes a shop and truck wash bay for vehicle maintenance.

The facility is bordered on the north and east by undeveloped land belonging to Mr. Donald Kiddy of Littleton, Colorado. A gravel plant owned by Rose Gravel is situated west of the facility and the Morningside Addition, a residential subdivision, lies west of Rose Gravel. Richey Avenue runs along the south side of the facility and there are several residences across Richey Avenue from the DS property. The layout of the facility and its relationship to surrounding properties are shown in Figure 1-2.



EXPLANATION

8-10 / 14-24 / 8

STATIC WATER LEVEL RANGE

TOTAL DEPTH RANGE

NUMBER OF WELLS

FIGURE 1-1: SITE LOCATION AND SURROUNDING GROUND-WATER WELLS, DOWELL SCHLUMBERGER FACILITY, ARTESIA, NEW MEXICO

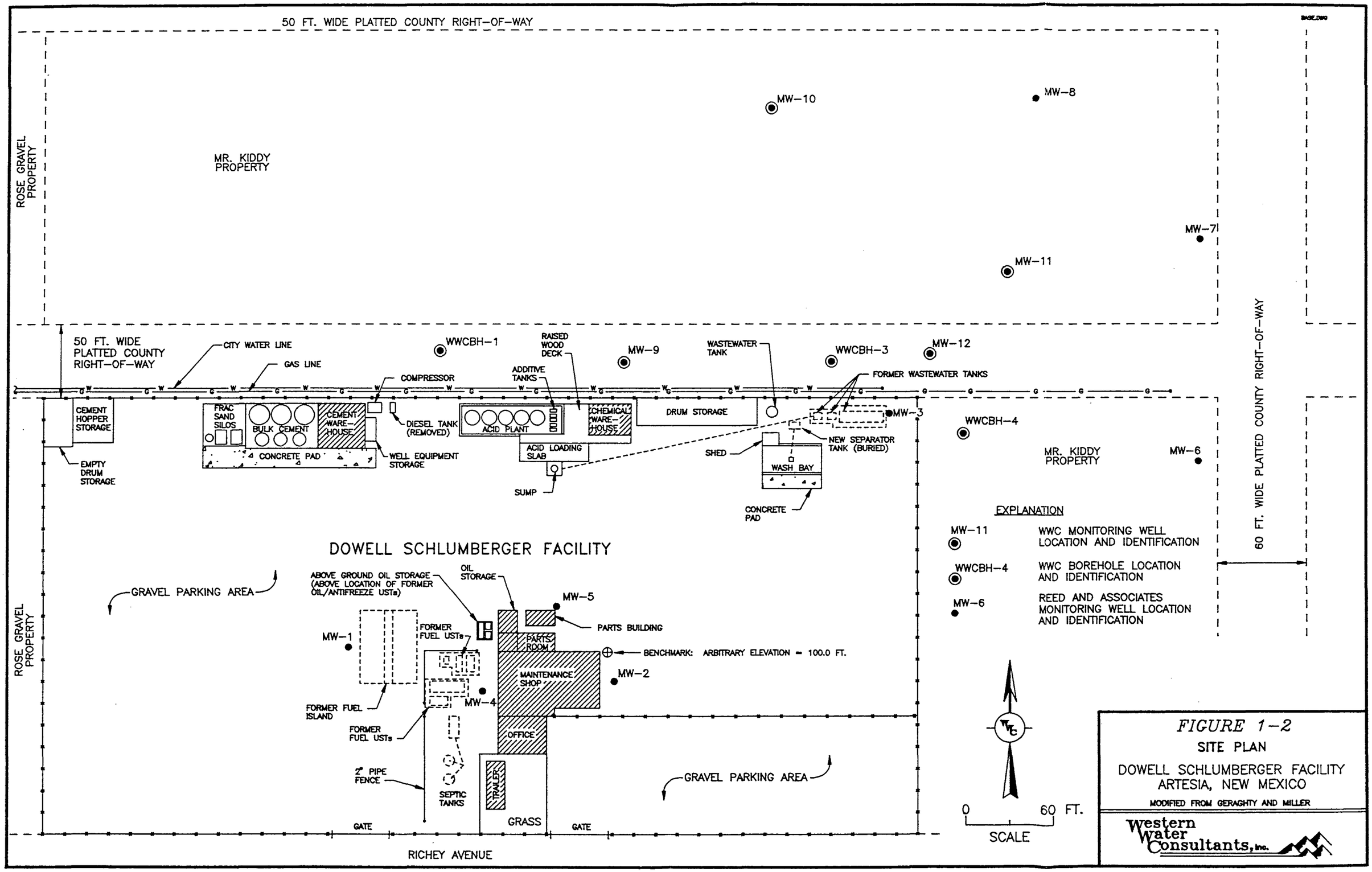


FIGURE 1-2

SITE PLAN

DOWELL SCHLUMBERGER FACILITY
ARTESIA, NEW MEXICO

MODIFIED FROM GERAGHTY AND MILLER

Western Water Consultants, Inc.

Ground-water wells are present both up- and downgradient from the Artesia facility. Wells located northeast of the site (downgradient) are at least 2000 feet away from the property. In addition, most wells are completed at depths of 100 to 295 feet, considerably deeper than the shallow alluvial aquifer (20 to 30 feet deep) of concern in this investigation. These ground-water wells are probably not affected by conditions occurring in the shallow alluvial aquifer. Figure 1-1 shows locations, total depths, and depths to water for selected ground-water wells in the vicinity of the DS facility.

1.2 Chronology of Events

In June 1989, RAI conducted a site investigation at the DS facility in Artesia. The investigation consisted of a soil vapor survey and borehole installations based on the results of the soil vapor survey. Soil and ground-water samples were collected and analyzed for possible contaminants. The results of the soil vapor survey were presented in a September 29, 1989 letter to Ms. Suzanne Fouty of the Mew Mexico Environmental Improvement Division (NMEID). During late July and early August of 1989, RAI removed eleven underground storage tanks (USTs), associated piping, and fuel dispensers. Soil samples from the tank excavations were collected and analyzed for benzene, ethylbenzene, toluene, and xylenes (BETX), total petroleum hydrocarbons (TPH), semivolatile hydrocarbons, reactive cyanide, reactive sulfide, total lead, and ignitability.

In late August 1989, RAI installed five ground-water monitoring wells on DS property. The wells were sampled concurrently with installation activities. Results were documented in a letter to Ms. Fouty of NMEID dated September 14, 1989.

In late October and early November 1989, RAI requested permission to access property north and east of the Artesia facility from the property owner, Mr. Donald Kiddy. An access agreement was obtained from Mr. Kiddy on November 8, 1989. Installation and sampling of three ground-water monitoring wells on Mr. Kiddy's property took place in late November 1989. Analytical results from ground-water samples collected on Mr. Kiddy's property were presented to Mr. Kiddy in a letter dated December 12, 1989, and to Ms. Fouty of NMEID in a letter dated April 4, 1990.

In late November/early December 1990, Mr. John Miller (DS) was contacted by Mr. Steve Wild (Ms. Fouty's successor at NMEID) regarding the status of the Artesia site investigation. On December 18, 1990, WWC personnel met in Artesia with DS personnel to inspect the facility and determine what additional fieldwork was needed.

On January 21, 1991, a new access agreement was obtained from Mr. Kiddy to install additional ground-water monitoring wells and boreholes on his property immediately north and east of the Artesia facility. The access agreement is in Appendix A. WWC personnel commenced drilling and sampling activities on January 22, 1991.

FIELDWORK

2.0 FIELDWORK

2.1 Utilities

On-site utilities were located prior to initiation of drilling. The only utilities in the area of interest north and east of the Artesia facility are a city water main and a gas line. These lines are buried approximately 1.5 to 2 feet below surface and run east-west along the north property fence within 6 to 8 feet north of the fence. The water main terminates at a point northwest of MW-3. The end of the gas line lies about 180 feet east of the northeast fence corner. The locations of both utilities are shown in Figure 1-2. The sewer main, recently installed, runs along the north side of Richey Avenue. Primary power lines are overhead. DS has several underground electric and gas lines servicing out-buildings on the property.

2.2 Monitoring Well and Borehole Drilling

The locations of existing monitoring wells installed by RAI, and monitoring wells and boreholes drilled by WWC during this investigation are shown in Figure 1-2. Monitoring wells and boreholes installed by WWC were drilled by Scarborough Drilling of Lamesa, Texas, using an air rotary rig with split-spoon sampling capabilities. Scarborough Drilling also installed the RAI monitoring wells.

The rig, drill bits and stem, and the split-spoon sampling equipment were decontaminated by steam-cleaning at the DS wash bay prior to drilling each monitoring well or borehole. During drilling, split-spoon sampling equipment was washed with soap and water, and rinsed with water after each sample.

WWC geologists visually observed and documented the lithology, grain-size, moisture content, structure, and presence or absence of contamination in both cuttings and split-spoon samples. These characteristics are noted on well logs included in Appendix B.

2.3 Monitoring Well Completion

Ground-water monitoring wells were completed at a depth 6 to 8 feet below the apparent top of the saturated zone (as determined from the well logs) to allow sufficient water in the well for sampling. Ten feet of 0.020 inch factory slotted 2-inch ID Schedule 40 PVC screen was emplaced in all wells except MW-10 in which twenty feet of screen was emplaced. The remainder of the casing consisted of 2-inch ID Schedule 40 blank casing. Sections of casing were threaded together. Silica sand (8/16 mesh) was emplaced in the annulus around the screen, extending three feet above the screen. A minimum of three feet of bentonite chips or pellets, hydrated after emplacement, formed a seal above the gravel pack. A cement seal filled the annulus from the top of the bentonite to the surface. A steel above-ground well protector was set into the top of the cement surface seal. The well protector was fitted with a locking lid to prevent unauthorized access to the well. Details of monitoring well construction are included in the well logs in Appendix B. Completed New Mexico State Engineer's well forms for the four newly installed monitoring wells (MW-9, MW-10, MW-11, and MW-12) are in Appendix C.

2.4 Borehole Completion and Abandonment

Temporary casing was placed in each borehole to facilitate sample collection and water level measurement. Casing consisted of 2-inch ID Schedule 40 PVC blank casing hand-slotted in the bottom ten to fifteen feet. Casing joints were slipped together but were not glued. After the boreholes were sampled and water levels were measured, the boreholes were abandoned by pulling the casings and filling the bottom twenty feet of the borehole with bentonite chips to seal the aquifer from the surface. The remainder of the hole was filled with drill cuttings.

The only borehole not completed and abandoned as described above was WWCBH-3, located north of the former wash bay separator tanks in the northeast corner of the property. Drilling of WWCBH-3 terminated at a depth of 13 feet after apparently highly contaminated soil was encountered. A soil sample for laboratory analysis was collected at this depth. Since the total depth of this borehole was at least five feet shallower than the depth at which ground-water was typically encountered in the area, bentonite fill was deemed unnecessary. The borehole was backfilled with drill cuttings.

2.5 Static Water Level Measurements

Static water levels were measured with a metal tape and "Kolor Kut" water-finding paste. In order to minimize or eliminate the chance of sample contamination from the water-finding paste, measurements were taken either before bailing the wells prior to sampling, or after sampling the ground-water. In the latter case, care was taken to ensure that adequate time was allowed for complete recovery of the well before measurement.

Kolor Kut Products, Inc. of Houston, Texas, the manufacturer of the water-finding paste, was contacted for information regarding the contents of the paste. A company representative stated that the water-finding paste contains no aromatic or chlorinated solvents, nor are these chemicals utilized during manufacture of the paste.

The elevations of static water level measuring points, located on the north side of the top of each PVC well casing, were surveyed with a level and stadia rod. Well elevations were referenced to a temporary benchmark located on the concrete shop pad against the northeast corner of the building. This benchmark was given an arbitrary elevation of 100.00 feet, and can be referenced to the elevation of an established benchmark if necessary. Relative static water level elevations are sufficient for determining ground-water flow direction across the site. Table 2-1 lists the static water level measurements, elevations of measuring points and static water level elevations.

2.6 Soil Sampling

Soil samples for head-space analysis were collected in pint mason jars from intervals of suspected contamination retrieved in split-spoon cores during drilling. Head-space analysis is a field technique for semi-quantitative determination of volatile hydrocarbon concentrations in a soil sample. The method utilizes an HNu photoionization detector to indicate the presence and amount of total volatile hydrocarbons in the head-space above a soil sample in a sealed mason jar. The method does not provide identification of the specific

TABLE 2-1. STATIC WATER LEVEL DATA, DOWELL SCHLUMBERGER FACILITY, ARTESIA, NEW MEXICO.

WELL #	DATE MEASURED	DEPTH TO GROUND-WATER (ft)	MEASURING POINT ELEVATION* (ft)	GROUND-WATER ELEVATION* (ft)	COMMENTS
MW-1	1-23-91	17.41	100.56	83.15	strong fuel odor
MW-2	1-23-91	16.95	99.56	82.61	Hydrocarbon sheen present
MW-3	1-23-91	17.28	98.33	81.55**	0.67 ft. of product present: depth to top of product = 16.61 ft.
MW-4	1-23-91	20.17	103.18	83.01	strong fuel odor
MW-5	1-23-91	17.20	99.87	82.67	slight solvent odor
MW-6	1-23-91	19.59	100.84	81.25	
MW-7	1-23-91	19.01	100.23	81.22	
MW-8	1-23-91	20.16	101.47	81.31	
MW-9	1-26-91	20.08	102.18	82.10	
MW-10	1-26-91	19.68	101.34	81.66	
MW-11	1-26-91	19.27	100.60	81.33	
MW-12	1-26-91	19.24	100.69	81.45	sewage/hydrocarbon odor
WWCBH-1	1-26-91	20.36	102.77	82.41	

NOTE:
* = measured from a temporary benchmark of arbitrary elevation = 100.00 feet.
Benchmark is located on the concrete right up against the east shop wall, at the northeast corner of the shop.

** = ground-water elevation is corrected for depression by product (uncorrected water level elevation = 81.05 ft.).

volatile hydrocarbons present in the sample. The use of head-space analyses helps to define extent of contamination and to minimize the number of samples collected for laboratory analysis.

Soil samples for laboratory analysis were collected from zones exhibiting visual, olfactory or HNu evidence of soil contamination. Laboratory samples were stored in a cooler with ice after collection and during shipment to the lab.

2.7 Ground-water and Product Sampling

Prior to sampling the ground-water, the new monitoring wells (MW-9, MW-10, MW-11, and MW-12) and the boreholes (WWCBH-1, and WWCBH-4) were developed to remove sediments and water disturbed by the drilling, and to allow unaffected ground-water to enter the well. Ten casing volumes were removed from these wells and boreholes with disposable polyethylene bailers. In all cases, water was initially opaque with fine sediments, but cleared up rapidly, becoming almost completely translucent. Recharge into the wells and boreholes was rapid enough to produce no apparent drawdown at a bailing rate of approximately 0.25 to 0.5 gallons per minute.

Disposable polyethylene bailers were used to purge three casing volumes from six of the eight pre-existing wells (MW-1, MW-2, MW-5, MW-6, MW-7, and MW-8) before sampling the ground-water. MW-4 had 4-inch ID PVC casing, so a 3.5-inch OD PVC bailer was used to remove three casing volumes from the well. Ground-water samples from all wells and boreholes were collected using disposable polyethylene bailers which were disposed

after sampling at each well. Water samples were poured from the bailers into two 1-liter amber glass bottles and three VOA vials. A duplicate sample was taken from MW-2 to check the reproducibility of laboratory analyses.

Ground-water from MW-3 was not sampled because there was 0.67 foot of free product in the well. A sample of the product was collected for laboratory analysis using a disposable polyethylene bailer with a bottom dump. Only about half a liter of product could be collected from MW-3 in January 1991; this was sufficient for the initial fingerprinting analysis, but not for additional analyses that were deemed necessary to characterize the product completely. Additional sample was collected for analysis for volatile hydrocarbons.

All samples were stored in a cooler with ice immediately after collection and kept on ice during shipment to the lab. Chain-of-custody and sample analysis request forms were used to document ground-water and soil sample numbering and handling, and to specify analyses required.

2.8 Laboratory Analyses

All samples were analyzed by Cenref Laboratories of Brighton, Colorado. Soil samples were analyzed for volatile hydrocarbons by EPA Method 8240 and for TPH by EPA Method 418.1. Ground-water samples were analyzed for volatile hydrocarbons by EPA Method 8240 and for TPH by EPA Method 418.1. In addition, ground-water from wells surrounding the shop (MW-1, MW-2, MW-4, and MW-5) was analyzed for methyl-tert-butyl-ether (MTBE), a gasoline component, also by EPA Method 8240. Ground-water samples from the remaining wells and boreholes, located north and east of the acid plant and the

wash bay area, were analyzed for isopropanol (an acid additive) by GC/FID, but were not tested for MTBE.

The product was analyzed by ASTM Method D2887 (HPC analysis), a fingerprinting technique for identifying different types of petroleum products such as gasoline and diesel. After review of the data from this analysis, EPA Method 8240 was run on an additional sample from MW-3 to identify the non-fuel components of the product.

Results of laboratory analyses are summarized in Table 2-2 (soil samples), Table 2-3 (water samples), and Table 2-4 (product sample). The laboratory reports of the analyses are in Appendix D.

TABLE 2-2. RESULTS FROM LABORATORY ANALYSES OF SOIL SAMPLES, DOWELL SCHLUMBERGER FACILITY, ARTESIA, NEW MEXICO.

SAMPLE#	LOCATION	BENZENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOLUENE (mg/kg)	XYLENES (mg/kg)	1,1-DCA (mg/kg)	1,1-DCE (mg/kg)	1,1,1-TCA (mg/kg)	TCE (mg/kg)	PCE (mg/kg)	ACETONE (mg/kg)	MTBE (mg/kg)	ISO-PROPANOL (mg/kg)	TPH (mg/kg)
0125.S2-1	MW-9: 23ft.	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.005)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.011*	na	na	170
0125.S3-1	WWCBH-3: 13ft	ND(1.2)	25	19	270	ND(1.2)	ND(1.2)	ND(1.2)	ND(1.2)	1.3	ND(12)	na	na	440
0125.S5-1	MW-12: 13ft	ND(0.12)	5	6.4	42	ND(0.12)	ND(0.12)	ND(0.12)	ND(0.12)	0.44	ND(1.2)	na	na	300

NOTES:

* = value is at or 1 part per billion above detection limit.
na = sample was not analyzed for this chemical.
ND = not detected at detection limit shown in parenthesis.

CHEMICAL ABBREVIATIONS

1,1-DCA = 1,1-dichloroethane
1,1-DCE = 1,1-dichloroethene
1,1,1-TCA = 1,1,1-trichloroethane
TCE = trichloroethene
PCE = tetrachloroethene
MTBE = methyl-tert-butyl-ether
TPH = total petroleum hydrocarbons

TABLE 2-3. RESULTS FROM LABORATORY ANALYSES OF GROUND-WATER SAMPLES, DOWELL SCHLUMBERGER FACILITY, ARTESIA, NEW MEXICO.

SAMPLE#	LOCATION	BENZENE (mg/L)	ETHYL-BENZENE (mg/L)	TOLUENE (mg/L)	XYLENES (mg/L)	1,1-DCA (mg/L)	1,1-DCE (mg/L)	1,1,1-TCA (mg/L)	TCE (mg/L)	PCE (mg/L)	ACETONE (mg/L)	MTBE (mg/L)	ISO-PROPANOL (mg/L)	TPH (mg/L)
0125.1-1	MW-1	0.033	ND(0.005)	0.029	0.13	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.05)	ND(0.025)	na	8
0125.2-1	MW-2	0.21	0.59	0.071	1.7	0.048	ND(0.01)	ND(0.01)	ND(0.01)	0.11	ND(0.1)	ND(0.05)	na	68
0125.S10-1	MW-2 dupl.	0.19	0.45	0.062	1.3	0.043	ND(0.01)	0.011*	ND(0.01)	0.078	ND(0.1)	ND(0.05)	na	88
0125.4-1	MW-4	0.098	0.011	ND(0.001)	0.025	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.01)	ND(0.005)	na	1*
0125.5-1	MW-5	0.014	ND(0.001)	ND(0.001)	ND(0.005)	0.004	0.002*	0.001*	ND(0.001)	0.01	ND(0.01)	0.21	na	3
0125.6-1	MW-6	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.005)	0.007	0.17	0.007	ND(0.001)	0.083	ND(0.01)	na	ND(1)	ND(1)
0125.7-1	MW-7	0.006	ND(0.001)	ND(0.001)	ND(0.005)	0.021	0.26	0.01	0.068	0.2	ND(0.01)	na	ND(1)	ND(1)
0125.8-1	MW-8	ND(0.001)	ND(0.001)	ND(0.001)	0.005*	ND(0.001)	0.015	0.004	0.001*	0.003	ND(0.01)	na	ND(1)	ND(1)
0125.9-1	MW-9	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.005)	0.022	0.002*	ND(0.001)	ND(0.001)	0.001*	ND(0.01)	na	ND(1)	ND(1)
0125.10-1	MW-10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.005)	ND(0.001)	0.004	ND(0.001)	ND(0.001)	ND(0.001)	0.017	na	ND(1)	ND(1)
0125.11-1	MW-11	0.01	ND(0.005)	ND(0.005)	ND(0.025)	0.045	0.31	ND(0.005)	0.14	0.36	ND(0.05)	na	ND(1)	ND(1)
0125.12-1	MW-12	0.26	0.95	0.23	4.5	0.14	ND(0.025)	0.057	0.073	0.042	2.2	na	ND(1)	4
0125.S1-1	WWCBH-1	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.005)	0.002*	0.094	0.013	ND(0.001)	ND(0.001)	ND(0.01)	na	ND(1)	ND(1)
0125.S4-1	WWCBH-4	0.04	ND(0.005)	ND(0.005)	0.47	0.026	0.32	0.07	0.014	0.3	ND(0.05)	na	ND(1)	ND(1)

NOTES:

* = value is at or 1 part per billion above detection limit.
na = sample was not analyzed for this chemical.
ND = not detected at detection limit shown in parenthesis.

CHEMICAL ABBREVIATIONS:

1,1-DCA = 1,1-dichloroethane
1,1-DCE = 1,1-dichloroethene
1,1,1-TCA = 1,1,1-trichloroethane
TCE = trichloroethene
PCE = tetrachloroethene
MTBE = methyl-tert-butyl-ether
TPH = total petroleum hydrocarbons

TABLE 2-4. RESULTS FROM LABORATORY ANALYSES OF PRODUCT SAMPLES, DOWELL SCHLUMBERGER FACILITY, ARTESIA, NEW MEXICO.

PRODUCT SAMPLE COLLECTED 1-26-91

SAMPLE#	LOCATION	PRODUCT FINGERPRINTING ANALYSIS
0125.3-1	MW-3	470000 mg/kg gasoline (47.4% gasoline)

PRODUCT SAMPLE COLLECTED 3-6-91

SAMPLE#	LOCATION	BENZENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOLUENE (mg/kg)	XYLENES (mg/kg)	1,1-DCA (mg/kg)	1,1-DCE (mg/kg)	1,1,1-TCA (mg/kg)	TCE (mg/kg)	PCE (mg/kg)	ACETONE (mg/kg)	STYRENE (mg/kg)
0125.3-2	MW-3	33	2400	1000	20000	ND(31)	ND(31)	280	ND(31)	100	ND(31)	320

NOTES:

* = value is at or 1 part per billion above detection limit.
na = sample was not analyzed for this chemical.
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TCE = trichloroethene
PCE = tetrachloroethene

RESULTS

3.0 RESULTS

3.1 Geology and Hydrogeology

The site is underlain by Quaternary alluvium, reported to be as much as 80 feet thick in the vicinity of the site. Underlying bedrock consists of eastward-dipping anhydrites and sandstones of the Permian Artesia Group (Telles and Ellison, 1956).

The predominant lithologies encountered during drilling are light brown to reddish-brown silt and silty clay interbedded with layers of clay, and blebs and stringers of earthy-textured gypsum. Gypsum crystals are present in certain horizons within the silt, clay, and silty clay. Less common lithologies include silty fine sand and minor limestone gravel.

Below 15 to 17 feet in depth, cream to pinkish-white earthy-textured gypsiferous layers become thicker and more predominant. The layers appear to be rubblized, possibly through dissolution by ground-water along small fractures and bedding planes. During drilling, saturated zones were encountered at depths of 20 to 26 feet across the site. Static water levels measured in boreholes and monitoring wells ranged from 16 to 17 feet below surface.

Several observations lead to the conclusion that these rubblized gypsiferous layers are the primary water-bearing zones. First, the other lithologies in the saturated zones are clays and silty clays with minor silty or clayey fine sand. Second, the wells recharged rapidly and showed a rapid decrease in sediment content during bailing. This rapid recharge of the wells and boreholes and the rapid decrease in amount of fine sediments in the bailed water seen during development are not typical of water produced from fine-grained sediments such as silt, clay, or even silty fine sand.

The ground-water flow direction is to the northeast and is illustrated in the potentiometric surface map in Figure 3-1. No data on rates of ground-water flow were generated during this investigation, although qualitative estimates may be inferred from the nature of the water-bearing zone of the shallow alluvial aquifer. If ground-water is flowing primarily in fractured and/or partially dissolved zones then flow rates may be much greater than in the unfractured/undissolved matrix having a similar or smaller grain size. Dispersion of dissolved contaminants perpendicular to the direction of flow may be minimal if flow rates are relatively high. In addition, flow directions and contaminant migration pathways in fractured/dissolved media are difficult to determine or predict because of anisotropy and heterogeneity of hydraulic conductivity. The apparent consistency in ground-water level measurements and in flow direction across the site may be indicative of a high degree of interconnectedness of the fractured/solution zones.

3.2 Soil Contamination: Field Observations

During drilling, soil contamination was found in one borehole (WWCBH-3) and two monitoring wells (MW-9 and MW-12). In MW-9, located northeast of the acid plant, the soil from 20.5 to 22 feet exhibited hydrocarbon staining and odor associated with gypsiferous layers within predominantly unstained reddish-brown silty clay. Soil staining was also present in gypsiferous or sandy layers from 22 to 27 feet. The contamination appears to have migrated into the vicinity of MW-9 on or in the ground-water, since the overlying silty clays yielded no evidence of hydrocarbon contamination.

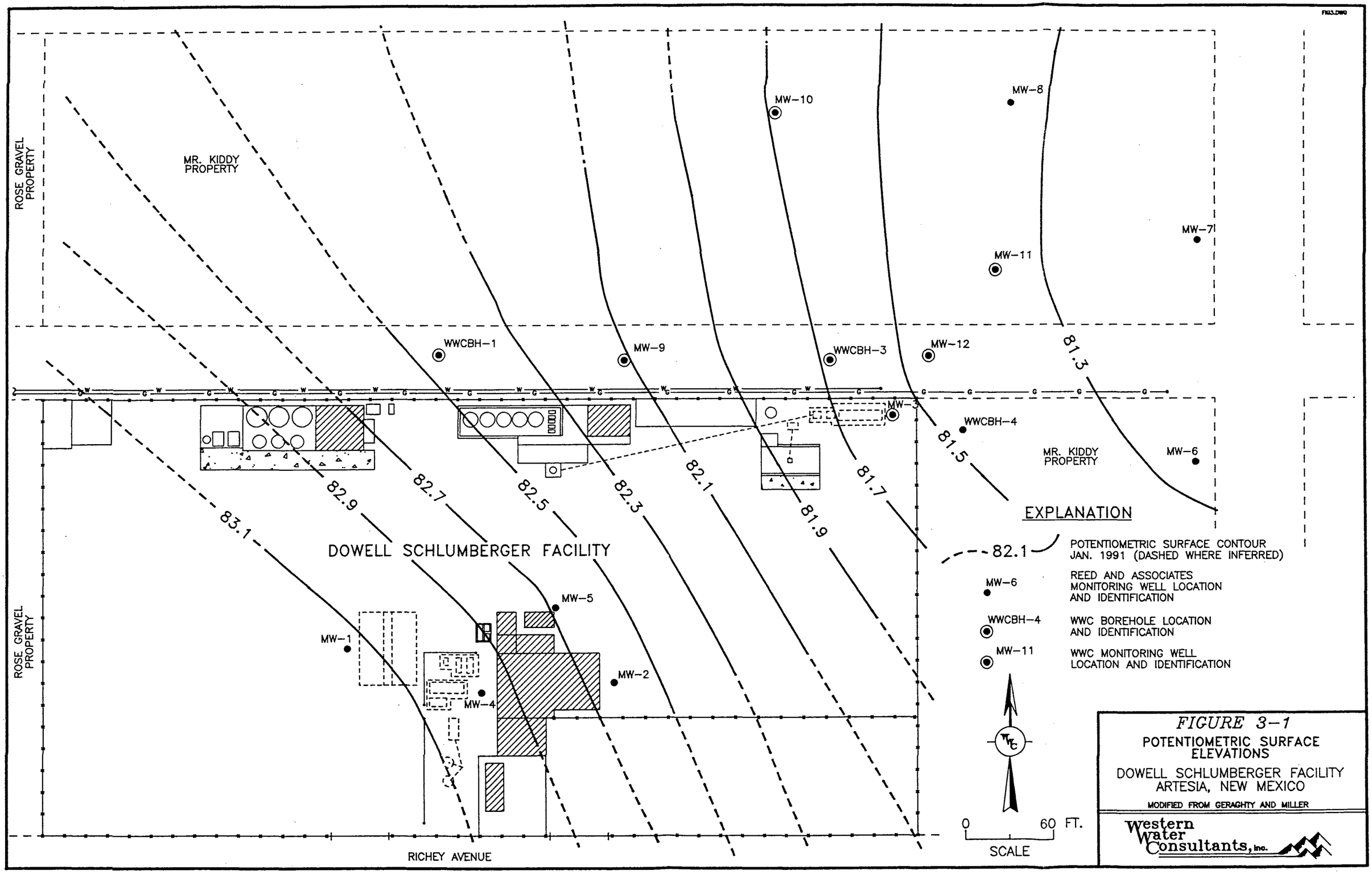


FIG3.DWG
ROSE GRAVEL PROPERTY
MR. KIDDY PROPERTY
MW-10
MW-8
MW-7
MW-11
WWCBH-1
MW-9
WWCBH-3
MW-12
MW-3
WWCBH-4
MR. KIDDY PROPERTY
MW-6
81.3
81.5
81.7
81.9
82.1
82.3
82.5
82.7
82.9
83.1
DOWELL SCHLUMBERGER FACILITY
MW-5
MW-1
MW-2
MW-4
ROSE GRAVEL PROPERTY
RICHEY AVENUE
EXPLANATION
82.1
POTENTIOMETRIC SURFACE CONTOUR JAN. 1991 (DASHED WHERE INFERRED)
MW-6
REED AND ASSOCIATES MONITORING WELL LOCATION AND IDENTIFICATION
WWCBH-4
WWC BOREHOLE LOCATION AND IDENTIFICATION
MW-11
WWC MONITORING WELL LOCATION AND IDENTIFICATION
0
60 FT.
SCALE
FIGURE 3-1
POTENTIOMETRIC SURFACE ELEVATIONS
DOWELL SCHLUMBERGER FACILITY
ARTESIA, NEW MEXICO
MODIFIED FROM GERAGHTY AND MILLER
Western Water Consultants, Inc.

In both MW-12 and WWCBH-3, located northeast and north of the truck wash bay area, respectively, soil above 11 feet in WWCBH-3 and 13 feet in MW-12 showed no evidence of hydrocarbon contamination. Soil below 11 feet in WWCBH-3 and 13 feet in MW-12 had a strong hydrocarbon (solvent) odor but showed no evident staining. This soil contamination may have resulted from lateral migration of volatile hydrocarbon vapors from an area of high concentrations or free product.

Drilling of WWCBH-3 was terminated at 13 feet. MW-12 was drilled to 30 feet. In MW-12, hydrocarbon/solvent odors persisted to 20 feet. Headspace analyses of soil from various depths in MW-12 indicate that hydrocarbon vapor concentrations decreased with depth. No soil contamination was noted below 20 feet, however ground-water from this well had a distinct hydrocarbon odor. No soil contamination was observed in WWCBH-4, approximately 55 feet east of MW-3 (in the vicinity of the former wash bay wastewater tanks), nor in MW-11 approximately 120 feet to the northeast of MW-3.

3.3 Soil Contamination: Laboratory Data

The only volatile hydrocarbon detected by laboratory analysis of the soil sample from MW-9 was acetone at a concentration only 0.001 mg/kg above the detection limit. TPH concentration was 170 mg/kg. Soil contamination in MW-9 is minor.

Soils from the 13 foot depth in both WWCBH-3 and MW-12 contained, in order of decreasing concentration, xylenes, ethylbenzene, toluene, and tetrachloroethene (PCE). Concentrations in WWCBH-3 were 3 to 5 times higher than in MW-12. WWCBH-3 may be closer to the contaminant source.

3.4 Ground-water Contamination: Field Observations

The only wells with visible hydrocarbon contamination were MW-3 (dark brown free product), and MW-2 (hydrocarbon sheen). These wells also had a strong fuel odor, as did MW-1 and MW-4. MW-5 and WWCBH-4 exhibited slight solvent odors and water from MW-12 smelled like sewage plus hydrocarbons. A "sewage" odor commonly results from the presence of degraded or partially degraded hydrocarbons. All other wells and boreholes either had no apparent odor or one so faint as to be indeterminable. These observations are noted in Table 2-1.

3.5 Ground-water Contamination: Laboratory Data

3.5.1 Wells Around the Shop/Former UST Location

The principal contaminants in the four monitoring wells in the shop/former fuel UST area are the aromatic volatile hydrocarbons benzene, ethylbenzene, toluene, and xylenes (BETX). Benzene is the only chemical that is present in all four wells. MW-2 is the only well that has all four aromatic volatiles present, and has the highest concentrations. TPH concentrations were detected in all four wells. MTBE is present only in MW-5. The most probable source for these contaminants is residual soil contamination in the vicinity of the removed USTs.

A sump formerly in use in the shop appears to be an additional source, since concentrations of BETX are higher in MW-2 (immediately downgradient from the shop) than they are in wells in the former UST area. In addition, the chlorinated hydrocarbons

PCE and 1,1-DCA (1,1-dichloroethane) are found in MW-2 and, to a lesser degree, in MW-5. These chemicals are not present upgradient from the shop.

3.5.2 Wells North and East of the Former Wastewater Tank Location

Aromatic hydrocarbons (BETX), chlorinated hydrocarbons, and acetone are present in wells surrounding the former wastewater tank location in the northeast corner of the property. Figure 3-2 is a map showing the distributions in ground-water of concentrations of total volatile hydrocarbons (the sum of the concentrations of all volatile compounds detected in each well). The total concentration of volatile hydrocarbons in these wells is highest in MW-12 and decreases in monitoring wells to the northeast. Total volatile hydrocarbon concentrations have been contoured to show lines of equal concentration. These contours define a plume of volatile hydrocarbons extending northeast from the vicinity of the former wastewater tanks, consistent with a source in the northeast corner of the property and a northeasterly ground-water flow direction.

Figure 3-2 also shows the concentrations of total chlorinated hydrocarbons (the sum of the concentrations of all chlorinated hydrocarbons detected in each well). The concentrations of total chlorinated hydrocarbons do not present a definitive pattern.

Of the individual hydrocarbon constituents, benzene and 1,1-dichloroethane (1,1-DCA) concentrations decrease to the northeast; the concentration patterns for these two chemicals closely resemble the volatile hydrocarbon concentration pattern. Acetone and the

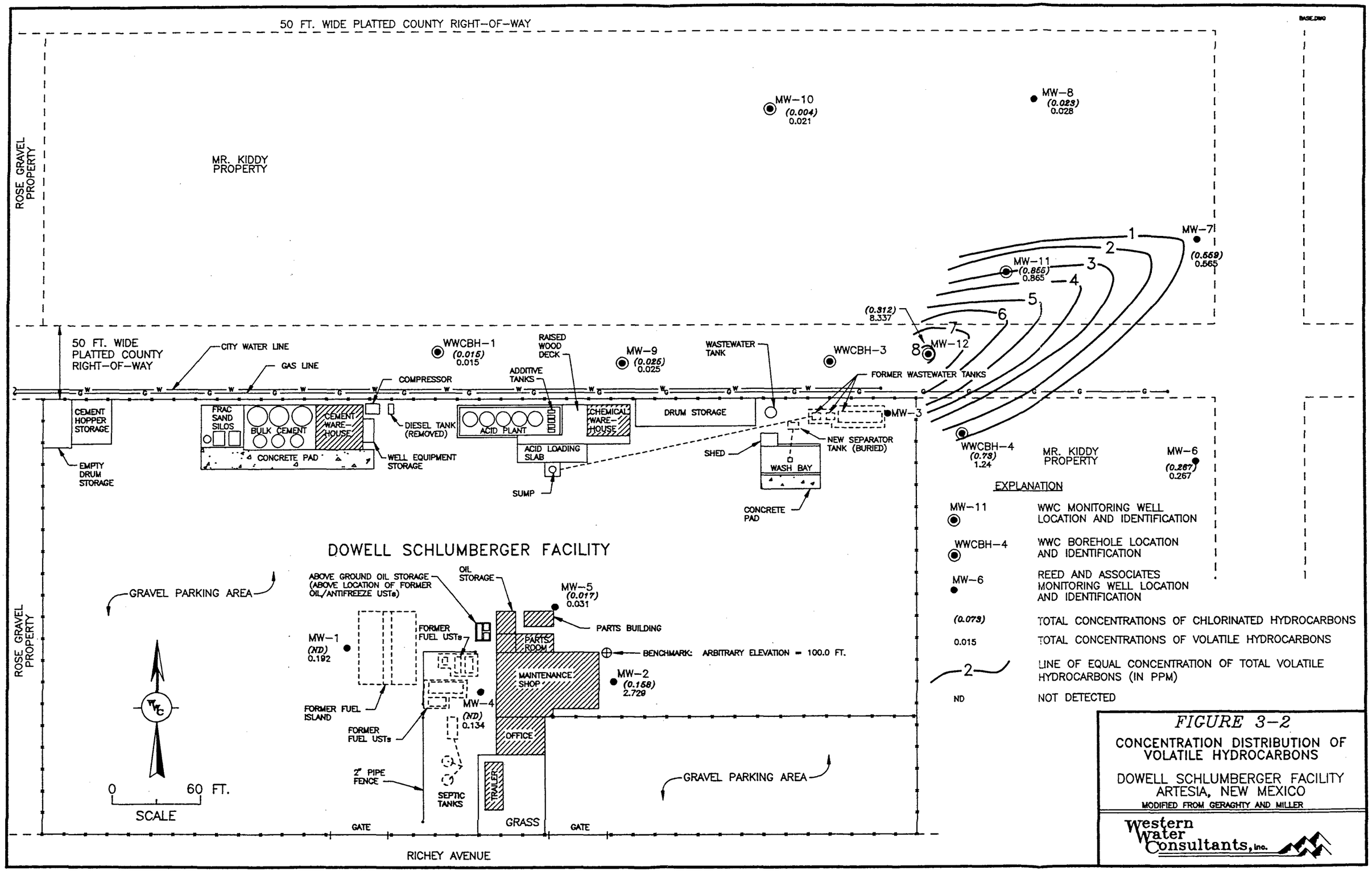


FIGURE 3-2

CONCENTRATION DISTRIBUTION OF VOLATILE HYDROCARBONS

DOWELL SCHLUMBERGER FACILITY
ARTESIA, NEW MEXICO

MODIFIED FROM GERAGHTY AND MILLER

Western Water Consultants, Inc.

aromatic hydrocarbons ethylbenzene, toluene, and xylenes were not detected in enough monitoring wells in the vicinity of the former wastewater tanks to define concentration patterns.

The distributions of the remainder of the volatile hydrocarbons detected in this area, all chlorinated hydrocarbons, are more difficult to interpret. Trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA) were present in higher concentrations in MW-7 than in MW-11, the well upgradient from MW-7. These two chemicals were detected in MW-12 at slightly higher concentrations than in MW-7.

Tetrachloroethene (PCE) and 1,1-dichloroethene (1,1-DCE) were detected in higher concentrations in the two wells downgradient from MW-12 (MW-11 and MW-7) and in two wells east of MW-12 (WWCBH-4 and MW-6) than they were in MW-12. The causes of these variations in concentrations are not known.

3.5.3 Wells Around the Acid Dock

There do not appear to be components of diesel fuel migrating off-site in the vicinity of the former diesel-powered generator. The only contaminants present in the ground-water from WWCBH-1 northeast of the former diesel generator site are chlorinated hydrocarbons, primarily 1,1-DCE and 1,1-DCA. These chemicals may have been used to clean the generator.

1,1-DCA is the primary chemical present in MW-9 northeast of the acid dock. 1,1-DCA may have originated as an acid additive or may be present as an impurity in the hydrochloric acid.

3.6 Laboratory Data from Analyses of Product from MW-3

The hydrocarbon fingerprinting analysis of the product sample from MW-3 indicated that 47.4% of the product was gasoline. According to facility personnel, diesel was used to clean equipment in the wash bay area, but there was no similar use of gasoline. There does not seem to be a source of gasoline in the vicinity sufficient to yield free product to MW-3. The source of the gasoline probably is not the former fuel tanks west of the shop, since MW-5 shows no evidence of product nor of high concentrations of BETX. MW-5 is located downgradient from the former UST area and is situated between the former UST area and MW-3.

Seven volatile hydrocarbons were detected in the product sample during a separate analysis. Xylenes, at 20,000 ppm, were present in the highest concentrations. The other chemicals were, in decreasing order of concentration; ethylbenzene, toluene, styrene, TCE, PCE, and benzene. The ratios of the BETX components were B:E:T:X = 0.033 : 2.4 : 1 : 20, indicating another (non-fuel) source of xylenes. Xylenes were used as an acid additive and the additional contribution of xylenes is probably from acid-handling activities. Most of the benzene, ethylbenzene, and toluene are probably fuel-related, although toluene (and possibly benzene) can be present as impurities in xylenes. Toluene also may have been used as an acid additive.

Some of the chlorinated hydrocarbons may have originated as impurities in the hydrochloric acid, but the major contribution of these chemicals probably was from the use of chlorinated solvents to clean equipment and parts. The source of the styrene is not known.

DISCUSSION

4.0 DISCUSSION

There are two major and separate areas of ground-water contamination at the DS Artesia facility: around the shop and the former underground fuel storage tank location west of the shop, and in the vicinity of the former underground wastewater tank location north of the truck wash bay. Residual contamination in soil is the most likely source of continuing ground-water contamination in both areas.

Soil contaminated by leaking USTs was discovered by RAI during excavation of hydrocarbon USTs and the wastewater tanks. A thin film of product floating on the ground-water was detected in one of the fuel UST excavations. The most extensive contamination, however, was associated with the wastewater tanks.

Soil removed from each tank excavation was landfarmed separately on the premises for one week. If the concentrations of volatile hydrocarbons detected by the HNu were below 10 ppm after the period of landfarming, the soil was returned to the excavation to cover a layer of clean fill placed in the bottom of the hole. Replacement of excavated soil occurred only in the fuel, oil, and anti-freeze UST excavations; soil excavated during removal of the wastewater tanks remained too contaminated after one week of tilling and was hauled to an EID-approved disposal site. The wastewater tank excavation was backfilled with clean soil.

CONCLUSIONS
AND
RECOMMENDATIONS

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

5.1.1 Off-Site Contamination

Off-site soil and ground-water contamination by volatile hydrocarbons is present north and east of the former wastewater tank location in the northeast corner of the property. Significant off-site soil contamination appears to be limited to an area within 50 to 75 feet north and northeast of the former wastewater tank location. Contamination occurs in soil both above and within the saturated zones. Contaminants may have migrated laterally (in the vapor phase) through the soil from the buried wastewater tanks in addition to being transported by ground-water.

In ground-water, aromatic hydrocarbons (BETX) are restricted to a plume extending northeast from the former wastewater tank location. In contrast, low concentrations of chlorinated hydrocarbons were detected in ground-water samples from all wells and boreholes except the two wells upgradient from the shop. Concentrations are highest northeast and east of the former wastewater tank location, indicating that this area is a primary source of chlorinated hydrocarbons. Off-site contamination from the acid dock, and from fuel spills and leakage from a diesel generator west of the acid dock, appear to be minimal.

5.1.2 Chlorinated Hydrocarbons Around the Shop

The former hydrocarbon/fuel UST site located upgradient from the shop is not the sole source of ground-water contamination in the vicinity of the shop. Relatively higher

concentrations of aromatic hydrocarbons in MW-2 (downgradient from the shop) than in monitoring wells upgradient from the shop (MW-1 and MW-4), and the presence of chlorinated hydrocarbons in MW-2 and MW-5 but not in MW-1 or MW-4 indicate that there is at least one source in the shop area. The most likely candidates are the abandoned sump inside the shop, and former shop cleaning activities where solvent-contaminated wash-water could have infiltrated the soil east of the shop. The extent of contamination east and northeast of the shop has not been evaluated.

5.2 Recommendations

Additional ground-water sampling is recommended. WWC believes that more data are necessary to define trends in the concentrations, distributions, and rates of migration of the various contaminants.

Additional source removal in the vicinity of the former wastewater tanks is recommended. Preliminary fieldwork may include additional sampling to determine the extent of the contaminated soil, and installation of a well for a pump test to determine aquifer parameters.

The extent and sources of volatile hydrocarbon contamination in ground-water east and northeast of the shop may need to be more thoroughly defined. This could be accomplished by drilling soil borings downgradient from the shop and collecting samples of soil and ground-water. The location of the sump and the method used for abandonment may need to be documented also.

After additional information is obtained, the need for remediation can be determined and potential remedial methods can be recommended.

REFERENCES

Reed and Associates letter to Ms. Suzanne Fouty of the New Mexico Environmental Improvement Division, September 14, 1989.

Reed and Associates letter to Ms. Suzanne Fouty of the New Mexico Environmental Improvement Division, September 29, 1989.

Reed and Associates letter to Ms. Suzanne Fouty of the New Mexico Environmental Improvement Division, April 4, 1990.

Telles, C., and Ellison, K., 1956, East-west correlation section, San Andreas Mountains to the New Mexico-Texas line: map by the Stratigraphic Research Committee, Roswell Geological Society.

APPENDIX A

ACCESS AGREEMENT

January 21, 1991

Mr. Paul A. Rechard, Pres.
Western Water Consultants, Inc.
611 Skyline Road
P.O. Box 4128
Laramie, Wyoming 82071

RE: Access Agreement for Donald Kiddy Property Adjacent to the Dowell Schlumberger Property in Artesia, New Mexico, WWC JN 0125

Dear Mr. Rechard:

Enclosed you will find the signed copy of the above captioned Agreement. Today, I faxed you authorization to proceed. I had requested on Friday that Robin Daley of your office provide me with assurances from Dowell Schlumberger that the analytical results be promptly sent to me, and that the damage/remedial work be completed in a timely manner.

I received these assurances today from John A. Miller, Environmental Coordinator.

Thank you for your assistance in this matter. I will look forward to hearing from you in the near future.

Respectfully submitted,

H. Donald Kiddy

H. Donald Kiddy
7366 S. Platte Canyon Dr.
Littleton, CO. 80123

Off: (303) 292-7626
Res: (303) 979-5463

DOWELL SCHLUMBERGER
INCORPORATED

January 21, 1991

Mr. Donald Kiddy
7366 S. Platte Canyon Dr.
Littleton, CO 80123

RE: Access Agreement for Donald Kiddy Property Adjacent to the Dowell Schlumberger Property in Artesia, NM, WWC JN 0125

Dear Mr. Kiddy:

As we discussed today, Western Water Consultants (WWC), acting on behalf of Dowell Schlumberger Inc. (DS), has requested permission for access to your property located east and north of the DS facility in Artesia, NM. WWC would like to drill soil borings and install groundwater monitoring wells on your property the week of January 21-25, 1991. Two original copies of WWC's standard access agreement form were enclosed for your review and signature.

This access agreement covered only the soil borings and/or monitoring wells to be installed on your property. This included the proposed monitoring well west of MW-8 and any other soil borings/monitoring wells deemed necessary during the investigation.

Upon conclusion of the project, as determined by the New Mexico Environmental Improvement Division (NMEID), monitoring wells will be removed by a Dowell Schlumberger consultant (WWC) in accordance with NMEID and New Mexico State Engineer's rules and regulations.

WWC also plans to sample the three existing monitoring wells on your property in conjunction with sampling of the new wells. Analytical results from the sampling done on your property will be made available to you as soon a possible.

If you have any questions or comments, please feel free to call me at (713) 556-7221.

Sincerely,

John A. Miller
Environmental Coordinator

/lbb

cc: Susan Fields

M365

TOTAL P.03

WWC JN 0125
Project: Artesia, New Mexico

CONSENT FOR RIGHT OF ENTRY
INGRESS AND EGRESS

I/we the owner(s)/leassee(s) of record of the following described property: Blocks 2 (lots 12 and 13), 3, 4, 5 and 6 of the Artesia Industries Addition, S½, SW¼ Section 4, T17S, R26E, N.M.P.M., Artesia, New Mexico

do hereby grant to Western Water Consultants, Inc. and their contractors, the right to ingress and egress on the above-described lands to conduct ground water investigations.

Subject to my/our continued ownership of the above-described property, I/we give this consent to ingress and egress in the spirit of assisting the above named company, its agents, employees, and contractors for the length of time necessary to investigate, test, collect soil and ground-water samples, and install and sample monitoring well(s).

Upon completion of the project, monitoring wells will be abandoned in accordance with pertinent New Mexico Environmental Improvement Division and New Mexico State Engineer's rules and regulations. Soil borings not completed as monitoring wells will be properly abandoned after soil and/or ground-water sampling is completed.

WITNESS, the following signature(s) this 21st day of January, 1991.

WITNESS:

OWNER(S):

By: H. Donald Kuddy

By: _____

Agent: _____

Telephone: (B)(303)292-7626
(R)(303)979-5463

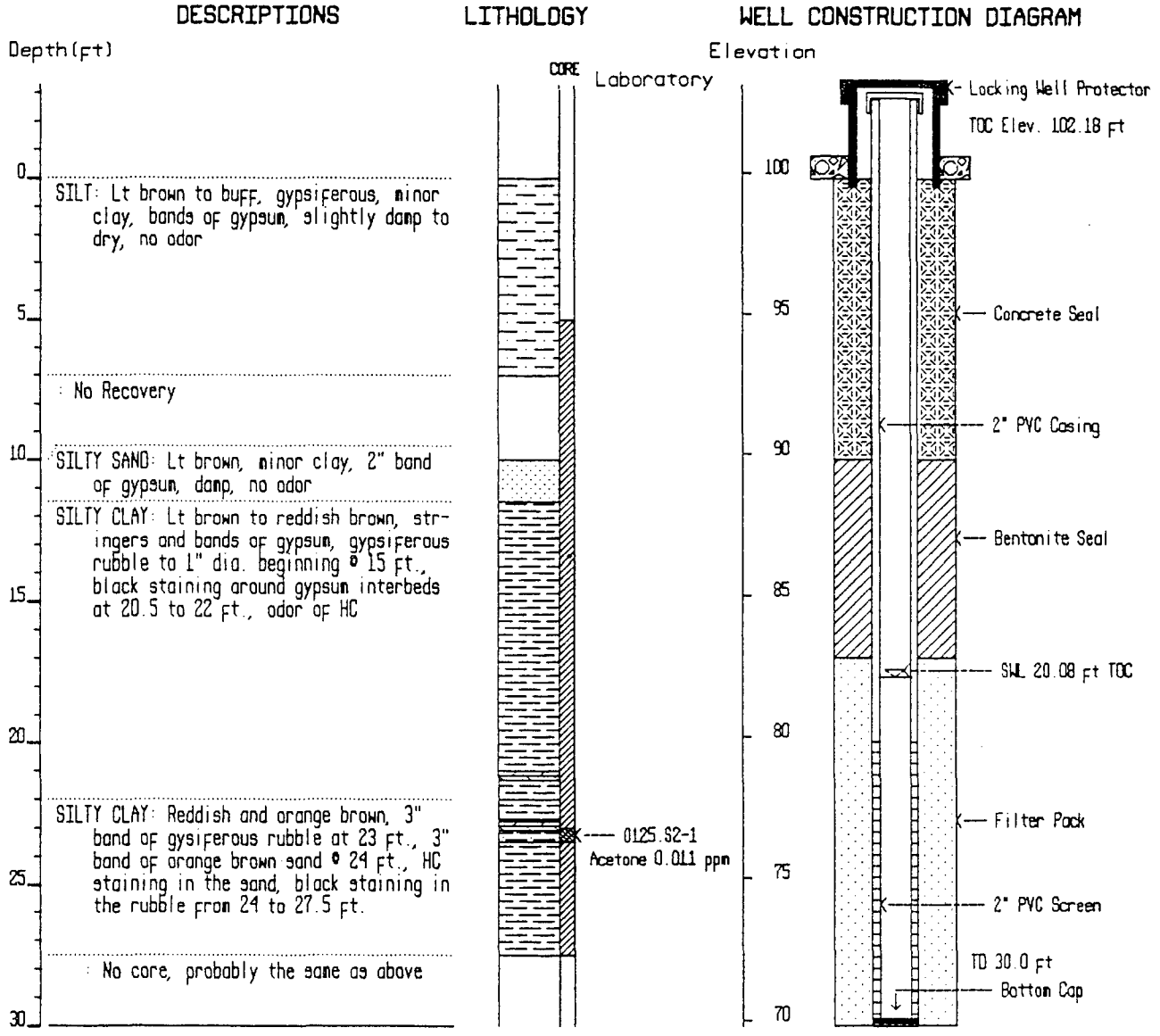
APPENDIX B

MONITORING WELL AND BOREHOLE LOGS

MONITORING WELL MW-9

LOCATION: Dowell Schlumberger, Artesia, New Mexico
NW corner of Acid Building, 22.5' E, 29.4' N
T17S, R26E, Sec 4, SE 1/4, SW 1/4, SW 1/4
LOG: Western Water Consultants Inc. (Kevin Mattson)
DRILLER: Scarbough Drilling (Lane Scarbough)
DRILLERS LICENSE NO.: WD1188
INSTALLATION DATE: January 29, 1991

WELL OWNER: Dowell Schlumberger Inc. (JN 0125)
DRILLING METHOD: Air Rotary, 5.0" OD
CASING: 2" Dia. Flush Joint Sch. 40 PVC
SCREEN: Slotted Casing; 0.020 Inch Slots
FILTER PACK: 8/16 Mesh Silica Sand
STATIC WATER ELEVATION: 82.10 (1/26/91)
(Reference Datum: Arbitrary = 100.00 feet)

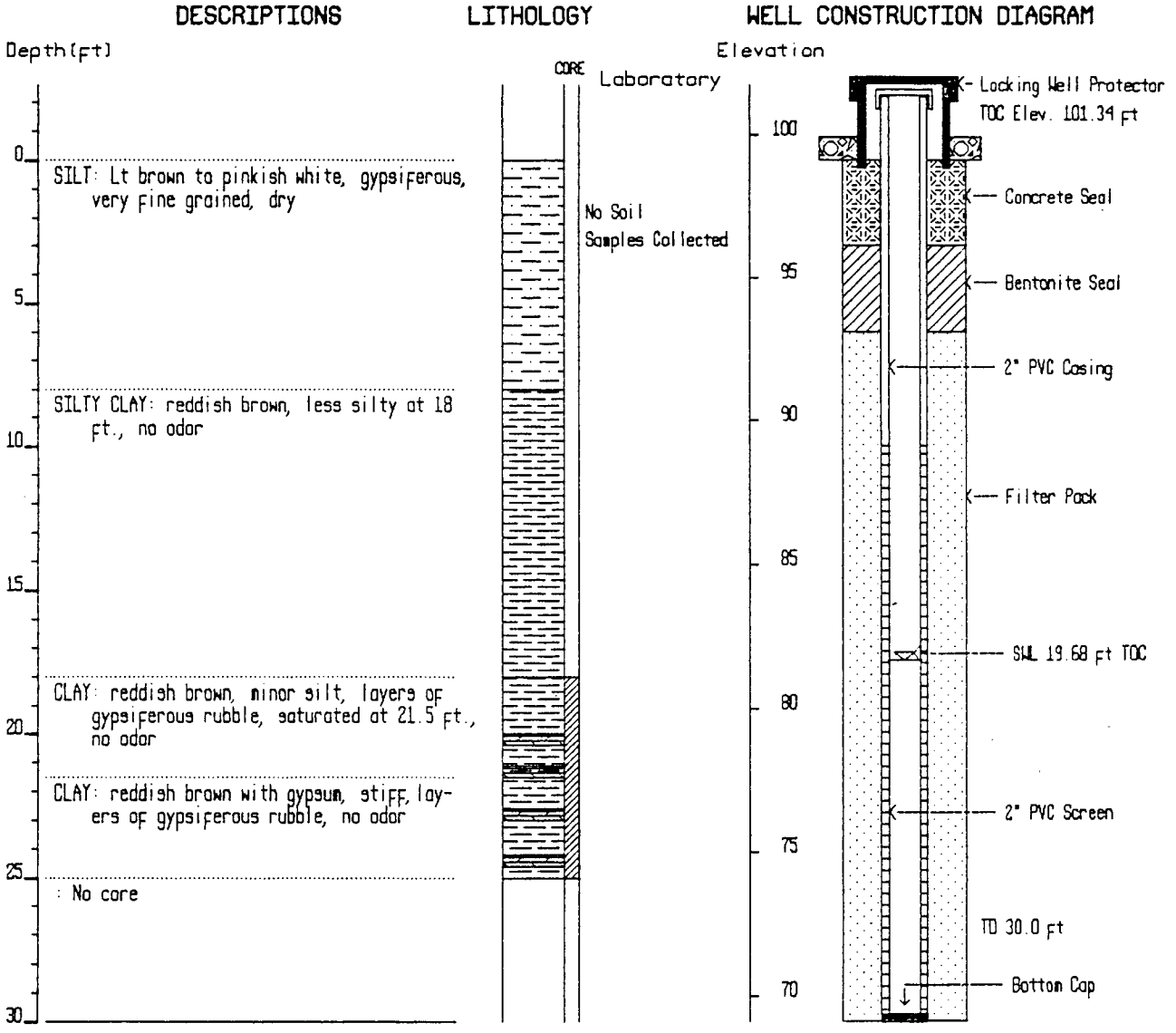


Western Water Consultants, Inc.

MONITORING WELL MW-10

LOCATION: Dowell Schlumberger, Artesia, New Mexico
NE corner of property, 103' W, 202' N
T17S, R26E, Sec 9, SE 1/9, SW 1/9, SW 1/9
LOG: Western Water Consultants Inc. (Kevin Mattson)
DRILLER: Scarbough Drilling (Lane Scarbough)
DRILLERS LICENSE NO.: WD1188
INSTALLATION DATE: January 29, 1991

WELL OWNER: Dowell Schlumberger Inc. (JN 0125)
DRILLING METHOD: Air Rotary, 5.0" OD
CASING: 2" Dia. Flush Joint Sch. 40 PVC
SCREEN: Slotted Casing; 0.020 Inch Slots
FILTER PACK: 8/16 Mesh Silica Sand
STATIC WATER ELEVATION: 81.66 (1/26/91)
(Reference Datum: Arbitrary = 100.00 feet)

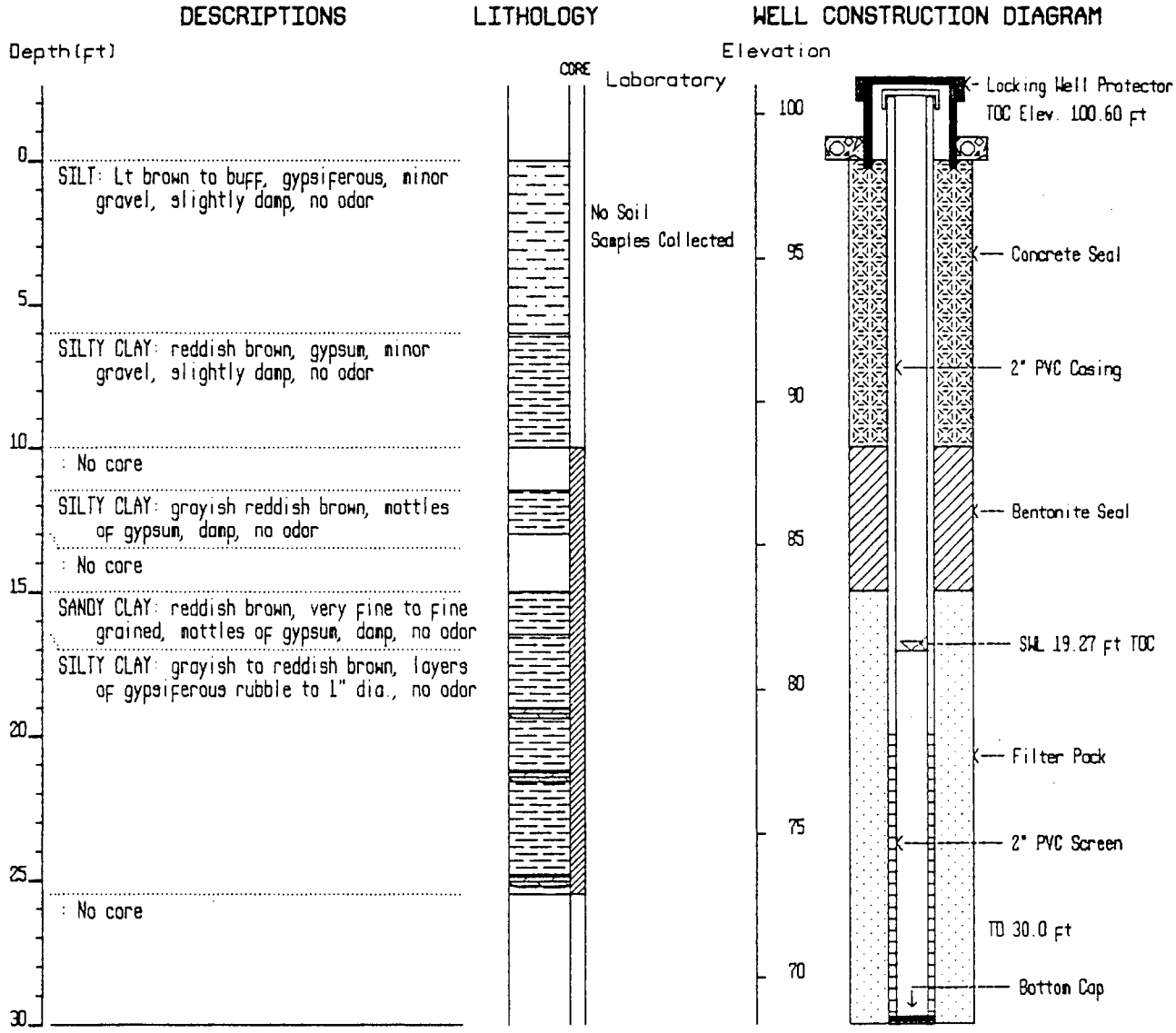


Western Water Consultants, Inc.

MONITORING WELL MW-11

LOCATION: Dowell Schlumberger, Artesia, New Mexico
80' NE of MW12, 119.5' SE of MW8, 131.7' SW of MW7
T17S, R26E, Sec 9, SE 1/9, SW 1/9, SW 1/9
LOG: Western Water Consultants Inc. (Kevin Mattson)
DRILLER: Scarbough Drilling (Lane Scarbough)
DRILLERS LICENSE NO.: WD1188
INSTALLATION DATE: January 29, 1991

WELL OWNER: Dowell Schlumberger Inc. (JN 0125)
DRILLING METHOD: Air Rotary, 5.0" OD
CASING: 2" Dia. Flush Joint Sch. 40 PVC
SCREEN: Slotted Casing; 0.020 Inch Slots
FILTER PACK: 8/16 Mesh Silica Sand
STATIC WATER ELEVATION: 81.33 (1/26/91)
(Reference Datum: Arbitrary = 100.00 feet)

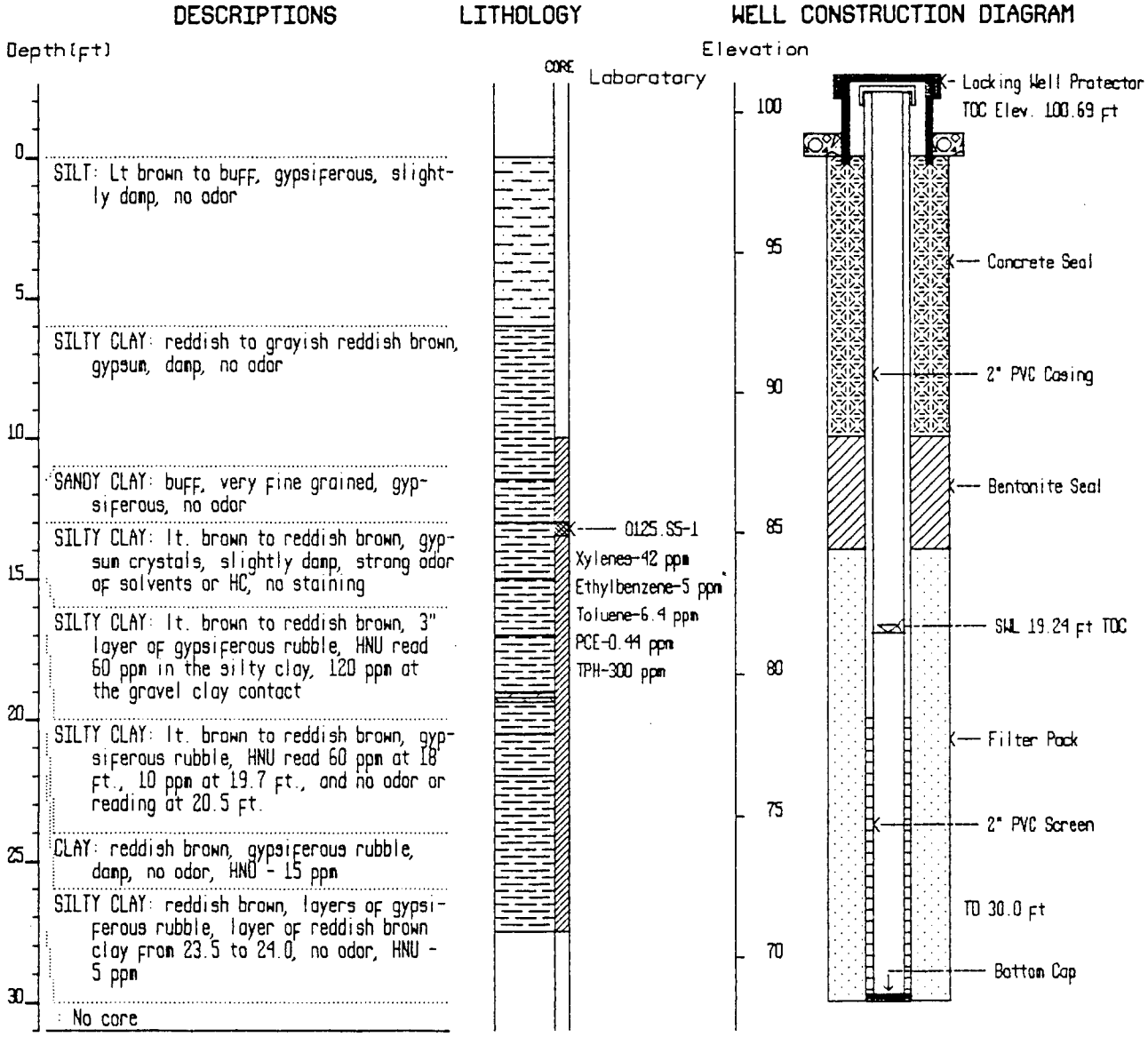


Western Water Consultants, Inc.

MONITORING WELL MW-12

LOCATION: Dowell Schlumberger, Artesia, New Mexico
NE corner of DS property, 6' E, 37' N
T17S, R26E, Sec 4, SE 1/4, SW 1/4, SW 1/4
LOG: Western Water Consultants Inc. (Kevin Mattson)
DRILLER: Scarbough Drilling (Lane Scarbough)
DRILLERS LICENSE NO.: WD1188
INSTALLATION DATE: January 25, 1991

WELL OWNER: Dowell Schlumberger Inc. (JN 0125)
DRILLING METHOD: Air Rotary, 5.0" OD
CASING: 2" Dia. Flush Joint Sch. 40 PVC
SCREEN: Slotted Casing, 0.020 Inch Slots
FILTER PACK: 8/16 Mesh Silica Sand
STATIC WATER ELEVATION: 81.45 (1/26/91)
(Reference Datum: Arbitrary = 100.00 feet)

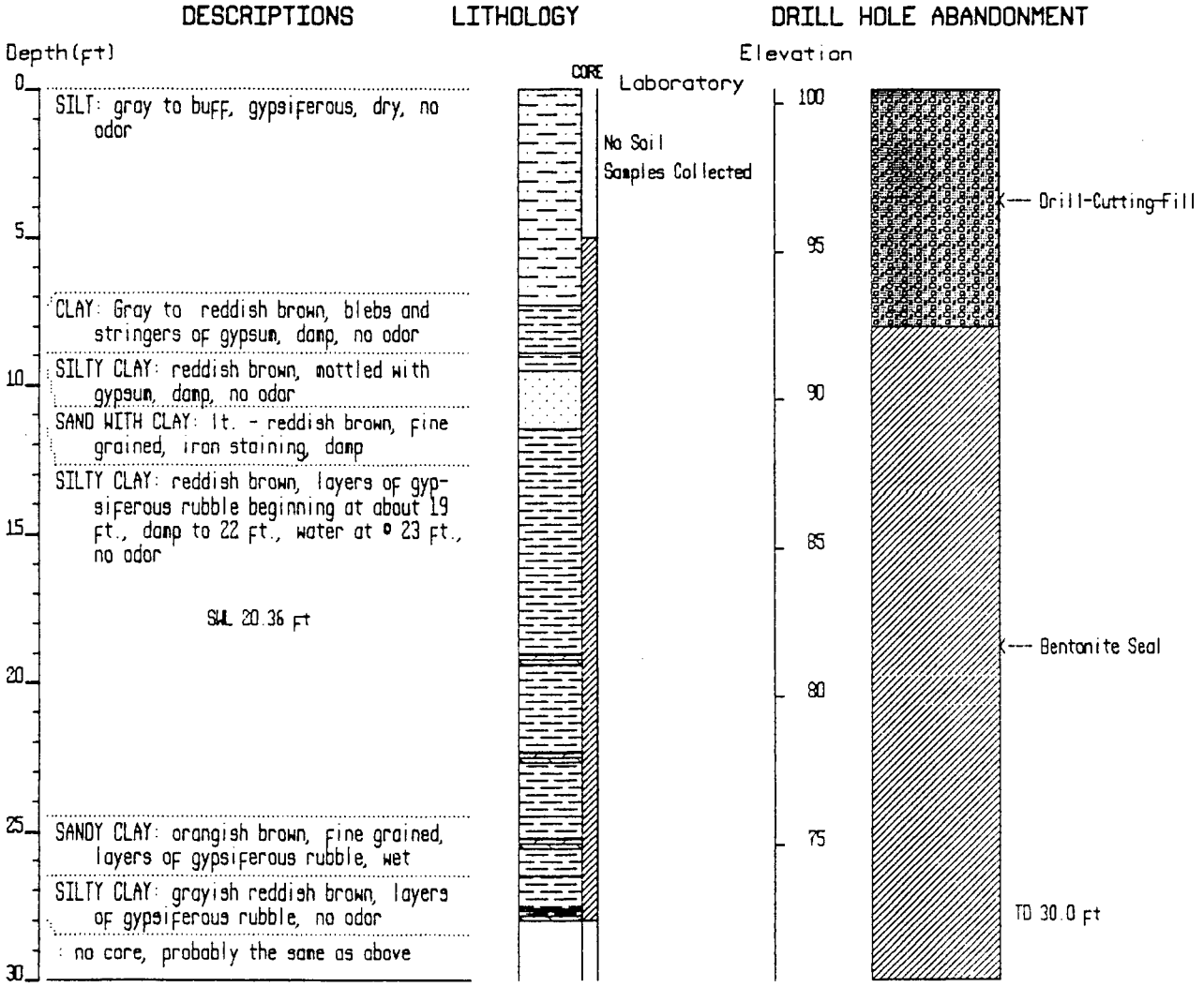


Western Water Consultants, Inc.

SOIL BORING WWCBH-1

LOCATION: Dowell Schlumberger, Artesia New Mexico
NE corner of the concrete warehouse, 51' E, 36' N
T17S, R26E, Sec 4, SE 1/4, SW 1/4, SW 1/4
LOG: Western Water Consultants Inc. (Kevin Mattson)
DRILLER: Scarbough Drilling (Lane Scarbough)
DRILLERS LICENSE *: WD1188
DRILLING DATE: January 23, 1991

WELL OWNER: Dowell Schlumberger Inc. (JN 0125)
DRILLING METHOD: Air Rotary, 5.0" OD
WATER TABLE ELEVATION: 82.41 (01/26/89)
(Reference Datum: Arbitrary = 100.00 feet)

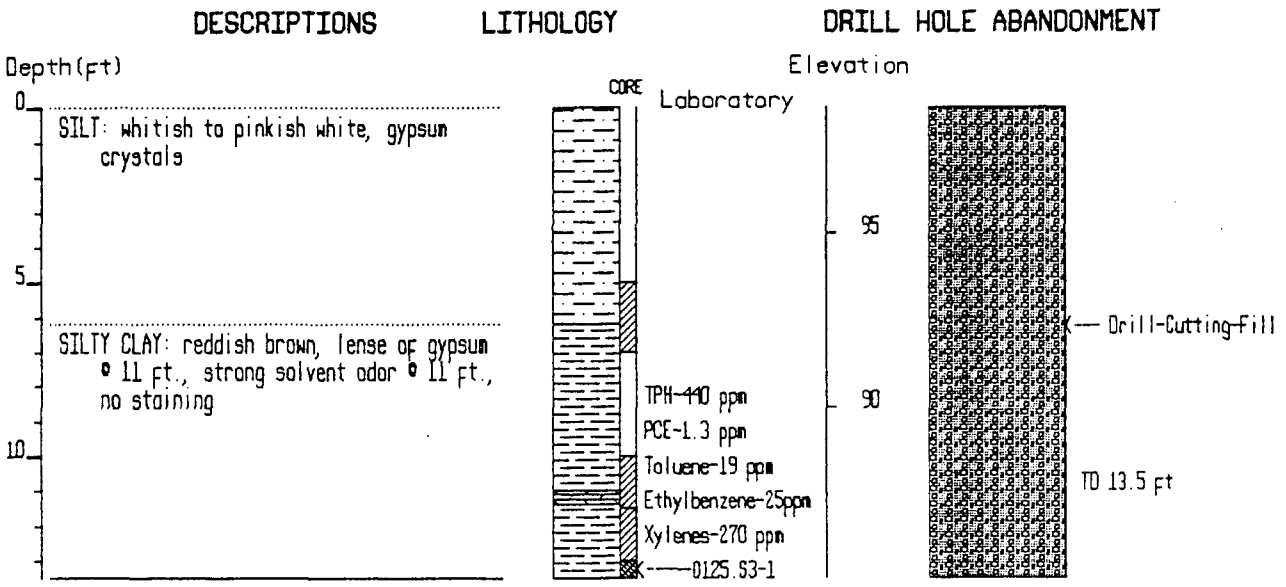


Western Water Consultants, Inc.

SOIL BORING WWCBH-3

LOCATION: Dowell Schlumberger, Artesia New Mexico
NE corner of the DS property, 57.5' W, 32' N
T17S, R26E, Sec 4, SE 1/4, SW 1/4, SW 1/4
LOG: Western Water Consultants Inc. (Robin Daley)
DRILLER: Scarbough Drilling (Lane Scarbough)
DRILLERS LICENSE #: WD1188
DRILLING DATE: January 24, 1991

WELL OWNER: Dowell Schlumberger Inc. (JN 0125)
DRILLING METHOD: Air Rotary, 5.0" OD
WATER TABLE ELEVATION: NA
(Reference Datum: Arbitrary = 100.00 feet)

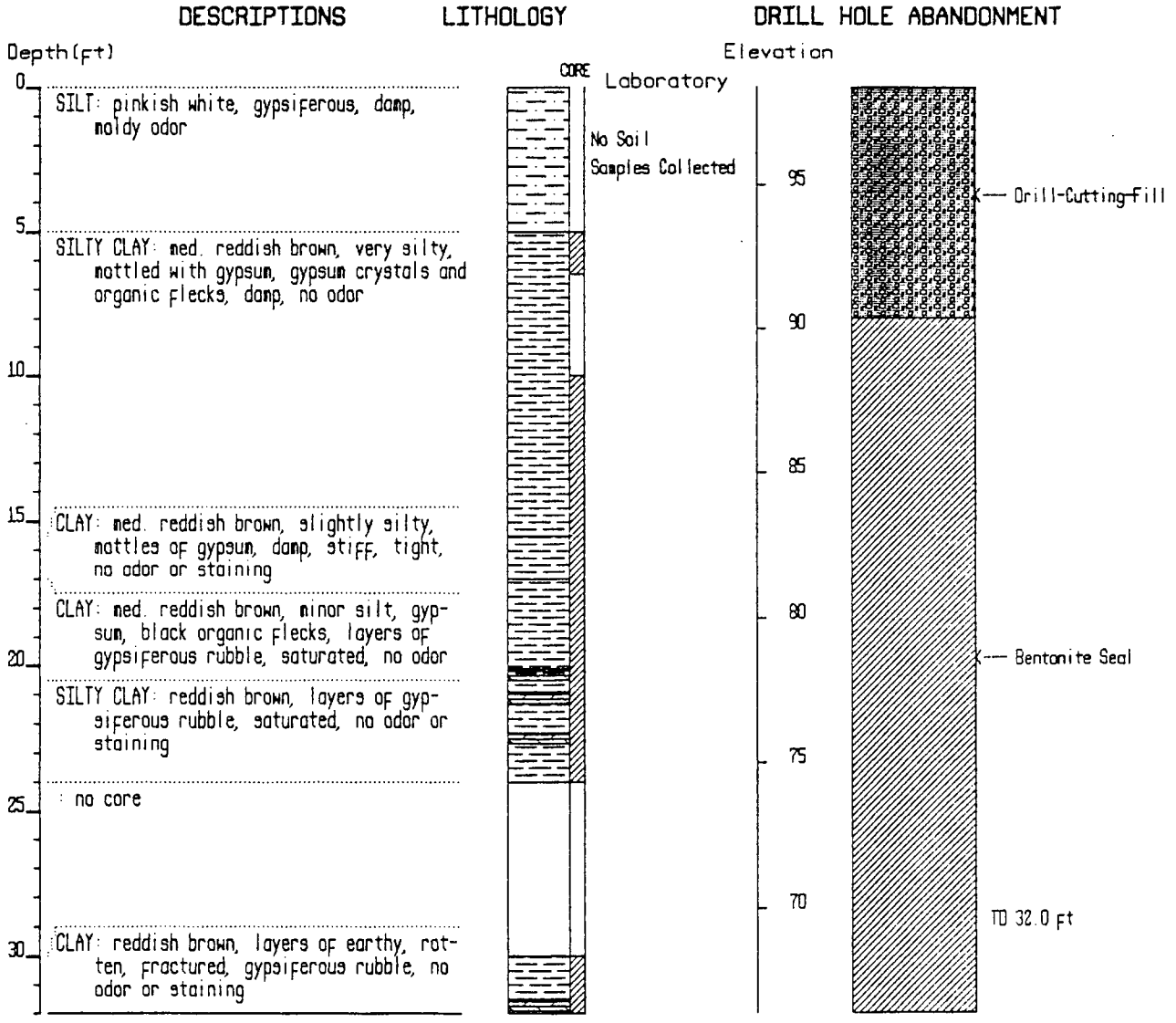


Western Water Consultants, Inc.

SOIL BORING WWCBH-4

LOCATION: Dowell Schlumberger, Artesia New Mexico
17 ft. S, 34 ft. E of the NE corner of the DS site
T17S, R26E, Sec 4, SE 1/4, SW 1/4, SW 1/4
LOG: Western Water Consultants Inc. (Kevin Mattson)
DRILLER: Scarbough Drilling (Lane Scarbough)
DRILLERS LICENSE *: WD1188
DRILLING DATE: January 25, 1991

WELL OWNER: Dowell Schlumberger Inc. (JN 0125)
DRILLING METHOD: Air Rotary, 5.0" OD
WATER TABLE ELEVATION: NA
(Reference Datum: Arbitrary = 100.00 feet)



Western Water Consultants, Inc.

APPENDIX C

NEW MEXICO STATE ENGINEER'S WELL FORMS

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Dowell Schlumberger Inc. Owner's Well No. MW9

Street or Post Office Address 500 E. Richey Ave.

City and State Artesia, New Mexico 88210

Well was drilled under Permit No. WD 1188 and is located in the:

a. ____ ¼ SE ¼ SW ¼ SW ¼ of Section 4 Township 17S Range 26E N.M.P.M.

b. Tract No. ____ of Map No. ____ of the ____

c. Lot No. ____ of Block No. ____ of the ____
Subdivision, recorded in ____ County.

d. X= ____ feet, Y= ____ feet, N.M. Coordinate System ____ Zone in the ____ Grant.

(B) Drilling Contractor Scarbough Drilling Inc. License No. WD1188

Address 122 North 24th Street, Lamesa, Texas 79331

Drilling Began Jan. 24, 1991 Completed Jan. 24, 1991 Type tools Air Rotary Size of hole 5 in.

Elevation of land surface or N/A at well is ____ ft. Total depth of well 30 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 17.69 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minule)
21	30	9'	Reddish brown silty clay with	2-3
			interbeds of weathered rubble	
			material and fine to very fine	
			grained sand.	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
2" PVC	NA	NA	0	20	20 ft.	NA	NA	NA
2" PVC	NA	0.020 slots	20	30	10 ft.	NA	20	30

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
18	10	5"	Chipped Bentonite		Poured in and hydrated in place
10	0	5"	Cement		Poured in

Section 5. PLUGGING RECORD

Plugging Contractor ____

Address ____

Plugging Method ____

Date Well Plugged ____

Plugging approved by:

____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad ____ FWL ____ FSL ____

File No. ____ Use ____ Location No. ____

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	7	7	Lt. brown to buff, gypsiferous, minor clay, bands of gypsum,
			slightly damp to dry.
7	10	3	No recovery
10	11 ½	1½	Lt. brown silty sand, minor clay, 2" band of gypsum, damp
11½	22	10½	Lt. brown to reddish brown silty clay, stringers and bands of
			gypsum, gravel sized rubble material (weathered), H_2O = 23'
22	30	8	Reddish and orange brown silty clay, bands of weathered
			rubble material, 3" band of orange brown sand = 24'.

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller & Geologist

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Dowell Schlumberger Inc. Owner's Well No. MW10
Street or Post Office Address 500 E. Richey Ave.
City and State Artesia, New Mexico 88210

Well was drilled under Permit No. WD 1188 and is located in the:

a. ____ ¼ SE ¼ SW ¼ SW ¼ of Section 4 Township 17S Range 26E N.M.P.M.

b. Tract No. ____ of Map No. ____ of the ____

c. Lot No. ____ of Block No. ____ of the ____
Subdivision, recorded in ____ County.

d. X= ____ feet, Y= ____ feet, N.M. Coordinate System ____ Zone in the ____ Grant.

(B) Drilling Contractor Scarbough Drilling Inc. License No. WD 1188

Address 122 North 24th Street, Lamesa, Texas 79331

Drilling Began Jan. 24, 1991 Completed Jan. 24, 1991 Type tools Air Rotary Size of hole 5 in.

Elevation of land surface or NA at well is ____ ft. Total depth of well 30 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 17.46 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
21	30	9	Reddish brown silty clay with	2-3
			interbeds of weathered rubble	
			material.	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
2" PVC	NA	NA	0	10	10	NA	NA	NA
2" PVC	NA	0.020 slots	10	30	20	NA	30	10

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
3	7	5"	Chipped Bentonite	NA	Poured in, hydrated in place
0	3	5"	Cement	NA	Poured in.

Section 5. PLUGGING RECORD

Plugging Contractor ____
Address ____
Plugging Method ____
Date Well Plugged ____
Plugging approved by:
____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad ____ FWL ____ FSL ____

File No. ____ Use ____ Location No. ____

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	8	8	Lt. brown to pinkish white, gypsiferous, very fine grained, dry.
8	18	10	Reddish brown silty clay, less silty at 18'
18	21½	3½	Reddish brown clay, minor silt, gravel sized weathered rubble material, saturated at 21½'
21½	30	8½	Reddish brown clay, stiff, layers of weathered rubble material.

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Robert L. Dulz
Driller ~~Driller~~ Geologist

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Dowell Schlumberger Inc. Owner's Well No. MW11
Street or Post Office Address 500 E. Richey Ave.
City and State Artesia, New Mexico 88210

Well was drilled under Permit No. WD1188 and is located in the:

a. ____ ¼ SE ¼ SW ¼ SW ¼ of Section 4 Township 17S Range 26E N.M.P.M.

b. Tract No. ____ of Map No. ____ of the ____

c. Lot No. ____ of Block No. ____ of the ____
Subdivision, recorded in ____ County.

d. X= ____ feet, Y= ____ feet, N.M. Coordinate System ____ Zone in the ____ Grant.

(B) Drilling Contractor Scarbough Drilling Inc. License No. WD 1188

Address 122 North 24th Street, Lamesa, Texas 79331

Drilling Began Jan. 24, 1991 Completed Jan. 24, 1991 Type tools Air Rotary Size of hole 5 in.

Elevation of land surface or NA at well is NA ft. Total depth of well 30 ft.

Completed well is [X] shallow [ ] artesian. Depth to water upon completion of well 17.08 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
20	30	10	Reddish brown silty clay with	
			interbeds of gypsiferous rubble	
			material.	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
2" PVC	NA	NA	0	20	20	NA	NA	NA
2" PVC	NA	0.020 slots	20	30	10	NA	20	30

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
15	10	5"	Chipped Bentonite	NA	Poured in, hydrated in place
10	0	5"	Cement	NA	Poured in.

Section 5. PLUGGING RECORD

Plugging Contractor ____
Address ____
Plugging Method ____
Date Well Plugged ____
Plugging approved by:
____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad ____ FWL ____ FSL ____

File No. ____ Use ____ Location No. ____

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	6	6	Lt. brown to buff silt, gypsiferous, minor gravel, slightly damp.
6	10	4	Reddish brown silty clay, gypsum, minor gravel, slightly damp.
10	11½	1½	No recovery
11½	13	1½	Grayish reddish brown silty clay, mottles of gypsum, damp
13	15	2	No recovery
15	16½	1½	Reddish brown sandy clay, very fine to fine grained, mottles of gypsum, damp.
16½	30	13½	Grayish to reddish brown silty clay, layers of gypsiferous rubble to 1" diameter.

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Robert J. Daley
~~Driller~~ Geologist

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 11(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Dowell Schlumberger Inc. Owner's Well No. MW-12

Street or Post Office Address 500 E. Richey Ave.

City and State Artesia, New Mexico 88210

Well was drilled under Permit No. WD 1188 and is located in the:

a. ___ ¼ SE ¼ SW ¼ SW ¼ of Section 4 Township 17S Range 26E N.M.P.M.

b. Tract No. ___ of Map No. ___ of the ___

c. Lot No. ___ of Block No. ___ of the ___ Subdivision, recorded in ___ County.

d. X= ___ feet, Y= ___ feet, N.M. Coordinate System ___ Zone in the ___ Grant.

(B) Drilling Contractor Scarbough Drilling Inc. License No. WD1188

Address 122 North 24th Street, Lamesa, Texas 79331

Drilling Began Jan. 24, 1991 Completed Jan. 24, 1991 Type tools Air Rotary Size of hole 5 in.

Elevation of land surface or NA at well is NA ft. Total depth of well 31 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 16.98 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
19	30	11	Reddish brown silty clay with	
			interbeds of gypsiferous rubble	
			material.	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
2" PVC	NA	NA	0	20	20	NA	NA	NA
2" PVC	NA	0.020 slots	20	30	10	NA	20	30

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
15	11	5"	Chipped Bentonite	NA	Poured in, hydrated in place
11	00	5"	Cement	NA	Poured in.

Section 5. PLUGGING RECORD

Plugging Contractor ___

Address ___

Plugging Method ___

Date Well Plugged ___

Plugging approved by: ___

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad ___ FWL ___ FSL ___

File No. ___ Use ___ Location No. ___

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	6	6	Lt. brown to buff silty soil gypsiferous, slightly damp.
6	11½	5½	Reddish to grayish reddish brown silty clay, gypsum, damp.
11½	13	1½	Buff, sandy clay, very fine grained, gypsiferous.
13	15	2	Lt. brown to reddish brown silty clay, gypsum crystals, slightly damp.
15	17	2	Lt. brown to reddish brown silty clay, 3" layer of gypsiferous rubble.
17	21	4	Lt. brown to reddish brown silty clay, gypsiferous rubble.
21	22	1	Reddish brown clay, gypsiferous rubble, damp.
22	30	8	Reddish brown silty clay, interbeds of gypsiferous rubble, layer of reddish brown clay from 23.5 to 24.0 ft.

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Robert M. Daly
~~Driller~~ Geologist

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

APPENDIX D

LABORATORY REPORTS

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 877
SAMPLE IDENTIFICATION: 0125.1-1 MW-1

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	25	BDL
Bromomethane	74-83-9	25	BDL
Vinyl Chloride	75-01-4	25	BDL
Chloroethane	75-00-3	25	BDL
Trichlorofluoromethane	75-69-4	25	BDL
Methylene Chloride	75-09-2	25	BDL
Acetone	67-64-1	50	BDL
Carbon Disulfide	75-15-0	50	BDL
1,1-Dichloroethene	75-35-4	5	BDL
1,1-Dichloroethane	75-34-3	5	BDL
Total-1,2-Dichloroethene	540-59-0	10	BDL
Chloroform	67-66-3	5	BDL
1,2-Dichloroethane	107-06-2	5	BDL
2-Butanone	78-93-3	50	BDL
1,1,1-Trichloroethane	71-55-6	5	BDL
Carbon Tetrachloride	56-23-5	5	BDL
Vinyl Acetate	108-05-4	50	BDL
Bromodichloromethane	75-27-4	5	BDL
1,2-Dichloropropane	78-87-5	5	BDL
2-Chloroethyl vinyl ether	110-75-8	50	BDL
cis-1,3-Dichloropropene	10061-01-5	5	BDL
Trichloroethene	79-01-6	5	BDL
Dibromochloromethane	124-48-1	5	BDL
1,1,2-Trichloroethane	79-00-5	5	BDL
Benzene	71-43-2	5	33
trans-1,3-Dichloropropene	10061-02-6	5	BDL
Bromoform	75-25-2	5	BDL
4-Methyl-2-Pentanone	108-10-1	50	BDL
2-Hexanone	591-78-6	50	BDL
Tetrachloroethene	127-18-4	5	BDL
1,1,2,2-Tetrachloroethane	79-34-5	5	BDL
Toluene	108-88-3	5	29
Chlorobenzene	108-90-7	5	BDL
Ethylbenzene	100-41-4	5	BDL
Styrene	100-42-5	25	BDL
Xylene (total)	1330-20-7	25	130

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 877
SAMPLE IDENTIFICATION: 0125.1-1 MW-1

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	25	BDL
1,3-Dichlorobenzene	541-73-1	25	BDL
1,4-Dichlorobenzene	106-46-7	25	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 877
SAMPLE IDENTIFICATION: 0125.1-1 MW-1

METHOD EPA 8240

ANALYSIS	SDL (ug/l)	RESULT (ug/l)
Methyl-tert-Butyl Ether	25	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: water : MW-1

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 877
SAMPLE IDENTIFICATION: 0125.1-1 MW-1

ANALYSIS	METHOD	UNITS	SDL	RESULT
Total Petroleum Hydrocarbons	418.1	mg/l	1	8

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 878
SAMPLE IDENTIFICATION: 0125.2-1 MW-2

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	50	BDL
Bromomethane	74-83-9	50	BDL
Vinyl Chloride	75-01-4	50	BDL
Chloroethane	75-00-3	50	BDL
Trichlorofluoromethane	75-69-4	50	BDL
Methylene Chloride	75-09-2	50	BDL
Acetone	67-64-1	100	BDL
Carbon Disulfide	75-15-0	100	BDL
1,1-Dichloroethene	75-35-4	10	BDL
1,1-Dichloroethane	75-34-3	10	48
Total-1,2-Dichloroethene	540-59-0	20	BDL
Chloroform	67-66-3	10	BDL
1,2-Dichloroethane	107-06-2	10	BDL
2-Butanone	78-93-3	100	BDL
1,1,1-Trichloroethane	71-55-6	10	BDL
Carbon Tetrachloride	56-23-5	10	BDL
Vinyl Acetate	108-05-4	100	BDL
Bromodichloromethane	75-27-4	10	BDL
1,2-Dichloropropane	78-87-5	10	BDL
2-Chloroethyl vinyl ether	110-75-8	100	BDL
cis-1,3-Dichloropropene	10061-01-5	10	BDL
Trichloroethene	79-01-6	10	BDL
Dibromochloromethane	124-48-1	10	BDL
1,1,2-Trichloroethane	79-00-5	10	BDL
Benzene	71-43-2	10	210
trans-1,3-Dichloropropene	10061-02-6	10	BDL
Bromoform	75-25-2	10	BDL
4-Methyl-2-Pentanone	108-10-1	100	BDL
2-Hexanone	591-78-6	100	BDL
Tetrachloroethene	127-18-4	10	110
1,1,2,2-Tetrachloroethane	79-34-5	10	BDL
Toluene	108-88-3	10	71
Chlorobenzene	108-90-7	10	BDL
Ethylbenzene	100-41-4	10	590
Styrene	100-42-5	50	BDL
Xylene (total)	1330-20-7	50	1700

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 878
SAMPLE IDENTIFICATION: 0125.2-1 MW-2

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	50	BDL
1,3-Dichlorobenzene	541-73-1	50	BDL
1,4-Dichlorobenzene	106-46-7	50	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 878
SAMPLE IDENTIFICATION: 0125.2-1 MW-2

METHOD EPA 8240

ANALYSIS	SDL (ug/l)	RESULT (ug/l)
Methyl-tert-Butyl Ether	50	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 878
SAMPLE IDENTIFICATION: 0125.2-1 MW-2

ANALYSIS	METHOD	UNITS	SDL	RESULT
Total Petroleum Hydrocarbons	418.1	mg/l	1	68

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 882
SAMPLE IDENTIFICATION: 0125.S10-1 duplicate MW-2

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	50	BDL
Bromomethane	74-83-9	50	BDL
Vinyl Chloride	75-01-4	50	BDL
Chloroethane	75-00-3	50	BDL
Trichlorofluoromethane	75-69-4	50	BDL
Methylene Chloride	75-09-2	50	BDL
Acetone	67-64-1	100	BDL
Carbon Disulfide	75-15-0	100	BDL
1,1-Dichloroethene	75-35-4	10	BDL
1,1-Dichloroethane	75-34-3	10	43
Total-1,2-Dichloroethene	540-59-0	20	BDL
Chloroform	67-66-3	10	BDL
1,2-Dichloroethane	107-06-2	10	BDL
2-Butanone	78-93-3	100	BDL
1,1,1-Trichloroethane	71-55-6	10	11
Carbon Tetrachloride	56-23-5	10	BDL
Vinyl Acetate	108-05-4	100	BDL
Bromodichloromethane	75-27-4	10	BDL
1,2-Dichloropropane	78-87-5	10	BDL
2-Chloroethyl vinyl ether	110-75-8	100	BDL
cis-1,3-Dichloropropene	10061-01-5	10	BDL
Trichloroethene	79-01-6	10	BDL
Dibromochloromethane	124-48-1	10	BDL
1,1,2-Trichloroethane	79-00-5	10	BDL
Benzene	71-43-2	10	190
trans-1,3-Dichloropropene	10061-02-6	10	BDL
Bromoform	75-25-2	10	BDL
4-Methyl-2-Pentanone	108-10-1	100	BDL
2-Hexanone	591-78-6	100	BDL
Tetrachloroethene	127-18-4	10	78
1,1,2,2-Tetrachloroethane	79-34-5	10	BDL
Toluene	108-88-3	10	62
Chlorobenzene	108-90-7	10	BDL
Ethylbenzene	100-41-4	10	450
Styrene	100-42-5	50	BDL
Xylene (total)	1330-20-7	50	1300

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 882
SAMPLE IDENTIFICATION: 0125.S10-1 duplicate MW-2

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	50	BDL
1,3-Dichlorobenzene	541-73-1	50	BDL
1,4-Dichlorobenzene	106-46-7	50	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 882
SAMPLE IDENTIFICATION: 0125.S10-1 duplicate MW-2

METHOD EPA 8240

ANALYSIS	SDL (ug/l)	RESULT (ug/l)
Methyl-tert-Butyl Ether	50	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 882
SAMPLE IDENTIFICATION: 0125.S10-1 mw-2 duplicate

ANALYSIS	METHOD	UNITS	SDL	RESULT
Total Petroleum Hydrocarbons	418.1	mg/l	1	88

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 879
SAMPLE IDENTIFICATION: 0125.4-1 MW-4

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	BDL
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	BDL
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	BDL
1,1-Dichloroethane	75-34-3	1	BDL
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	BDL
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	BDL
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	98
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	BDL
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	11
Styrene	100-42-5	5	BDL
Xylene (total)	1330-20-7	5	25

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 879
SAMPLE IDENTIFICATION: 0125.4-1 MW-4

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 879
SAMPLE IDENTIFICATION: 0125.4-1 MW-4

METHOD EPA 8240

ANALYSIS	SDL (ug/l)	RESULT (ug/l)
Methyl-tert-Butyl Ether	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 879
SAMPLE IDENTIFICATION: 0125.4-1 MW-4

ANALYSIS	METHOD	UNITS	SDL	RESULT
Total Petroleum Hydrocarbons	418.1	mg/l	1	1

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 880
SAMPLE IDENTIFICATION: 0125.5-1 mw-5

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	BDL
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	BDL
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	2
1,1-Dichloroethane	75-34-3	1	4
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	1
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	BDL
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	14
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	10
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	BDL
Styrene	100-42-5	5	BDL
Xylene (total)	1330-20-7	5	BDL

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 880
SAMPLE IDENTIFICATION: 0125.5-1 MW-5

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 880
SAMPLE IDENTIFICATION: 0125.5-1 MW-5

METHOD EPA 8240

ANALYSIS	SDL (ug/l)	RESULT (ug/l)
Methyl-tert-Butyl Ether	5	210

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 880
SAMPLE IDENTIFICATION: 0125.5-1 MW-5

ANALYSIS	METHOD	UNITS	SDL	RESULT
Total Petroleum Hydrocarbons	418.1	mg/l	1	3

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 883
SAMPLE IDENTIFICATION: 0125.6-1 MW-6

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	2
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	BDL
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	170
1,1-Dichloroethane	75-34-3	1	7
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	7
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	BDL
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	BDL
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	83
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	BDL
Styrene	100-42-5	5	BDL
Xylene (total)	1330-20-7	5	BDL

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 883
SAMPLE IDENTIFICATION: 0125.6-1 MW-6

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 883
SAMPLE IDENTIFICATION: 0125.6-1 MW-6

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 884
SAMPLE IDENTIFICATION: 0125.7-1 MW-7

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	BDL
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	BDL
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	260
1,1-Dichloroethane	75-34-3	1	21
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	10
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	68
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	6
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	200
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	BDL
Styrene	100-42-5	5	BDL
Xylene (total)	1330-20-7	5	BDL

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 884
SAMPLE IDENTIFICATION: 0125.7-1 MW-7

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 884
SAMPLE IDENTIFICATION: 0125.7-1 MW-7

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 885
SAMPLE IDENTIFICATION: 0125.8-1 MW-8

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	BDL
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	BDL
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	15
1,1-Dichloroethane	75-34-3	1	BDL
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	4
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	1
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	BDL
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	3
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	BDL
Styrene	100-42-5	5	BDL
Xylene (total)	1330-20-7	5	5

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 885
SAMPLE IDENTIFICATION: 0125.8-1 MW-8

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 885
SAMPLE IDENTIFICATION: 0125.8-1 MW-8

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 889
SAMPLE IDENTIFICATION: 0125.9-1 MW-9

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	BDL
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	BDL
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	2
1,1-Dichloroethane	75-34-3	1	22
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	BDL
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	BDL
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	BDL
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	1
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	BDL
Styrene	100-42-5	5	BDL
Xylene (total)	1330-20-7	5	BDL

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 889
SAMPLE IDENTIFICATION: 0125.9-1 mw-9

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 889
SAMPLE IDENTIFICATION: 0125.9-1 MW-9

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 886
SAMPLE IDENTIFICATION: 0125.10-1 MW-10

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	BDL
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	17
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	4
1,1-Dichloroethane	75-34-3	1	BDL
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	BDL
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	BDL
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	BDL
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	BDL
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	BDL
Styrene	100-42-5	5	BDL
Xylene (total)	1330-20-7	5	BDL

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 886
SAMPLE IDENTIFICATION: 0125.10-1 MW-10

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 886
SAMPLE IDENTIFICATION: 0125.10-1 MW-10

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 887
SAMPLE IDENTIFICATION: 0125.11-1 MW-11

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	25	BDL
Bromomethane	74-83-9	25	BDL
Vinyl Chloride	75-01-4	25	BDL
Chloroethane	75-00-3	25	BDL
Trichlorofluoromethane	75-69-4	25	BDL
Methylene Chloride	75-09-2	25	BDL
Acetone	67-64-1	50	BDL
Carbon Disulfide	75-15-0	50	BDL
1,1-Dichloroethene	75-35-4	5	310
1,1-Dichloroethane	75-34-3	5	45
Total-1,2-Dichloroethene	540-59-0	10	BDL
Chloroform	67-66-3	5	BDL
1,2-Dichloroethane	107-06-2	5	BDL
2-Butanone	78-93-3	50	BDL
1,1,1-Trichloroethane	71-55-6	5	BDL
Carbon Tetrachloride	56-23-5	5	BDL
Vinyl Acetate	108-05-4	50	BDL
Bromodichloromethane	75-27-4	5	BDL
1,2-Dichloropropane	78-87-5	5	BDL
2-Chloroethyl vinyl ether	110-75-8	50	BDL
cis-1,3-Dichloropropene	10061-01-5	5	BDL
Trichloroethene	79-01-6	5	140
Dibromochloromethane	124-48-1	5	BDL
1,1,2-Trichloroethane	79-00-5	5	BDL
Benzene	71-43-2	5	10
trans-1,3-Dichloropropene	10061-02-6	5	BDL
Bromoform	75-25-2	5	BDL
4-Methyl-2-Pentanone	108-10-1	50	BDL
2-Hexanone	591-78-6	50	BDL
Tetrachloroethene	127-18-4	5	360
1,1,2,2-Tetrachloroethane	79-34-5	5	BDL
Toluene	108-88-3	5	BDL
Chlorobenzene	108-90-7	5	BDL
Ethylbenzene	100-41-4	5	BDL
Styrene	100-42-5	25	BDL
Xylene (total)	1330-20-7	25	BDL

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 887
SAMPLE IDENTIFICATION: 0125.11-1 MW-11

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	25	BDL
1,3-Dichlorobenzene	541-73-1	25	BDL
1,4-Dichlorobenzene	106-46-7	25	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 887
SAMPLE IDENTIFICATION: 0125.11-1 MW-11

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 888
SAMPLE IDENTIFICATION: 0125.12-1 MW-12

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	120	BDL
Bromomethane	74-83-9	120	BDL
Vinyl Chloride	75-01-4	120	BDL
Chloroethane	75-00-3	120	BDL
Trichlorofluoromethane	75-69-4	120	BDL
Methylene Chloride	75-09-2	120	BDL
Acetone	67-64-1	250	2200
Carbon Disulfide	75-15-0	250	BDL
1,1-Dichloroethene	75-35-4	25	BDL
1,1-Dichloroethane	75-34-3	25	140
Total-1,2-Dichloroethene	540-59-0	50	BDL
Chloroform	67-66-3	25	BDL
1,2-Dichloroethane	107-06-2	25	BDL
2-Butanone	78-93-3	250	BDL
1,1,1-Trichloroethane	71-55-6	25	57
Carbon Tetrachloride	56-23-5	25	BDL
Vinyl Acetate	108-05-4	250	BDL
Bromodichloromethane	75-27-4	25	BDL
1,2-Dichloropropane	78-87-5	25	BDL
2-Chloroethyl vinyl ether	110-75-8	250	BDL
cis-1,3-Dichloropropene	10061-01-5	25	BDL
Trichloroethene	79-01-6	25	73
Dibromochloromethane	124-48-1	25	BDL
1,1,2-Trichloroethane	79-00-5	25	BDL
Benzene	71-43-2	25	260
trans-1,3-Dichloropropene	10061-02-6	25	BDL
Bromoform	75-25-2	25	BDL
4-Methyl-2-Pentanone	108-10-1	250	BDL
2-Hexanone	591-78-6	250	BDL
Tetrachloroethene	127-18-4	25	42
1,1,2,2-Tetrachloroethane	79-34-5	25	BDL
Toluene	108-88-3	25	230
Chlorobenzene	108-90-7	25	BDL
Ethylbenzene	100-41-4	25	950
Styrene	100-42-5	120	BDL
Xylene (total)	1330-20-7	120	4500

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 888
SAMPLE IDENTIFICATION: 0125.12-1 MW-12

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	120	BDL
1,3-Dichlorobenzene	541-73-1	120	BDL
1,4-Dichlorobenzene	106-46-7	120	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 888
SAMPLE IDENTIFICATION: 0125.12-1 MW-12

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	4

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 890
SAMPLE IDENTIFICATION: 0125.S1-1 WWCBH-1

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	BDL
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	BDL
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	94
1,1-Dichloroethane	75-34-3	1	2
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	13
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	BDL
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	BDL
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	BDL
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	BDL
Styrene	100-42-5	5	BDL
Xylene (total)	1330-20-7	5	BDL

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 890
SAMPLE IDENTIFICATION: 0125.S1-1 WWCBH-1

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 890
SAMPLE IDENTIFICATION: 0125.S1-1 WWCBA-1

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 891
SAMPLE IDENTIFICATION: 0125.S4-1 WWC&H-4

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
Chloromethane	74-87-3	25	BDL
Bromomethane	74-83-9	25	BDL
Vinyl Chloride	75-01-4	25	BDL
Chloroethane	75-00-3	25	BDL
Trichlorofluoromethane	75-69-4	25	BDL
Methylene Chloride	75-09-2	25	BDL
Acetone	67-64-1	50	BDL
Carbon Disulfide	75-15-0	50	BDL
1,1-Dichloroethene	75-35-4	5	320
1,1-Dichloroethane	75-34-3	5	26
Total-1,2-Dichloroethene	540-59-0	10	BDL
Chloroform	67-66-3	5	BDL
1,2-Dichloroethane	107-06-2	5	BDL
2-Butanone	78-93-3	50	BDL
1,1,1-Trichloroethane	71-55-6	5	70
Carbon Tetrachloride	56-23-5	5	BDL
Vinyl Acetate	108-05-4	50	BDL
Bromodichloromethane	75-27-4	5	BDL
1,2-Dichloropropane	78-87-5	5	BDL
2-Chloroethyl vinyl ether	110-75-8	50	BDL
cis-1,3-Dichloropropene	10061-01-5	5	BDL
Trichloroethene	79-01-6	5	14
Dibromochloromethane	124-48-1	5	BDL
1,1,2-Trichloroethane	79-00-5	5	BDL
Benzene	71-43-2	5	40
trans-1,3-Dichloropropene	10061-02-6	5	BDL
Bromoform	75-25-2	5	BDL
4-Methyl-2-Pentanone	108-10-1	50	BDL
2-Hexanone	591-78-6	50	BDL
Tetrachloroethene	127-18-4	5	300
1,1,2,2-Tetrachloroethane	79-34-5	5	BDL
Toluene	108-88-3	5	BDL
Chlorobenzene	108-90-7	5	BDL
Ethylbenzene	100-41-4	5	BDL
Styrene	100-42-5	25	BDL
Xylene (total)	1330-20-7	25	470

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 891
SAMPLE IDENTIFICATION: 0125.S4-1 WWC BH-4

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/l)	RESULT (ug/l)
1,2-Dichlorobenzene	95-50-1	25	BDL
1,3-Dichlorobenzene	541-73-1	25	BDL
1,4-Dichlorobenzene	106-46-7	25	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 891
SAMPLE IDENTIFICATION: 0125.S4-1 WWC BH-4

ANALYSIS	METHOD	UNITS	SDL	RESULT
Isopropanol	GC/FID	mg/l	1	BDL
Total Petroleum Hydrocarbons	418.1	mg/l	1	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 892
SAMPLE IDENTIFICATION: 0125.S2-1 WWC18H-2/MW-9 : Soil @ 23'

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
Chloromethane	74-87-3	5	BDL
Bromomethane	74-83-9	5	BDL
Vinyl Chloride	75-01-4	5	BDL
Chloroethane	75-00-3	5	BDL
Trichlorofluoromethane	75-69-4	5	BDL
Methylene Chloride	75-09-2	5	BDL
Acetone	67-64-1	10	11
Carbon Disulfide	75-15-0	10	BDL
1,1-Dichloroethene	75-35-4	1	BDL
1,1-Dichloroethane	75-34-3	1	BDL
Total-1,2-Dichloroethene	540-59-0	2	BDL
Chloroform	67-66-3	1	BDL
1,2-Dichloroethane	107-06-2	1	BDL
2-Butanone	78-93-3	10	BDL
1,1,1-Trichloroethane	71-55-6	1	BDL
Carbon Tetrachloride	56-23-5	1	BDL
Vinyl Acetate	108-05-4	10	BDL
Bromodichloromethane	75-27-4	1	BDL
1,2-Dichloropropane	78-87-5	1	BDL
2-Chloroethyl vinyl ether	110-75-8	10	BDL
cis-1,3-Dichloropropene	10061-01-5	1	BDL
Trichloroethene	79-01-6	1	BDL
Dibromochloromethane	124-48-1	1	BDL
1,1,2-Trichloroethane	79-00-5	1	BDL
Benzene	71-43-2	1	BDL
trans-1,3-Dichloropropene	10061-02-6	1	BDL
Bromoform	75-25-2	1	BDL
4-Methyl-2-Pentanone	108-10-1	10	BDL
2-Hexanone	591-78-6	10	BDL
Tetrachloroethene	127-18-4	1	BDL
1,1,2,2-Tetrachloroethane	79-34-5	1	BDL
Toluene	108-88-3	1	BDL
Chlorobenzene	108-90-7	1	BDL
Ethylbenzene	100-41-4	1	BDL
Styrene	100-42-5	5	BDL
Xylenes (total)	1330-20-7	5	BDL

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 892
SAMPLE IDENTIFICATION: 0125.S2-1 WWC BH-2/MW-9 : Soil @ 23'

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
1,2-Dichlorobenzene	95-50-1	5	BDL
1,3-Dichlorobenzene	541-73-1	5	BDL
1,4-Dichlorobenzene	106-46-7	5	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 892
SAMPLE IDENTIFICATION: 0125.S2-1 WWC BH-2/MW-9 : soil @ 23'

ANALYSIS	METHOD	UNITS	SDL	RESULT
Total Petroleum Hydrocarbons	Mod. 418.1	mg/kg	10	170

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 893
SAMPLE IDENTIFICATION: 0125.S3-1 WWCBH-3 : soil (12-13')

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
Chloromethane	74-87-3	6200	BDL
Bromomethane	74-83-9	6200	BDL
Vinyl Chloride	75-01-4	6200	BDL
Chloroethane	75-00-3	6200	BDL
Trichlorofluoromethane	75-69-4	6200	BDL
Methylene Chloride	75-09-2	6200	BDL
Acetone	67-64-1	12000	BDL
Carbon Disulfide	75-15-0	12000	BDL
1,1-Dichloroethene	75-35-4	1200	BDL
1,1-Dichloroethane	75-34-3	1200	BDL
Total-1,2-Dichloroethene	540-59-0	2500	BDL
Chloroform	67-66-3	1200	BDL
1,2-Dichloroethane	107-06-2	1200	BDL
2-Butanone	78-93-3	12000	BDL
1,1,1-Trichloroethane	71-55-6	1200	BDL
Carbon Tetrachloride	56-23-5	1200	BDL
Vinyl Acetate	108-05-4	12000	BDL
Bromodichloromethane	75-27-4	1200	BDL
1,2-Dichloropropane	78-87-5	1200	BDL
2-Chloroethyl vinyl ether	110-75-8	12000	BDL
cis-1,3-Dichloropropene	10061-01-5	1200	BDL
Trichloroethene	79-01-6	1200	BDL
Dibromochloromethane	124-48-1	1200	BDL
1,1,2-Trichloroethane	79-00-5	1200	BDL
Benzene	71-43-2	1200	BDL
trans-1,3-Dichloropropene	10061-02-6	1200	BDL
Bromoform	75-25-2	1200	BDL
4-Methyl-2-Pentanone	108-10-1	12000	BDL
2-Hexanone	591-78-6	12000	BDL
Tetrachloroethene	127-18-4	1200	1300
1,1,2,2-Tetrachloroethane	79-34-5	1200	BDL
Toluene	108-88-3	1200	19000
Chlorobenzene	108-90-7	1200	BDL
Ethylbenzene	100-41-4	1200	25000
Styrene	100-42-5	6200	BDL
Xylenes (total)	1330-20-7	6200	270000

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 893
SAMPLE IDENTIFICATION: 0125.S3-1 WWCBH-3 : soil @ 23'

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
1,2-Dichlorobenzene	95-50-1	6200	BDL
1,3-Dichlorobenzene	541-73-1	6200	BDL
1,4-Dichlorobenzene	106-46-7	6200	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 893
SAMPLE IDENTIFICATION: 0125.S3-1 WWCBH-3 : soil @ 12-13'

ANALYSIS	METHOD	UNITS	SDL	RESULT
Total Petroleum Hydrocarbons	Mod. 418.1	mg/kg	10	440

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 894
SAMPLE IDENTIFICATION: 0125.S5-1 WWC BH-5: soil @ 13' (MW-12)

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
Chloromethane	74-87-3	620	BDL
Bromomethane	74-83-9	620	BDL
Vinyl Chloride	75-01-4	620	BDL
Chloroethane	75-00-3	620	BDL
Trichlorofluoromethane	75-69-4	620	BDL
Methylene Chloride	75-09-2	620	BDL
Acetone	67-64-1	1200	BDL
Carbon Disulfide	75-15-0	1200	BDL
1,1-Dichloroethene	75-35-4	120	BDL
1,1-Dichloroethane	75-34-3	120	BDL
Total-1,2-Dichloroethene	540-59-0	250	BDL
Chloroform	67-66-3	120	BDL
1,2-Dichloroethane	107-06-2	120	BDL
2-Butanone	78-93-3	1200	BDL
1,1,1-Trichloroethane	71-55-6	120	BDL
Carbon Tetrachloride	56-23-5	120	BDL
Vinyl Acetate	108-05-4	1200	BDL
Bromodichloromethane	75-27-4	120	BDL
1,2-Dichloropropane	78-87-5	120	BDL
2-Chloroethyl vinyl ether	110-75-8	1200	BDL
cis-1,3-Dichloropropene	10061-01-5	120	BDL
Trichloroethene	79-01-6	120	BDL
Dibromochloromethane	124-48-1	120	BDL
1,1,2-Trichloroethane	79-00-5	120	BDL
Benzene	71-43-2	120	BDL
trans-1,3-Dichloropropene	10061-02-6	120	BDL
Bromoform	75-25-2	120	BDL
4-Methyl-2-Pentanone	108-10-1	1200	BDL
2-Hexanone	591-78-6	1200	BDL
Tetrachloroethene	127-18-4	120	440
1,1,2,2-Tetrachloroethane	79-34-5	120	BDL
Toluene	108-88-3	120	6400
Chlorobenzene	108-90-7	120	BDL
Ethylbenzene	100-41-4	120	5000
Styrene	100-42-5	620	BDL
Xylenes (total)	1330-20-7	620	42000

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 894
SAMPLE IDENTIFICATION: 0125.S5-1 WWCBH-5 : soil @ 18' (MW-12)

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
1,2-Dichlorobenzene	95-50-1	620	BDL
1,3-Dichlorobenzene	541-73-1	620	BDL
1,4-Dichlorobenzene	106-46-7	620	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205
CENREF SAMPLE NUMBER: 894
SAMPLE IDENTIFICATION: 0125.S5-1 WWC BH-6/MW-12 : soil @ 13'

ANALYSIS	METHOD	UNITS	SDL	RESULT
Total Petroleum Hydrocarbons	Mod. 418.1	mg/kg	10	300

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910205

HPC Analysis
METHOD ASTM D2887

CENREF SAMPLE No	SAMPLE IDENTIFICATION	SDL (mg/kg)	RESULT (mg/kg)
881	0125.3-1 Product (MW-3	1	470000 (gasoline)

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: Sample contains 47.4 % gasoline. Product - MW-3

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910500
CENREF SAMPLE NUMBER: 2240
SAMPLE IDENTIFICATION: 0125.3-2 (Product - MW-3)

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
Chloromethane	74-87-3	160000	BDL
Bromomethane	74-83-9	160000	BDL
Vinyl Chloride	75-01-4	160000	BDL
Chloroethane	75-00-3	160000	BDL
Trichlorofluoromethane	75-69-4	160000	BDL
Methylene Chloride	75-09-2	160000	BDL
Acetone	67-64-1	310000	BDL
Carbon Disulfide	75-15-0	310000	BDL
1,1-Dichloroethene	75-35-4	31000	BDL
1,1-Dichloroethane	75-34-3	31000	BDL
Total-1,2-Dichloroethene	540-59-0	62000	BDL
Chloroform	67-66-3	31000	BDL
1,2-Dichloroethane	107-06-2	31000	BDL
2-Butanone	78-93-3	310000	BDL
1,1,1-Trichloroethane	71-55-6	31000	280000
Carbon Tetrachloride	56-23-5	31000	BDL
Vinyl Acetate	108-05-4	310000	BDL
Bromodichloromethane	75-27-4	31000	BDL
1,2-Dichloropropane	78-87-5	31000	BDL
2-Chloroethyl vinyl ether	110-75-8	310000	BDL
cis-1,3-Dichloropropene	10061-01-5	31000	BDL
Trichloroethene	79-01-6	31000	BDL
Dibromochloromethane	124-48-1	31000	BDL
1,1,2-Trichloroethane	79-00-5	31000	BDL
Benzene	71-43-2	31000	33000
trans-1,3-Dichloropropene	10061-02-6	31000	BDL
Bromoform	75-25-2	31000	BDL
4-Methyl-2-Pentanone	108-10-1	310000	BDL
2-Hexanone	591-78-6	310000	BDL
Tetrachloroethene	127-18-4	31000	100000
1,1,2,2-Tetrachloroethane	79-34-5	31000	BDL
Toluene	108-88-3	31000	1000000
Chlorobenzene	108-90-7	31000	BDL
Ethylbenzene	100-41-4	31000	2400000
Styrene	100-42-5	160000	320000
Xylene (total)	1330-20-7	160000	20000000

COMPANY NAME: Western Water Consultants

CENREF PROJECT NUMBER: PR910500
CENREF SAMPLE NUMBER: 2240
SAMPLE IDENTIFICATION: 0125.3-2 (Product — WW-3)

METHOD EPA 8240

ANALYSIS	CAS NO.	SDL (ug/kg)	RESULT (ug/kg)
1,2-Dichlorobenzene	95-50-1	160000	BDL
1,3-Dichlorobenzene	541-73-1	160000	BDL
1,4-Dichlorobenzene	106-46-7	160000	BDL

BDL = Below Sample Detection Limit
SDL = Sample Detection Limit

COMMENTS: _____