GROUNDWATER TECHNOLOGY

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QUARTERLY MONITORING AND REMEDIATION SYSTEM INSTALLATION REPORT JANUARY - JULY 1993 BARELAS BRIDGE GWPA SITE 800 BRIDGE BLVD., S.W. ALBUQUERQUE, NEW MEXICO

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Groundwater Technology, Inc. (Groundwater Technology) installed an air sparge/soil vapor extraction remediation system and performed compliance monitoring for the period January through August 1993 for the system located at the Barelas Bridge Groundwater Protection Act (GWPA) site located at 800 Bridge Boulevard S.W., in Albuquerque, New Mexico. Quarterly site monitoring, including fluid-level measurements and air and groundwater sampling, was conducted in February, June, and July 1993. System installation and start-up, system operation and maintenance, and quarterly monitoring was conducted in accordance with the Reclamation Proposal prepared for the site (dated December 4, 1992). This quarterly report has been prepared in accordance with the New Mexico Environmental Improvement Board Underground Storage Tank Regulations (NMEIB/USTR) Part XII, Section 1216.

The air sparge system consists of seven air sparge wells manifolded to a 7.5 horsepower (hp) liquid ring blower. The soil vapor extraction system (SVES) consists of nine vertical and two lateral vent wells manifolded to one 15-hp vacuum blower and a 500 standard cubic feet per minute (scfm) thermal oxidizer for offgas treatment of the extracted vapors. Construction of the remediation system at the Barelas Bridge site was performed during April-July 1993. The SVES was activated on June 29, 1993. The sparge system has not yet been activated and will be put into operation after remediation of the most volatile hydrocarbons in the subsurface by the SVES is complete and the risk of mobilizing hydrocarbons by sparging is thereby reduced.

The SVES operated under Air Quality Permit No. 310, which was issued February 8, 1993 in accordance with Albuquerque/Bernalillo County Air Quality Control (AQCR) Regulation 20, and limits maximum air emissions from the thermal oxidizer to 0.5 pounds per hour (lbs/hr) total non-methane hydrocarbons, including 0.01 lbs/hr benzene, 0.0016 lbs/hr toluene, and 0.002 lbs/hr xylenes. Influent and effluent emissions were measured weekly using a flame-or photolonization detector (FID/PID) and a LEL meter, and air samples were collected on July 13, 1993 for laboratory analysis. Air emissions from the thermal oxidizer were 0.114 lbs/hr total non-methane hydrocarbons. Based on field FID/PID measurements, air sample laboratory analytical data, and air flow rates, as of August 3, 1993, an estimated 2,300 pounds of hydrocarbons have been removed from the site, which is roughly equivalent to 383 gallons of gasoline. Calculations of the mass of hydrocarbon in soil and groundwater at the site estimate that approximately 5,374 pounds were present prior to remediation system activation. Based on this value, approximately 43 percent of the estimated total hydrocarbon mass has been recovered.

Fluid-level measurements and quarterly groundwater sampling were conducted on February 10 and June 16, 1993. Depth to groundwater at the site ranges from 8 to 9.5 feet below the land surface and groundwater flow is to the south-southeast. Approximately 1/4-inch (apparent thickness) of phase-separated hydrocarbons (PSH) were detected in one on-site monitor well (MW-8) during the monitoring period.

Groundwater samples were collected from eight monitor and three private wells on February 10, 1993, and from nine monitor, three SVES, and three private wells on June 16, 1993. For the February 10, 1993 sampling event, benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons (TPH)-as-gasoline concentrations for on-site monitor wells ranged from 74 to 280 ug/l, 300 to 2,100 ug/l, and 210 to 12,000 ug/l, respectively. Dissolved hydrocarbon concentrations for off-site monitor wells ranged from non-detectable to 51 ug/l benzene, non-detectable to 65 ug/l BTEX, and non-detectable to 580 ug/l TPH-as-gasoline. For the June 16, 1993 sampling event, dissolved hydrocarbon concentrations for on-site monitor wells ranged from 82 to 280 ug/l benzene, 370 to 3,200 ug/l BTEX, and 8,000 to 24,000 TPH-as-gasoline. Off-site monitor wells contained from non-detectable to 110 ug/l benzene, non-detectable to 190 ug/l BTEX, and non-detectable to 2,700 ug/l TPH-as-gasoline.

Based on the June 16, 1993 sampling event, for the off-site wells, BTEX concentrations are in excess of New Mexico Water Quality Control Commission (NMWQCC), standards in one well, MW-3, which contained 110 ug/l benzene. No hydrocarbon concentrations have ever been detected in any of the private wells sampled to date.

1.0 INTRODUCTION

Groundwater Technology, Inc. (Groundwater Technology) has performed compliance monitoring for the soil vapor extraction and treatment and air sparging systems at the Barelas Bridge Groundwater Protection Act (GWPA) site, located at 800 Bridge Boulevard, S.W., in Albuquerque, New Mexico (Figure 1). The report summarizes all activities conducted at the site from January through July 1993 and has been prepared in accordance with the Reclamation Proposal (dated December 4, 1992) and New Mexico Environmental Improvement Board Underground Storage Tank Regulations (NMEIB-USTR) Part XII, Section 1216.

The soil vapor extraction system (SVES) was started up on June 29, 1993 and put into continuous operation on July 13, 1993. The report describes all start-up, optimization, and maintenance and monitoring procedures performed on the corrective action system during this quarter. Two quarterly groundwater sampling events were conducted on February 10 and June 16, 1993 and the results are included in this report. The location of all monitor wells and remediation equipment at the site are shown in Figures 1 and 2.

2.0 REMEDIATION SYSTEM INSTALLATION

The remediation system at the Barelas Bridge site consists of a SVES with air emissions treated by a thermal oxidation unit, and an air sparge system. Figure 1 presents a schematic of the remediation system. All remediation equipment is located within a fenced equipment compound located in the southwestern corner of the property. Detailed descriptions of the soil vapor extraction and treatment and air sparging systems, including equipment specifications, are presented in Sections 3.0 and 4.0., respectively. As-Built Diagrams for the system are provided in Appendix A.

2.1 Drilling and Well Installation

Groundwater Technology installed six additional vapor extraction wells (VP-2 through VP-7) and six additional air sparge wells (AS-2 through AS-7) at the site on April 12-15, 1993 for use in the SVES and air sparging remediation system and to obtain additional data on the lateral extent of subsurface hydrocarbons. The wells were installed around the perimeter of the station building in areas suspected of elevated hydrocarbon concentrations (Figure 1).

Drilling was performed using a CME-75 drilling rig and nominal eight- and eleven-inch diameter hollow-stem augers. All downhole drilling and completion equipment was steam-cleaned prior to drilling each boring, and soil sampling devices were decontaminated with non-phosphatic soap and distilled water between each sample.

Soil samples were collected continuously to the water table during the installation of the VP wells for lithologic identification and field and laboratory analysis using a 2-foot long split-spoon sampler. Detailed geologic logs based on the samples were recorded by an experienced Groundwater Technology geologist during drilling and are presented in Appendix B. The soil samples were field-screened during drilling for relative concentrations of volatile organic compounds using a flame ionization detector (FID) calibrated to 100 parts per million (ppm) and 9,800 ppm methane gas. Soil samples for FID screening were placed in mason jars, sealed with aluminum foil, and allowed to equilibrate for 5 to 10 minutes prior to analyzing. The FID results are included on the geologic logs in Appendix B. The soil sample from each VP boring with the highest FID reading was retained for laboratory analysis. The soil samples were secured in 250-ml glass jars with teflon septa, sealed, labeled, placed on ice in an insulated shipping cooler, and sent to GTEL Environmental Laboratories in Torrance, California via overnight courier. The samples were analyzed for benzene, toluene,

ethylbenzene, and total xylene (BTEX) and total petroleum hydrocarbons (TPH)-as-gasoline in accordance with EPA modified methods 5030/8015/8020. Laboratory Certificates of Analysis and Chain-of-Custody documentation are included in Appendix C.

Vapor extraction wells VP-2 through VP-7 were drilled to total depths of 14 feet below grade. The wells were completed with 5 feet of 0.020-inch factory-slotted 2-inch diameter well screen below the water table, 5 feet of 0.040-inch slotted well screen above the water table, and 4 feet of blank casing to the surface. The bottom of the well was fitted with a threaded PVC cap. The annular space of the well was backfilled with 10-20 silica sand to 9 feet below the surface, followed by 8-12 silica sand to 3 feet. A 2-feet thick bentonite seal was placed above the sand, and the remainder of the annulus was left open for future plumbing into the SVES.

Air sparge wells AS-2 through AS-7 were drilled to 17 feet below the ground surface using the hollow-stem augers. The wells were then driven to total depths of approximately 24 feet using the drill rig hammer. The wells are constructed of 2-inch diameter galvanized steel blank casing and 2-inch diameter, 0.020-inch slotted stainless steel screen installed approximately 10 feet below the water table from approximately 19 to 21 feet. The bottom of the wells are fitted with steel drive points. The annular space above the driven portion of the wells was backfilled with a bentonite seal from 15 to 17 feet followed by a cement/bentonite grout to 3 feet below grade.

All wells were temporarily completed with locking plugs and keyed-alike padlocks in bolt-down, traffic-rated, steel road boxes prior to plumbing them into the remediation system. Well completion details and well completion logs are included in Appendix B. Drill cuttings from the soil borings were placed in 55-gallon steel, DOT-approved drums, labeled, and stored on site pending laboratory analysis and off-site disposal.

Subsequent to well installation, the VP wells were developed using well-dedicated 1-inch diameter PVC bailers until water removed from the wells was relatively free of sediment. The bailers were decontaminated prior to use in each well using a non-phosphatic detergent and distilled water. Purge water removed from the wells was placed in a 55-gallon steel drum, labeled, and stored on site pending laboratory analysis and off-site disposal. Following receipt of analytical results, the drums containing drill (soil) cuttings and purge water were transported by Rhino Environmental Services, Inc. (Rhino) to their state-licensed landfill in Hobbs, New Mexico for final disposal on April 28, 1993. Waste manifests are included in Appendix D.

2.1.1 Soil Analytical Results

Soil samples were field-screened with a Foxboro FID and a charcoal filter during drilling of the VP wells for relative concentrations of non-methane volatile organic compounds. Field readings for soil samples collected from all borings ranged from 0 ppm to 450 ppm. Laboratory results for soil samples collected during drilling are presented in Table 1. Total BTEX concentrations for all borings samples ranged from non-detectable to 4.9 milligrams per kilogram (mg/kg), with maximum concentrations detected in the soil sample collected from VP-4 from a depth of 8 feet. TPH-as-gasoline concentrations for all soil samples ranged from non-detectable to 470 mg/kg, with maximum levels recorded in the soil sample from VP-4 at 8 feet. Also included in Table 1 are soil analytical results for wells installed at the site in August 1992, and the distribution of adsorbed-phase hydrocarbons is illustrated in Figure 3.

2.1.2 Groundwater Sampling/Analysis

Subsequent to development and purging, groundwater samples were collected on April 12, 1993 from wells VP-6 and VP-7 using well-dedicated disposable polyethylene bailers and nylon sampling twine. Samples from each well were placed in two 40-milliliter (ml) volatile organic analysis (VOA) vials with zero headspace and dilute hydrochloric (HCL) acid, placed on ice in an insulated shipping cooler, and sent to GTEL in Torrance, California, via overnight courier.

The groundwater samples were analyzed for BTEX and TPH-as-gasoline per EPA modified methods 8015/8020. Benzene concentrations were 18 micrograms per liter (ug/l) (VP-6) and 100 ug/l (VP-7), total BTEX concentrations were 48 ug/l (VP-6) and 240 ug/l (VP-7), and 4,000 ug/l and 16,000 ug/l TPH-as-gasoline was detected in VP-6 and VP-7, respectively. Laboratory results are included in Table 6. Laboratory Certificates of Analysis and Chain-of-Custody documentation are included in Appendix E.

2.2 Remediation System Construction

Construction of the remediation system at the Barelas Bridge site was performed during April-July, 1993 and consisted of the following tasks:

- Trenching and laying of all subgrade PVC vapor and steel air sparge lines, followed by reburial, compaction, and asphalt resurfacing (April 26 - April 30, 1993);

- Subgrade piping connections to all vapor extraction and air sparge wells (April 26 - April 30, 1993);
- Completion of all vapor extraction and air sparge wellheads with bolt-down, traffic-rated manholes and sloping reinforced concrete well pads, and well manifolds at equipment compound (May 3 - May 11, 1993);
- Installation of a 8-foot high chain-link fence with razor ribbon, panel weave, and a 20-foot double-drive gate around the equipment compound (May 28-June 2, 1993);
- Transport of remediation equipment and off-loading in compound at site. Final piping connections and plumbing made to equipment (June 1-14, 1993);
- Installation of 3-phase electric power supply at the site and 5 psi natural gas service. Final utility connections made to equipment. Utility service heated (June 7-21, 1993);
- ORS conducted four days equipment start-up, adjustments, and training (June 29-July 2, 1993);
- Disposal of approximately 96 tons of contaminated soil from line trenches to Rhino landfill in Hobbs, New Mexico (May 28-June 2, 1993);
- Professional survey of all trench locations and vapor extraction, air sparge, and monitor wells (including off-site wells) (July 20 and August 6, 1993); and
- Soundproofing of SVES blowers July 5 - 13, 1993.

Waste manifests for the trench soil disposal are included in Appendix D. A copy of the site survey is provided in Appendix A.

3.0 SOIL VAPOR EXTRACTION/TREATMENT SYSTEM

3.1 Remediation System Description

The SVES consists of nine vertical vapor extraction wells (VP-1 through VP-7, MW-4, and MW-9), and two horizontal vent wells (Figure 1 and Appendix A) manifolded to a Paxton Model #HZ87, 15-horsepower (HP), explosion-proof positive displacement vacuum blower at the equipment compound. The blower operates at a maximum rate of 500 cubic feet per minute (cfm) and 60 inches of water vacuum. Each of the vertical vent wells are constructed of 2-inch diameter schedule 40 PVC well casing and screen, with screened intervals from 4 feet to 14 feet (total depth). The vertical vent wells are completed in 16-inch diameter manholes with locking well plugs and traffic-rated steel, bolt-down well covers. The horizontal vent wells include one well which roughly parallels the southern and eastern property boundaries and consists of 4-inch diameter 0.040-inch slotted PVC screen installed at approximately 2 to 4 feet below grade. A second horizontal well consists of horizontal PVC slotted piping located in the existing UST area.

The SVES wells are connected into four main trunk lines which lead back to the equipment compound (Figure 1 and Appendix A):

- Line 1: Lateral vent well on the southern and eastern perimeter of the property; and
- Line 2: Wells MW-9, VP-1, MW-4, VP-2, and VP-3;
- Line 3: Horizontal tank pit wells.
- Line 4: Wells VP-4 through VP-7;

At the compound, the four main trunk lines stub-up above grade and are each fitted with a butterfly valve for controlling individual air streams, a 1/4-inch diameter PVC labcock sampling port, and a pressure port for measuring air velocity readings. The lines are then manifolded together, reduced down to one line, and connected to one steel moisture separator after blower intake. An automatic dilution valve with lower explosive limit (LEL) controller for diluting the influent air stream is located after the moisture separator and a manual dilution valve is located prior to the separator. Extracted vapors are then routed to an ORS Thermo-Scavenger Thermal Oxidizer system for treatment prior to atmospheric discharge. Sampling ports are located before and after the thermal oxidation unit to sample air influent and effluent discharge.

The thermal oxidation unit is a skid-mounted, Epcon Industrial Systems, Inc., Model # E-DF-500-H-T natural-gas fired unit that operates at a maximum capacity of 500 scfm. The skid-mounted unit has dimensions of approximately 6.5 feet (height) x 13.75 feet (length) x 6 feet (width) and the exhaust stack is 11 feet high. The thermal oxidation unit is equipped with a catalytic module for future installation after LEL levels have consistently dropped below approximately 20%. The unit is also equipped with a chart recorder and an automated dilution system with LEL controller.

3.2 Start-up Operations

The SVES was delivered to the 800 Barelas Bridge Blvd., S.W. site on June 1, 1993. During the month of June 1993, electrical, natural gas, and final PVC piping connections were made to the SVES. Natural gas and electrical service for the equipment were also activated by the public utility companies. From June 29 through July 2, 1993, ORS was on site to conduct initial start-up of the SVES. From July 2 through July 22, 1993, the SVES operated intermittently as various adjustments were made for system shake-down and the operating parameters of the equipment were fine-tuned and adjusted. The SVES was off for approximately one week (July 5-13, 1993) while a sound-proofing chamber was installed around the process and purge SVES blowers. The SVES has been in constant (uninterrupted) operation from July 22, 1993 through August 15, 1993.

3.3 System Monitoring and Maintenance

In addition to a visual inspection of all lines and SVES components, the following data were collected on a weekly basis during the monitoring period in accordance with the Reclamation Proposal for the site, and to ensure optimum operating conditions and performance:

- LEL and photoionization and/or flameionization detector (PID/FID) levels of influent (pre-treatment) and effluent (post-treatment) vapor;
- Thermal oxidation unit operating temperature;
- Pre-blower air velocity readings;
- Manual dilution valve setting (percent open);
- Automatic dilution valve setting (percent open);
- Temperature of vapor influent;
- Electric and natural gas meter readings;
- Vacuum, air velocity, and PID/FID readings at the four vapor extraction piping legs; and

- Ball valve settings (percent open) for the four vapor extraction piping legs and for the individual vapor extraction wells.

All monitoring data collected for the SVES over the period June 29, 1993 through August 3, 1993 are included in Appendix F, and average monthly summaries are presented in Table 2. Following start-up, the four vent lines (Lines 1-4) were each opened 100% using the butterfly valves at the compound and the ball valves at each individual vent well were opened 100%. The automatic dilution valve remained closed while the manual dilution valve was opened 50 to 100% to allow for dilution of the influent vapor stream with fresh air. Dilution of the air stream was necessary during the first few weeks of operation to keep the LEL of the influent vapor stream below the alarm condition setting of approximately 55% LEL. On July 27, 1993, Vent Line 3 was closed 100%, and the dilution valve settings were progressively adjusted (closed) over time to allow for less by-pass air as the percent LEL of the influent vapor stream decreased with active venting. The dilution valves are currently 100% closed.

Vacuum in Vent Lines 1-4 was measured with a Dwyer Magnahelic gauge with a range of 0 to 100 inches of water. Vacuum readings ranged from 4.6 to 22 inches of water. Air velocity readings were obtained with a Dwyer Instruments Model 470 Thermal Anemometer for each of the Vent Lines 1-4 and for total flow from all wells and converted to cubic feet per minute (cfm). Total flow from the wells ranged from 216 cfm (as measured prior to 50% manual dilution air) on July 13, 1993, to 510 cfm on July 27, 1993 with no dilution air.

Organic vapor concentrations were measured weekly using a PID calibrated with 100 ppm isobutylene gas. PID readings for Vent Lines 1-4 ranged from 485 ppm (Line 3) to 1,175 ppm (Line 1) on July 13, 1993, and from 460 ppm (Line 1) to 1,660 ppm (Line 4) on July 27, 1993. Total influent vapor PID readings ranged from 2,222 ppm to 1,080 ppm, with maximum PID readings obtained during the first few weeks of start-up and decreasing thereafter. Effluent vapor readings ranged from 0 to 42 ppm. Total influent FID readings were approximately 10,000+ ppm (including 50% manual dilution air) following the first few weeks of start-up, with approximately 2,750 ppm of this total reported as methane, as measured on July 13, 1993.

Influent and effluent vapor LEL measurements were collected weekly with a Mine Safety Appliance (MSA) Model 261 Combustible Gas and Oxygen Indicator. The influent vapor LEL ranged from approximately 52% (following system start-up) to 8% over the monitoring period and generally decreased with time as active venting progressed. The effluent vapor LEL was 0% over the monitoring period.

3.4 Air Sampling and Analysis

Start-up air samples of influent (pre-thermal oxidation treatment) and effluent (post-thermal oxidation treatment) were collected on July 13, 1993, in accordance with Air Quality Permit No. 310 for the site. Samples were collected in Tedlar bags and analyzed for BTEX and total fuel (non-methane hydrocarbons) in accordance with EPA method TO-14. Total BTEX and total fuel influent concentrations were 108,700 micrograms per cubic meter (ug/m^3) (27,280 ppbv) and 14,000,000 ug/m^3 (4,000,000 ppbv), respectively. Effluent concentrations included 430 ug/m^3 total BTEX (110 ppbv) and 47,000 ug/m^3 (13,000 ppbv) total fuel. A comparison of the influent and effluent total fuel concentrations indicates a 99.9% destruction efficiency for the thermal oxidation unit. Analytical results are summarized in Table 3 and Laboratory Certificates of Analysis and Chain-of-Custody documentation are provided in Appendix G.

Atmospheric emissions by the SVES at the 800 Bridge Blvd., S.W., site were calculated for start-up using the air analytical data collected on July 13, 1993 and were submitted to the Albuquerque Environmental Health Department (AEHD) Air Pollution Control Division (APCD) in accordance with Air Quality Permit No. 310. The calculations are provided in Appendix H and a summary of both effluent and influent emissions is provided in Table 4. The air analytical data indicate that effluent emissions at the site were less than 0.00016 pounds per hour (lb/hr) benzene, 0.00044 lb/hr toluene, 0.00061 lb/hr xylenes, and 0.114 lb/hr total fuel (non-methane hydrocarbons). These emission concentrations are below the permit limits specified in Air Quality Permit No. 310 for the site.

4.0 AIR SPARGE SYSTEM

4.1 Remediation System Description

The air sparge system consists of seven air sparge wells (AS-1 through AS-7) manifolded to a 3-phase, 7.5 HP Atlantic Fluidics Model A-75 liquid ring blower. The blower is rated for continuous operation at 75 cfm and 20 inches of water column pressure. Each of the sparge wells are constructed of 2-inch diameter galvanized steel and stainless steel well screens, with screened intervals from 19 to 21 feet. The sparge wells are completed in 18-inch diameter traffic-rated steel bolt-down well covers. Each sparge point is fitted with a pressure regulator at the wellhead for controlling injection pressure and fittings for monitoring air flow rates.

The air sparge wells are connected into three main trunk lines which lead back to the equipment compound (Figure 1 and Appendix A):

Line 1:	AS-1, AS-2, and AS-3;
Line 2:	AS-6 and AS-7; and
Line 3:	AS-4 and AS-5.

At the compound, the three main trunk lines stub-up above grade and are each fitted with a butterfly valve for controlling individual air streams. The lines are then manifolded together, reduced down to one line, and connected to the sparge blower.

4.2 Start-up Operations

The air sparge system has not yet been activated at the site. The current remedial strategy is to operate only the SVES to remove the highest, most volatile hydrocarbons from the subsurface. Once influent vapor concentrations have significantly decreased and the risk of mobilizing hydrocarbons off-site is reduced, the sparge system will be turned on. Based on current SVES LEL influent levels of 10-15%, Groundwater Technology will tentatively activate select lines of the sparge system in September 1993. Once activated, the sparge system will only be operated in conjunction with the SVES to contain vapors generated as a result of air sparging. The system will also be closely monitored for groundwater mounding and possible offsite mobilization of dissolved hydrocarbons.

5.0 MASS BALANCE CALCULATIONS AND HYDROCARBON RECOVERY SUMMARY

5.1 Estimate of Hydrocarbon Mass in Soil and Groundwater

Mass balance calculations were performed to determine the mass of hydrocarbons in the subsurface and the time required to remove them using soil venting technology. Typically, chemical analyses of soil and groundwater are used to estimate hydrocarbon mass present in the subsurface when the quantity of hydrocarbons lost is unknown. However, during several of the investigations previously conducted at the site, soil samples were not collected from some of the wells for laboratory analysis and in other cases, the amount of data is limited and several assumptions must be made. Therefore, it is not possible to make an accurate estimate of the hydrocarbon mass present in the subsurface. Consequently, the following calculations are provided as estimates only. Complete hydrocarbon mass and mass removal rate calculations are provided in Appendix H.

5.1.1 Dissolved-Phase Hydrocarbon Mass Calculations

Based on groundwater analytical data collected at the site, the following assumptions were made to estimate the hydrocarbon mass present in the saturated zone:

- Porosity of saturated zone is 0.30;
- The total area of hydrocarbons with dissolved TPH-as-gasoline concentrations is divided into three parts at the site (Appendix H):
  -Area 1 is 12,000 ft^2
  -Area 2 (A+B) is 6,060 ft^2
  -Area 3 is 2,025 ft^2
- The average concentration of TPH-as-gasoline in the saturated zone is calculated using groundwater sample analyses for February and June 1993. The average concentration for each area is calculated by averaging TPH-as-gasoline concentrations of all wells within each area. The average concentrations for Areas 1, 2, and 3, are thus 16 mg/l (VP-4, VP-3, MW-8, MW-4, VP-1, and MW-9), 15 mg/l (VP-5, VP-6, and VP-7), and 17 mg/l (VP-2; VP-2 not sampled so average of adjacent wells VP-3, MW-8, and VP-4 used); and
- Thickness of aquifer assumed to be impacted by dissolved hydrocarbons is 10 feet.

Using the above data and incorporating the stated assumptions, the dissolved hydrocarbon mass for each area was calculated. Area 1 was found to contain 36 pounds of hydrocarbons, 17 pounds of hydrocarbons were estimated for Area 2, and 6 pound of hydrocarbons were calculated for Area 3. This results in a total approximate mass of 59 pounds of dissolved hydrocarbons in the saturated zone beneath the site.

5.1.2 Adsorbed-Phase Hydrocarbon Mass Calculations

Based on the site assessments previously conducted at the site, the following assumptions were made to estimate the hydrocarbon mass present in the soil beneath the site:

- The density of soil is 100 lbs/ft^3;
- The total area of hydrocarbons containing TPH-as-gasoline concentrations is divided into three parts at the site:
  -Area 1 is 12,000 ft^2
  -Area 2B is 2,700 ft^2 (Area 2A had non-detectable TPH-as-gas concentrations)
  -Area 3 is 2,025 ft^2
- The average concentration of volatile hydrocarbons in the soil for each area is calculated by averaging or taking the highest TPH-as-gasoline concentrations for soil samples collected during installation of all wells within each area. The concentrations for Areas 1, 2, and 3, are thus 546 mg/kg (VP-4, VP-3, AH-4, MW-8, PR-3, VP-1, and MW-9), 55 mg/kg (VP-5), and 17 mg/kg (VP-2); and
- Vertical extent of soil affected by hydrocarbons for each of the three areas are based on available PID readings and soil laboratory data for the wells and are 8 feet for Area 1, 4 feet for Area 2, and 4 feet for Area 3.

Using the above data and incorporating the stated assumptions, the hydrocarbon mass in soil for each area was calculated. Area 1 was found to contain 5,242 pounds of hydrocarbons, 59 pounds of hydrocarbons were estimated for Area 2, and 14 pounds of hydrocarbons were calculated for Area 3. This results in a total approximate mass of 5,315 pounds of hydrocarbons in the unsaturated soils beneath the site. Because PSH has been observed in wells at the site, it is likely that the actual mass of hydrocarbons is greater than this estimate.

5.2 Estimated Hydrocarbon Recovery

Based on the total days of operation, vapor flow rates, influent PID field measurements, and the July 13, 1993 air analytical data, the cumulative mass of hydrocarbons removed from the subsurface by the SVES during the monitoring period was estimated and is included in Table 2 and Appendix H. The cumulative mass of hydrocarbons recovered over the period June 29, 1993 through August 3, 1993 is estimated to be approximately 2,300 pounds. Assuming that liquid gasoline has a density of approximately 6 lbs/gallon, an estimated 383 gallons of gasoline have been recovered by the SVES through the life of the project since start-up on June 29, 1993. Compared to the estimated mass of hydrocarbons in the subsurface of about 5,374 lbs, the remediation of soil is estimated to be 43 percent complete. Note that the percentage completion estimate is not meant to indicate remediation time, but only mass recovered. Mass recovery rate is expected to decrease as remediation time increases.

6.0 GROUNDWATER MONITORING

6.1 Fluid-Level Measurements

Fluid-level measurements were obtained in all on and off-site monitor wells (MW-3 through MW-13) on February 10, 1993, and in all monitor wells plus the vapor extraction wells on June 16, 1993 using an Oil Recovery Systems (ORS) electronic interface probe (IP). The IP directly indicates depth to phase-separated hydrocarbons (PSH) and water to an accuracy of $\pm$ 0.01 foot. The IP was cleaned with distilled water and a non-phosphatic detergent prior to gauging each well.

Depth to groundwater beneath the site and adjacent property is approximately 8 to 9.5 feet below the land surface. As illustrated in a groundwater contour map generated from fluid-level measurements obtained on June 16, 1993 (Figure 4), groundwater flow direction beneath the site is generally from north-northwest to south-southeast under an approximate hydraulic gradient of 0.003 foot/foot. Measurable PSH was not detected in any of the monitor wells with the IP during the monitoring events. However, heavy PSH sheens and/or hydrocarbon odors were noted in wells MW-4, MW-8, MW-9, and VP-2 through VP-5. Well MW-8 contained 1/4-inch of PSH as measured in a 1-inch diameter bailer on February 10, 1993.

Historical fluid-level measurements and groundwater elevation calculations for all monitor wells (1992 through the present) are included in Appendix I. As illustrated in hydrographs prepared for select monitor wells (Appendix J), the groundwater elevation increased by approximately 0.5 to 1 foot from February to June 1993 in some wells (MW-1 through MW-3, MW-6), and decreased slightly (0.05 to 0.1 foot) in other wells (MW-4, MW-5, MW-8).

6.2 Quarterly Groundwater Sampling

6.2.1 Well Purging

Subsequent to collecting fluid-level measurements on February 10 and June 16, 1993, select monitor and/or vapor extraction wells not containing measurable PSH were purged of three casing volumes or until the wells purged dry, and were allowed to recharge. The wells were purged using 1-inch diameter PVC or polyethylene disposable bailers and well-dedicated polyvinyl rope. The 1-inch diameter PVC

bailers were steam-cleaned prior to purging and bailers used to purge more than one well were decontaminated between wells using a triple-rinse of distilled water and a non-phosphatic detergent.

During purging, field measurements of pH, temperature, and conductivity were obtained for the purge water using a Cole-Parmer Model 5985-80 pH meter and a YSI Model 33 S-C-T meter. A summary of well purging data is provided in Appendix E.

Purge water generated from monitor well sampling (approximately 110 gallons total from both events) was placed in 55-gallon steel, DOT-approved drums and stored in the equipment compound located in the northwest corner of the site. The drums were labeled as waste material pending analytical results.

6.2.2 Sample Collection and Shipment

Groundwater samples were collected from the following wells using well-dedicated disposable polyethylene bailers and nylon sampling twine. Sample collection personnel donned new latex gloves prior to sampling each well:

- MW-1 through MW-7, MW-9, and private wells PW-140, PW-152, and PW-153 on February 10, 1993; and
- MW-1 through MW-9, VP-3 through VP-5, PW-140, PW-152, and PW-153 on June 16, 1993

Samples were collected from each of the wells for laboratory analysis as follows:

- Two 40-ml VOA glass vials with teflon septa, acidified with dilute HCL acid to pH less than 2 for BTEX and TPH-as-gasoline analysis per EPA modified methods 8015/8020. Samples were placed in the 40-ml vials such that no air was trapped inside.

All samples were immediately labeled and placed on ice in an insulated shipping cooler for delivery to GTEL Environmental Laboratories in Torrance, California via overnight courier.

6.2.3 Analytical Results

Analytical results for the February 10 and June 16, 1993 sampling events are included in Tables 5 and 6, respectively, and the Laboratory Certificates of Analysis, Chain-of-Custody documentation, and QA/QC data are provided in Appendix E.

For the February 10, 1993 sampling event, maximum dissolved BTEX concentrations (300 to 2,100 ug/l) were detected in on-site monitor wells MW-9 and MW-4 respectively, while MW-8 contained PSH. Benzene concentrations in these same wells ranged from 74 to 280 ug/l, while TPH-as-gasoline concentrations ranged from 210 to 12,000 ug/l. Benzene and BTEX concentrations in monitor wells MW-5 through MW-7, located off-site to the south of the station, were non-detectable to 51 ug/l (benzene) and non-detectable to 65 ug/l (BTEX), respectively. The southernmost, downgradient wells, MW-1 through MW-3, contained from non-detectable to 4.6 ug/l benzene and from non-detectable to 6.9 ug/l total BTEX. TPH-as-gasoline concentrations in wells MW-1 through MW-3 ranged from non-detectable (detection limit 100 ug/l) to 290 ug/l. No BTEX or TPH-as-gasoline concentrations were detected in any of the three private wells sampled. Approximately 1/4-inch of PSH (in a 1-inch diameter bailer) was detected in MW-8. Hydrocarbon sheens and/or odors were noted during purging in wells MW-4, MW-5, MW-6, MW-8, and MW-9.

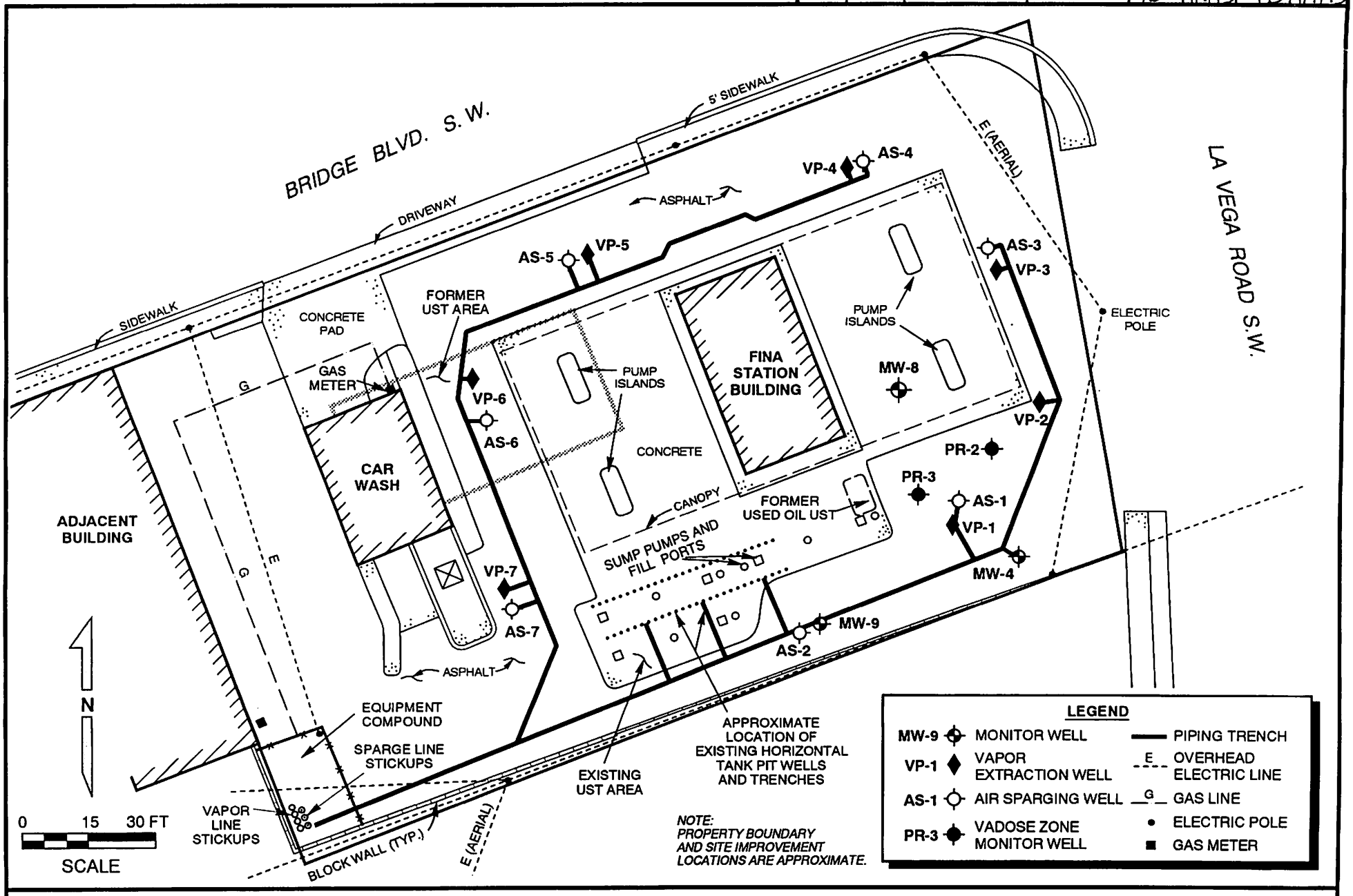
For the April 12 and June 16, 1993 sampling events, maximum dissolved BTEX concentrations (48 to 4,000 ug/l) were detected in monitor wells MW-4, MW-8, MW-9, and VP-3 through VP-7 at the service station. Benzene concentrations in these same wells ranged from 18 to 670 ug/l, while TPH-as-gasoline concentrations ranged from 4,000 to 25,000 ug/l. Benzene and BTEX concentrations in monitor wells MW-5 through MW-7, located off-site to the south of the station, were non-detectable (benzene) and non-detectable to 190 ug/l (BTEX), respectively. TPH-as-gasoline concentrations ranging from non-detectable to 2,700 ug/l were detected in wells MW-5 through MW-7. The southernmost, downgradient wells, MW-1 through MW-3, contained from non-detectable to 110 ug/l (MW-3) benzene and from 4.1 to 120 ug/l total BTEX. TPH-as-gasoline concentrations in wells MW-1 through MW-3 ranged from non-detectable to 580 ug/l. No BTEX or TPH-as-gasoline concentrations were detected in any of the three private wells sampled. No measurable phase separated hydrocarbon (PSH) was detected in the wells at the site, though hydrocarbon sheens were observed during purging in all on-site wells sampled, and all wells (except for the private wells) contained a hydrocarbon odor.

The current lateral distribution of dissolved-phase hydrocarbons, based on the baseline sampling event conducted on June 16, 1993 prior to SVES start-up on June 29, 1993, is illustrated in Figures 5 and 6.

Graphs of dissolved benzene, total BTEX, and TPH-as-gasoline concentrations versus time were plotted for select monitor wells (Appendix K). Table 7 also lists historical analytical data for all wells at the site for the period 1989 to the present. Of the two on-site wells sampled during both the February and June 1993 events (MW-4 and MW-9), benzene levels remained the same in MW-4 while total BTEX and TPH-as-gasoline concentrations decreased in MW-4 (from 2,100 ug/l to 1,300 ug/l BTEX and from 12,000 ug/l to 9,600 ug/l TPH-as-gasoline). Concentrations of these same constituents increased in MW-9 (from 74 ug/l to 140 ug/l benzene, 300 ug/l to 1,600 ug/l total BTEX, and from 210 ug/l to 8,000 ug/l TPH-as-gasoline).

For the off-site wells, benzene concentrations decreased or remained the same in wells MW-1, MW-2, and MW-5 through MW-7 between the February and June 1993 sampling events. Benzene concentrations increased in MW-3 from non-detectable to 110 ug/l. TPH-as-gasoline concentrations also increased in off-site wells MW-1 (from 290 ug/l to 580 ug/l), MW-3 (non-detectable to 540 ug/l), MW-6 (non-detectable to 1,300 ug/l), and MW-7 (580 to 2,700 ug/l). As of the June 16, 1993 sampling event, for the off-site monitor wells, BTEX concentrations are in excess of New Mexico Water Quality Control Commission (NMWQCC) standards in one well, MW-3, which contained 110 ug/l benzene. No hydrocarbon concentrations have ever been detected in any of the private wells sampled to date.

DRAWN BY		FOLDER	FILE	CHECKED BY		APPROVED BY	
EF	9/1/93	NMED/BridgeSW	Sitew/Piping	TB	9/7/93	TB	9/7/93



NMED / 800 BRIDGE BLVD. S.W.

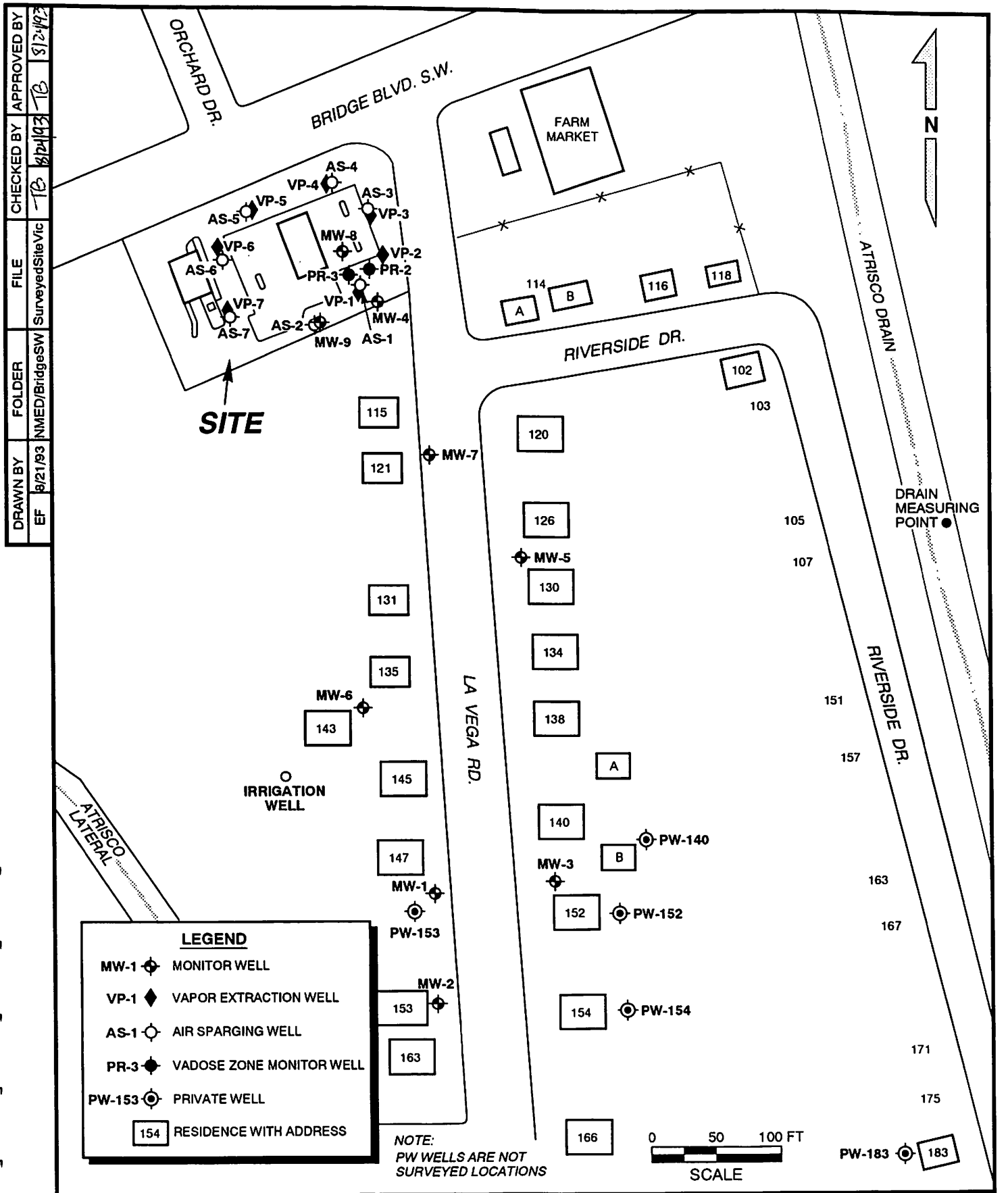
FIGURE 1

SITE MAP

LOCATION: ALBUQUERQUE, NEW MEXICO

PROJECT NO.: 023352875

GROUNDWATER TECHNOLOGY



NMED / 800 BRIDGE BLVD. S.W.

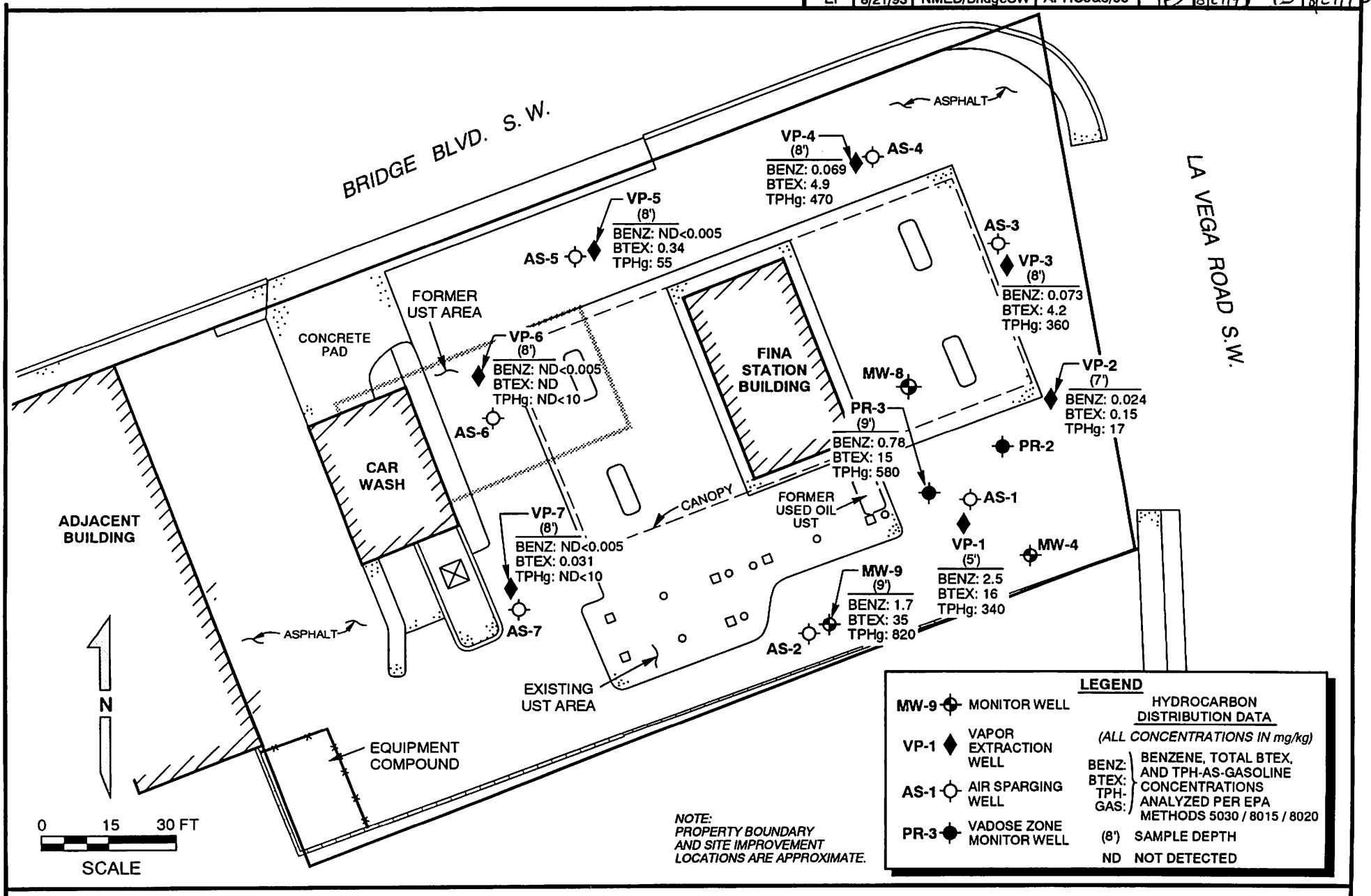
FIGURE 2

SITE VICINITY MAP

LOCATION: ALBUQUERQUE, NEW MEXICO PROJECT NO.: 023352875

GROUNDWATER TECHNOLOGY

DRAWN BY		FOLDER	FILE	CHECKED BY	APPROVED BY
EF	8/21/93	NMED/BridgeSW	APHC6&8/93	TB 8/27/93	TB 8/27/93



NMED / 800 BRIDGE BLVD. S.W.

ADSORBED-PHASE HYDROCARBON DISTRIBUTION MAP (ON-SITE WELLS)

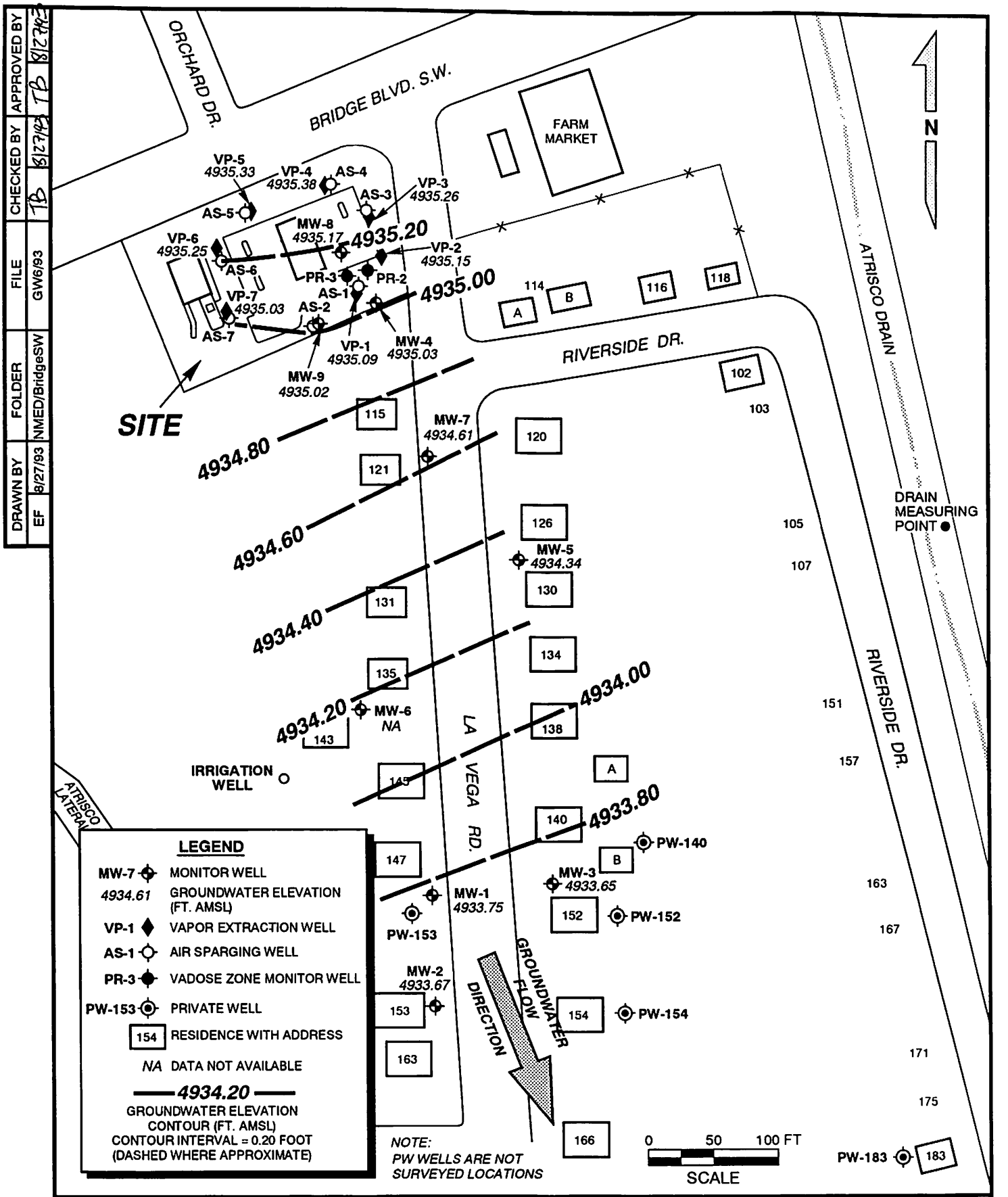
SAMPLING DATES: AUGUST 1992 AND APRIL 1993

FIGURE 3

LOCATION: ALBUQUERQUE, NEW MEXICO

PROJECT NO.: 023352875

GROUNDWATER TECHNOLOGY



DRAWN BY: EF 8/27/93 | FOLDER: NMED/BridgeSW | FILE: GW6/93 | CHECKED BY: TB 8/27/93 | APPROVED BY: TB 8/27/93

NMED / 800 BRIDGE BLVD. S.W.

GROUNDWATER ELEVATION CONTOUR MAP

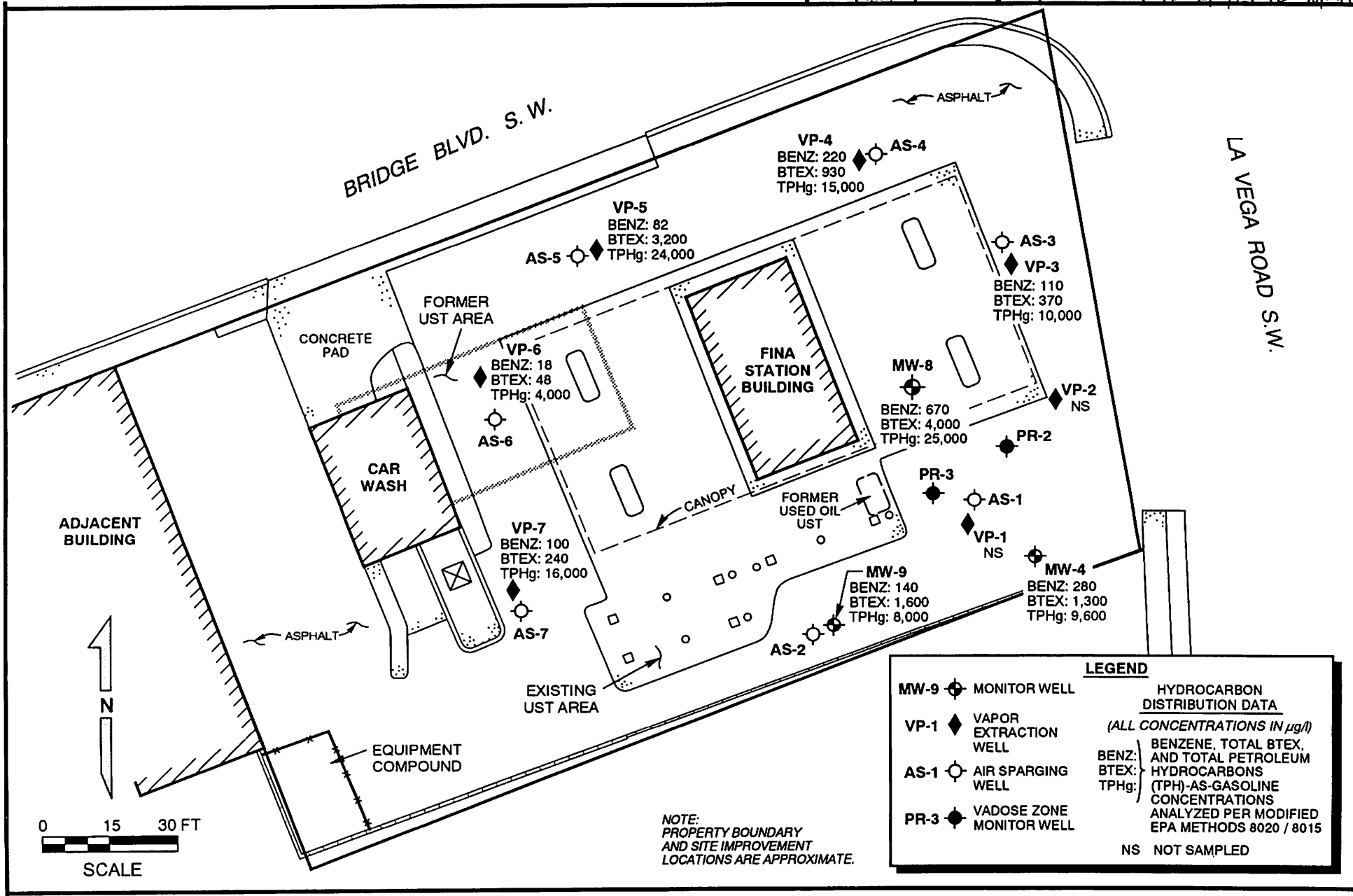
MONITORING DATE: JUNE 16, 1993

LOCATION: ALBUQUERQUE, NEW MEXICO PROJECT NO.: 023352875

FIGURE 4

GROUNDWATER TECHNOLOGY

DRAWN BY		FOLDER	FILE	CHECKED BY		APPROVED BY	
EF	8/21/93	NMED/BridgeSW	DPHC6/93	TB	8/24/93	TB	8/24/93



NMED / 800 BRIDGE BLVD. S.W.

DISSOLVED-PHASE HYDROCARBON DISTRIBUTION MAP (ON-SITE WELLS)

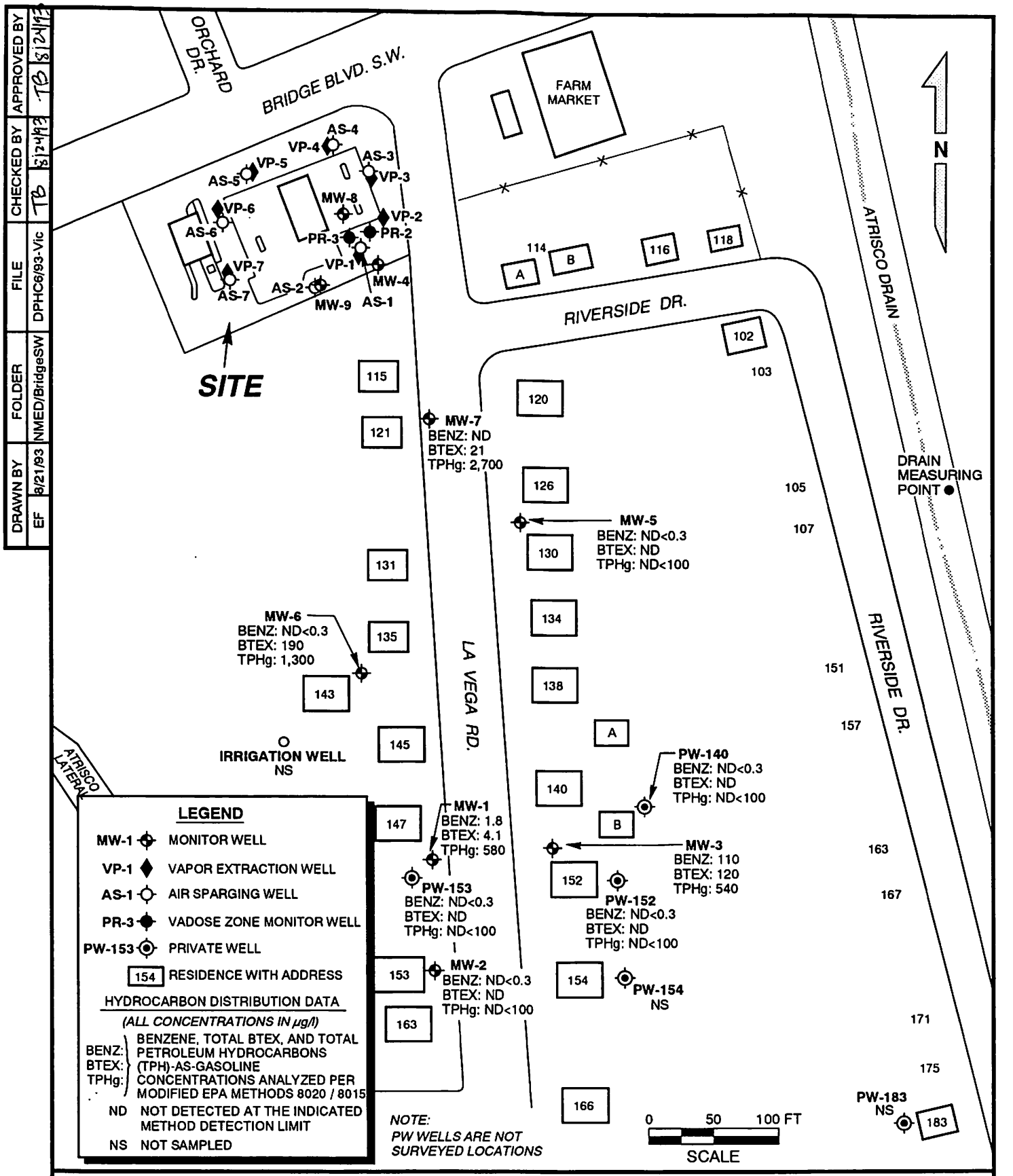
MONITORING DATES: APRIL 12, AND JUNE 16, 1993

FIGURE 5

LOCATION: ALBUQUERQUE, NEW MEXICO

PROJECT NO.: 023352875

GROUNDWATER TECHNOLOGY



NMED / 800 BRIDGE BLVD. S.W.

DISSOLVED-PHASE HYDROCARBON DISTRIBUTION MAP (OFF-SITE WELLS)

FIGURE 6

MONITORING DATE: JUNE 16, 1993

LOCATION: ALBUQUERQUE, NEW MEXICO

PROJECT NO.: 023352875

GROUNDWATER TECHNOLOGY

TABLE 1

SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS[1]
BARELAS BRIDGE GWPA SITE
800 BRIDGE BLVD., S.W.
ALBUQUERQUE, NEW MEXICO

AUGUST 18 - 20, 1992 AND APRIL 12-14, 1993

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (ft.)	PID READING (ppm)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	TPH-AS-GASOLINE (mg/kg)
PR3-9	8/18/92	9	2,298	0.78	1.4	5.1	7.6	15	580
VP1-5	8/19/92	5	1,829	2.5	1.0	5.2	7.4	16	340
MW-9-9	8/20/92	9	2,553	1.7	2.2	7.6	23	35	820
VP-2-7	4/14/93	6	80	0.024	0.006	0.067	0.054	0.15	17
VP-3-8	4/14/93	8	450	0.073	0.58	2.0	1.5	4.2	360
VP-4-8	4/12/93	8	200	0.069	0.90	1.7	2.2	4.9	470
VP-5-8	4/12/93	8	65	ND[2]	ND	0.099	0.24	0.34	55
VP-6-8	4/12/93	8	60	ND	ND	ND	ND	--	ND
VP-7-8	4/12/93	8	110	ND	ND	0.013	0.018	0.031	ND
MDL[2]	--	--	--	0.005	0.005	0.005	0.015	--	10

(1) Soil samples analyzed for BTEX and TPH-as-gasoline in accordance with EPA modified methods 8020/8015.

(2) ND - Not detected at the indicated method detection limit (MDL).

TABLE 2

MONTHLY SUMMARY OF SVES OPERATING PARAMETERS
BARELAS BRIDGE GWPA SITE
800 BRIDGE BLVD., S.W.,
ALBUQUERQUE, NEW MEXICO

PARAMETER	JUNE 1993 (06/29/93-08/03/93)
AVER. OPERATING (INFLUENT) TEMP (°F)	1,467
AVER. FLOW RATE (CFM)	491
INFLUENT RANGE (% LEL-Controller)	8-52
APPROX. ACTUAL HRS OF OPERATION	328
POSSIBLE HRS OF OPERATION	840
HYDROCARBONS REMOVED IN MONTH (APPROX. LBS.) (based on 7/13/93 air sample and PID (ppmv))	2,301
TOTAL HYDROCARBONS REMOVED LIFE OF PROJECT (APPROX. LBS.)	2,301
EST. GALLONS REMOVED IN MONTH	383
EST. GALLONS REMOVED LIFE OF PROJECT	383
NATURAL GAS USAGE FOR THIS MONTH (ccf)	54,430
TOTAL NATURAL GAS USAGE TO DATE (ccf)	54,430
ELECTRICAL USAGE FOR THIS MONTH (KW-HRS)	2,686
TOTAL ELECTRICAL USAGE TO DATE (KW-HRS)	2,686

TABLE 3

SUMMARY OF SVES AIR SAMPLE INFLUENT/EFFLUENT ANALYTICAL RESULTS[1] BARELAS BRIDGE GWPA SITE 800 BRIDGE BLVD., S.W., ALBUQUERQUE, NEW MEXICO JULY 13, 1993

	INFLUENT (INF)	EFFLUENT (EFF)
BENZENE (ppbv)	8,800	ND<20[2]
TOLUENE (ppbv)	980	50
ETHYLBENZENE (ppbv)	6,500	ND<20
XYLENES (ppbv)	11,000	60
EDC (ppbv)	ND<20	ND<20
EDB (ppbv)	ND<10	ND<10
TOTAL FUEL (ppbv)	4,000,000	13,000
CARBON DIOXIDE (%)	3.4	NA[2]
OXYGEN (%)	19	NA
METHANE (%)	0.3	NA

(1) Samples analyzed for BTEX, EDC, EDB, and Total Fuel (non-methane hydrocarbons) in accordance with EPA method TO-14 and for fixed gases by method GC-TD.

(2) ND - Not detected at the indicated method detection limit; NA - Not analyzed for this compound.

TABLE 4

SUMMARY OF SVES MASS EXTRACTION, MASS EMISSION, AND DESTRUCTION EFFICIENCY BARELAS BRIDGE GWPA SITE 800 BRIDGE BLVD., S.W., ALBUQUERQUE, NEW MEXICO

JULY 13, 1993

	Total Non-Methane Hydrocarbons	Benzene	Xylenes	Toluene
Influent Concentration (mg/m^3 or $\mu g/L$)	14,000	28	49	3.7
Effluent Concentration (mg/m^3 or $\mu g/L$)	47	ND<0.064	0.25	0.18
Mass Extraction Rate or Influent to Thermal Oxidizer (lbs/hr)	26.2	0.052	0.092	0.0069
Mass Emission Rate or Effluent from Thermal Oxidizer (lbs/hr)	0.114	<0.00016	0.00061	0.00044
Emission Limits as per Permit #310 (lbs/hr)	0.50	0.01	0.002	0.0016
Mass Destruction Efficiency (%)	99.6	>99.7	99.3	93.6

TABLE 5

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS[1]
BARELAS BRIDGE GWPA SITE
800 BRIDGE BLVD., S.W.
ALBUQUERQUE, NEW MEXICO
FEBRUARY 10, 1993

SAMPLE (WELL) ID	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	TOTAL XYLENES (ug/l)	TOTAL BTEX (ug/l)	TPH-AS-GASOLINE (ug/l)
MW-1	ND[2]	ND	ND	ND	ND	290
MW-2	4.6	1.4	0.9	ND	6.9	ND
MW-3	ND	ND	ND	ND	ND	ND
MW-4	280	21	530	1,300	2,100	12,000
MW-5	ND	ND	ND	ND	ND	ND
MW-6	ND	ND	0.8	3.1	3.9	ND
MW-7	51	6.6	4.7	2.3	65	580
MW-9	74	15	52	160	300	210
PW-140	ND	ND	ND	ND	ND	ND
PW-152	ND	ND	ND	ND	ND	ND
PW-153	ND	ND	ND	ND	ND	ND
MDL	0.3	0.3	0.3	0.6	--	100

(1) Water samples analyzed for BTEX and TPH-as-gasoline per EPA modified methods 8015/8020.

(2) ND - Not detected at the indicated method detection limit (MDL).

TABLE 6

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS[1]
BARELAS BRIDGE GWPA SITE
800 BRIDGE BLVD., S.W.
ALBUQUERQUE, NEW MEXICO
APRIL 12 AND JUNE 16, 1993

SAMPLE (WELL) ID	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	TOTAL XYLENES (ug/l)	TOTAL BTEX (ug/l)	TPH-AS-GASOLINE (ug/l)
MW-1	ND[2]	1.8	1.0	1.3	4.1	580
MW-2	ND	ND	ND	ND	ND	ND
MW-3	110	0.6	9.1	1.5	120	540
MW-4	280	16	260	710	1,300	9,600
MW-5	ND	ND	ND	ND	--	ND
MW-6	ND	46	35	110	190	1,300
MW-7	ND	3.5	6.1	11	21	2,700
MW-8	670	100	1,200	2,000	4,000	25,000
MW-9	140	78	280	1,100	1,600	8,000
VP-3	110	7.3	180	74	370	10,000
VP-4	220	28	320	360	930	15,000
VP-5	82	9.8	1,700	1,400	3,200	24,000
VP-6[3]	18	7.0	9.5	14	48	4,000
VP-7[3]	100	9.0	98	29	240	16,000
PW-140	ND	ND	ND	ND	ND	ND
PW-152	ND	ND	ND	ND	ND	ND
PW-153	ND	ND	ND	ND	ND	ND
MDL	0.3	0.3	0.3	0.6	--	100

(1) Water samples analyzed for BTEX and TPH-as-gasoline per EPA modified methods 8015/8020.

(2) ND - Not detected at the indicated method detection limit (MDL).

(3) Sample collected on April 12, 1993.

GROUNDWATER TECHNOLOGY

TABLE 7
CUMULATIVE SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
BARELAS BRIDGE GWPA SITE
800 BRIDGE BLVD., S.W.
ALBUQUERQUE, NEW MEXICO
1989 - 1993

MONITOR WELL	DATE SAMPLED	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	TOTAL XYLENES (ug/l)	TOTAL BTEX (ug/l)	TPHG (ug/l)	COMMENTS
MW-1	02/19/90	4.8	7.2	ND	ND	12	ND	
	10/30/90	2.6	0.5	ND	1.7	4.8	ND<500	
	03/5/91	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND		
	08/20/92	1.6	ND<0.3	ND<0.3	ND<0.6	1.6	ND<100	
	02/10/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	290	
	06/16/93	ND<0.3	1.8	1.0	1.3	4.1	580	
MW-2	02/19/90	5.7	7.2	ND	ND	12.9		
	10/30/90	ND<2	0.2	ND<2	1.0	1.2	ND<500	
	11/28/90	ND<0.5	1.1	ND<0.5	0.6	1.7	700	
	08/20/92	4.1	1.6	6.7	1.4	14	270	
	02/10/93	4.6	1.4	0.9	ND<0.6	6.9	ND<100	
	06/16/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	
MW-3	02/19/90	ND	2.6	ND	ND	2.6		
	10/30/90	ND<2	0.4	ND<2	1.3	1.7	ND<500	
	03/5/91	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND		
	06/24/92	ND<0.3	ND<0.3	ND<0.3	ND<0.5	ND	46	
	08/20/92	2.0	1.3	0.5	0.8	4.6	370	
	02/10/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	
	06/16/93	110	0.6	9.1	1.5	121	540	
MW-4	02/19/90	190	25	280	865	1,360		
	10/30/90	590	35.3	518.4	1871.1	3,014	5,000	
	11/29/90	49	1.0	8.4	14	72	900	
	06/24/92	230	7	200	420	860	3,100	
	02/10/93	280	21	530	1,300	2,100	12,000	
	06/16/93	280	16	260	710	1,300	9,600	
MW-5	10/30/90	ND<2	0.5	ND<2	1.5	2.0	ND<500	
	06/24/92	4	ND<0.3	0.5	0.7	5	170	
	02/10/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	
	06/16/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	

NMED/BB/conc.

GROUNDWATER TECHNOLOGY

TABLE 7 (Cont.)
CUMULATIVE SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
BARELAS BRIDGE GWPA SITE
800 BRIDGE BLVD., S.W.
ALBUQUERQUE, NEW MEXICO
1989 - 1993

MONITOR WELL	DATE SAMPLED	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	TOTAL XYLENES (ug/l)	TOTAL BTEX (ug/l)	TPHG (ug/l)	COMMENTS
MW-6	10/30/90	10.7	23.2	32.7	175.5	242.1	4,000	
	06/24/92	24	50	44	140	260	1,700	
	02/10/93	ND<0.3	ND<0.3	0.8	3.1	3.9	ND<100	
	06/16/93	ND<0.3	46	35	110	190	1,300	
MW-7	10/30/90	9.8	3	20.8	4.9	38.5	1,000	
	06/24/92	30	0.3	8	15	53	550	
	02/10/93	51	6.6	4.7	2.3	65	580	
	06/16/93	ND<0.3	3.5	6.1	11	21	2,700	
MW-8	10/30/90	220	120	960	1,140	2,440	9,000	
	06/24/92	420	82	720	580	1,800	9,400	
	02/10/93	NS	NS	NS	NS	NS	NS	0.25" PSH (bailer)
	06/16/93	670	100	1,200	2,000	4,000	25,000	
MW-9	06/24/92	620	510	740	2,600	4,500	17,000	
	02/10/93	74	15	52	160	300	210	
	06/16/93	140	78	280	1,100	1,600	8,000	
VP-1	08/24/92	880	54	310	300	1,500	11,000	
	08/25/92	1,600	220	800	590	3,200	15,000	
VP-3	06/16/93	110	7.3	180	74	370	10,000	
VP-4	06/16/93	220	28	320	360	930	15,000	
VP-5	06/16/93	82	9.8	1,700	1,400	3,200	24,000	
VP-6	04/12/93	18	7.0	9.5	14	48	4,000	
VP-7	04/12/93	100	9.0	98	29	240	16,000	
PW-140	10/5/90	ND<4	ND<4	ND<4	ND	ND	ND<100	
	06/24/92	ND<0.3	ND<0.3	ND<0.3	ND<0.5	ND	ND<10	
	02/10/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	
	06/16/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	

TABLE 7 (Cont.)
CUMULATIVE SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
BARELAS BRIDGE GWPA SITE
800 BRIDGE BLVD., S.W.
ALBUQUERQUE, NEW MEXICO
1989 - 1993

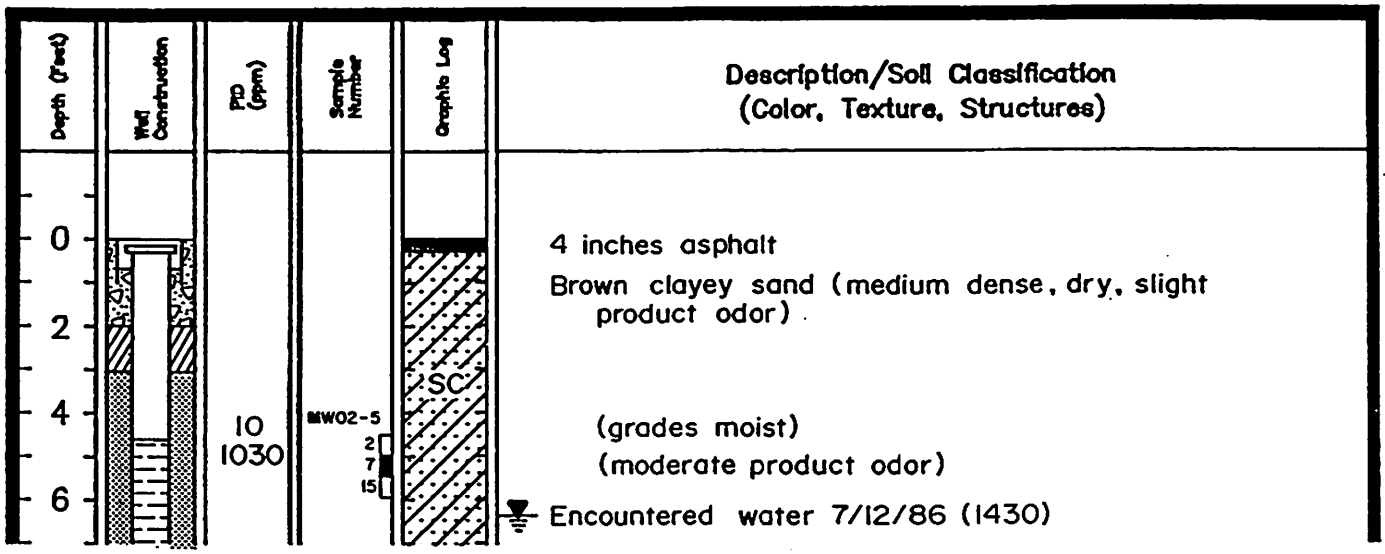
MONITOR WELL	DATE SAMPLED	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	TOTAL XYLENES (ug/l)	TOTAL BTEX (ug/l)	TPHG (ug/l)	COMMENTS
PW-152	10/4/89	ND	ND	ND	ND	ND		
	10/5/90	ND<4	ND<4	ND<4	ND	ND	ND<100	
	06/24/92	ND<0.3	ND<0.3	ND<0.3	ND<0.5	ND	ND<10	
	02/10/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	
	06/16/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	
PW-153	10/4/89	ND	ND	ND	ND	ND		
	10/31/90	ND<2	0.6 (0.7)	ND<2	2.0 (1.5)	2.6 (2.2)	ND<500	Trip blank shown in ( )
	11/21/91	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND		
	06/24/92	ND<0.3	ND<0.3	ND<0.3	ND<0.5	ND	ND<10	
	02/10/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	
	06/16/93	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND	ND<100	

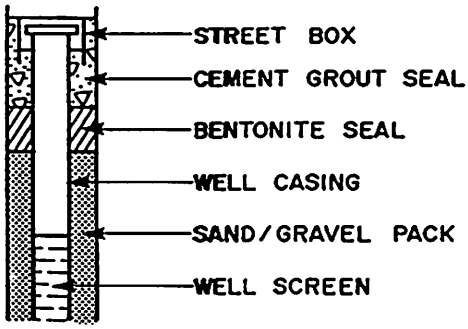
Notes: 1989 data by AEHD; 1990 data by LBG, Inc. (EPA methods 8020/8015 and 8240) ; 1991 data by NMEID (EPA methods 601/602); 1992-present by GTI, Inc. (EPA methods 8020/8015)

APPENDIX B

WELL COMPLETION AND LITHOLOGIC LOGS

KEY TO BORING LOG





10
1030 — ORGANIC VAPOR CONCENTRATION DETERMINED BY PHOTO IONIZATION DETECTOR (P.I.D.) IN PARTS PER MILLION (ppm) FROM SOIL SAMPLES (TIME COLLECTED)

MW02-5 — SAMPLE IDENTIFICATION (TEST HOLE – SAMPLE DEPTH)

2
7
15 — BLOW COUNTS TO DRIVE A SPLIT BARREL SAMPLER USING A 140 lb. HAMMER FALLING 30 INCHES. COUNTS ARE FOR EACH 6 INCH INCREMENT THE SAMPLER IS DRIVEN.

INTERVAL SAMPLED
SAMPLE INCREMENT RETAINED FOR LABORATORY ANALYSES

SOIL CLASSIFICATION GRAPHIC/SYMBOL (SEE UNIFIED SOIL CLASSIFICATION SYSTEM)

DEPTH TO WATER, DATE, TIME

GROUNDWATER TECHNOLOGY, INC.

Drilling Log

GROUNDWATER TECHNOLOGY

Extract. / Inject. Well **AS-2**

Project *NMED/Barelas* Owner *NMED*
Location *Albuquerque, NM* Project No. *023352875* Date drilled *04/15/93*
Surface Elev. _____ Total Hole Depth *17 ft.* Diameter *11 in.*
Top of Casing _____ Water Level Initial *8.5 ft.* Static _____
Screen: Dia *2 in.* Length *2 ft.* Type/Size *Stainless Steel 0.020 in.*
Casing: Dia *2 in.* Length *17.75/3 ft.* Type *Galv. Steel*
Filter Pack Material *Native Sand* Rig/Core Type *CME-75/NA*
Drilling Company *Rodgers & Co.* Method *Hollow Stem Auger* Permit # _____
Driller *Harvey Reichert* Log By *Jerry May*
Checked By *TB 8/13/93* License No. _____

See Site Map For Boring Location

COMMENTS:

Start at 1050 hrs.

Depth (ft.)	Well Completion	FID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0					ASP	0-4" Asphalt pavement
						See monitoring well MW-9 for lithology
2						
4						
6						
8						Gray-stained soils (fine poorly graded SAND encountered at 7 feet)
						Groundwater encountered at 8.5 feet on 4/15/93
10						
12						Soils in saturated zone dark gray-stained fine-medium poorly-graded SAND
14						
16						
						End of boring at 17 feet (1140 hrs)
18						Drove well to 24.25 feet
20						Installed air sparge well screened from 19.25 to 21.25 feet on 4/15/93
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Extract. / Inject. Well **AS-3**

Project *NMED/Barelas* Owner *NMED*
Location *Albuquerque, NM* Project No. *023352875* Date drilled *04/15/93*
Surface Elev. ____ Total Hole Depth *17 ft.* Diameter *11 in.*
Top of Casing ____ Water Level Initial *8.75 ft.* Static ____
Screen: Dia *2 in.* Length *2 ft.* Type/Size *Stainless Steel 0.020 in.*
Casing: Dia *2 in.* Length *17.75/3 ft.* Type *Galv. Steel*
Filter Pack Material *Native Sand* Rig/Core Type *CME-75/NA*
Drilling Company *Rodgers & Co.* Method *Hollow Stem Auger* Permit # ____
Driller *Harvey Reichert* Log By *Jerry May*
Checked By *TB 8/13/93* License No. ____

See Site Map For Boring Location

COMMENTS:

Start at 1400 hrs.

Depth (ft.)	Well Completion	FID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0					ASP	0-2" Asphalt pavement
2						See Vapor Extraction Well VP-3 for lithology
4						
6						
8						▽ *Groundwater encountered at 8.75 feet in well VP-3 on 4/14/93*
10						
12						
14						
16						End of boring at 17 feet (1430 hrs)
18						Drove well to 24.25 feet
20						
22						
24						Installed air sparge well screened from 19.25 to 21.25 feet on 4/15/93

Drilling Log

GROUNDWATER TECHNOLOGY

Extract. / Inject. Well **AS-4**

Project NMED/Barelas Owner NMED
Location Albuquerque, NM Project No. 023352875 Date drilled 04/13/93
Surface Elev. ____ Total Hole Depth 17 ft. Diameter 11 in.
Top of Casing ____ Water Level Initial 8.5 ft. Static ____
Screen: Dia 2 in. Length 2 ft. Type/Size Stainless Steel 0.020 in.
Casing: Dia 2 in. Length 17.75/3.25 ft. Type Galv. Steel
Filter Pack Material Native Sand Rig/Core Type CME-75/NA
Drilling Company Rodgers & Co. Method Hollow Stem Auger Permit # ____
Driller Harvey Reichert Log By Jerry May
Checked By TB 8/13/93 License No. ____

See Site Map For Boring Location

COMMENTS:

Start at 1125 hrs.

Depth (ft.)	Well Completion	FID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0					ASP	0-2" Asphalt pavement
2						See Vapor Extraction Well VP-4 for lithology
4						
6						
8						▽ *Groundwater encountered at 8.5 feet in well VP-4 on 4/12/93*
10						
12						
14						
16						End of boring at 17 feet (1145 hrs)
18						Drove well 17 to 24.5 feet
20						Installed air sparge well screened from 19.25 to 21.25 feet on 4/13/93
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

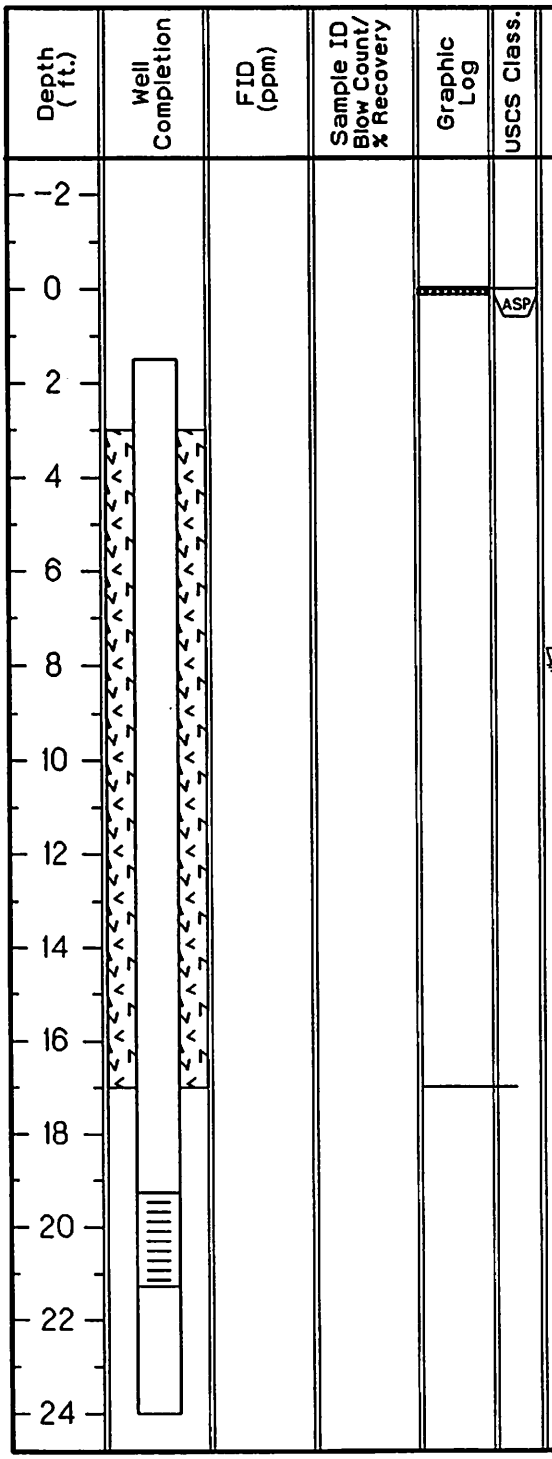
Extract. / Inject. Well **AS-5**

Project *NMED/Barelas* Owner *NMED*
Location *Albuquerque, NM* Project No. *023352875* Date drilled *04/13/93*
Surface Elev. _____ Total Hole Depth *17 ft.* Diameter *11 in.*
Top of Casing _____ Water Level Initial *8 ft.* Static _____
Screen: Dia *2 in.* Length *2 ft.* Type/Size *Stainless Steel 0.020 in.*
Casing: Dia *2 in.* Length *17.75/3 ft.* Type *Galv. Steel*
Filter Pack Material *Native Sand* Rig/Core Type *CME-75/NA*
Drilling Company *Rodgers & Co.* Method *Hollow Stem Auger* Permit # _____
Driller *Harvey Reichert* Log By *Jerry May*
Checked By *TB 8/13/93* License No. _____

See Site Map For Boring Location

COMMENTS:

Start at 1405 hrs.



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

0-2" Asphalt pavement

See Vapor Extraction Well VP-5 for lithology

Groundwater encountered at 8 feet in well VP-5 on 4/12/93

End of boring at 17 feet (1435 hrs)

Drove well 17 to 24.5 feet

Installed air sparge well screened from 19.25 to 21.25 feet on 4/13/93

Drilling Log

GROUNDWATER TECHNOLOGY

Extract. / Inject. Well **AS-6**

Project NMED/Barelas Owner NMED
Location Albuquerque, NM Project No. 023352875 Date drilled 04/15/93
Surface Elev. _____ Total Hole Depth 17 ft. Diameter 11 in.
Top of Casing _____ Water Level Initial 8 ft. Static _____
Screen: Dia 2 in. Length 2 ft. Type/Size Stainless Steel 0.020 in.
Casing: Dia 2 in. Length 17.75/3 ft. Type Galv. Steel
Filter Pack Material Native Sand Rig/Core Type CME-75/NA
Drilling Company Rodgers & Co. Method Hollow Stem Auger Permit # _____
Driller Harvey Reichert Log By Jerry May
Checked By TB 8/13/93 License No. _____

See Site Map For Boring Location

COMMENTS:

Start at 0845 hrs.

Depth (ft.)	Well Completion	FID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0					ASP	0-2" Asphalt pavement
2						See Vapor Extraction Well VP-6 for lithology
4						
6						
8						*Groundwater encountered at 8 feet in well VP-6 on 4/12/93*
10						
12						
14						
16						End of boring at 17 feet (1435 hrs)
18						Drove well to 24.25 feet
20						Installed air sparge well screened from 19.25 to 21.25 feet on 4/15/93
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Extract. / Inject. Well **AS-7**

Project *NMED/Barelas* Owner *NMED*
Location *Albuquerque, NM* Project No. *023352875* Date drilled *04/14/93*
Surface Elev. _____ Total Hole Depth *17 ft.* Diameter *11 in.*
Top of Casing _____ Water Level Initial *8 ft.* Static _____
Screen: Dia *2 in.* Length *2 ft.* Type/Size *Stainless Steel 0.020 in.*
Casing: Dia *2 in.* Length *17.75/3 ft.* Type *Galv. Steel*
Filter Pack Material *Native Sand* Rig/Core Type *CME-75/NA*
Drilling Company *Rodgers & Co.* Method *Hollow Stem Auger* Permit # _____
Driller *Harvey Reichert* Log By *Jerry May*
Checked By *TB 8/13/93* License No. _____

See Site Map For Boring Location

COMMENTS:

Start at 0930 hrs.

Depth (ft.)	Well Completion	FID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0					ASP	0-3" Asphalt pavement
2						See Vapor Extraction Well VP-7 for lithology
4						
6						
8						*Groundwater encountered at 8 feet in well VP-7 on 4/12/93*
10						
12						
14						
16						End of boring at 17 feet (1000 hrs)
18						Drove well to 24.25 feet
20						Installed air sparge well screened from 19.25 to 21.25 feet on 4/14/93
22						
24						

Drilling Log

GROUNDWATER TECHNOLOGY

Vapor Point VP-2

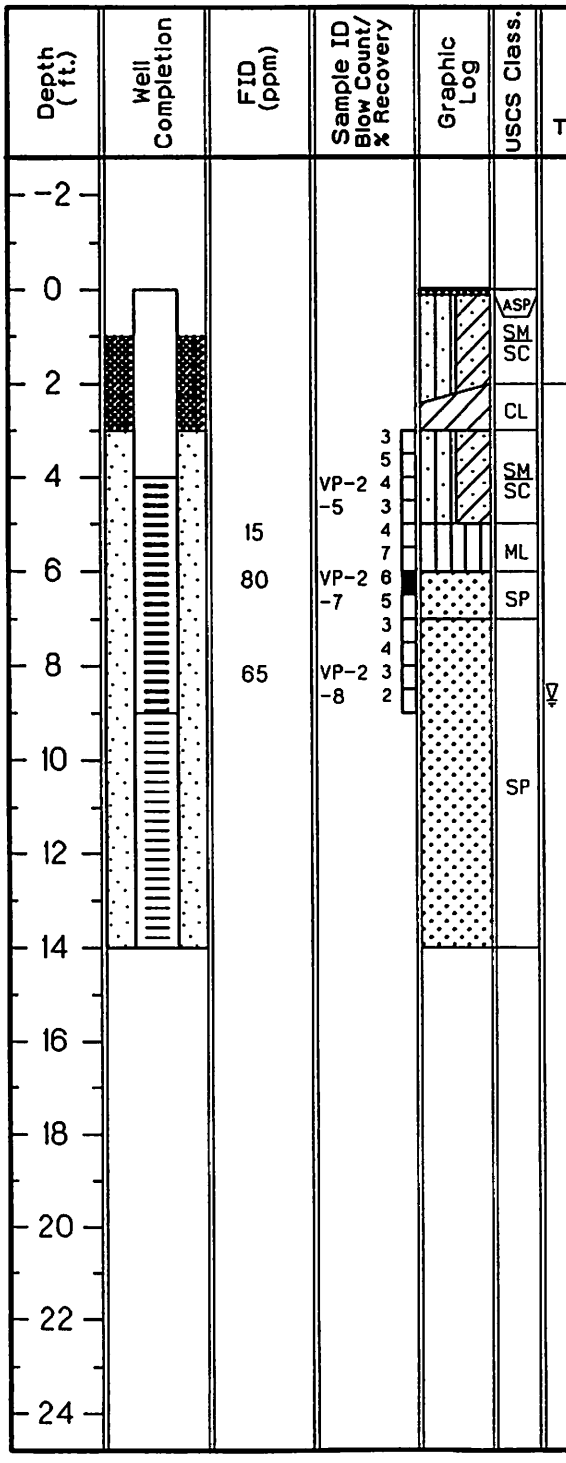
Project NMED/Barelas Owner NMED
Location Albuquerque, NM Project No. 023352875 Date drilled 04/12/93
Surface Elev. _____ Total Hole Depth 14 ft. Diameter 8 in.
Top of Casing _____ Water Level Initial 8.75 ft. Static _____
Screen: Dia 2 in. Length 5/5 ft. Type/Size PVC/0.020"/0.040 in.
Casing: Dia 2 in. Length 4 ft. Type PVC
Filter Pack Material 10/20 & 8/12 Co. Silica Rig/Core Type CME-75/2' SS
Drilling Company Rodgers & Co. Method Hollow Stem Auger Permit # _____
Driller Harvey Reichert Log By Jerry May
Checked By TB 8/17/93 License No. _____

See Site Map For Boring Location

COMMENTS:

Start at 1330 hrs.

FID readings taken with charcoal filter to screen methane



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

0-2" Asphalt pavement

2"-2': Gray-stained fine silty/clayey SAND (moist)

2'-3': Gray-stained silty CLAY

Tan/gray-stained silty/clayey SAND (moist, loose)

Brown/gray-stained micaceous SILT (moist, medium dense)

Gray fine poorly-graded SAND (moist, loose)

Tan fine-coarse poorly-graded SAND (moist, loose)

Groundwater encountered at 8.75 feet on 4/14/93

Drill cuttings noted as gray-stained and same as above

End of boring at 14 feet (1415 hrs). Installed vapor extraction well screened from 4 to 14 feet on 4/14/93.

Drilling Log

GROUNDWATER TECHNOLOGY

Vapor Point VP-3

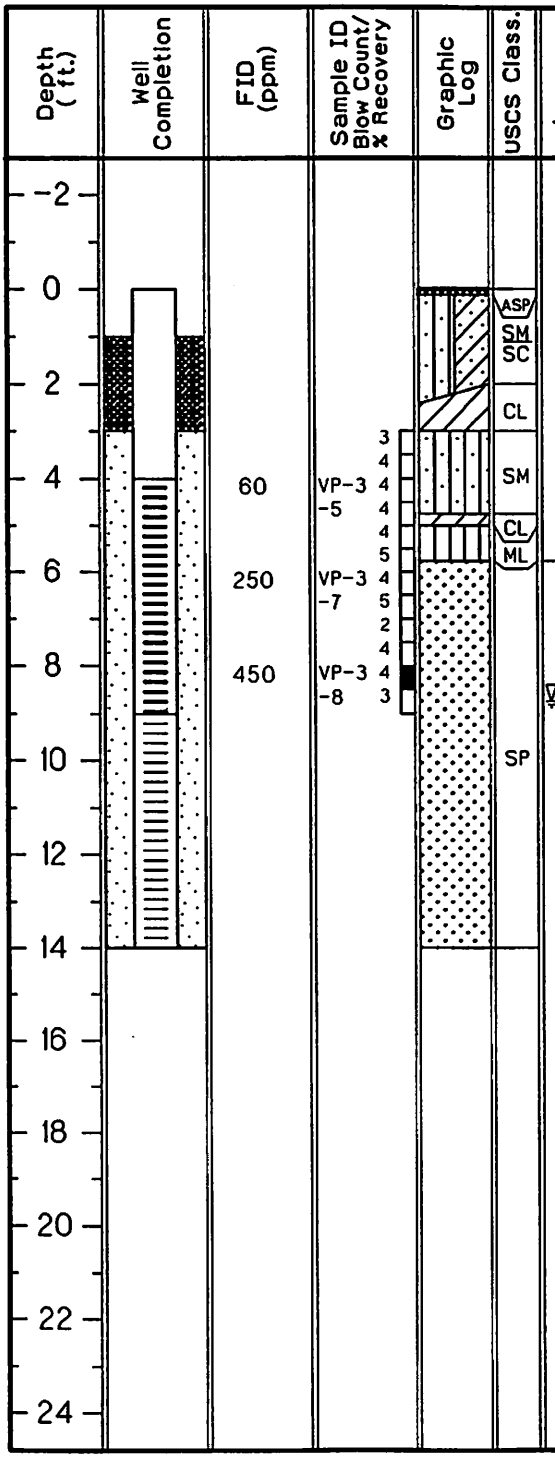
Project NMED/Barelas Owner NMED
Location Albuquerque, NM Project No. 023352875 Date drilled 04/14/93
Surface Elev. ____ Total Hole Depth 14 ft. Diameter 8 in.
Top of Casing ____ Water Level Initial 8.75 ft. Static ____
Screen: Dia 2 in. Length 5/5 ft. Type/Size PVC/0.020"/0.040 in.
Casing: Dia 2 in. Length 4 ft. Type PVC
Filter Pack Material 10/20 & 8/12 Co. Silica Rig/Core Type CME-75/2' SS
Drilling Company Rodgers & Co. Method Hollow Stem Auger Permit # ____
Driller Harvey Reichert Log By Jerry May
Checked By TB 8/17/93 License No. ____

See Site Map For Boring Location

COMMENTS:

Start at 1500 hrs.

FID readings taken with charcoal filter to screen methane



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

0-2" Asphalt pavement

Hand dug 2"-1'

Dark gray-stained fine poorly-graded clayey/silty SAND (moist)

Dark gray-stained silty CLAY (moist)

Brown fine poorly-graded silty SAND (moist, loose)

Brown silty CLAY (moist, low plasticity, medium stiff)

Brown/gray-stained SILT (moist, stiff)

Tan fine-coarse poorly-graded SAND (moist, loose)

Grades to fine-medium

Groundwater encountered at 8.75 feet on 4/14/93

Drill cuttings noted as gray-stained and same as above

End of boring at 14 feet. Installed vapor extraction well screened from 4 to 14 feet on 4/14/93.

Drilling Log

GROUNDWATER TECHNOLOGY

Vapor Point **VP-4**

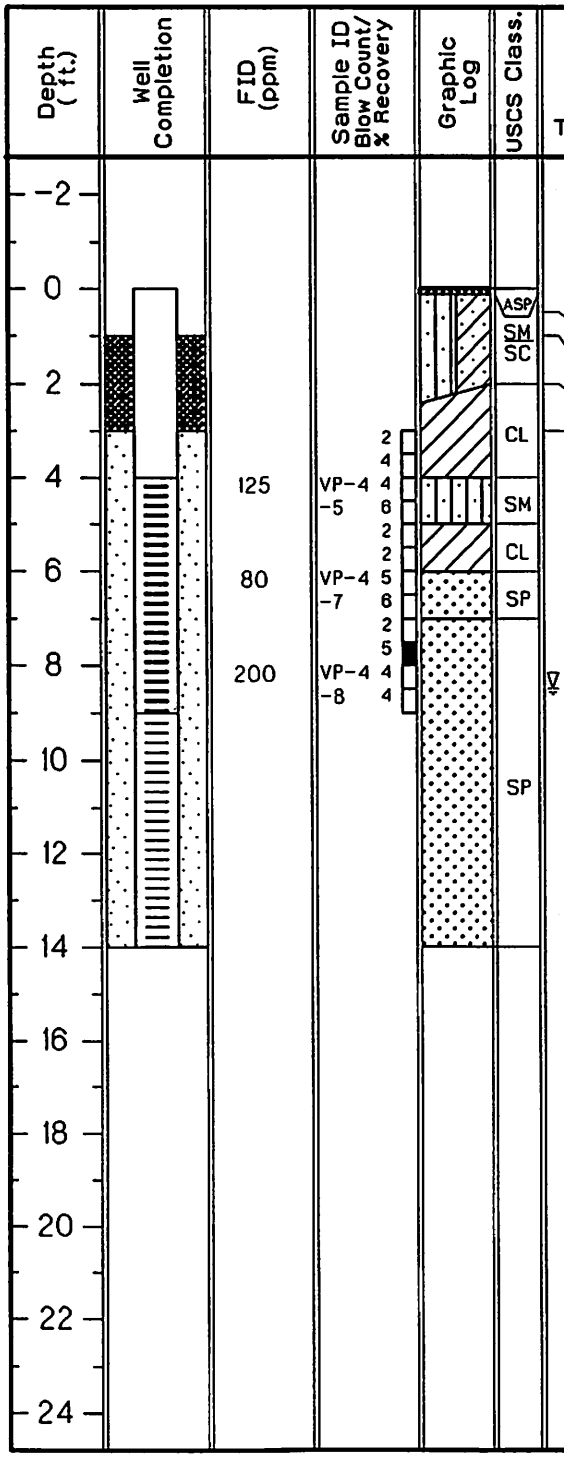
Project NMED/Barelas Owner NMED
Location Albuquerque, NM Project No. 023352875 Date drilled 04/12/93
Surface Elev. ____ Total Hole Depth 14 ft. Diameter 8 in.
Top of Casing ____ Water Level Initial 8.5 ft. Static ____
Screen: Dia 2 in. Length 5/5 ft. Type/Size PVC/0.020"/0.040 in.
Casing: Dia 2 in. Length 4 ft. Type PVC
Filter Pack Material 10/20 & 8/12 Co. Silica Rig/Core Type CME-75/2' SS
Drilling Company Rodgers & Co. Method Hollow Stem Auger Permit # ____
Driller Harvey Reichert Log By Jerry May
Checked By TB 8/13/93 License No. ____

See Site Map For Boring Location

COMMENTS:

Start at 1510 hrs.

FID readings taken with charcoal filter to screen methane



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

0-2" Asphalt pavement
Hand dug 2" to 1'
Brown-fine poorly-graded silty/clayey SAND (moist)
Encountered gray-stained soils at 2 feet
Gray-stained/brown silty clay (moist, medium plasticity, medium stiff)

Tan fine poorly-graded silty SAND (moist, loose)

Tan/black-stained silty CLAY (moist, high plasticity, medium stiff)

Gray-stained fine poorly-graded SAND (moist, loose)

Tan/gray-stained fine poorly-graded SAND (moist-wet, loose)

Groundwater encountered at 8.5 feet on 4/12/93

Same as above noted in drill cuttings

End of boring at 14 feet (1540 hrs). Installed vapor extraction well screened from 4 to 14 feet on 4/12/93.

Drilling Log

GROUNDWATER TECHNOLOGY

Vapor Point **VP-5**

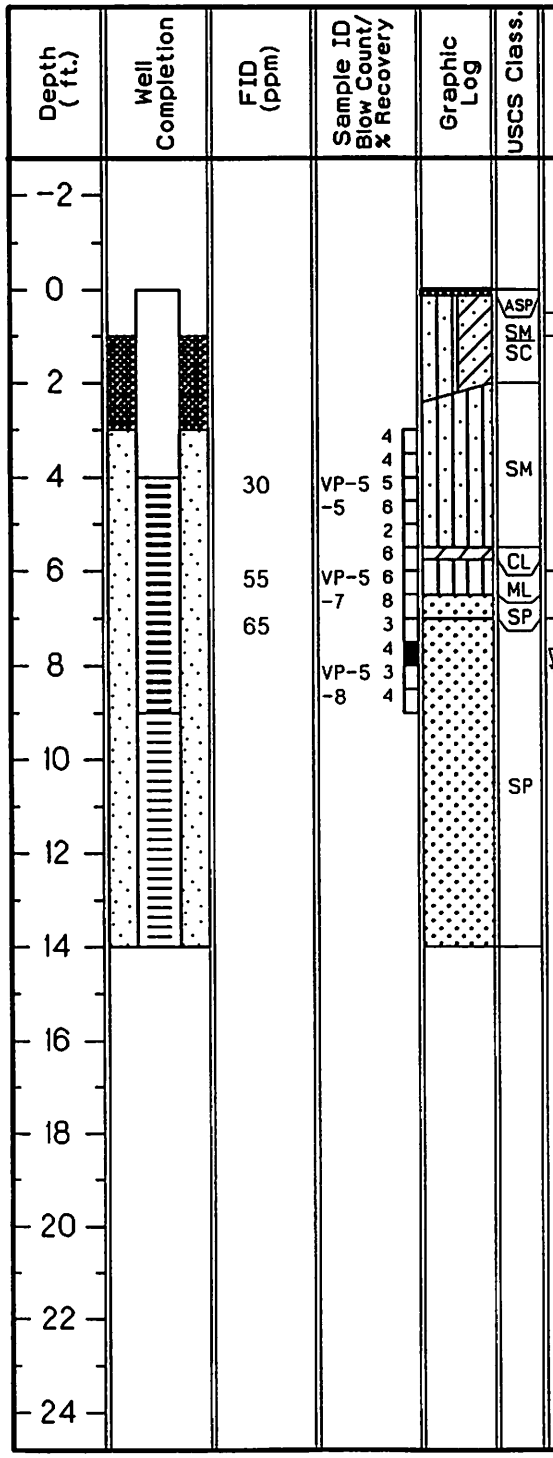
Project NMED/Barelas Owner NMED
Location Albuquerque, NM Project No. 023352875 Date drilled 04/12/93
Surface Elev. ____ Total Hole Depth 14 ft. Diameter 8 in.
Top of Casing ____ Water Level Initial 8 ft. Static ____
Screen: Dia 2 in. Length 5/5 ft. Type/Size PVC/0.020"/0.040 in.
Casing: Dia 2 in. Length 4 ft. Type PVC
Filter Pack Material 10/20 & 8/12 Co. Silica Rig/Core Type CME-75/2' SS
Drilling Company Rodgers & Co. Method Hollow Stem Auger Permit # ____
Driller Harvey Reichert Log By Jerry May
Checked By TB 8/17/93 License No. ____

See Site Map For Boring Location

COMMENTS:

Start at 1405 hrs.

FID readings taken with charcoal filter to screen methane



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

0-2" Asphalt pavement
Hand dug 2" to 1'
Brown fine-coarse poorly-graded silty/clayey SAND (moist)

Tan fine poorly-graded silty SAND (moist, medium dense)

Brown silty CLAY (moist, medium plasticity, stiff)
Brown/gray-stained micaceous SILT (moist, stiff)
Tan fine-coarse poorly-graded SAND (moist, medium dense)

Groundwater encounterd at 8 feet on 4/12/93

Tan fine poorly-graded SAND (moist-wet, loose)

Same as above noted in drill cuttings

End of boring at 14 feet (1430 hrs). Installed vapor extraction well screened from 4 to 14 feet on 4/12/93.

Drilling Log

GROUNDWATER TECHNOLOGY

Vapor Point **VP-6**

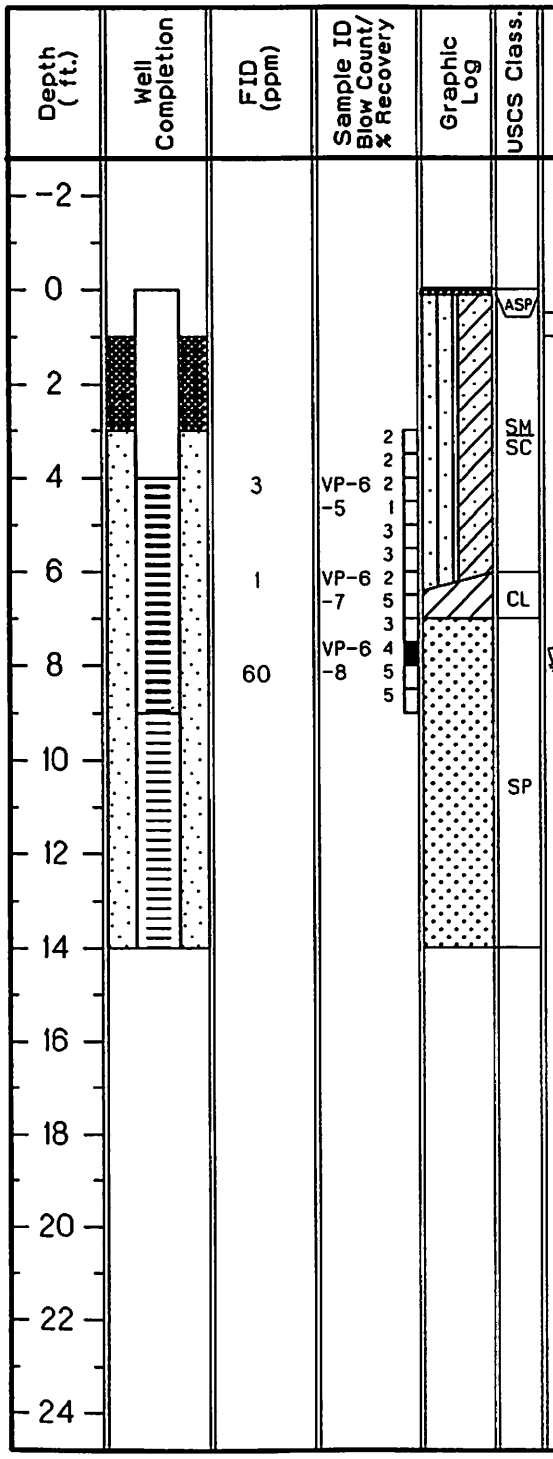
Project NMED/Barelas Owner NMED
Location Albuquerque, NM Project No. 023352875 Date drilled 04/12/93
Surface Elev. ____ Total Hole Depth 14 ft. Diameter 8 in.
Top of Casing ____ Water Level Initial 8 ft. Static ____
Screen: Dia 2 in. Length 5/5 ft. Type/Size PVC/0.020"/0.040 in.
Casing: Dia 2 in. Length 4 ft. Type PVC
Filter Pack Material 10/20 & 8/12 Co. Silica Rig/Core Type CME-75/2' SS
Drilling Company Rodgers & Co. Method Hollow Stem Auger Permit # ____
Driller Harvey Reichert Log By Jerry May
Checked By JB 8/17/93 License No. ____

See Site Map For Boring Location

COMMENTS:

Start at 1245 hrs.

FID readings taken with charcoal filter to screen methane



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

0-2" Asphalt pavement
Hand dug 3" to 1'
Brown fine poorly-graded silty/clayey SAND (moist)

Same as above, gray-stained 3.75 to 6 feet (very loose)

Brown silty CLAY with shells and roots (moist, medium plasticity, medium stiff).

Groundwater encountered at 8 feet on 4/12/93

Tan gray fine-coarse poorly-graded SAND (moist-wet, loose)

Same as above noted in drill cuttings

End of boring at 14 feet (1320 hrs). Installed vapor extraction well screened from 4 to 14 feet on 4/12/93.

Drilling Log

GROUNDWATER TECHNOLOGY

Vapor Point **VP-7**

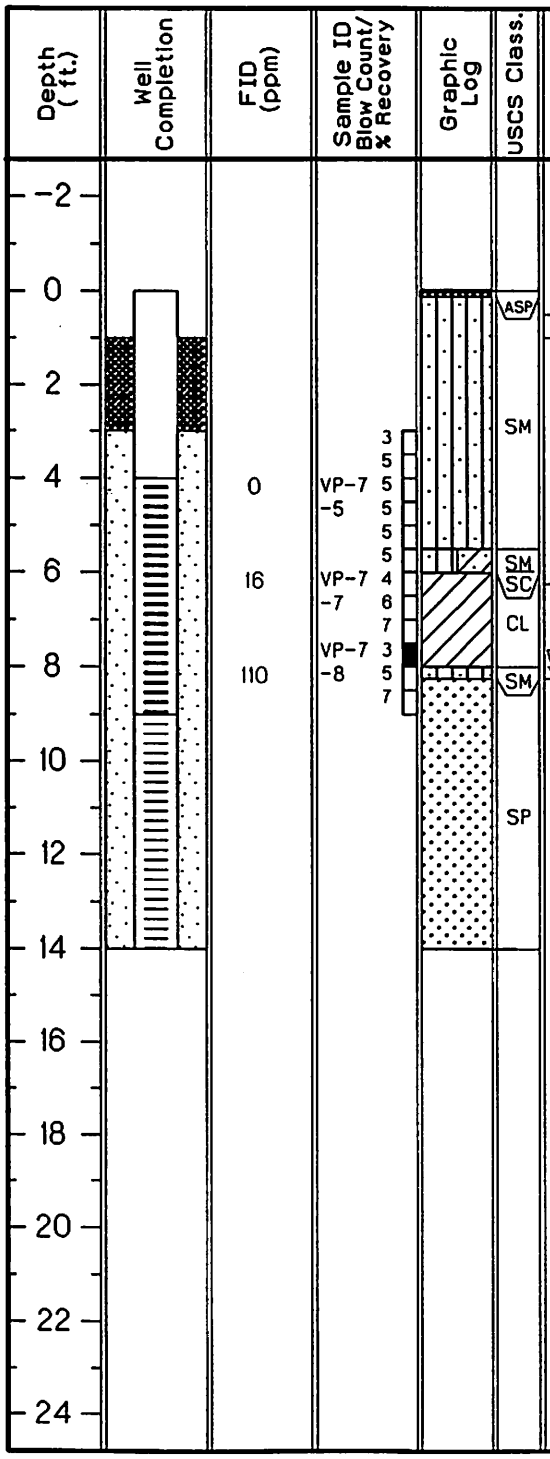
Project *NMED/Barelas* Owner *NMED*
Location *Albuquerque, NM* Project No. *023352875* Date drilled *04/12/93*
Surface Elev. ____ Total Hole Depth *14 ft.* Diameter *8 in.*
Top of Casing ____ Water Level Initial *8 ft.* Static ____
Screen: Dia *2 in.* Length *5/5 ft.* Type/Size *PVC/0.020"/0.040 in.*
Casing: Dia *2 in.* Length *4 ft.* Type *PVC*
Filter Pack Material *10/20 & 8/12 Co. Silica* Rig/Core Type *CME-75/2' SS*
Drilling Company *Rodgers & Co.* Method *Hollow Stem Auger* Permit # ____
Driller *Harvey Reichert* Log By *Jerry May*
Checked By *TB 8/13/93* License No. ____

See Site Map For Boring Location

COMMENTS:

Start at 0930 hrs.

Sample VP-7-8 FID - screened with charcoal filter (15 ppm methane detected without filter)



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%

0-2" Asphalt pavement
Hand dug 3" to 2'
Brown fine poorly-graded silty SAND (moist)

Same as above, loose

Brown-gray-stained fine poorly-graded silty/clayey SAND (moist, loose)
Brown silty clay (moist, high plasticity, stiff)

Groundwater encountered at 8 feet on 4/2/93)
Brown fine poorly-graded silty SAND (wet, loose)

Tan fine-coarse poorly-graded SAND (wet, loose)

Same as above noted in drill cuttings

End of boring at 14 feet (1045 hrs). Installed vapor extraction well screened from 4 to 14 feet on 4/12/93.

APPENDIX C

SOIL SAMPLE CERTIFICATES OF ANALYSIS, CHAIN-OF-CUSTODY DOCUMENTATION, AND QA/QC DATA, APRIL 12 - 14, 1993

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Southwest Region
20000 / 300 Mariner Drive
Torrance, CA 90503
(310) 371-1044
(800) 727-GTEL
Fax (310) 371-8720

RECEIVED
APR 30 1993
GTI, NM

GTEL Client Number: 023352875.050309
Project I.D.: Bridge/ALBQ NM
Work Order Number: T304148

April 28, 1993

Ms. Terry Bennett
Groundwater Technology, Inc.
2501 Yale Blvd. S.E., Suite 204
Albuquerque, NM 87106

Dear Ms. Bennett,

Enclosed please find the analytical results for the samples received by GTEL Environmentel Laboratories, Inc. on 4-15-93 under chain-of-custody record 76-6842.

A formal Quality Assurance/Quality Control (QA/QC) program, which is designed to meet or exceed the EPA requirements, is maintained by GTEL. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the following; the State of California under Certification #1123, the State of Arizona under Certification #AZ0357, the State of Kansas under Certification E-182 and the State of Washington under Certification #C060.

If you have any questions concerning this analysis or if we can be of further assistance, please call one of our Customer Service Representatives.

Sincerely,

GTEL Environmental Laboratories, Inc.

Joan Greenwood
Laboratory Director

GTEL Client Number: 023352875.050309
Project I.D.: Bridge/ALBQ NM
Work Order Number: T304148

ANALYTICAL RESULTS

Volatile Organics in Soil
EPA Methods Modified 8020 and Modified 8015[a]

GTEL Sample Number		04148-1	04148-2	04148-3	04148-4
Client Identification		VP-7-8	VP-6-8	VP-5-8	VP-4-8
Date Sampled		4-12-93	4-12-93	4-12-93	4-12-93
Date Extracted		4-16-93	4-16-93	4-16-93	4-16-93
Date Analyzed		4-17-93	4-17-93	4-17-93	4-17-93
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg			
Benzene	0.005	<0.005	<0.005	<0.005	0.069
Toluene	0.005	<0.005	<0.005	<0.005	0.90
Ethylbenzene	0.005	0.013	<0.005	0.099	1.7
Xylene, total	0.015	0.018	<0.015	0.24	2.2
BTEX, total	--	0.031	--	0.34	4.9
TPH as Gasoline	10	<10	<10	55	470
Dilution Multiplier[b]		1	1	1	1
Percent solids, %		75.4	79.3	94.6	93.6
TFT surrogate[c], % recovery		83.6	87.4	85.4	112

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures. Results are calculated on a wet weight basis.

b. Indicates the adjustments made for sample dilution.

c. TFT surrogate recovery acceptability limits of 72.8-123% are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 1.07 mg/kg.

GTEL Client Number: 023352875.050309
Project I.D.: Bridge/ALBQ NM
Work Order Number: T304148

ANALYTICAL RESULTS

Volatile Organics in Soil
EPA Methods Modified 8020 and Modified 8015[a]

GTEL Sample Number		04148-5	04148-6		
Client Identification		VP-2-7	VP-3-8		
Date Sampled		4-14-93	4-14-93		
Date Extracted		4-16-93	4-16-93		
Date Analyzed		4-17-93	4-17-93		
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg			
Benzene	0.005	0.024	0.073		
Toluene	0.005	0.006	0.58		
Ethylbenzene	0.005	0.067	2.0		
Xylene, total	0.015	0.054	1.5		
BTEX, total	--	0.15	4.2		
TPH as Gasoline	10	17	360		
Dilution Multiplier[b]		1	1		
Percent solids, %		78.0	83.4		
TFT surrogate[c], % recovery		83.4	107		

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures. Results are calculated on a wet weight basis.

b. Indicates the adjustments made for sample dilution.

c. TFT surrogate recovery acceptability limits of 72.8-123% are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 1.07 mg/kg.

GTEL ENVIRONMENTAL LABORATORIES, INC.
20000 Mariner Dr., Suite #300
Torrance, CA 90503
213-371-1044
800-727-GTEL

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6842

Project Manager: Terry Bennett
Phone #: 505-242-3113
FAX #: 505-242-1[illegible]
Address: [illegible] [illegible] Blvd SE [illegible] Albuquerque NM [illegible]
Site location: [illegible] Bridge Blvd [illegible] Abq NM
Project Number: 22335 2875.050309
Project Name: NMED/[illegible] Bridge: Abq NM
I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): Jerry May

ANALYSIS REQUEST

Analysis columns: (1) BTEX 602 ☐ 8020 ☒ with MTBE ☐; (2) BTEX/TPH Gas. 602/8015 ☐ 8020/8015 ☐ MTBE ☐; (3) TPH as ☒ Gas ☐ Diesel ☐ Jet Fuel; (4) Product I.D. by GC (SIMDIS) ☐; (5) Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐; (6) Total Petroleum Hydrocarbons: 418.1 ☒ 503E ☐; (7) EPA 601 ☐ 8010 ☐ DCA only ☐; (8) EPA 602 ☐ 8020 ☐; (9) EPA 608 ☐ 8080 ☐ PCBs only ☐; (10) EPA 610 ☐ 8310 ☐; (11) EPA 624 ☐ 8240 ☐ NBS +15 ☐; (12) EPA 625 ☐ 8270 ☐ NBS +25 ☐; (13) EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐; (14) TCLP Metals ☐ VOA ☐ Semi VOA ☐ (only LEAD); (15) EPA Priority Pollutant Metals ☐ HSL ☐; (16) LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐; (17) CAM Metals ☐ STLC ☐ TTLC; (18) Corrosivity ☐ Flashpoint ☒ Reactivity ☐

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
VP-7-8 ✓	GRAB		1		X							X	X		4/12/93	1020	X		X															
VP-6-8 ✓	↓		1		X							↓	↓		↓	1310	X		X															
VP-5-8 ✓			1		X											1425	X		X															
VP-4-8 ✓			1		X											1530	X		X															
VP-2-7 ✓			1		X										4/14/93	1345	X		X															
VP-3-8 ✓	↓		1		X										↓	1520	X		X															
* 493DC	COMPOSITE ✓		3		X							↓	↓		↓		X					X								X				X
** VP-7	✓ GRAB		2	X					X			X			4/12/93	1135	X		X															
VP-6	✓ GRAB		2	X					X			X			↓	1345	X		X															

SPECIAL HANDLING *
24 HOURS ☐
EXPEDITED 48 Hours ☒ *SAMPLE 493DC ONLY
SEVEN DAY ☐
OTHER ______(#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐
Standard TAT all OTHERS

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS: Quote # T638 4°C
FED EX No. 6343767356
** SLIGHT SHEEN VP-7

Lab Use Only Lot #:
Storage Location
Work Order #: T304147

CUSTODY RECORD

Relinquished by Sampler:	Date	Time	Received by:
Jerry A. May	4/14/93	1800	[signature] 4/15/93 yes
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory: Way bill #
	4/15/93	8:45	[signature]

118

SENDER'S COPY
DROP OFF YOUR PACKAGE AND SAVE

FEDERAL EXPRESS

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 6343767356

2349M 6343767356

SENDER'S COPY

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 1210-0385-6 Date: 4/12/93

From (Your Name) Please Print: JERRY MAY
Your Phone Number (Very Important): 505-242-3113

Company: GROUNDWATER TECHNOLOGY INC
Department/Floor No.:

Street Address: 2501 YALE BLVD SE STE 204
City: ALBUQUERQUE State: NM ZIP Required: 8 7 1 0 6

2 To (Recipient's Name) Please Print:
Recipient's Phone Number (Very Important): (310-)371-1044

Company: GTEL ENVIRONMENTAL LABS
Department/Floor No.:

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 2000 MARINER AV STE 300
City: TORRENCE State: CA ZIP Required: 9 0 5 0 3

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 ☐ Bill Sender 2 ☒ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card
5 ☐ Cash/Check Acct./Credit Card No. Exp. Date

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 ☒ OTHER PACKAGING
16 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*
13 ☐ FEDEX BOX
14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon. No Saturday delivery†)
51 ☐ OTHER PACKAGING
56 ☐ FEDEX LETTER*
52 ☐ FEDEX PAK*
53 ☐ FEDEX BOX
54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 ☐ ECONOMY*
* Economy Letter rate not available. Minimum charge: One pound economy rate.

Government Overnight (Restricted for authorized users only)
46 ☐ GOVT LETTER
41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
80 ☐ TWO-DAY FREIGHT**
†Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☒ DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) ☐ (Not available to all locations)
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐
6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required
Dry Ice, 9, UN 1845 ____ X ____ kg. 904 ☐
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
☐ DESCRIPTION
12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT, In Pounds Only	YOUR DECLARED VALUE (See right)
Total 1	Total 39	Total

DIM SHIPMENT (Chargeable Weight) ☐ ____ lbs.
L x W x H

Received At
1 ☐ Regular Stop 3 ☐ Drop Box
2 ☐ On-Call Stop 4 ☐ B.S.C. 5 ☐ Station

7 Release Signature: ____

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.00.

In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/92
PART #137204 FXEM 11/
FORMAT #155
155

APPENDIX D

WASTE MANIFESTS AND SOIL CERTIFICATES OF ANALYSIS AND CHAIN-OF-CUSTODY DOCUMENTATION

RHINO ENVIRONMENTAL SERVICES, INC.
LANDFARM FACILITY DP-619
CONTAMINATED SOIL DOCUMENTATION SUMMARY

SHIPPING FACILITY		OWNER OF FACILITY (IF DIFFERENT)
NAME:	Bralaes Bridge GWAPA	NMED
ADDRESS:	800 Bridge Albuquerque, NM	Albuquerque, NM

TRANSPORTER

NAME: Rhino Environmental Services, Inc.
ADDRESS: PO Box 2327
Hobbs, NM 88240
505-392-4498

RHINO SOIL ID: GTI-0493

DATE DELIVERED: 04/28/93

LOCATION ON DP-619: Section 3

TOTAL VOLUME OF SOIL FROM SITE: 16 - 55 gallon drums

TYPE OF CONTAMINANT: gasoline

NUMBER OF LOADS: 1

This Memorandum a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

Shipper's No. _____

RHINO ENVIRONMENTAL SERVICES
(Name of Carrier)

Carrier's No. _____

RECEIVED, subject to the classifications and tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading,

at FCC BRIDGE ABQ, NM 4/27 19 93 **From** GTI (TINA)

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to RHINO ENVIRONMENTAL SERVICES
(Mail or street address of consignee—For purposes of notification only.)

Destination DP 619 HOBBS **State** NM **Zip** 88240 **County** LEA **Delivery Address*** HWY 18 9 MILES S HOBBS
*To be filled in only when shipper desires and governing tariffs provide for delivery thereof.

Route _____

Delivering Carrier RHINO ENVIRONMENTAL **Car or Vehicle Initials** _____ **No.** _____

NO. PACKAGES	~~HAZARDOUS MATERIALS~~	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓
16		DRUMS HYDROCARBON AFFECTED SOILS			
		(DRILL CUTTINGS)			
		(TINA STATION FCC BLOCK OF BRIDGE, ALBUQUERQUE NM)			
		& MCO GENERATOR			

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
Per _____
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Pre-paid."

Received $ _____ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier.

Per _____
(The signature here acknowledges only the amounts prepaid.)

Charges advanced:
$ _____

SHIPPERS CERTIFICATION: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SIGNATURE _____ TITLE _____

C.O.D. SHIPMENT
C.O.D. Amt _____
Collection Fee _____
Total Charges _____

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
** Shipper's imprints in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.
Note-Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____

THIS SHIPMENT IS CORRECTLY DESCRIBED.

CORRECT WEIGHT IS _____ LBS.

** The fibre boxes used for this shipment conform to the specifications set forth in the box makers certificate thereon, and all other requirements of the Consolidated Freight Classification.

_____ Shipper
Per _____

Shipper, Per _____ **Agent, Per** _____

Permanent post office address of shipper

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Southwest Region
20000 / 300 Mariner Drive
Torrance, CA 90503
(310) 371-1044
(800) 727-GTEL
Fax (310) 371-8720

GTEL Client Number: 023352875/050309
Project I.D.: Bridge
Albuquerque, NM
Work Order Number: T304147

April 21, 1993

Ms. Teresa Bennett
Groundwater Technology, Inc.
2501 Yale Blvd. SE, Suite 204
Albuquerque, NM 87106

Dear Ms. Bennett,

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 4-15-93 under chain-of-custody record 76-6842.

A formal Quality Assurance/Quality Control (QA/QC) program, which is designed to meet or exceed the EPA requirements, is maintained by GTEL. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the following; the State of California under Certification #1123, the State of Arizona under Certification #AZ0357, the State of Kansas under Certification E-182 and the State of Washington under Certification #C060.

If you have any questions concerning this analysis or if we can be of further assistance, please call one of our Customer Service Representatives.

Sincerely,

GTEL Environmental Laboratories, Inc.

for JG

Joan Greenwood
Laboratory Director

GTEL Client Number: 023352875/050309
Project I.D.: Bridge
Albuquerque, NM
Work Order Number: T304147

ANALYTICAL RESULTS

Volatile Organics in Soil
EPA Method Modified 8020[a]

GTEL Sample Number		04147-1			
Client Identification		493DC			
Date Sampled		4-14-93			
Date Extracted		4-15-93			
Date Analyzed		4-16-93			
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg			
Benzene	0.005	<0.025*			
Toluene	0.005	<0.025*			
Ethylbenzene	0.005	8.5			
Xylene, total	0.015	6.4			
BTEX, total	--	15			
Dilution Multiplier[b]		5			
Percent solids, %		87.4			

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Results are calculated on a wet weight basis.

b. Indicates the adjustments made for sample dilution.

* Reporting limit raised due to dilution.

GTEL Client Number: 023352875/050309
Project I.D.: Bridge
Albuquerque, NM
Work Order Number: T304147

ANALYTICAL RESULTS

Metals in TCLP Leachate[a]

GTEL Sample Number			04147-1			
Client Identification			493DC			
Date Sampled			4-14-93			
Date Leached			2-15-93			
Extraction Fluid			#1			
Date Analyzed (Method 7420)			4-19-93			
Analyte	Method[c]	Reporting Limit, mg/L	Concentration, mg/L			
Lead	7420	0.50	<0.5			

a. TCLP performed as per 40 CFR, Part 261, Appendix II - Method 1311. These data are presented in accordance with the Federal Register, 57, p.55114, November 24, 1992.

b. The dilution multiplier indicates the adjustments made for dilutions.

c. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA, November 1986; Digestion by Method 3010 for Method 6010 analytes and Method 7470 for mercury.

GTEL Client Number: 023352875/050309
Project I.D.: Bridge
Albuquerque, NM
Work Order Number: T304147

ANALYTICAL RESULTS

Total Recoverable Petroleum Hydrocarbons in Soil
EPA 418.1/Standard Methods 503E[a]

Sample Identification		Date Sampled	Date Extracted	Date Analyzed	Reporting Limit, mg/kg	Concentration, mg/kg	Percent Solids, %
GTEL No.	Client ID						
04147-1	493DC	4-14-93	4-16-93	4-16-93	5	720	87.4

a. EPA 600/4-79-020, March 1983 revision. Extraction by EPA Method 3550. Results are calculated on a wet weight basis.

ANALYTICAL RESULTS

Flash Point of Soil
Modified EPA Method 1010[a]

Sample Identification		Date Sampled	Date Analyzed	Flash Point[b], °F	Percent Solids, %
GTEL No.	Client ID				
04147-1	493DC	4-14-93	4-16-93	95	87.4

a Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modified to allow determinations on soil.

b < 75 indicates a flash point of less than 75 °F;
> 160 indicates that the test termination point of 160 °F was reached without ignition.

GTEL ENVIRONMENTAL LABORATORIES, INC.

20000 Mariner Dr., Suite #300
Torrance, CA 90503

213-371-1044
800-727-GTEL

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6842

CUSTODY RECORD

Project Manager: Terry Bennett
Phone #: 505-242-3113
FAX #: 505-242-1103
Address: Groundwater Technology 2501 Yale Blvd SE, Ste 204 Albuquerque NM 87106
Site location: 800 Bridge Blvd S.W. ALBQ NM
Project Number: 023352875.050309
Project Name: NMED/800 Bridge/ALBQ NM
I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): Jerry May

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME
VP-7-8	GRAB		1		X							X	X		4/1/93	1020
VP-6-8			1		X											1310
VP-5-8			1		X											1125
VP-4-8			1		X											1530
VP-2-7			1		X										4/1/93	1345
VP-3-8			1		X											1520
* 493DC	COMPOSITE		3	X												
** VP-7	GRAB		2	X					X			X			4/1/93	1135
VP-6	GRAB		2	X					X			X				1345

Sampling	with MTBE ☐	BTEX 602 ☐ 8020 ☒	BTEX/TPH Gas. 602/8015 ☐ 8020/8015 ☐ MTBE ☐	TPH as Gas ☐ Diesel ☐ Jet Fuel	Product I.D. by GC (SIMDIS) ☐	Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐	Total Petroleum Hydrocarbons: 418.1 ☒ 503E ☐	EPA 601 ☐ 8010 ☐ DCA only ☐	EPA 602 ☐ 8020 ☐	EPA 608 ☐ 8080 ☐ PCBs only ☐	EPA 610 ☐ 8310 ☐	EPA 624 ☐ 8240 ☐ NBS +15 ☐	EPA 625 ☐ 8270 ☐ NBS +25 ☐	EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐ (CLP Metals ☐ VOA ☐ Semi VOA ☐ LEAD)	EPA Priority Pollutant Metals ☐ HSL ☐	LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐	CAM Metals ☐ STLC ☐ TTLC	Corrosivity ☐ Flashpoint ☒ Reactivity ☐
		X		X													
		X		X													
		X		X													
		X		X													
		X		X													
		X		X													
		X					X							X			X
		X		X													
		X		X													

SPECIAL HANDLING *

24 HOURS ☐
EXPEDITED 48 Hours ☒ * SAMPLE 493DC ONLY
SEVEN DAY ☐
OTHER _____ (#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

Standard TAT on OTHERS

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS: Quote # T638
FED EX No. 634376735 6
** SLIGHT SHEEN VP-7

Lab Use Only
Lot #:
Storage Location
Work Order #: T304147

Relinquished by Sampler:	Date	Time	Received by:	Date	Time	Received by Laboratory:	Date	Time
Jerry A. May	4/1/93	1800	Laura Jones	4/1/93			4/15/93	8:45
Relinquished by:	Date	Time	Received by:	Date	Time	Received by Laboratory:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time	Received by Laboratory:	Date	Time

Way bill #

148

FEDERAL EXPRESS

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 634376735b

2349M 634376735b

SENDER'S COPY

SENDER'S COPY
DROP OFF YOUR PACKAGE AND SAVE

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 1210-0385-6 Date: 4/14/93

From (Your Name) Please Print: JERRY MAY
Your Phone Number (Very Important): 505-242-3113
Company: GROUNDWATER TECHNOLOGY INC
Department/Floor No.:
Street Address: 2501 YALE BLVD SE STE 204
City: ALBUQUERQUE State: NM ZIP Required: 8 7 1 0 6

2 To (Recipient's Name) Please Print:
Recipient's Phone Number (Very Important): (310-)371-1044
Company: GTEL ENVIRONMENTAL LABS
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 2000 MARINER AV STE 300
City: TORRANCE State: CA ZIP Required: 9 0 5 0 3

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on Invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address:
City: State: ZIP Required:

3 PAYMENT 1 ☐ Bill Sender 2 ☒ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card
5 ☐ Cash/Check Acct./Credit Card No. [redacted] Exp. Date /

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 ☑ OTHER PACKAGING
16 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*
13 ☐ FEDEX BOX
14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon. No Saturday delivery†)
51 ☐ OTHER PACKAGING
56 ☐ FEDEX LETTER*
52 ☐ FEDEX PAK*
53 ☐ FEDEX BOX
54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 ☐ ECONOMY*
* Economy Letter rate not available. Minimum charge: One pound economy rate.

Government Overnight (Restricted for authorized users only)
46 ☐ GOVT LETTER
41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
80 ☐ TWO-DAY FREIGHT**
†Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

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1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☒ DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) ☐ (Not available to all locations)
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐
6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required
Dry Ice, 9, UN 1845, ____ X ____ kg, 904 III
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
☐ DESCRIPTION
12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
Total 1	Total 39	Total

DIM SHIPMENT (Chargeable Weight) ☐ ____ lbs.
L x W x H

Received At
1 ☐ Regular Stop 3 ☐ Drop Box
2 ☐ On-Call Stop 4 ☐ B.S.C. 5 ☐ Station

7 Release Signature:

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.00.

In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/92
PART #137204 FXEM 11/9
FORMAT #155
155

RHINO ENVIRONMENTAL SERVICES, INC.
LANDFARM FACILITY DP-619
CONTAMINATED SOIL DOCUMENTATION SUMMARY

SHIPPING FACILITY		OWNER OF FACILITY (IF DIFFERENT)
NAME:	Fina Bridge GWAPA Site	NMED
ADDRESS:	800 Bridege Albuquerque, NM	Santa Fe, NM

TRANSPORTER

NAME: Rhino Environmental Services, Inc.
ADDRESS: PO Box 2327
Hobbs, NM 88240
505-392-4498

RHINO SOIL ID: GTI-Bridge-0693

DATE DELIVERED: 05/28/93 thru 06/02/93

LOCATION ON DP-619: Section 4

TOTAL VOLUME OF SOIL FROM SITE: 93.41 tons

TYPE OF CONTAMINANT: gasoline

NUMBER OF LOADS: 4

LADING
NG OFFICE PRODUCTS Form No. FB3

FING

To Reorder Call Toll-Free 1-800-421-1222
or FAX Toll-Free 1-800-762-7329

Straight Bill of Lading–Short Form

ginal-Not Negotiable

Shipper's No. 20-3

Rhino Env Ser Inc
(Name of Carrier)

Carrier's No. 520-3

ECEIVED, subject to the classifications and tariffs in effect on the date of the issue of the Bill of Lading.

6 - 1 - 1993 From Finis Bridge St Hobbs NM

operty described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said carrier (the word carrier being understood throughout this ict as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is utually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all e terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a otor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and ld terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to Rhino Env Ser Inc
(Mail or street address of consignee—For purposes of notification only.)

itination DF 619 Hobbs, State NM Zip 88240 County Lea Delivery Address* _____
*To be filled in only when shipper desires and governing tariffs provide for delivery thereof.

Route _____

ivering Carrier Rhino Env Ser Inc Car or Vehicle Initials 520-107 No. 400

NO. PACKAGES	HAZARDOUS MATERIALS	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓
Bulk		Contam. Soil	23.92	Tons	
		Non Hazardous			

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
Per _____
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Pre-paid."

Received $ _____ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier.

Per _____
(The signature here acknowledges only the amounts prepaid.)

Charges advanced:
$ _____

SHIPPERS CERTIFICATION: This is to certify that the above-named materials are properly classified, described, packaged, marked and beled, and are in proper condition for transportation according to the plicable regulations of the Department of Transportation.

SIGNATURE _____ TITLE _____

the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
** Shipper's Imprints in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.
Note-Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____

C.O.D. SHIPMENT
C.O.D. Amt _____
Collection Fee _____
Total Charges _____

THIS SHIPMENT IS CORRECTLY DESCRIBED.

CORRECT WEIGHT IS _____ LBS.

** The fibre boxes used for this shipment conform to the specifications set forth in the box makers certificate thereon, and all other requirements of the Consolidated Freight Classification.

Shipper
Per _____

Shipper, Per _____ Agent, Per _____

rmanent post office address of shipper

From Fina Rudoso St Albq. NM

consigned and destined as indicated below, which said carrier (the word carrier being understood throughout this ... destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is ... any of said property, that every service to be performed hereunder shall be subject to all ... shipment, or (2) in the applicable motor carrier classification or tariff if this is a ... governs the transportation of this shipment, and

JEDCO PRINTING 505/256–1414

№ 08263

DATE 6/1/93

FINA TRUCK PLAZA
1915 Menaul Blvd. NE
Albuquerque, NM 87107
Lic. #065

NM D. A. Approved
5 - 80

STATE OF NEW MEXICO CERTIFIED SCALE

SELLER ☐
BUYER ☐ R Kemp

ADDRESS _____

CITY _____ STATE _____ ZIP _____

WEIGHED ON MURPHY–CARDINAL SCALES

I certify above entries are true and correct.

R Georgal
Driver's Signature

12:34	06/01/93	72840 LB	▶ lbs. GROSS
~~13:25~~	~~06/01/93~~	79140 LB	
		− 31,300 − Tare	▶ lbs. TARE
# 9856		47840	▶ lbs. NET
# 9863			

REMARKS (Commodity Weighed) SD 23.92 tons

TRUCK NO. 520 DRIVER ON ☐ OFF ☒ WEIGHED BY Jesse C

DIGITAL WEIGHT INDICATOR & PRINTER

76000
2840

LL OF LADING
ING OFFICE PRODUCTS Form No. FB3

TING

To Reorder Call Toll-Free 1-800-421-1222
or FAX Toll-Free 1-800-762-7329

Original-Not Negotiable

Straight Bill of Lading–Short Form

Shipper's No. 20-4

Rhino Env Ser Inc
(Name of Carrier)

Carrier's No. 520-4

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of the Bill of Lading.

6-2- 1993 From Trina Bridge St Albq. NM

Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to Rhino Env Ser Inc

(Mail or street address of consignee—For purposes of notification only.)

Destination DP 619 Hobbs, State NM Zip 88240 County Lea Delivery Address*

*To be filled in only when shipper desires and governing tariffs provide for delivery thereof.

Route

Delivering Carrier Rhino Env Ser Inc Car or Vehicle Initials 520-107 No. Lea

NO. PACKAGES	HAZARDOUS MATERIALS	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓
Bulk		Contam. Soil	1723	Tons	
		Non-Hazardous			

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
Per
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Pre-paid."

Received $ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier.

Per
(The signature here acknowledges only the amounts prepaid.)

Charges advanced:
$

SHIPPERS CERTIFICATION: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SIGNATURE TITLE

C.O.D. SHIPMENT
C.O.D. Amt
Collection Fee
Total Charges

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
** Shipper's Imprints in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.
Note-Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

THIS SHIPMENT IS CORRECTLY DESCRIBED.
CORRECT WEIGHT IS LBS.

** The fibre boxes used for this shipment conform to the specifications set forth in the box makers certificate thereon, and all other requirements of the Consolidated Freight Classification.

Shipper
Per

Shipper, Per Agent, Per

Permanent post office address of shipper

JEDCO PRINTING 505/256-1414

№ 08326

DATE 6/2/93

FINA TRUCK PLAZA
1915 Menaul Blvd. NE
Albuquerque, NM 87107
Loc. #065

NM D. A. Approved
5 - 80

SELLER ☐
BUYER ☐ RHINO

ADDRESS _____

CITY _____ STATE _____ ZIP _____

WEIGHED ON MURPHY–CARDINAL SCALES
I certify above entries are true and correct.

X _____
Driver's Signature

13:56 06/02/93 66760 LB ▶ lbs. GROSS
- 31,700 ▶ lbs. TARE
35,460 ▶ lbs. NET
1071

REMARKS (Commodity Weighed) Salt = 17.73 TONS

TRUCK NO. 520 DRIVER ON ☐ OFF ☒ WEIGHED BY Jesse G

4100 RC
PD Cash

DIGITAL WEIGHT INDICATOR & PRINTER

Permanent

ILL OF LADING
KING OFFICE PRODUCTS Form No. FB3

To Reorder Call Toll-Free 1-800-421-1222
or FAX Toll-Free 1-800-762-7329

Original-Not Negotiable

Straight Bill of Lading–Short Form

Shipper's No. 20-1

Rhino Env. Ser. Inc. (Name of Carrier)

Carrier's No. 520-1

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of the Bill of Lading,

5-28- 1993 From Fina Bridge St Albq., N.M.

property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to Rhino Env Ser Inc

(Mail or street address of consignee—For purposes of notification only.)

Destination DP619 Hobbs, State NM Zip 88240 County Lea Delivery Address*

*To be filled in only when shipper desires and governing tariffs provide for delivery thereof.

Route

Delivering Carrier Rhino Env Ser Inc. Car or Vehicle Initials 520-107 No. Geo

NO. PACKAGES	HAZARDOUS MATERIALS	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓
Bulk		Contam. Soil	22.37	TONS	
		Non-Hazardous			

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
Per

(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Pre-paid."

Received $
to apply in prepayment of the charges on the property described hereon.

Agent or Cashier.

Per
(The signature here acknowledges only the amounts prepaid.)

Charges advanced:
$

SHIPPERS CERTIFICATION: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SIGNATURE ______ TITLE ______

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
** Shipper's imprints in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.
Note-Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding ______

C.O.D. SHIPMENT
C.O.D. Amt ______
Collection Fee ______
Total Charges ______

THIS SHIPMENT IS CORRECTLY DESCRIBED.
CORRECT WEIGHT IS ______ LBS.

** The fibre boxes used for this shipment conform to the specifications set forth in the box makers certificate thereon, and all other requirements of the Consolidated Freight Classification.

Shipper
Per

Shipper, Per ______ Agent, Per ______

Permanent post office address of shipper

-31,30-
44740 = (22.37 tons)

CERTIFIED
AUTOMATED
TRUCK
SCALE

CAT SCALE COMPANY
P.O. BOX 630
WALCOTT, IA 52773
(319) 284-6263

S reverse side of ticket for
c est rules and regulations)

14:18:44 SCALE
11500 LOCATION:

PUBLIC WEIGHMASTER'S
CERTIFICATE OF
WEIGHT & MEASURE

IMPRINT SEAL HERE
(IF APPLICABLE)

1724794
CONTEST TICKET NUMBER

THE CAT SCALE GUARANTEE

The CAT Scale Company guarantees that our scales will give an accurate weight. What makes us different from other scale companies is that we back up our guarantee with cash.

"WEIGH WHAT WE SAY OR WE PAY"

If you get an overweight fine from the state after one of our CAT Scales showed a legal weight, we will immediately check our scale and we will:

(1) Reimburse you for the cost of the overweight fine if our scale is wrong, OR
(2) A representative of CAT Scale Company will appear in court WITH the driver as an expert witness if we believe our scale was correct.

GTI - BRIDGE

IF YOU SHOULD GET AN OVERWEIGHT FINE, YOU SHOULD DO THE FOLLOWING TO GET THE PROBLEM RESOLVED:

1) Post bond and request a court date.
2) Call the CAT Scale location where you got the weigh ticket in question and inform them of the fine, or call CAT Scale Company direct during normal business hours.
3) **IMMEDIATELY** send a copy of the citation, CAT Scale Ticket, your name, company, address, and phone number to CAT Scale.

* The four weights shown below are separate weights. The GROSS WEIGHT is the CERTIFIED WEIGHT and was weighed on a full length platform scale.

DATE: 05/28/93

I40 AND EXIT 277
SANTA ROSA NM

STEER AXLE	11420 lb
DRIVE AXLE	30960 lb
TRAILER AXLE	33660 lb
*GROSS WEIGHT	76040 lb

This is to certify that the following described merchandise was weighed, counted, or measured by a public or deputy weighmaster, and when properly signed and sealed shall be prima facia evidence of the accuracy of the weight shown as prescribed by law.

ENTRANTS NAME: George Goins
ADDRESS: 1107 PONDEROSA Hobbs, NM
PHONE: 505-392-3355
LIVESTOCK, PRODUCE, PROPERTY, COMMODITY, OR ARTICLE WEIGHED

COMPANY Rhino TRACTOR # GTI TRAILER # 107

WEIGHMASTER OR WEIGHER SIGNATURE [signature] FEE 6.00 FULL WEIGH TICKET # (IF REWEIGH)

PO Cash
[signature]

DRIVER IN TRUCK UNLESS CHECKED HERE: ___

CAT Scale Form 4/93

76,040
- 31,300
44740 = 22.37 tons

BILL OF LADING
MAKING OFFICE PRODUCTS Form No. FB3

ING

To Reorder Call Toll-Free 1-800-421-1222
or FAX Toll-Free 1-800-762-7329

Original-Not Negotiable

Straight Bill of Lading–Short Form

Shipper's No. 20-2

Rhino Env Ser Inc
(Name of Carrier)

Carrier's No. 520-2

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of the Bill of Lading.

at 5-29- 1993 From Fina Sta. Bridge St. Hobbs, NM

property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said carrier (the word carrier being understood throughout this ntract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is tually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to Rhino Env Ser Inc

(Mail or street address of consignee—For purposes of notification only.)

Destination DP 619 Hobbs State NM Zip 88240 County Lea Delivery Address*

*To be filled in only when shipper desires and governing tariffs provide for delivery thereof.

Route

Delivering Carrier Rhino Env Ser Inc Car or Vehicle Initials 520-107 No. 4000

NO. PACKAGES	HAZARDOUS MATERIALS	DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓
Bulk		Contam. Soil	28.39	TONS	
		Non-Hazardous			

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
Per
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Pre-paid."

Received $ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier.

Per
(The signature here acknowledges only the amounts prepaid.)

Charges advanced:
$

SHIPPERS CERTIFICATION: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SIGNATURE TITLE

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
* Shipper's Imprints in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.
Note-Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

C.O.D. SHIPMENT
C.O.D. Amt
Collection Fee
Total Charges

THIS SHIPMENT IS CORRECTLY DESCRIBED.

CORRECT WEIGHT IS LBS.

** The fibre boxes used for this shipment conform to the specifications set forth in the box makers certificate thereon, and all other requirements of the Consolidated Freight Classification.

Shipper
Per

Shipper, Per Agent, Per

Permanent post office address of shipper

GTI- Bridge

№ 08199

DATE 5-29-93

FINA TRUCK PLAZA
1915 Menaul Blvd. NE
Albuquerque, NM 87107
Lic. #065

SELLER ☐
BUYER ☐ Rhino
ADDRESS
CITY ______ STATE ______ ZIP ______

STATE OF NEW MEXICO CERTIFIED SCALE

NM D. A. Approved
5 - 80

Pd cash
George

WEIGHED ON MURPHY—CARDINAL SCALES
I certify above entries are true and correct.

George [signature]
Driver's Signature

14:45 05/29/93 90080 LB ▶ lbs. GROSS
▶ lbs. TARE
ID 1915 ▶ lbs. NET
9712

REMARKS (Commodity Weighed)

TRUCK NO. 520 DRIVER ON ☐ OFF ☒ WEIGHED BY [signature]

DIGITAL WEIGHT INDICATOR & PRINTER

Pd 8/4/00

90,080
− 31,300
58780 = 29.39 tons

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Southwest Region
20000 / 300 Mariner Drive
Torrance, CA 90503
(310) 371-1044
(800) 727-GTEL
Fax (310) 371-8720

GTEL Client Number: 023352875
Project I.D.: NMED/800 Bridge
Albuquerque, NM
Work Order Number: T305187

May 24, 1993

Ms. Teresa Bennett
Groundwater Technology, Inc.
2501 Yale Blvd. SE, Suite 204
Albuquerque, NM 87106

Dear Ms. Bennett,

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 5-21-93 under chain-of-custody record 76-6846.

A formal Quality Assurance/Quality Control (QA/QC) program, which is designed to meet or exceed the EPA requirements, is maintained by GTEL. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the following; the State of California under Certification #1123, the State of Arizona under Certification #AZ0357, the State of Kansas under Certification E-182 and the State of Washington under Certification #C060.

If you have any questions concerning this analysis or if we can be of further assistance, please call one of our Customer Service Representatives.

Sincerely,

GTEL Environmental Laboratories, Inc.

Joan Greenwood
Laboratory Director

GTEL Client Number: 023352875
Project I.D.: NMED/800 Bridge
Albuquerque, NM
Work Order Number: T305187

ANALYTICAL RESULTS

Volatile Organics in Soil
EPA Method Modified 8020[a]

GTEL Sample Number		05187-1*	05187-2*	05187-3*	05187-4*
Client Identification		XS1	XS2	XS3	XS4
Date Sampled		5-20-93	5-20-93	5-20-93	5-20-93
Date Extracted		5-21-93	5-21-93	5-21-93	5-21-93
Date Analyzed		5-22-93	5-22-93	5-22-93	5-22-93
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg			
Benzene	0.005	<0.025	<0.025	<0.025	<0.025
Toluene	0.005	<0.025	<0.025	<0.025	<0.025
Ethylbenzene	0.005	0.11	<0.025	<0.025	<0.025
Xylene, total	0.015	0.49	<0.075	<0.075	<0.075
BTEX, total	--	0.60	--	--	--
Dilution Multiplier[b]		5	5	5	5
Percent solids, %					

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Results are calculated on a wet weight basis.

b. Indicates the adjustments made for sample dilution.

* Reporting limits raised due to matrix effect (foaming).

GTEL ENVIRONMENTAL LABORATORIES, INC.

20000 Mariner Dr., Suite #300
Torrance, CA 90503

213-371-1044
800-727-GTEL

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6846

Project Manager: Terry Bennett
Phone #: 505-242-3113
FAX #: 505-242-1103
Address: Groundwater Technology 2501 Yale Blvd Ste 204 Albuquerque NM 87106
Site location: NMED/SSD Bridge, Albuquerque NM
Project Number: 02335287S.
Project Name: NMED/SSD Bridge/ALBQ NM

I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): Chuck Briscoe

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME
XS1			1	X								X			5/20/93	14:30
XS2			1	X								X			5/20/93	14:35
XS3			1	X								X			5/20/93	14:40
XS4			1	X								X			5/20/93	14:45

ANALYSIS REQUEST

BTEX 602 ☐ 8020 ☐ with MTBE ☐	BTEX/TPH Gas 602/8015 ☐ 8020/8015 ☐ MTBE ☐	TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel	Product I.D. by GC (SIMDIS) ☐	Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐	Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐	EPA 601 ☐ 8010 ☐ DCA only ☐	EPA 602 ☐ 8020 ☐	EPA 608 ☐ 8080 ☐ PCBs only ☐	EPA 610 ☐ 8310 ☐	EPA 624 ☐ 8240 ☐ NBS +15 ☐	EPA 625 ☐ 8270 ☐ NBS +25 ☐	EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐	TCLP Metals ☐ VOA ☐ Semi VOA ☐	EPA Priority Pollutant Metals ☐ HSL ☐	LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐	CAM Metals ☐ STLC ☐ TTLC	Corrosivity ☐ Flashpoint ☐ Reactivity ☐
X																	
X																	
X																	
X																	

CUSTODY RECORD

	Received by:	Received by:	Received by Laboratory:
Time	17:45		9:45
Date	5/20/93		5/21/93

Way bill # (FED)-X# 6343767765

Relinquished by Sampler:
Relinquished by:
Relinquished by:

SPECIAL HANDLING
24 HOURS ☐
EXPEDITED 48 Hours ☐
SEVEN DAY ☐
OTHER _____ (#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS:
Quote # T638

Fedex # 6343767765

Lab Use Only
Storage Location #9 BTM
Work Order #:
Lot #:
3°C

FEDERAL EXPRESS

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER

6343767765

SENDER'S COPY

SENDER'S COPY
DROP OFF YOUR PACKAGE AND SAVE

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 1220-0385-6 Date: 5/10/93

From (Your Name) Please Print: [illegible] Your Phone Number (Very Important): 505-242-3113

Company: GROUNDWATER TECHNOLOGY INC Department/Floor No.:

Street Address: 2501 YALE BLVD SE STE 204

City: ALBUQUERQUE State: NM ZIP Required: 87106

2 To (Recipient's Name) Please Print: [illegible] Recipient's Phone Number (Very Important): 310-371-1044

Company: CTEL ENVIRONMENTAL LABS Department/Floor No.:

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 20000 MARINER AV STE 300

City: TORRENCE State: CA ZIP Required: 90503

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on Invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address:
City: State: ZIP Required:

3 PAYMENT: 1 ☐ Bill Sender 2 ☑ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card
5 ☐ Cash/Check Acct./Credit Card No. Exp. Date:

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning)
11 ☑ OTHER PACKAGING
16 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK
13 ☐ FEDEX BOX
14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon) (Not Saturday delivery)
51 ☐ OTHER PACKAGING
56 ☐ FEDEX LETTER*
52 ☐ FEDEX PAK
53 ☐ FEDEX BOX
54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day)
30 ☐ ECONOMY*
*Economy Letter rate not available. Minimum charge: One pound economy rate.

Government Overnight (Restricted to authorized users)
46 ☐ GOVT LETTER
41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
80 ☐ TWO-DAY FREIGHT**
†Delivery commitment may be later in some areas.
**Declared Value Limit $500. **Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☑ DELIVER WEEKDAY
3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐ DRY ICE (Dangerous Goods Shipper's Declaration not required)
6 ☐ DRY ICE
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
10 ☐
11 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES: 1 | WEIGHT in Pounds (Rounded Up Only): | YOUR DECLARED VALUE (See right): | Total: 1 | Total: | Total:

DIM SHIPMENT (Chargeable Weight)
☐ L x W x H

Received At
1 ☐ Regular Stop 3 ☐ Drop Box
2 ☐ On-Call Stop 4 ☐ B.S.C. 5 ☐ Station

7 Release Signature:

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.00.

In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

For Federal Express Use	
Base Charges	
Declared Value Charge	
Other 1	
Other 2	
Total Charges	

REVISION DATE 11/92
PART #137204 FXEM 11/92
FORMAT #155
155

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Southwest Region
20000 / 300 Mariner Drive
Torrance, CA 90503
(310) 371-1044
(800) 727-GTEL
Fax (310) 371-8720

RECEIVED
MAY 2
GTI, NM

GTEL Client Number: 023352875/050309
Project I.D.: NMED/BB
800 Bridge
Albuquerque, NM
Work Order Number: T305120

May 18, 1993

Ms. Theresa Bennett
Groundwater Technology, Inc.
2501 Yale Blvd. SE, Suite 204
Albuquerque, NM 87106

Dear Ms. Bennett,

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 5-14-93 under chain-of-custody record 76-6826.

A formal Quality Assurance/Quality Control (QA/QC) program, which is designed to meet or exceed the EPA requirements, is maintained by GTEL. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the following; the State of California under Certification #1123, the State of Arizona under Certification #AZ0357, the State of Kansas under Certification E-182 and the State of Washington under Certification #C060.

If you have any questions concerning this analysis or if we can be of further assistance, please call one of our Customer Service Representatives.

Sincerely,

GTEL Environmental Laboratories, Inc.

Joan Greenwood
Laboratory Director

GTEL Client Number: 023352875/050309
Project I.D.: NMED/BB
800 Bridge
Albuquerque, NM
Work Order Number: T305120

ANALYTICAL RESULTS

Volatile Organics in Soil
EPA Method Modified 8020[a]

GTEL Sample Number		05120-1A*			
Client Identification		XSP			
Date Sampled		5-13-93			
Date Extracted		5-14-93			
Date Analyzed		5-17-93			
Analyte	Reporting Limit, mg/kg	Concentration, mg/kg			
Benzene	0.005	<0.025			
Toluene	0.005	<0.025			
Ethylbenzene	0.005	<0.025			
Xylene, total	0.015	<0.075			
BTEX, total	--	--			
Dilution Multiplier[b]		5			
Percent solids, %		94.9			

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Results are calculated on a wet weight basis.

b. Indicates the adjustments made for sample dilution.

* Reporting limit raised due to matrix effect (foaming).

GTEL Client Number: 023352875/050309
Project I.D.: NMED/BB
800 Bridge
Albuquerque, NM
Work Order Number: T305120

ANALYTICAL RESULTS

Total Recoverable Petroleum Hydrocarbons in Soil
EPA 418.1/Standard Methods 503E[a]

Sample Identification		Date Sampled	Date Extracted	Date Analyzed	Reporting Limit, mg/kg	Concentration, mg/kg	Percent Solids, %
GTEL No.	Client ID						
05120-1	XSP	5-13-93	5-17-93	5-17-93	5	1200	

a. EPA 600/4-79-020, March 1983 revision. Extraction by EPA Method 3550. Results are calculated on a wet weight basis.

GTEL Client Number: 023352875/050309
Project I.D.: NMED/BB
800 Bridge
Albuquerque, NM
Work Order Number: T305120

ANALYTICAL RESULTS

Metals in TCLP Leachate[a]

GTEL Sample Number			05120-1			
Client Identification			XSP			
Date Sampled			5-13-93			
Date Leached			5-18-93			
Extraction Fluid			# 1			
Date Analyzed (Method 7420)			5-18-93			
Analyte	Method[c]	Reporting Limit, mg/L	Concentration, mg/L			
Lead	7420	0.50	<0.50			

a. TCLP performed as per 40 CFR, Part 261, Appendix II - Method 1311. These data are presented in accordance with the Federal Register, 57, p.55114, November 24, 1992.

b. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA, November 1986; Digestion by Method 3010 for Method 6010 analytes and Method 7470 for mercury.

GTEL ENVIRONMENTAL LABORATORIES, INC.

20000 Mariner Dr., Suite #300
Torrance, CA 90503

213-371-1044
800-727-GTEL

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6826

Project Manager: Terry Bennett
Phone #: 505-242-3113
FAX #: 505-242-1103

Address: Groundwater Technology 2501 Yale Blvd SE, Ste. 204 Albuquerque NM 87106
Site location: NMED/BB 800 Bridge, ABQ NM

Project Number: 023352875.050309
Project Name: NMED/800Bridge/ABQ NM

I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): BRISCOE

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME
XSP	EXCAVATED SOIL PILE		2		X							X			5/13/93	12:50

ANALYSIS REQUEST

Analysis	XSP
BTEX 602 ☐ 8020 ☒ with MTBE ☐	X
BTEX/TPH Gas 602/8015 ☐ 8020/8015 ☐ MTBE ☐	
TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel	
Product I.D. by GC (SIMDIS) ☐	
Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐	
Total Petroleum Hydrocarbons: 418.1 ☒ 503E ☐	X
EPA 601 ☐ 8010 ☐ DCA only ☐	
EPA 602 ☐ 8020 ☐	
EPA 608 ☐ 8080 ☐ PCBs only ☐	
EPA 610 ☐ 8310 ☐	
EPA 624 ☐ 8240 ☐ NBS +15 ☐	
EPA 625 ☐ 8270 ☐ NBS +25 ☐	
EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐	
TCLP Metals ☐ VOA ☐ Semi VOA ☐	
EPA Priority Pollutant Metals ☐ HSL ☐	
LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐	
CAM Metals ☐ STLC ☐ TTLC	
Corrosivity ☐ Flashpoint ☐ Reactivity ☐	
TCLP lead	X

CUSTODY RECORD

Relinquished by	Date	Time	Received by
Relinquished by Sampler: [signature]	5/13/93	16:00	Received by: [signature] 5/14/93 9:45
Relinquished by:	Date	Time	Received by:
Relinquished by:	5/14/93	9:45	Received by Laboratory: [signature] Way bill # FED-X 343767920

SPECIAL HANDLING

24 HOURS ☐
EXPEDITED 48 Hours ☑
SEVEN DAY ☐
OTHER ________(#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS:
4°C

Lab Use Only
Storage Location
Lot #:
Work Order #: T305120

SENDER'S COPY
DROP OFF YOUR PACKAGE AND SAVE

FEDERAL EXPRESS

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 6343767920

2349M 6343767920

SENDER'S COPY

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 1210-0385-8 Date: 5-13-93

From (Your Name) Please Print: T. Bennett/C. Bissel Your Phone Number (Very Important): 505-242-3113
Company: GROUNDWATER TECHNOLOGY INC Department/Floor No.
Street Address: 2501 YALE BLVD SE STE 204
City: ALBUQUERQUE State: NM ZIP Required: 87106

2 To (Recipient's Name) Please Print: Sample Receiving Recipient's Phone Number (Very Important): 310-371-1044
Company: GTEL ENVIRONMENTAL LABS Department/Floor No.
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 20000 MARINER AV STE 300
City: TORRANCE State: CA ZIP Required: 90503

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 ☐ Bill Sender 2 ☑ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card 5 ☐ Cash/Check
Acct./Credit Card No.: 1650 8796 Exp. Date

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
- 11 ☑ OTHER PACKAGING
- 16 ☐ FEDEX LETTER*
- 12 ☐ FEDEX PAK*
- 13 ☐ FEDEX BOX
- 14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon†) (Saturday delivery not available)
- 51 ☐ OTHER PACKAGING
- 56 ☐ FEDEX LETTER*
- 52 ☐ FEDEX PAK*
- 53 ☐ FEDEX BOX
- 54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day†)
- 30 ☐ ECONOMY*

*Economy Letter rate not available. Minimum charge: One pound economy rate.

Government Overnight (Restricted for authorized users only)
- 46 ☐ GOV'T LETTER
- 41 ☐ GOV'T PACKAGE

Freight Service (for packages over 150 lbs.)
- 70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
- 80 ☐ TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)
- 1 ☐ HOLD FOR PICK-UP (Fill in Box H)
- 2 ☑ DELIVER WEEKDAY
- 3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations)
- 4 ☐ DANGEROUS GOODS (Extra charge)
- 5 ☐
- 6 ☐ DRY ICE — Dangerous Goods Shipper's Declaration not required
- 7 ☐ OTHER SPECIAL SERVICE
- 8 ☐
- 9 ☐ SATURDAY PICK-UP (Extra charge)
- ☐ DESCRIPTION
- 12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES: 1 Total: 1
WEIGHT In Pounds Only: Total: 10
YOUR DECLARED VALUE (See right): Total

DIM SHIPMENT (Chargeable Weight) ☐ lbs.
L x W x H

Received At
1 ☐ Regular Stop 2 ☐ On-Call Stop 3 ☐ Drop Box 4 ☐ B.S.C. 5 ☐ Station

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.00.

In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information.

7 Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Release Signature: ____________

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/92
PART #137204 FXEM 11/92
FORMAT #155

155

APPENDIX E

GROUNDWATER SAMPLE CERTIFICATES OF ANALYSIS, CHAIN-OF-CUSTODY DOCUMENTATION, QA/QC DATA, AND FIELD PURGING DATA, FEBRUARY 10, APRIL 12, AND JUNE 16, 1993

GROUNDWATER TECHNOLOGY PH/CONDUCTIVITY PURGING RECORD

JOB NAME: NMED/Barelas Bridge

LOCATION: 800 Bridge Blvd., S.W., Albuquerque, NM

DATE: February 10, 1993

SAMPLER: C. Briscoe

WELL ID	GALLONS PURGED	pH	CONDUCTIVITY (umhos)	TEMPERATURE (° C)	COMMENTS (WATER QUALITY, ODOR ETC.)
MW-1	5	7.44	550	14.5	CLOUDY, GREY, SLIGHT SEWAGE ODOR
MW-2	5	7.32	500	15	CLOUDY, GREY, SLIGHT SEWAGE ODOR
MW-3	5	7.24	350	13	CLOUDY, GREY, SLIGHT SEWAGE ODOR
MW-4	7	7.50	600	15	CLOUDY, GREY, SLIGHT SHEEN, HEAVY HC ODOR
MW-5	7	7.8	350	13	CLOUDY, BROWN, SLIGHT HC ODOR
MW-6	7	7.38	450	13.5	CLOUDY, GREY/BROWN, SEWAGE/HC ODOR
MW-7	7	7.40	450	13	GREYISH BROWN, NO ODOR
MW-8	2	7.21	400	13.5	HEAVY HC SHEEN, STRONG HC ODOR, 1/4" PSH IN BAILER - DID NOT SAMPLE
MW-9	5	7.27	500	14	CLOUDY, GREY, SLIGHT HC ODOR

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY PH/CONDUCTIVITY PURGING RECORD

JOB NAME: NMED/Barelas Bridge

LOCATION: 800 Bridge Blvd., S.W., Albuquerque, NM

DATE: June 16, 1993

SAMPLER: C. Briscoe, J. May

WELL ID	GALLONS PURGED	pH	CONDUCTIVITY (umhos)	TEMPERATURE (° C)	COMMENTS (WATER QUALITY, ODOR ETC.)
MW-1	4	7.41	500	15	CLEAR, CLOUDY, ODOR
MW-2	6	7.26	500	16	CLEAR, CLOUDY, ODOR
MW-3	6	7.64	400	16	CLEAR, CLOUDY, ODOR
MW-4	7	NA	NA	NA	CLOUDY, MEDIUM GREY, PSH SHEEN, ODOR
MW-5	6.5	7.51	350	17	CLOUDY, ODOR
MW-6	7	7.43	450	16	CLOUDY, ODOR
MW-7	7	7.29	400	16	CLOUDY, ODOR
MW-8	2	NA	NA	NA	CLOUDY, DARK GREY, PSH SHEEN, ODOR
MW-9	5	NA	NA	NA	CLOUDY, DARK GREY, PSH SHEEN, ODOR
VP-3	3	NA	NA	NA	CLOUDY, DARK GREY, PSH SHEEN, ODOR
VP-4	3	NA	NA	NA	CLOUDY, DARK GREY, PSH SHEEN, ODOR
VP-5	3	NA	NA	NA	CLOUDY, DARK GREY, PSH SHEEN, ODOR

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Southwest Region
20000 / 300 Mariner Drive
Torrance, CA 90503
(310) 371-1044
(800) 727-GTEL
Fax (310) 371-8720

GTEL Client Number: 023352875.051043
Project I.D.: NMED/800 Bridge SW/ALBQ NM
Work Order Number: T302127

February 25, 1993

Ms. Teresa Bennett
Groundwater Technology, Inc.
2501 Yale Blvd. SE, Suite 204
Albuquerque, NM 87106

Dear Ms. Bennett,

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 2-1-93 under chain-of-custody record 76-6831.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the state of California under Certification #E723.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,

GTEL Environmental Laboratories, Inc.

Minsoon Song
Laboratory Director

GTEL Client Number: 023352875.051043
Project I.D.: NMED/800 Bridge SW/ALBQ NM
Work Order Number: T302127

ANALYTICAL RESULTS

Volatile Organics in Water
EPA Methods Modified 8020 and Modified 8015[a]

GTEL Sample Number		02127-1	02127-2	02127-3	02127-4
Client Identification		PW-153	PW-152	PW-140	MW-1
Date Sampled		2-10-93	2-10-93	2-10-93	2-10-93
Date Analyzed		2-16-93	2-16-93	2-16-93	2-16-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	<0.3	<0.3	<0.3
Xylene, total	0.6	<0.6	<0.6	<0.6	<0.6
BTEX, total	--	--	--	--	--
TPH as Gasoline	100	<100	<100	<100	290
Dilution Multiplier[b]		1	1	1	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures.

b. Indicates the adjustments made for sample dilution.

GTEL Client Number: 023352875.051043
Project I.D.: NMED/800 Bridge SW/ALBQ NM
Work Order Number: T302127

ANALYTICAL RESULTS

Volatile Organics in Water
EPA Methods Modified 8020 and Modified 8015[a]

GTEL Sample Number		02127-5	02127-6	02127-7	02127-8
Client Identification		MW-2	MW-3	MW-4	MW-5
Date Sampled		2-10-93	2-10-93	2-10-93	2-10-93
Date Analyzed		2-17-93	2-16-93	2-13-93	2-16-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Benzene	0.3	4.6	<0.3	280	<0.3
Toluene	0.3	1.4	<0.3	21	<0.3
Ethylbenzene	0.3	0.9	<0.3	530	<0.3
Xylene, total	0.6	<0.6	<0.6	1300	<0.6
BTEX, total	--	6.9	--	2100	--
TPH as Gasoline	100	<100	<100	12000	<100
Dilution Multiplier[b]		1	1	1	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures.

b. Indicates the adjustments made for sample dilution.

GTEL Client Number: 023352875.051043
Project I.D.: NMED/800 Bridge SW/ALBQ NM
Work Order Number: T302127

ANALYTICAL RESULTS

Volatile Organics in Water
EPA Methods Modified 8020 and Modified 8015[a]

GTEL Sample Number		02127-9	02127-10	02127-12	
Client Identification		MW-6	MW-7	MW-9	
Date Sampled		2-10-93	2-10-93	2-10-93	
Date Analyzed		2-16-93	2-16-93	2-13-93	
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	51	74	
Toluene	0.3	<0.3	6.6	15	
Ethylbenzene	0.3	0.8	4.7	52	
Xylene, total	0.6	3.1	2.3	160	
BTEX, total	--	3.9	65	300	
TPH as Gasoline	100	<100	580	210	
Dilution Multiplier[b]		1	1	1	

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures.

b. Indicates the adjustments made for sample dilution.

GTEL ENVIRONMENTAL LABORATORIES, INC

20000 Mariner Dr., Suite #300
Torrance, CA 90503

213-371-1044
800-727-GTEL

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6831

Project Manager: Terry Bennett

Phone #: 505-242-3113

FAX #: 505-242-1103

Address: Groundwater Technology 2501 Yale Blvd SE. Ste. 204 Albuquerque NM 87106

Site location: 800 Bridge Blvd. S.W. Albuquerque, NM

Project Number: 023352875.051043

Project Name: NNED/800 Bridge SW/ALBQ NM

I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler Name (Print): Charles L. Briscoe

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME
PW-153				X					X			X			2/10/93	11:05
PW-152				X					X			X			2/10/93	11:35
PW-140				X					X			X			2/10/93	12:00
MW-1				X					X			X			2/10/93	15:30
MW-2				X					X			X			2/10/93	15:35
MW-3				X					X			X			2/10/93	15:40
MW-4				X					X			X			2/10/93	16:05
MW-5				X					X			X			2/10/93	~~16:00~~ 15:55
MW-6				X					X			X			2/10/93	15:50
MW-7				X					X			X			2/10/93	16:00
MW-8				X					X			X			2/10/93	16:10
MW-9				X					X			X			2/10/93	16:20

ANALYSIS REQUEST

BTEX 602 ☐ 8020 ☐ with MTBE ☐
BTEX/TPH Gas. 602/8015 ☐ 8020/8015 ☐ MTBE ☐
TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel
Product I.D. by GC (SIMDIS) ☐
Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐
Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐
EPA 601 ☐ 8010 ☐ DCA only ☐
EPA 602 ☐ 8020 ☐
EPA 608 ☐ 8080 ☐ PCBs only ☐
EPA 610 ☐ 8310 ☐
EPA 624 ☐ 8240 ☐ NBS +15 ☐
EPA 625 ☐ 8270 ☐ NBS +25 ☐
EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐
TCLP Metals ☐ VOA ☐ Semi VOA ☐
EPA Priority Pollutant Metals ☐ HSL ☐
LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐
CAM Metals ☐ STLC ☐ TTLC
Corrosivity ☐ Flashpoint ☐ Reactivity ☐

SPECIAL HANDLING

24 HOURS ☐
EXPEDITED 48 Hours ☐
SEVEN DAY ☐
OTHER _____ (#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

Standard TAT

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS:

4°C

Lab Use Only

Storage Location

Lot #:

Work Order #: 7302127

CUSTODY RECORD

Relinquished by Sampler:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by Laboratory:
Date 2/10/93	Date	Date	Date	Date	Date 2/11/93
Time 17:45	Time	Time	Time	Time	Time 8:45a

Waybill # FED-X 1780024341

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USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
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QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 1780024341

1350M 1780024341

SENDER'S COPY

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 1210-0385-6
Date: 2-7-90

From (Your Name) Please Print: T. Bennett / C. Briscoe
Your Phone Number (Very Important): (505) 242-3113
Department/Floor No.:
Company: GROUNDWATER TECHNOLOGY INC
Street Address: 2501 YALE BLVD SE STE 204
City: ALBUQUERQUE State: NM ZIP Required: 87106

2 To (Recipient's Name) Please Print: Sample Receiving
Recipient's Phone Number (Very Important): (800) 727-GTE
Department/Floor No.:
Company: GTEL Environmental Labs
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 20000 Mariner Ave, Suite 500
City: Torrance State: CA ZIP Required: 90503

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 Bill Sender 2 [X] Bill Recipient's FedEx Acct. No. 3 Bill 3rd Party FedEx Acct. No. 4 Bill Credit Card
5 Cash/Check Acct./Credit Card No.: 116508796 Exp. Date

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon†)
11 [X] YOUR PACKAGING	51 YOUR PACKAGING
16 FEDEX LETTER	56 FEDEX LETTER
12 FEDEX PAK	52 FEDEX PAK
13 FEDEX BOX	53 FEDEX BOX
14 FEDEX TUBE	54 FEDEX TUBE
Economy Two-Day (Delivery by second business day†)	**Government Overnight** (Restricted to authorized users only)
30 ECONOMY	46 GOV'T LETTER
	41 GOV'T PACKAGE

Freight Service (for Extra Large or any package over 150 lbs.)
70 OVERNIGHT FREIGHT ** (Confirmed reservation required) 80 TWO-DAY FREIGHT **
† Delivery commitment may be later in some areas. * Declared Value Limit $100. ** Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)
1 HOLD FOR PICK-UP (Fill in Box H)
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 DANGEROUS GOODS (Extra charge)
5
6 DRY ICE Lbs.
7 OTHER SPECIAL SERVICE
8
9 SATURDAY PICK-UP (Extra charge)
10
11 DESCRIPTION
12 HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
1		
Total 1	Total 40	Total

DIM SHIPMENT (Chargeable Weight) lbs.
L x W x H

Received At: 1 Regular Stop 2 On-Call Stop 3 Drop Box 4 B.S.C. 5 Station

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY
Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.
We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $100.00.
In the event of untimely delivery, Federal Express will at your request and with some limitations, refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

7 Release Signature:

FedEx Emp. No. Date/Time

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 6/91
PART #137204 FXEM 11/91
FORMAT #099

099

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Southwest Region
20000 / 300 Mariner Drive
Torrance, CA 90503
(310) 371-1044
(800) 727-GTEL
Fax (310) 371-8720

RECEIVED
APR 30 1993
GTI, NM

GTEL Client Number: 023352875.050309
Project I.D.: Bridge/ALBQ NM
Work Order Number: T304148

April 28, 1993

Ms. Terry Bennett
Groundwater Technology, Inc.
2501 Yale Blvd. S.E., Suite 204
Albuquerque, NM 87106

Dear Ms. Bennett,

Enclosed please find the analytical results for the samples received by GTEL Environmentel Laboratories, Inc. on 4-15-93 under chain-of-custody record 76-6842.

A formal Quality Assurance/Quality Control (QA/QC) program, which is designed to meet or exceed the EPA requirements, is maintained by GTEL. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the following; the State of California under Certification #1123, the State of Arizona under Certification #AZ0357, the State of Kansas under Certification E-182 and the State of Washington under Certification #C060.

If you have any questions concerning this analysis or if we can be of further assistance, please call one of our Customer Service Representatives.

Sincerely,

GTEL Environmental Laboratories, Inc.

Joan Greenwood
Laboratory Director

GTEL Client Number: 023352875.050309
Project I.D.: Bridge/ALBQ NM
Work Order Number: T304148

ANALYTICAL RESULTS

Volatile Organics in Water
EPA Methods Modified 8020 and Modified 8015[a]

GTEL Sample Number		04148-7	04148-8		
Client Identification		VP-7	VP-6		
Date Sampled		4-12-93	4-12-93		
Date Analyzed		4-17-93	4-17-93		
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Benzene	0.3	100	18		
Toluene	0.3	9.0	7.0		
Ethylbenzene	0.3	98	9.5		
Xylene, total	0.6	29	14		
BTEX, total	–	240	48		
TPH as Gasoline	100	16000	4000		
Dilution Multiplier[b]		1	1		
TFT surrogate[c], % recovery		96.1	117		

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures.

b. Indicates the adjustments made for sample dilution.

c. TFT surrogate recovery acceptability limits of 72.8-123% are derived from the 99% confidence interval of all samples during the previous quarter. Expected surrogate value is 100 ug/L.

GTEL ENVIRONMENTAL LABORATORIES, INC.
20000 Mariner Dr., Suite #300
Torrance, CA 90503
213-371-1044
800-727-GTEL

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6842

Project Manager: Terry Burnett
Phone #: 505-242-3113
FAX #: 505-242-1103
Address: [illegible] Technology, [illegible] Blvd SE, Ste 204, Albuquerque NM 87106
Site location: [illegible] Bridge Blvd [illegible] Abq. N.M
Project Number: 22335 2875.050309
Project Name: NMED/[illegible] Bridge: ABQ N.M

I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler Name (Print): Jerry May

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# Containers	Matrix	Method Preserved	Sampling Date	Sampling Time	BTEX 8020	TPH as Gas	Total Petroleum Hydrocarbons 418.1	TCLP Metals (Lead)	Flashpoint
VP-7-8	GRAB		1	Soil	Ice / None	4/12/93	1020	X	X			
VP-6-8	↓		1	Soil	↓	↓	1310	X	X			
VP-5-8	↓		1	Soil	↓	↓	1425	X	X			
VP-4-8	↓		1	Soil	↓	↓	1530	X	X			
VP-2-7	↓		1	Soil	↓	4/14/93	1345	X	X			
VP-3-8	↓		1	Soil	↓	↓	1520	X	X			
* 493DC	COMPOSITE		3	Soil	↓	↓		X		X	X	X
** VP-7	GRAB		2	Water	HCl, Ice	4/12/93	1135	X	X			
VP-6	GRAB		2	Water	HCl, Ice	↓	1345	X	X			

Analysis request options printed: BTEX 602 ☐ 8020 ☒ with MTBE ☐; BTEX/TPH Gas 602/8015 ☐ 8020/8015 ☐ MTBE ☐; TPH as ☒ Gas ☐ Diesel ☐ Jet Fuel; Product I.D. by GC (SIMDIS) ☐; Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐; Total Petroleum Hydrocarbons: 418.1 ☒ 503E ☐; EPA 601 ☐ 8010 ☐ DCA only ☐; EPA 602 ☐ 8020 ☐; EPA 608 ☐ 8080 ☐ PCBs only ☐; EPA 610 ☐ 8310 ☐; EPA 624 ☐ 8240 ☐ NBS +15 ☐; EPA 625 ☐ 8270 ☐ NBS +25 ☐; EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐; TCLP Metals ☐ VOA ☐ Semi VOA ☐ (ONLY LEAD); EPA Priority Pollutant Metals ☐ HSL ☐; LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐; CAM Metals ☐ STLC ☐ TTLC; Corrosivity ☐ Flashpoint ☒ Reactivity ☐

SPECIAL HANDLING *
24 HOURS ☐
EXPEDITED 48 Hours ☒ *SAMPLE 493DC ONLY
SEVEN DAY ☐
OTHER ______(#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐
Standard TAT all others

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS: Quote # T638
FED EX No. 6343767356
** SLIGHT SHEEN VP-7

Lab Use Only — Lot #:
Storage Location — Work Order #: T304147

CUSTODY RECORD

Relinquished by Sampler: Jerry A. May	Date 4/14/93	Time 1800	Received by: [signature] 4/15/93
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date 4/15/93	Time 8:45	Received by Laboratory: [signature] Way bill #

148

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6343767356

SENDER'S COPY

6343767356

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER | Date

From (Your Name) Please Print | Your Phone Number (Very Important)
Jeffrey May | 505-242-3113

Company | Dept./Floor No.
GROUNDWATER TECHNOLOGY, INC

Street Address
2501 YALE BLVD SE STE 204

City | State | ZIP Required
ALBUQUERQUE | NM | 87106

2 To (Recipient's Name) Please Print | Recipient's Phone Number (Very Important)
(310)371-1044

Company | Dept./Floor No.
GTEL ENVIRONMENTAL LABS

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)
2000 MARINER AV STE 300

City | State | ZIP Required
TORRANCE | CA | 90503

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City | State | ZIP Required

3 PAYMENT 1 ☐ Bill Sender 2 ☒ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card
5 ☐ Cash/Check Acct./Credit Card No. Exp. Date

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning)
11 ☒ OTHER PACKAGING
16 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*
13 ☐ FEDEX BOX
14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon. Minimum No Saturday delivery)
51 ☐ OTHER PACKAGING
56 ☐ FEDEX LETTER*
52 ☐ FEDEX PAK*
53 ☐ FEDEX BOX
54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 ☐ ECONOMY*
*Economy Letter rate not available. Minimum charge: One pound economy rate.

Government Overnight (Restricted for authorized users only)
46 ☐ GOVT LETTER
41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
80 ☐ TWO-DAY FREIGHT**
†Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☒ DELIVER WEEKDAY
3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐ CARGO AIRCRAFT ONLY
6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
DESCRIPTION
12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT, In Pounds Only | YOUR DECLARED VALUE (See right)
Total | Total | Total

DIM SHIPMENT (Chargeable Weight)
☐ lbs.
L x W x H

Received At
1 ☐ Regular Stop 3 ☐ Drop Box
2 ☐ On-Call Stop 5 ☐ Station

7 Release Signature:

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Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.00.

In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/92
PART #137204 FXEM 11/92
FORMAT #155
155

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Southwest Region
20000 / 300 Mariner Drive
Torrance, CA 90503
(310) 371-1044
(800) 727-GTEL
Fax (310) 371-8720

GTEL Client Number: 023352875.051043
Project I.D.: NMED
800 Bridge SW
Albq, NM
Work Order Number: T306201

July 1, 1993

Ms. Terry Bennett
Groundwater Technology, Inc.
2501 Yale Blvd., Suite 204
Albuquerque, NM 87106

Dear Ms. Bennett,

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 6-17-93 under chain-of-custody record 76-6848 and 76-6884.

A formal Quality Assurance/Quality Control (QA/QC) program, which is designed to meet or exceed the EPA requirements, is maintained by GTEL. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

GTEL is certified by the following; the State of California under Certification #1123, the State of Arizona under Certification #AZ0357, the State of Kansas under Certification E-182 and the State of Washington under Certification #C060.

If you have any questions concerning this analysis or if we can be of further assistance, please call one of our Customer Service Representatives.

Sincerely,

GTEL Environmental Laboratories, Inc.

Joan Greenwood
Laboratory Director

GTEL Client Number: 023352875.051043
Project I.D.: NMED
800 Bridge SW
Albq, NM
Work Order Number: T306201

ANALYTICAL RESULTS

Volatile Organics in Water
Modified EPA Method 8015[a] and 8020

GTEL Sample Number		06201-1	06201-2	06201-3	06201-4
Client Identification		MW-1	MW-2	PW-152	MW-3
Date Sampled		6-16-93	6-16-93	6-16-93	6-16-93
Date Analyzed		6-26-93	6-26-93	6-26-93	6-24-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	110
Toluene	0.3	1.8	<0.3	<0.3	0.6
Ethylbenzene	0.3	1.0	<0.3	<0.3	9.1
Xylene, total	0.6	1.3	<0.6	<0.6	1.5
BTEX, total	--	4.1	--	--	120
TPH as Gasoline	100	580	<100	<100	540
Dilution Multiplier[b]		1	1	1	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 1, US EPA November 1990. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures.

b. Indicates the adjustments made for sample dilution.

GTEL Client Number: 023352875.051043
Project I.D.: NMED
800 Bridge SW
Albq, NM
Work Order Number: T306201

ANALYTICAL RESULTS

Volatile Organics in Water
Modified EPA Method 8015[a] and 8020

GTEL Sample Number		06201-5	06201-6	06201-7	06201-8
Client Identification		PW-140	PW-153	MW-5	MW-6
Date Sampled		6-16-93	6-16-93	6-16-93	6-16-93
Date Analyzed		6-24-93	6-24-93	6-24-93	6-24-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	46
Ethylbenzene	0.3	<0.3	<0.3	<0.3	35
Xylene, total	0.6	<0.6	<0.6	<0.6	110
BTEX, total	--	--	--	--	190
TPH as Gasoline	100	<100	<100	<100	1300
Dilution Multiplier[b]		1	1	1	1

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 1, US EPA November 1990. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures.

b. Indicates the adjustments made for sample dilution.

GTEL ENVIRONMENTAL LABORATORIES, INC.

GTEL Client Number: 023352875.051043
Project I.D.: NMED
800 Bridge SW
Albq, NM
Work Order Number: T306201

ANALYTICAL RESULTS

Volatile Organics in Water
Modified EPA Method 8015[a] and 8020

GTEL Sample Number		06201-9	06201-10	06201-11	06201-12
Client Identification		MW-7	MW-4	MW-8	MW-9
Date Sampled		6-16-93	6-16-93	6-16-93	6-16-93
Date Analyzed		6-24-93	6-24-93	6-29-93	6-30-93
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	280	670	140
Toluene	0.3	3.5	16	100	78
Ethylbenzene	0.3	6.1	260	1200	280
Xylene, total	0.6	11	710	2000	1100
BTEX, total	--	21	1300	4000	1600
TPH as Gasoline	100	2700	9600	25000	8000
Dilution Multiplier[b]		1	5	25	25

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 1, US EPA November 1990. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures.

b. Indicates the adjustments made for sample dilution.

GTEL Client Number: 023352875.051043
Project I.D.: NMED
800 Bridge SW
Albq, NM
Work Order Number: T306201

ANALYTICAL RESULTS

Volatile Organics in Water
Modified EPA Method 8015[a] and 8020

GTEL Sample Number		06201-13	06201-14	06201-15	
Client Identification		VP-5	VP-4	VP-3	
Date Sampled		6-16-93	6-16-93	6-16-93	
Date Analyzed		6-30-93	6-30-93	6-29-93	
Analyte	Reporting Limit, ug/L	Concentration, ug/L			
Benzene	0.3	82	220	110	
Toluene	0.3	9.8	28	7.3	
Ethylbenzene	0.3	1700	320	180	
Xylene, total	0.6	1400	360	74	
BTEX, total	--	3200	930	370	
TPH as Gasoline	100	24000	15000	10000	
Dilution Multiplier[b]		25	25	25	

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 1, US EPA November 1990. Modification for TPH as gasoline as per California State Water Resources Board LUFT Manual procedures.

b. Indicates the adjustments made for sample dilution.

GTEL ENVIRONMENTAL LABORATORIES, INC.

GTEL ENVIRONMENTAL LABORATORIES, INC.

20000 Mariner Dr., Suite #300
Torrance, CA 90503

213-371-1044
800-727-GTEL

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6848

Project Manager: Terry Berrett
Phone #: 505-242-3113
FAX #: 505-242-1103
Address: Groundwater Technology 2501 Yale Blvd SE, Ste. 204 Albuquerque, NM 87106
Site location: 800 Bridge SW Albuquerque NM
Project Number: 023352875.051043
Project Name: NMED/800 Bridge SW/ALBQ NM
I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): Jerry MAY, Chuck Briscoe

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME	BTEX 602 ☐ 8020 ☐ with MTBE ☐	BTEX/TPH Gas 602/8015 ☐ 8020/8015 ☑ MTBE ☐
MW-1		1	2	X					X			X			6/16/93	0805		X
MW-2		2	2	X					X			X				0755		X
PW-152		3	2	X					X			X				0825		X
MW-3		4	2	X					X			X				0820		X
PW-140		5	2	X					X			X				0830		X
PW-153		6	2	X					X			X				0835		X
MW-5		7	2	X					X			X				0900		X
MW-6		8	2	X					X			X				0910		X
MW-7		9	2	X					X			X				0920		X
MW-4	*	10	2	X					X			X				1145		X
MW-8	*	11	2	X					X			X				1155		X

ANALYSIS REQUEST

- BTEX 602 ☐ 8020 ☐ with MTBE ☐
- BTEX/TPH Gas 602/8015 ☐ 8020/8015 ☑ MTBE ☐
- TPH as ~~Gas~~ ☐ Diesel ☐ Jet Fuel (initialed 6/16/93)
- Product I.D. by GC (SIMDIS) ☐
- Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐
- Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐
- EPA 601 ☐ 8010 ☐ DCA only ☐
- EPA 602 ☐ 8020 ☐
- EPA 608 ☐ 8080 ☐ PCBs only ☐
- EPA 610 ☐ 8310 ☐
- EPA 624 ☐ 8240 ☐ NBS +15 ☐
- EPA 625 ☐ 8270 ☐ NBS +25 ☐
- EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐
- TCLP Metals ☐ VOA ☐ Semi VOA ☐
- EPA Priority Pollutant Metals ☐ HSL ☐
- LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐
- CAM Metals ☐ STLC ☐ TTLC
- Corrosivity ☐ Flashpoint ☐ Reactivity ☐

SPECIAL HANDLING

24 HOURS ☐
EXPEDITED 48 Hours ☐
SEVEN DAY ☐
OTHER 10 (#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

FEDEX NO. 6343767964
REMARKS: Quote T638
* DENOTES PSH SHEEN IN GROUNDWATER
4°C

Lab Use Only — Storage Location
Lot #: #72-13
Work Order #: T306201

CUSTODY RECORD

Relinquished by	Date	Time	Received by
Relinquished by Sampler: Jerry A. May (signature)	6/16/93	1600	Received by: Paulie Dorra (signature) 6/17/93 845
Relinquished by:			Received by:
Relinquished by:	6/17/93	8:45	Received by Laboratory: Larry Justrell (signature) Way bill #:

GTEL ENVIRONMENTAL LABORATORIES, INC.

20000 Mariner Dr., Suite #300
Torrance, CA 90503

213-371-1044
800-727-GTEL

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6884

CUSTODY RECORD

Project Manager: TERRY BENNETT

Phone #: 505 242 3113

FAX #: 505 242 1103

Address: GROUNDWATER TECHNOLOGY 2501 YALE BLVD SE #204 ALBUQUERQUE NM

Site location: 800 BRIDGE SW ABQ, NM

Project Number: 023352875.051043

Project Name: NMED/800 BRIDGE SW/ABQ, NM

I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler Name (Print): CHUCK BUSLOE JERRY MAY

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME	BTEX 602 ☐ 8020 ☐ with MTBE ☐	BTEX/TPH Gas. 602/8015 ☐ 8020/8015 ☐ MTBE ☐	TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel	Product I.D. by GC (SIMDIS) ☐	Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐	Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐	EPA 601 ☐ 8010 ☐ DCA only ☐	EPA 602 ☐ 8020 ☐	EPA 608 ☐ 8080 ☐ PCBs only ☐	EPA 610 ☐ 8310 ☐	EPA 624 ☐ 8240 ☐ NBS +15 ☐	EPA 625 ☐ 8270 ☐ NBS +25 ☐	EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐	TCLP Metals ☐ VOA ☐ Semi VOA ☐	EPA Priority Pollutant Metals ☐ HSL ☐	LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐	CAM Metals ☐ STLC ☐ TTLC	Corrosivity ☐ Flashpoint ☐ Reactivity ☐
MW-9	*	12	2	X					X			X			6/16/93	1200		X															
VP-5	*	13	2	X					X			X			↓	1225		X															
VP-4	*	14	2	X					X			X				1230		X															
VP-3	*	15	2	X					X			X			↓	1245		X															

SPECIAL HANDLING

24 HOURS ☐
EXPEDITED 48 Hours ☐
SEVEN DAY ☐
OTHER 10 (#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

PED ER NO. 634 376 7964

REMARKS: QUOTE T638

* DENOTES PSH SHEEN IN GROUNDWATER

4°C

Lab Use Only — Storage Location

Lot #: #7-2-13

Work Order #: T306201

Relinquished by Sampler:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by Laboratory:
Date: 6/16/93	Time: 1600	Date:	Time:	Date: 6/17/93	Time: 8:45

Way bill #:

SENDER'S COPY
DROP OFF YOUR PACKAGE AND SAVE

FEDERAL EXPRESS

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 6343767964

6343767964

SENDER'S COPY

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER | Date

From (Your Name) Please Print | Your Phone Number (Very Important)
505-242-3113

Company
GROUNDWATER TECHNOLOGY INC

Department/Floor No.

Street Address
2501 YALE BLVD SE STE 204

City | State | ZIP Required
ALBUQUERQUE | NM | 8 7 1 0 6

2 To (Recipient's Name) Please Print | Recipient's Phone Number (Very Important)
(310)-371-1044

Company
STEL ENVIRONMENTAL LABS

Department/Floor No.

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)
2000 MARINER AV STE 300

City | State | ZIP Required
TORRENCE | CA | 9 0 5 0 3

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address

City | State | ZIP Required

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash/Check Acct./Credit Card No. Exp. Date

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning*)		Standard Overnight (Delivery by next business afternoon, Puerto Rico Saturday delivery†)	
11	[X] OTHER PACKAGING	51	[ ] OTHER PACKAGING
16	[ ] FEDEX LETTER *	56	[ ] FEDEX LETTER *
12	[ ] FEDEX PAK *	52	[ ] FEDEX PAK *
13	[ ] FEDEX BOX	53	[ ] FEDEX BOX
14	[ ] FEDEX TUBE	54	[ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day †)		Government Overnight (Restricted to authorized users only†)	
30	[ ] ECONOMY*	46	[ ] GOVT LETTER
		41	[ ] GOVT PACKAGE

* Economy Letter rate not available. Minimum charge: One pound economy rate.

Freight Service (for packages over 150 lbs.)

70	[ ] OVERNIGHT FREIGHT ** (Confirmed reservation required)	80	[ ] TWO-DAY FREIGHT **

† Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1	[ ] HOLD FOR PICK-UP (Fill in Box H)	2	[X] DELIVER WEEKDAY
3	[ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)		
4	[ ] DANGEROUS GOODS (Extra charge)		
5	[ ] DRY ICE Dangerous Goods Shipper's Declaration not required		
7	[ ] OTHER SPECIAL SERVICE		
8	[ ]		
9	[ ] SATURDAY PICK-UP (Extra charge)		
	[ ] DESCRIPTION		
12	[ ] HOLIDAY DELIVERY (If offered) (Extra charge)		

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
1		
Total	Total	Total

DIM SHIPMENT (Chargeable Weight)
[ ] ____ lbs.
L x W x H

Received At
1 [ ] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C. 5 [ ] Station

7 Release Signature: _____

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.00.

In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Federal Express Use

Base Charges	
Declared Value Charge	
Other 1	
Other 2	
Total Charges	

REVISION DATE 11/92
PART #137204 FXEM 11/92
FORMAT #155

155

APPENDIX F

SVES MONITORING AND MAINTENANCE LOGS

ORS Environmental Equipment
32 Mill Street
Greenville, New Hampshire 03048

Phone: 603-878-2500
800-228-2310

Fax: 603-878-3866

Date: July 6, 1993

FAX COVER SHEET

TO: NAME Chuck Briscoe
COMPANY Groundwater Technology, Inc.
ADDRESS 2501 Yale Blvd. S.E. Suite 204
Albuquerque, NM 87106

PHONE (505) 242-3113 FAX # (505) 242-1103

FROM: NICK ALINO, Regional Technical Service Manager

NUMBER OF PAGES INCLUDING THIS COVER SHEET: 3

SUBJECT: Summary Of 500 CFM Thermoscavenger Start-up Visit To Bridge Street Site

Tuesday, June 29, 1993, I arrived on site to complete shipping damage repairs and to start-up a 500 CFM Thermoscavenger incinerator unit. I inspected the unit and found that the rubber isolation coupling between the Paxton soil vent blower and the steel influent piping to the incinerator box was crushed. Also a pressure switch air line was missing and the MSA LEL influent line was disconnected. The actual damage to the unit was minimal and caused by lack of support on the steel influent line on the unit. I observed the Paxton blower had no vibration foot mounts. The motorized valve actuators were not air purged along with the control panel. I attemped to operate the unit, but found the control panel timers were all set at maximum which is incorrect for burner ignition. My list of part requirements was made and C. Briscoe arrived on site from El Paso. We went to Rogers plumbing supply for piping supplies. Upon return to the site we mounted the purge compressor to the power pole.

6/30/93: I completed the purge compressor installation and installed all of the associated nylon tubing from the compressor to the control cabinet. The actuators were plumbed for purging with tubing from the control cabinet. The pressure switch interlock on the sparge blower was installed and tested. I set the control panel timers to 10 seconds for the pilot, 3 minutes for the purge and 3 minutes for the panel. These timers must be set in this configuration for the burner to have time to ignite. I searched all over Albuquerque to find the replacement coupling on the Paxton blower and found the turbo hose at Sandia Fleet Supply on Girard. This task took most of the afternoon. I operated the incinerator and found the Honeywell LEL modulating/block and purge valve was not operating correctly. I found the valve to be functional, but parameters in the chart recorder PID controller were incorrect preventing the valve to function as designed.

7/1/93: I studied the program menu and eventually figured out which parameters had to be changed. Once this was accomplished, the unit and all of the motorized valves operated correctly. C. Briscoe and I installed rubber pads under the Paxton blower to dampen vibration. I operated the unit with soil vapors and made the unit go into high temperature limit alarm to check all safety features.

7/2/93: I installed a new safety relief valve and C. Briscoe plumbed the exit piping of the sparge blower tank to the intake muffler of the pump. I modified exhaust fittings on the purge compressor to reduce back pressure and heat build up. Training was conducted on the unit and I had C. Briscoe start and stop the unit. Soil vapor concentration was measured at 52% LEL and process temperature was approximately 1550 F with the process high set point at 1600 F and the stack high limit at 1600 F.

THERMOSCAVENGER START UP PROCEDURE

1. *Open all gas valves.*
2. *Turn power disconnect switch to "on".*
3. *Flip "on/off" switch to "on".*
4. *Pull combustion blower button.*
5. *Pull process blower (soil vent) button.*
6. *Wait for purging light (amber) to illuminate and go out, then green purge light to illuminate.*
7. *Pull blue ignition button and blue light will illuminate.*
8. *Make sure all vent well valves are closed and manual dilution air valve is open.*
9. *Reduce air flow on actuator dilution intake until unit reaches 1380 F valve closure set point. Manually close down valve or too much dilution air will cool down unit.*
10. *Once unit achieves process set point of 1410 F, go into chart recorder PID controller and press "lower display" button and scroll to the lower read out which displays "SP". This is the modulating set point. The set point at start-up is set at 1 for the actuator to operate as a block and purge valve. Set this display to 50 to modulate 50% LEL. The display must be set back to 1 if the unit is shut down automatically or manually to restart. All other program set points in the PID must not be changed.*
11. *Open the vent well valves slowly to prevent high limit shut down. Eventually all four valves can be opened completely and the manual dilution valve can be slowly closed to achieve 50% LEL or approximately 1550 F process temperature.*
12. *To shut down the unit, reverse the start-up procedure, but do not shut off the combustion and process blowers until the process temperature is at least 200 - 300 F.*

ORS Environmental Equipment would like to thank you for the opportunity to provide this rental unit and

service. If there are any questions please contact me at 800-228-2310.

Best Regards,

Nick Alino

cc: Chris McHale
File

GROUNDWATER TECHNOLOGY, INC.
OIL RECOVERY SYSTEMS

PROJECT KIMGS / 800 BRIDGE PROJECT NUMBER 023353292
SUBJECT THERMAL UNIT START-UP BY CDD DATE 7/13/93
PAGE ____ OF ____
ENGINEER NAME ____

00138 KWH
OPERATING TEMP 1558°F HIGH TEMP SHUTDOWN TEMP. 1552°F

	PID ppm	VACUUM in H2O	FLOW FPM	cfm
LINE 1 ?	1175	4.6	525	46
LINE 2 ?	1120	4.7	250 (6")	49
LINE 3 ?	485	4.8	1000	87
LINE 4 ?	900	4.8	500	44

All wells + lines 100% open

					W/O CHARCOAL	W/ CHARCOAL			
INFLUENT	PID	2222?	PID	MAX	2750	LEL	50%	O2	16%
EFFLUENT	PID	N/A	PID	FLAME OUT		LEL	0	O2	11.5

TOTAL FLOW 6" PIPE 1100 ft/MIN (MEAS. AFTER WELLS BUT PRIOR TO ALL DILUTION)
= 216 cfm

Auto dilution 100% closed
Manual dilution open 50%

Influent & effluent air samples collected

ORS ENVIRONMENTAL EQUIPMENT
A DIV. OF GROUNDWATER TECHNOLOGY, INC.

RECEIVED
AUG 05 1993
GTI NM

4 Mill Street, Greenville, NH 03048 (603) 878-2500
(800) 228-2310 Fax: (603) 878-3866

SITE VISITATION REPORT

TECHNICIAN: GREG FILL
DATE: 7/22/93 & 7/23/93
CLIENT: GT ALBUQUERQUE
ARRIVAL TIME: —
CONTACT ON SITE: TERRY BENNETT
DEPARTURE TIME: —
SITE LOCATION: BARELLAS SITE
OTHERS PRESENT ON SITE: —

PURPOSE OF VISIT: DETERMINE CAUSE OF SYSTEM NOT MAINTAIN TEMP. REPAIR AUTODILUTION SYSTEM
ADDITIONAL SERVICE(S) REQUESTED: —

DESCRIPTION OF SERVICES PERFORMED AND PARTS USED: ARRIVED ON SITE WITH SYSTEM OFF. STARTED SYSTEM WITH REDUCED FLUSHING AND AUTODILUTION FORCE VALVE OFF (INSTALLED BY GT ALB UNIT WAS VERY SLOW IN REACHING TEMP. GAS PRESSURE DOWN STREAM WAS SET @ 6" H2O SO I INCREASED IT TO 13" H2O. UNIT REACHED TEMP FROM 300° IN ABOUT 5 MINUTES. ONCE @ TEMP, UNIT CONTINUED TO INCREASE IN TEMP WITH ACTUATOR NOT SENDING AN OUTPUT. I NOTICED THAT WHEN THE ACTUATOR WAS CLOSED (ON GAS TRAIN), THE VALVE WAS STILL OPEN. I ADJUSTED LINKAGE SO BOTH WERE CLOSED & UNIT FUNCTIONED PROPERLY. STARTED STOPPED UNIT SEVERAL TIMES TO CHECK OPERATION & EACH TIME UNIT REACHED TEMP WITH NO PROBLEMS. MEASURED FLOW ON

*Please attach additional sheets if more space is needed.

~~WAS CLIENT CONTACTED: YES NO WHO:~~ ~~WHEN:~~
~~ANY RECOMMENDATIONS MADE TO CUSTOMER:~~

~~CLOSING COMMENTS:~~

ORS ENVIRONMENTAL EQUIPMENT
A DIV. OF GROUNDWATER TECHNOLOGY, INC.

PROJECT _____ PROJECT NUMBER _____

SUBJECT _____ DATE _____

_____ PAGE _____ OF _____

ENGINEER NAME _____ REVIEWED BY: _____

BLOWER WITH FULL DILUTION (1.75" w/ PITOT TUBE ON 4" LINE ≈ 475 CFM).

ATTEMPTED TO TROUBLESHOOT AUTODILUTION SYSTEM & NOTICED THAT LEL SENSOR WAS NOT SENDING AN OUTPUT TO CHART RECORDER. AT FIRST I THOUGHT THAT THE SENSOR WAS FAULTY BUT AFTER READING THE HONEYWELL MANUAL, I REALIZED THAT A 250 ohm RESISTER WAS NEEDED TO COMPLETE 4-20 mA LOOP. I PURCHASED & INSTALLED RESISTER AND AUTODILUTION VALVE IMMEDIATELY BEGAN TO OPERATE. I ADJUSTED LEL SENSOR ZERO BY USING DILUTION AIR & SPAN BY REFERENCING THE HAND HELD LEL METER. I ADJUSTED THE PARAMETERS TO CONTROL LEL @ ≈ 50% LEL. TERRY BENNETT CAME TO THE SITE & OBSERVED THE SYSTEM OPERATION & WENT THROUGH THE SYSTEM FEATURES WITH ME. I LEFT THE SITE @ 2:00 PM WITH THE SYSTEM RUNNING WITH 46% LEL.

ORS ENVIRONMENTAL EQUIPMENT
A DIV. OF GROUNDWATER TECHNOLOGY, INC.

PROJECT _____ PROJECT NUMBER _____

SUBJECT _____ DATE _____

_____ PAGE _____ OF _____

ENGINEER NAME _____ REVIEWED BY: _____

SYSTEM PARAMETERS

TUNE #1 (GAS TRAIN ACTUATOR)

PB - 28.0 SP 1420°
RATE - 1.0
RPM - 2.5

TUNE #2 (AUTO DILUTION)

PB 22.0 SP 50%
RATE .12
MIN .20

HIGH LIMIT SP - 1650°
CHART SPEED - 7 DAYS

* PRESSURES (GAS)

PRE-REGULATOR - 5 PSI
POST-REGULATOR - 13" H_2O
PILOT - 3" H_2O

ORS ENVIRONMENTAL EQUIPMENT
A DIV. OF GROUNDWATER TECHNOLOGY, INC

PROJECT _____ PROJECT NUMBER _____

SUBJECT _____ DATE _____

_____ PAGE _____ OF _____

ENGINEER NAME _____ REVIEWED BY: _____

START UP PROCEDURE

1. WITH ALL WELLS CLOSED, START SYSTEM → MAKE SURE THAT MANUAL DILUTION IS FULLY OPEN

2. ONCE UNIT IS AT TEMP & BLOCK/PURGE VALVES SWITCH, BEGIN TO OPEN WELLS VALVES AND ALLOW HYDROCARBONS INTO THE SYSTEM

3. CLOSE MANUAL DILUTION VALVE.

4. UNIT WILL ALLOW UP TO 50% LEL INTO THE SYSTEM. IF THE WELL VALVES ARE OPENED TO QUICKLY, THE SYSTEM PROCESS TEMP WILL RISE DUE TO THE INCREASED BTU IN THE CHAMBER. THE TEMP SHOULD STABILIZE & ULTIMATELY RETURN TO ITS SET POINT OF 1420°. IF AFTER A PERIOD OF TIME, UNIT DOES NOT RETURN TO THE SP, INCREASE THE COMBUSTION TO ALLOW FOR COOLING.

GROUNDWATER TECHNOLOGY, INC.
OIL RECOVERY SYSTEMS

PROJECT NMED / 800 BRIDGE PROJECT NUMBER
SUBJECT O&M BY DATE 7/27
PAGE OF
ENGINEER NAME

01405	KWIK			GAS METER 53023	
OPERATING	TEMP. 1421		HIGH TEMP SHUTDOWN	1390	
	PID (PPM)	VACUUM (INS H_2O)	FLOW (FPM)	% OPEN	
LINE 1	460	22	4500	100	
LINE 2	1084	22	1400 (6")	100	
LINE 3	NA	N/A	N/A	0	
LINE 4	1660	22	2200	100	
	PID	W FID WO	%LEL	% O_2	
INFLUENT	~~1080~~	N/A N/A	N/A	N/A	
EFFLUENT	42.0	N/A	N/A	N/A	
%LEL READING ON CONTROLLER 18					
TOTAL FLOW IN 6" PIPE 2400 FT/MIN					
MANUAL DILUTION VALVE SETTING 0% OPEN					
Auto Dilution Valve = 0% open					

COMMENTS
Upon Arrival - 17% LEL

NMED/Barelas Bridge
SVES/Thermal Oxidizer Monitoring Sheet

Job Number 023352875

Date/Time: 8/3/93 14:45	Weather: SUNNY / HOT
Technician: CHARLES T. BASCOM	System up when arrive? (yes/no) YES

LEL Controller (upon arrival)	14	%	Electric Meter Reading:	02686	kwh
High Temperature Controller:	1386	F	Gas Meter Reading:	54430	ft3
Operating Temperature:	1424	F	Manual Dilution Valve:	0	%open
			Automatic Dilution Valve:	0	%open

PID Inf. (ppmv):	635	PID Eff (ppmv):	0.0
LEL Inf (%):	8	LEL Eff (%):	0.0
O2 Inf(%):	19	O2 Eff (%):	15

Influent (ppmv)		Effluent (ppmv)	
FID total:	N/A	FID total:	N/A
FID carbon:	N/A	FID carbon:	N/A

COULD NOT GET FLAME TO IGNITE.

	Vacuum Reading (Prefilter in W.C.)	Vacuum Reading (Postfilter in W.C.)	Air Flow (fpm) Therm. anem.; 6" dia. pipe
SVES Blower	X	X	2600

= 510 cfm

Piping Leg	Compound Ball Valve Setting upon arrival (% open)	Compound Ball Valve Setting upon depart (%open)	PID/FID Reading@ Compound (ppmv)	Magnahelic Reading@ Compound (in W.C.)	Thermal Anemometer Reading (fpm)	Well Name	Wellhead Ball Valve Setting (% open)
1	100	100	202	24	2600	Horz. SE run	100%
2	100	100	560	24	700	MW-9	
						VP-1	
						MW-4	
						VP-2	
						VP-3	
3	0	0	N/A	N/A	N/A	Horz. Tank Pit run	
4	100	100	1090	24	1100	VP-4	
						VP-5	
						VP-6	
						VP-7	✓

Water in Ko drum (gal)	0
Samples Taken/ID?	0
Did you change chart recorder paper?	YES (Change within every 7 days)

Final LEL on controller after adjustment (upon departure)	14	%

Comments:

Opened Leg 3 - LEL WENT TO 11 AT 50% OPEN
9 AT 100% OPEN
CLOSED LEG 3 LEL CAME BACK UP TO 14%

APPENDIX G

AIR SAMPLE CERTIFICATES OF ANALYSIS, CHAIN-OF-CUSTODY DOCUMENTATION, AND QA/QC DATA, JULY 13,1993

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

San Luis Obispo, CA • Benicia, CA • Camarillo, CA • San Jose, CA • Goleta, CA
Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

SoCal Division (Camarillo Laboratory) (805) 389-1353
4765 Calle Quetzal, Camarillo, California 93012 FAX (805) 389-1438

CLIENT: Terry Bennett
Groundwater Technology
2501 Yale Boulevard SE, Suite 204
Albuquerque, NM 87106

Lab Number : CJ-3094-1
Project : 023352875.050309,NMED/800 Bridge/ALBQ,NM
Analyzed : 07/14/93
Analyzed by: YL
Method : GC/TCD

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
Influent	Air		07/13/93	07/14/93

CONSTITUENT	(CAS RN)	*PQL PERCENT	RESULT PERCENT	NOTE
FIXED GASES AND METHANE				
Carbon Dioxide	(124389)	0.1	3.4	
Oxygen	(7782447)	0.01	19.	
Nitrogen	(7727379)	0.02	77.	
Methane	(74828)	0.005	0.3	
Carbon Monoxide	(630080)	0.1	ND	

Lab Certifications: CAELAP #1783 & #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #1018
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

07/15/93
TCD/07149303
LRH/ge
JG14TA

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Gesheng Dai, Ph.D., Group Leader

Laurence R. Hilpert, Ph.D.
Vice President

COAST-TO-COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

San Luis Obispo, CA • Benicia, CA • Camarillo, CA • San Jose, CA • Goleta, CA
Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

SoCal Division (Camarillo Laboratory) (805) 389-1353
4765 Calle Quetzal, Camarillo, California 93012 FAX (805)389-1438

CLIENT: Terry Bennett
Groundwater Technology
2501 Yale Boulevard SE, Suite 204
Albuquerque, NM 87106

Lab Number : CJ-3094-1
Project : 023352875.050309,NMED/800 Bridge/ALBQ,NM
Analyzed : 07/14/93
Analyzed by: YL
Method : EPA TO-14

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
Influent	Air		07/13/93	07/14/93

CONSTITUENT	*PQL ppbv	RESULT ppbv	RESULT µg/cu M	NOTE
FUEL FINGERPRINT in AIR				1
Benzene	20.	8800.	28000.	
Toluene	20.	980.	3700.	
Ethylbenzene	20.	6500.	28000.	
Xylenes	20.	11000.	49000.	
Ethylene Dichloride	20.	ND	ND	
Ethylene Dibromide	10.	ND	ND	
Total Fuel (non-methane hydrocarbons)	1000.	4000000.	14000000	

Lab Certifications: CAELAP #1783 & #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #101
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Concentrations in ug/cu M reported at 760 mm Hg pressure and 298 deg. K.

07/15/93
MS2/2E23E
LRH/ge
MS2

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Gesheng Bai, Ph.D., Group Leader

Laurence R. Hilpert, Ph.D.
Vice President

COAST - TO - COAST ANALYTICAL SERVICES

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SoCal Division (Camarillo Laboratory) (805) 389-1353
4765 Calle Quetzal, Camarillo, California 93012 FAX (805) 389-1438

CLIENT: Terry Bennett
Groundwater Technology
2501 Yale Boulevard SE, Suite 204
Albuquerque, NM 87106

Lab Number : CJ-3094-2
Project : 023352875.050309,NMED/800 Bridge/ALBQ,NM
Analyzed : 07/14/93
Analyzed by: YL
Method : EPA TO-14

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
Effluent	Air		07/13/93	07/14/93

CONSTITUENT	*PQL ppbv	RESULT ppbv	RESULT µg/cu M	NOTE
FUEL FINGERPRINT in AIR				1
Benzene	20.	ND	ND	
Toluene	20.	50.	180.	
Ethylbenzene	20.	ND	ND	
Xylenes	20.	60.	250.	
Ethylene Dichloride	20.	ND	ND	
Ethylene Dibromide	10.	ND	ND	
Total Fuel (non-methane hydrocarbons)	1000.	13000.	47000	

Lab Certifications: CAELAP #1783 & #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #1018
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Concentrations in ug/cu M reported at 760 mm Hg pressure and 298 deg. K.

07/15/93
MS2/2E22E
LRH/ge
MS2

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

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Laurence R. Hilpert, Ph.D.
Vice President

COAST-TO-COAST ANALYTICAL SERVICES

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SoCal Division (Camarillo Laboratory) (805) 389-1353
4765 Calle Quetzal, Camarillo, California 93012 FAX (805)389-1438

CLIENT: Terry Bennett
Groundwater Technology
2501 Yale Boulevard SE, Suite 204
Albuquerque, NM 87106

QC Batch ID: JG14TA CJ-3094-1
Project : 023352875.050309,NMED/800 Bridge/ALBQ,NM
Analyzed : 07/14/93
Analyzed by: YL
Method : GC/TCD

QC DUPLICATE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
Influent	Air		07/13/93	07/14/93

CONSTITUENT	(CAS RN)	*PQL PERCENT	RESULT PERCENT	%DIFF	NOTE
FIXED GASES AND METHANE					
Carbon Dioxide	(124389)	0.1	3.2	6.1	
Oxygen	(7782447)	0.01	19.	0.	
Nitrogen	(7727379)	0.02	77.	0.	
Methane	(74828)	0.005	0.4	29.	
Carbon Monoxide	(630080)	0.1	ND		

Lab Certifications: CAELAP #1783 & #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #1018
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

07/15/93
TCD/07149304
LRH/ge
CJ3094-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

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Laurence R. Hilpert, Ph.D.
Vice President

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SoCal Division (Camarillo Laboratory) (805) 389-1353
4765 Calle Quetzal, Camarillo, California 93012 FAX (805)389-1438

QC Batch ID: JG14TA

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 07/14/93
Analyzed by: YL
Method : GC/TCD

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE	Air			

CONSTITUENT	*PQL PERCENT	SPIKE AMOUNT	RESULT PERCENT	%REC	NOTE
FIXED GASES AND METHANE					
Carbon Dioxide	0.1	15.	15.	100.	
Oxygen	0.01	7.1	7.1	100.	
Nitrogen	0.02	66.	66.	100.	
Methane	0.005	4.6	4.5	98.	
Carbon Monoxide	0.1	7.1	7.	99.	

Lab Certifications: CAELAP #1783 & #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #1018
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

07/15/93
TCD/07149306
LRH/ge
CJ3094-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Gesheng Dai

Gesheng Dai, Ph.D., Group Leader

Laurence R. Hilpert, Ph.D.
Vice President

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Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

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4765 Calle Quetzal, Camarillo, California 93012 FAX (805) 389-1438

CLIENT: Terry Bennett
Groundwater Technology
2501 Yale Boulevard SE, Suite 204
Albuquerque, NM 87106

QC Batch ID: MS2 CJ-3094-1
Project : 023352875.050309,NMED/800 Bridge/ALBQ,NM
Analyzed : 07/14/93
Analyzed by: YL
Method : EPA TO-14

QC DUPLICATE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
Influent	Air		07/13/93	07/14/93

CONSTITUENT	*PQL ppbv	RESULT ppbv	RESULT µg/cu M	%DIFF	NOTE
FUEL FINGERPRINT in AIR					1
Benzene	20.	8200.	26000.	7.4	
Toluene	20.	930.	3500.	5.6	
Ethylbenzene	20.	6000.	26000.	7.4	
Xylenes	20.	11000.	46000.	6.3	
Ethylene Dichloride	20.	ND	ND		
Ethylene Dibromide	10.	ND	ND		
Total Fuel (non-methane hydrocarbons)	1000.	3700000.	13000000	7.4	

Lab Certifications: CAELAP #1783 & #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #101
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Concentrations in ug/cu M reported at 760 mm Hg pressure and 298 deg. K.

07/15/93
MS2/2E24E
LRH/ge
CJ3094-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

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Laurence R. Hilpert, Ph.D.
Vice President

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SoCal Division (Camarillo Laboratory) (805) 389-1353
4765 Calle Quetzal, Camarillo, California 93012 FAX (805)389-1438

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 07/14/93
Analyzed by: YL
Method : EPA TO-14

INSTRUMENT BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED
INSTRUMENT BLANK	Air		

CONSTITUENT	(CAS RN)	*PQL µg/cu M	RESULT µg/cu M	NOTE
FUEL FINGERPRINT in AIR				1
Benzene	(71432)	50.	ND	
Toluene	(108883)	100.	ND	
Ethylbenzene	(100411)	100.	ND	
Xylenes		100.	ND	
Ethylene Dichloride	(107062)	100.	ND	
Ethylene Dibromide	(106934)	100.	ND	
Total Fuel (non-methane hydrocarbons)		4000.	ND	

Lab Certifications: CAELAP #1783 & #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #1018
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Concentrations in ug/cu M reported at 760 mm Hg pressure and 298 deg. K.

07/15/93
MS2/2E21E
LRH/ge
CJ9307-14

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Gesheng Dai, Ph.D., Group Leader

Laurence R. Hilpert, Ph.D.
Vice President

COAST-TO-COAST ANALYTICAL SERVICES

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Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

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Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

SoCal Division (Camarillo Laboratory) (805) 389-1353
4765 Calle Quetzal, Camarillo, California 93012 FAX (805)389-1438

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 07/14/93
Analyzed by: YL
Method : EPA TO-14

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE	Air			

CONSTITUENT	*PQL µg/cu M	SPIKE AMOUNT	RESULT µg/cu M	%REC	NOTE
FUEL FINGERPRINT in AIR					1
Benzene	50.	7100.	5600.	79.	
Toluene	100.	28000.	21000.	75.	
Ethylbenzene	100.	3200.	2500.	78.	
Xylenes	100.	19000.	15000.	79.	
Ethylene Dichloride	100.	5500.	4400.	80.	
Ethylene Dibromide	100.	4100.	3100.	76.	
Total Fuel (non-methane hydrocarbons)	4000.	230000.	200000	87.	

Lab Certifications: CAELAP #1783 & #1598; UTELAP #E-142; AZELAP #AZ0162; A2LA #0136-01; L.A.Co.CSD #1018,
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Concentrations in ug/cu M reported at 760 mm Hg pressure and 298 deg. K.

07/15/93
MS2/2E26E
LRH/ge
CJ9307-14

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Gesheng Dai, Ph.D. Group Leader

Laurence R. Hilpert, Ph.D.
Vice President

DUS' ID- "xIS"
4765 Calle Quetzal
Camarillo, CA 93012

GTEL ENVIRONMENTAL LABORATORIES, INC.

~~20000 Mariner Dr., Suite #300~~
~~Torrance, CA 90503~~

~~213-371-1044~~
~~800-727-GTEL~~
805-389-1353

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST 76- 6851

CUSTODY RECORD

Project Manager: Terry Barnett
Phone #: 505-242-3113
FAX #: 505-242-1103
Address: 04765 Calle Quetzal Camarillo, CA 93012
Site location: 800 Bridge Albuquerque NM
Project Number: 023352875.050309
Project Name: NMED/800 Bridge/ALBQ NM
I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print):

ANALYSIS REQUEST

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	NONE	OTHER	Sampling: DATE	TIME	BTEX 602 ☐ 8020 ☐ with MTBE ☐	BTEX/TPH Gas 602/8015 ☐ 8020/8015 ☐ MTBE ☐	TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel	Product I.D. by GC (SIMDIS) ☐	Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐	Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐	EPA 601 ☐ 8010 ☐ DCA only ☐	EPA 602 ☐ 8020 ☐	EPA 608 ☐ 8080 ☐ PCBs only ☐	EPA 610 ☐ 8310 ☐	EPA 624 ☐ 8240 ☐ NBS +15 ☐	EPA 625 ☐ 8270 ☐ NBS +25 ☐	EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐	TCLP Metals ☐ VOA ☐ Semi VOA ☐	EPA Priority Pollutant Metals ☐ HSL ☐	LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐	CAM Metals ☐ STLC ☐ TTLC	Corrosivity ☐ Flashpoint ☐ Reactivity ☐	BTEX, total fuel	CO_2, O_2, methane
INF						X									7/13/93	15:50																			X	X
EFF						X									7/13/93	15:55																			X	

SPECIAL HANDLING
24 HOURS ☐
EXPEDITED 48 Hours ☐
SEVEN DAY ☐
OTHER ______ (#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐
Standard TAT

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS: CJ3094
no seals
Fed-X *

Lab Use Only Storage Location
Lot #: Work Order #:

Relinquished by Sampler:	Date	Time	Received by:
[signature]	7/13/93	16:30	[signature] 7-14-93 1000
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory: Way bill # FED-X 1985288314

- 1
- 2

A1

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Company: GROUNDWATER TECHNOLOGY INC
Department/Floor No.:
Street Address: 2501 YALE BLVD SE STE 204
City: ALBUQUERQUE State: NM ZIP Required: 87106

2 To (Recipient's Name) Please Print: Sample Receiving
Recipient's Phone Number (Very Important): (805) 389-1353
Company: Coast-to-Coast Analytical Services
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 4765 Calle Quetzal
City: Camarillo State: CA ZIP Required: 93012

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

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Street Address
City State ZIP Required

3 PAYMENT 1 [x] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash/Check
Acct./Credit Card No. Exp. Date

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 [x] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon†)
51 [ ] YOUR PACKAGING
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day†)
30 [ ] ECONOMY

Government Overnight (Restricted for authorized users only)
46 [ ] GOV'T LETTER
41 [ ] GOV'T PACKAGE

Freight Service (for Extra Large or any package over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT ** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT **

† Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)
1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [x] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] DESCRIPTION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
Total 1	Total 13	Total

DIM SHIPMENT (Chargeable Weight) [ ] ____ lbs.
L x W x H =

Received At
1 [ ] Regular Stop 3 [ ] Drop Box 4 [ ] BSC
2 [ ] On-Call Stop 5 [ ] Station

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7 Release Signature:

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Other 2
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REVISION DATE 6/91
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099

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APPENDIX H

AIR EMISSIONS AND HYDROCARBON MASS BALANCE CALCULATIONS

AIR QUALITY PERMIT #310
SUMMARY OF SVES EFFLUENT EMISSIONS CALCULATIONS
NMED/USTB BARELAS BRIDGE GWPA SITE
800 BRIDGE BOULEVARD, S.W., ALBUQUERQUE, NEW MEXICO
JULY 13, 1993

Air sample influent and effluent analytical data were used to calculate maximum extraction and emission rates, respectively, for the SVES (analytical data attached).

$$M = Q \times C \times \frac{28.32\ L}{ft^3} \times \frac{lb}{454 \times 10^6 \mu g} \times \frac{60 min}{hr}$$

Where:

M = Extraction or emission rate (lb/hr)
Q = Volumetric flow rate under standard temperature and pressure conditions (scfm)
C = Vapor concentration (μg/L) (1 mg/m^3 = 1 μg/L)

and the final three terms are conversion factors

The total influent gas flow rate is assumed to be the maximum of 500 scfm.

The effluent flow rate is estimated to be the sum of the influent flow and combustion air flow. Combustion air flow is estimated at 150 scfm based on information from the manufacturer. Thus, the total maximum effluent flow is estimated to be 650 scfm.

AIR QUALITY PERMIT #310
SUMMARY OF SVES EFFLUENT EMISSIONS CALCULATIONS
NMED/USTB BARELAS BRIDGE GWPA SITE
800 BRIDGE BOULEVARD, S.W., ALBUQUERQUE, NEW MEXICO
JULY 13, 1993
(cont.)

I. SVES Influent and Effluent Rate Calculations

Extraction rates in pounds per hour (lb/hr) were calculated in the following manner:

A. Total Fuel (non-methane hydrocarbons) Calculations

1. Sample INF (07/13/93)

$$(500 scfm) \times (14{,}000\ \mu g/L) \times 3.74 \times 10^{-09} \frac{L\text{-}lb\text{-}min}{ft^3\text{-}\mu g\text{-}hr}$$

= 26.2 lb/hr Total Fuel

2. Sample EFF (07/13/93)

$$(650\ scfm) \times (47\ \mu g/L) \times 3.74 \times 10^{-09} \frac{L\text{-}lb\text{-}min}{ft^3\text{-}\mu g\text{-}hr}$$

= 0.114 lb/hr Total Fuel

3. Destruction Efficiency

$$\frac{(26.2 - 0.114)}{26.2} \times 100$$

= 99.6 %

B. Benzene Calculations

1. Sample INF (07/13/93)

$$(500\ scfm) \times (28.0\ \mu g/L) \times 3.74 \times 10^{-09} \frac{L\text{-}lb\text{-}min}{ft^3\text{-}\mu g\text{-}hr}$$

= 0.052 lb/hr Benzene

AIR QUALITY PERMIT #310
SUMMARY OF SVES EFFLUENT EMISSIONS CALCULATIONS
NMED/USTB BARELAS BRIDGE GWPA SITE
800 BRIDGE BOULEVARD, S.W., ALBUQUERQUE, NEW MEXICO
JULY 13, 1993
(cont.)

B. Benzene Calculations (cont.)

2. Sample EFF (07/13/93)

$$(650\ scfm) \times (\leq .064\ \mu g/L) \times 3.74 \times 10^{-08} \frac{L\text{-}lb\text{-}min}{ft^3\text{-}\mu g\text{-}hr}$$

= **<0.00016 lb/hr Benzene**

3. Destruction Efficiency

$$\frac{(0.052 - \leq 0.00016)}{0.052} \times 100$$

= **>99.7 %**

C. Xylenes Calculations

1. Sample INF (07/13/93)

$$(500\ scfm) \times (49\ \mu g/L) \times 3.74 \times 10^{-08} \frac{L\text{-}lb\text{-}min}{ft^3\text{-}\mu g\text{-}hr}$$

= **0.092 lb/hr Xylenes**

2. Sample EFF (07/13/93)

$$(650\ scfm) \times (0.25\ \mu g/L) \times 3.74 \times 10^{-08} \frac{L\text{-}lb\text{-}min}{ft^3\text{-}\mu g\text{-}hr}$$

= **0.00061 lb/hr Xylenes**

AIR QUALITY PERMIT #310
SUMMARY OF SVES EFFLUENT EMISSIONS CALCULATIONS
NMED/USTB BARELAS BRIDGE GWPA SITE
800 BRIDGE BOULEVARD, S.W., ALBUQUERQUE, NEW MEXICO
JULY 13, 1993
(cont.)

C. Xylenes Calculations (cont.)

3. Destruction Efficiency

$$\frac{(0.092-0.00061)}{0.092} \times 100$$

= **99.3 %**

D. Toluene Calculations

1. Sample INF (07/13/93)

$$(500\ scfm) \times (3.7\ \mu g/L) \times 3.74 \times 10^{-06}\ \frac{L\text{-}lb\text{-}min}{ft^3\text{-}\mu g\text{-}hr}$$

= **0.0069 lb/hr Toluene**

2. Sample EFF (07/13/93)

$$(650\ scfm) \times (0.18\ \mu g/L) \times 3.74 \times 10^{-06}\ \frac{L\text{-}lb\text{-}min}{ft^3\text{-}\mu g\text{-}hr}$$

= **0.00044 lb/hr Toluene**

3. Destruction Efficiency

$$\frac{(0.0069-0.00044)}{0.0069} \times 100$$

= **93.6 %**

SOIL VAPOR EXTRACTION SYSTEM MASS BALANCE CALCULATIONS

A. Dissolved-Phase Hydrocarbons Mass Balance Calculations

The following assumptions were made for the mass balance calculations:

1. Porosity of saturated zone is 0.30;

2. The total area of hydrocarbons with dissolved TPH-as-gasoline concentrations is divided into 3 parts at the site:

   - Area 1 is 12,000 ft^2

   - Area 2 (A+B) is 6,060 ft^2

   - Area 3 is 2,025 ft^2

3. The average concentration of TPH-as-gasoline in the saturated zone is calculated using groundwater sample analyses for February and June 1993. The average concentration for each area is calculated by averaging TPH-as-gasoline (TPHG) concentrations of all wells sampled within each area. The average concentrations for Areas 1, 2, and 3, are thus 16 mg/l (VP-4, VP-3, MW-8, MW-4, VP-1, and MW-9), 15 mg/l (VP-5, VP-6, and VP-7), and 17 mg/l (VP-2; VP-2 not sampled so average of adjacent wells VP-3, MW-8, and VP-1 used);

4. Thickness of aquifer assumed to be impacted by dissolved hydrocarbons is 10 feet.

5. The following conversion factors were used: 7.48 gallons = one cubic foot; 1,000 liters = 261.8 gallons; and 2.2 pounds = 10^6 milligrams.

Calculations:

I. Area 1

Hydrocarbon mass present in the dissolved state = 12,000 ft^2 x 10 ft x 0.3 x 7.48 gal/ft^3 x 1,000 l/261.8 gal x 2.2 $lb/10^6$ mg x 16 mg/l = **36 lbs. TPHG**

II. Area 2

Hydrocarbon mass present in the dissolved state = 6,060 ft^2 x 10 ft x 0.3 x 7.48 gal/ft^3 x 1,000 l/261.8 gal x 2.2 $lb/10^6$ mg x 15 mg/l = **17 lbs. TPHG**

III. Area 3

Hydrocarbon mass present in the dissolved state = 2,025 ft^2 x 10 ft x 0.3 x 7.48 gal/ft^3 x 1,000 l/261.8 gal x 2.2 $lb/10^6$ mg x 17 mg/l = **6 lbs. TPHG**

Total Dissolved Hydrocarbon Mass (Areas 1 + Area 2 + Area 3) = **59 lbs. TPHG**

B. Adsorbed-Phase Hydrocarbons Mass Calculations

Based on the site assessments previously conducted at the site, the following assumptions were made to estimate the hydrocarbon mass present in the soils beneath the site:

1. The density of soils is 100 lbs/ft^3;

2. The total area of hydrocarbons containing volatile hydrocarbon concentrations is divided into 3 parts at the site:

   - Area 1 is 12,000 ft^2

   - Area 2B is 2,700 ft^2 (Area 2A had non-detectable TPH-as-gas concentrations)

   - Area 3 is 2,025 ft^2

3. The average concentration of volatile hydrocarbons in the soil for each area is calculated by averaging or taking the highest TPHg concentrations for soil samples collected during installation of all wells within each area. The concentrations for Areas 1, 2, and 3, are thus 546 mg/kg (VP-4, VP-3, AH-4, MW-8, PR-3, VP-1, and MW-9), 55 mg/kg (VP-5), and 17 mg/kg (VP-2); and

4. Vertical extent of soil affected by hydrocarbons for each of the three areas are based on available PID readings and soil laboratory data for the wells and are 8 feet for Area 1, 4 feet for Area 2, and 4 feet for Area 3.

Calculations:

I. Area 1

Mass of hydrocarbon-affected soil = 12,000 ft^2 x 8 ft x 100 lbs/ft^3 = 9,600,000 lbs

Hydrocarbon mass present in soil = 9,600,000 lbs x 546 lbs TPHg/10^6 lbs soil = **5,242 lbs TPHG**

II. Area 2B

Mass of hydrocarbon-affected soil = 2,700 ft^2 x 4 ft x 100 lbs/ft^3 = 1,080,000 lbs

Hydrocarbon mass present in soil = 1,080,000 lbs x 55 lbs TPHg/10^6 lbs soil = **59 lbs TPHG**

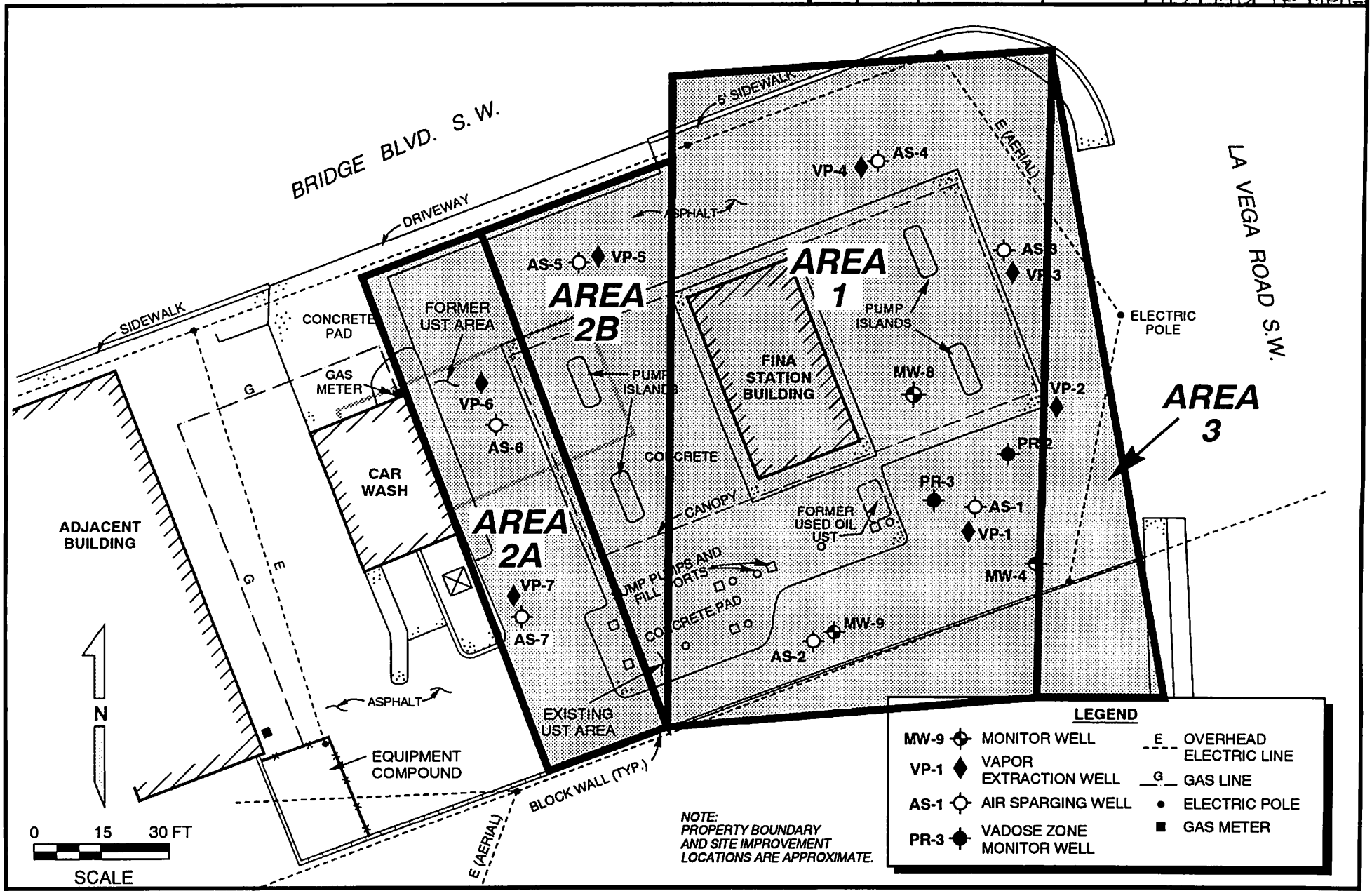
III. Area 3

Mass of hydrocarbon-affected soil = 2,025 ft^2 x 4 ft x 100 lbs/ft^3 = 810,000 lbs

Hydrocarbon mass present in soil = 810,000 lbs x 17 lbs TPHg/10^6 lbs soil = **14 lbs TPHG**

Total Adsorbed Hydrocarbon Mass (Areas 1 + Area 2 + Area 3) = **5,315 lbs.**

DRAWN BY		FOLDER	FILE	CHECKED BY		APPROVED BY	
EF	9/14/93	NMED/BridgeSW	Areal Extent	TB	9/15/93	TB	9/15/93



NMED / 800 BRIDGE BLVD. S.W.

ASSUMED AREAL EXTENT OF HYDROCARBONS IN SOIL AND GROUNDWATER
(FOR MASS BALANCE CALCULATIONS)

LOCATION: ALBUQUERQUE, NEW MEXICO

PROJECT NO.: 023352875

GROUNDWATER TECHNOLOGY

APPENDIX I

FLUID-LEVEL MEASUREMENTS
1992 - PRESENT AND WELL COMPLETION DATA

SUMMARY OF WELL COMPLETION INFORMATION
BARELAS BRIDGE GWPA SITE
800 BRIDGE BLVD., S.W.
ALBUQUERQUE, NEW MEXICO

WELL ID	DATE INSTALLED	TOC ELEV. (FTAMSL)	TOTAL DEPTH OF WELL (FT)	WELL DIAMETER/ CONSTRUCTION	SCREENED INTERVAL/SLOT SIZE	SCREEN LENGTH (FT)	STATUS/ COMMENTS
MW-1	02/07/90	4942.99	17	2" PVC	2'-17'/0.020"	15	Monitor well
MW-2	02/07/90	4942.47	23	2" PVC	3'-18'/0.020"	15	Monitor well
MW-3	02/07/90	4942.03	22.5	2" PVC	2.5'-17.5'/0.020"	15	Monitor well
MW-4	02/08/90	4943.23	23.5	2" PVC	3.5'-18.5'/0.020"	15	Converted to vapor extraction well
MW-5	10/16/90	4942.18	21.5	2" PVC	7'-22'/0.010"	15	Monitor well
MW-6	10/16/90	4943.21	22	2" PVC	7'-22'/0.010"	15	Monitor well
MW-7	10/18/90	4942.94	22	2" PVC	7'-22'/0.010"	15	Monitor well
MW-8	10/18/90	4944.59	13	2" STEEL	8'-13'/0.010"	5	Monitor well
MW-9	08/20/92	4943.98	20	2" PVC	5'-20'/0.020"	15	Converted to vapor extraction well
VP-1	08/19/92	4943.75	14.5	4" PVC	9.5'-14.5'/0.020" 4.5'-9.5'/0.040"	10	Vapor extraction well
AS-1	08/19/92	4944.32 (RIM)	22	2" PVC	20'-22'/0.010"	2	Air sparge well
PR-2	08/18/92	4944.20 - S 4944.07 - D	9	2" PVC	3'-5'/0.020" 7'-9'/0.020"	2'/2'	Nested vadose monitor probe
PR-3	08/18/92	4944.27 - S 4944.22 - D	9	2" PVC	3'-5'/0.020" 7'-9'/0.020"	2'/2'	Nested vadose monitor probe
VP-2 thru VP-7	04/12-14/93	See fluid level tables or survey	14 each	2" PVC	4'-9'/0.040" 9-14'/0.020"	10	Vapor extraction wells
AS-1 thru AS-7	04/13-15/93	See survey for RIM elev.	24 each (drive point)	2" GALV. STEEL	19'-21'/0.020" stainless steel	2	Air sparge wells

Note: All elevations per Surv-Tek, Inc. survey, July 1993.

GROUNDWATER TECHNOLOGY

WELL ID	MW-1
TOC ELEV (FTAMSL)	4942.99

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
24-Jun-92	9.14	ND	0.00	--	--	4933.85	--
20-Aug-93	9.67	ND	0.00	--	--	4933.32	--
10-Feb-93	9.83	ND	0.00	--	--	4933.16	--
16-Jun-93	9.24	ND	0.00	--	--	4933.75	--

WELL ID	MW-2
TOC ELEV (FTAMSL)	4942.47

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
24-Jun-92	8.71	ND	0.00	--	--	4933.76	--
20-Aug-93	9.21	ND	0.00	--	--	4933.26	--
10-Feb-93	9.38	ND	0.00	--	--	4933.09	--
16-Jun-93	8.80	ND	0.00	--	--	4933.67	--

WELL ID	MW-3
TOC ELEV (FTAMSL)	4942.03

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
24-Jun-92	8.25	ND	0.00	--	--	4933.78	--
20-Aug-93	8.80	ND	0.00	--	--	4933.23	--
10-Feb-93	9.00	ND	0.00	--	--	4933.03	--
16-Jun-93	8.38	ND	0.00	--	--	4933.65	--

WELL ID	MW-4	
TOC ELEV (FTAMSL)	4943.86	4943.23*

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
24-Jun-92	8.68	ND	0.00	--	--	4935.18	--
10-Feb-93	8.70	ND	0.00	--	--	4935.16	--
16-Jun-93	8.20	ND	0.00	--	--	4935.03	--

* TOC elevation modified 4/93; resurveyed 7/93.

WELL ID	MW-5
TOC ELEV (FTAMSL)	4942.18

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
24-Jun-92	7.67	ND	0.00	--	--	4934.51	--
10-Feb-93	7.81	ND	0.00	--	--	4934.37	--
16-Jun-93	7.84	ND	0.00	--	--	4934.34	--

WELL ID	MW-6
TOC ELEV (FTAMSL)	4943.21

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
24-Jun-92	9.00	ND	0.00	--	--	4934.21	--
10-Feb-93	9.12	ND	0.00	--	--	4934.09	--
16-Jun-93	8.10	ND	0.00	--	--	4935.11	--

WELL ID	MW-7
TOC ELEV (FTAMSL)	4942.94

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
24-Jun-92	8.20	ND	0.00	--	--	4934.74	--
10-Feb-93	8.38	ND	0.00	--	--	4934.56	--
16-Jun-93	8.33	ND	0.00	--	--	4934.61	--

WELL ID	MW-8
TOC ELEV (FTAMSL)	4944.59

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
24-Jun-92	9.27	ND	0.00	--	--	4935.32	--
10-Feb-93	9.36	ND	0.00	--	--	4935.23	--
16-Jun-93	9.42	ND	0.00	--	--	4935.17	--

WELL ID	MW-9
TOC ELEV (FTAMSL)	4943.98

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
20-Aug-92	9.33	ND	0.00	--	--	--*	--
10-Feb-93	9.40	ND	0.00	--	--	-- *	--
16-Jun-93	8.96	ND	0.00	--	--	4935.02	--

WELL ID	VP-1
TOC ELEV (FTAMSL)	4943.75

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
20-Aug-92	9.25	ND	0.00	--	--	--*	--
16-Jun-93	8.66	ND	0.00	--	--	4935.09	--

WELL ID	VP-2
TOC ELEV (FTAMSL)	4943.73

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
16-Jun-93	8.58	ND	0.00	--	--	4935.15	--

WELL ID	VP-3
TOC ELEV (FTAMSL)	4943.72

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
16-Jun-93	8.46	ND	0.00	--	--	4935.26	--

WELL ID	VP-4
TOC ELEV (FTAMSL)	4943.53

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
16-Jun-93	8.15	ND	0.00	--	--	4935.38	--

* TOC elevation modified 4/93; surveyed 7/93.

GROUNDWATER TECHNOLOGY

WELL ID	VP-5
TOC ELEV (FTAMSL)	4943.52

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
16-Jun-93	8.19	ND	0.00	--	--	4935.33	--

WELL ID	VP-6
TOC ELEV (FTAMSL)	4944.09

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
16-Jun-93	8.84	ND	0.00	--	--	4935.25	--

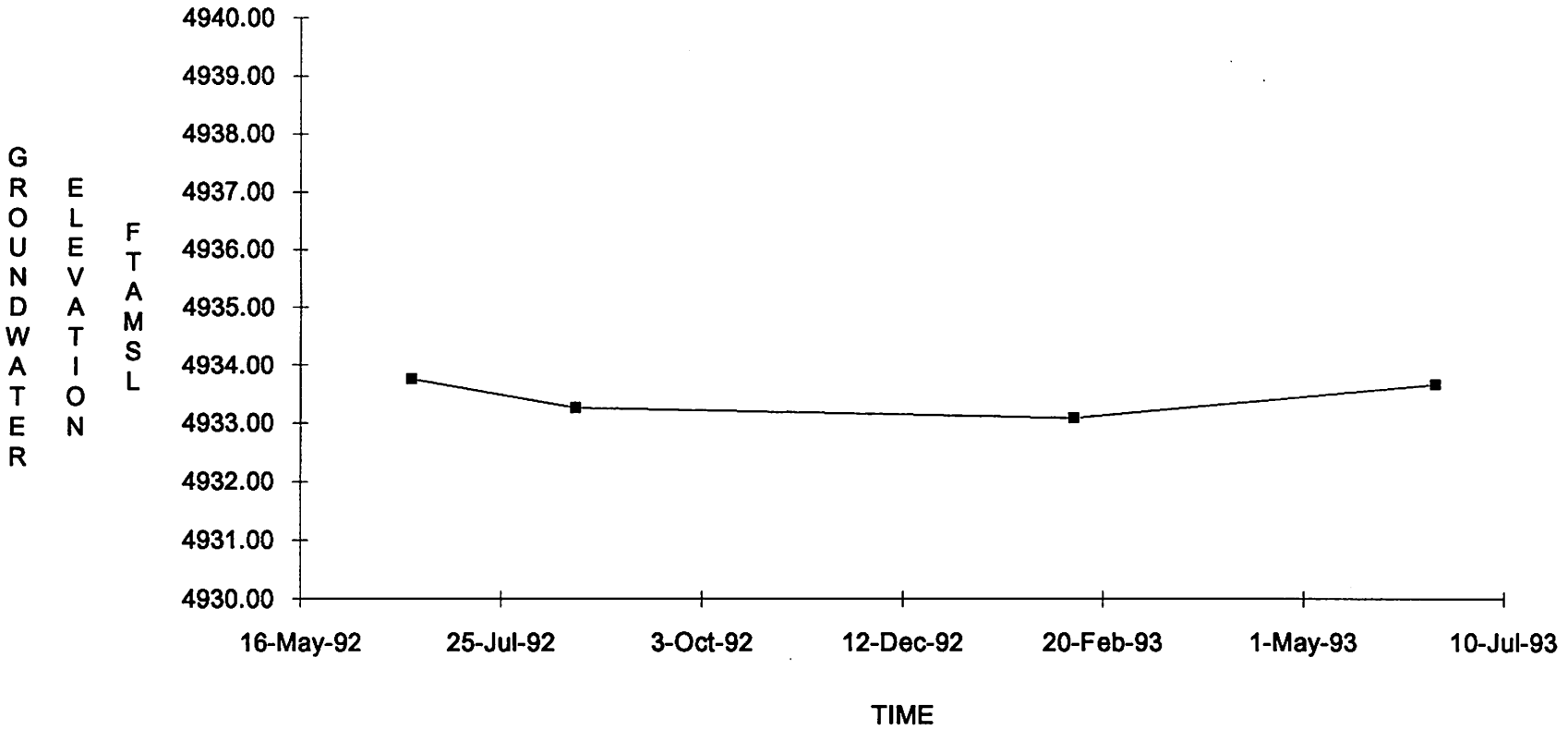
WELL ID	VP-7
TOC ELEV (FTAMSL)	4944.22

DATE	DTW	DTP	PT	PTx0.8	ADJ DTW	ELEV WATER	ELEV PSH
16-Jun-93	9.19	ND	0.00	--	--	4935.03	--

APPENDIX J

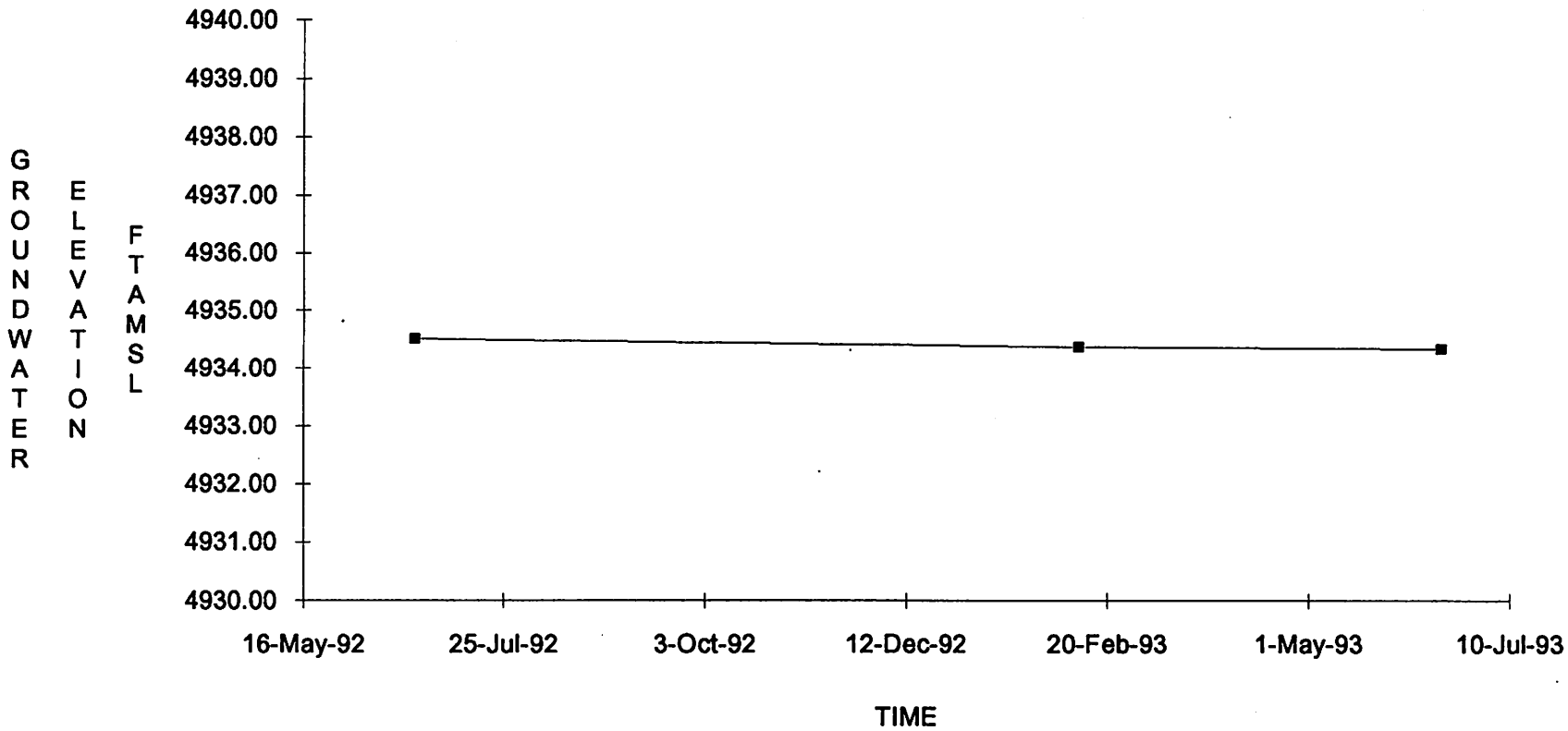
HYDROGRAPHS OF GROUNDWATER ELEVATION FOR SELECT MONITOR WELLS

HYDROGRAPH: MONITOR WELL MW-2



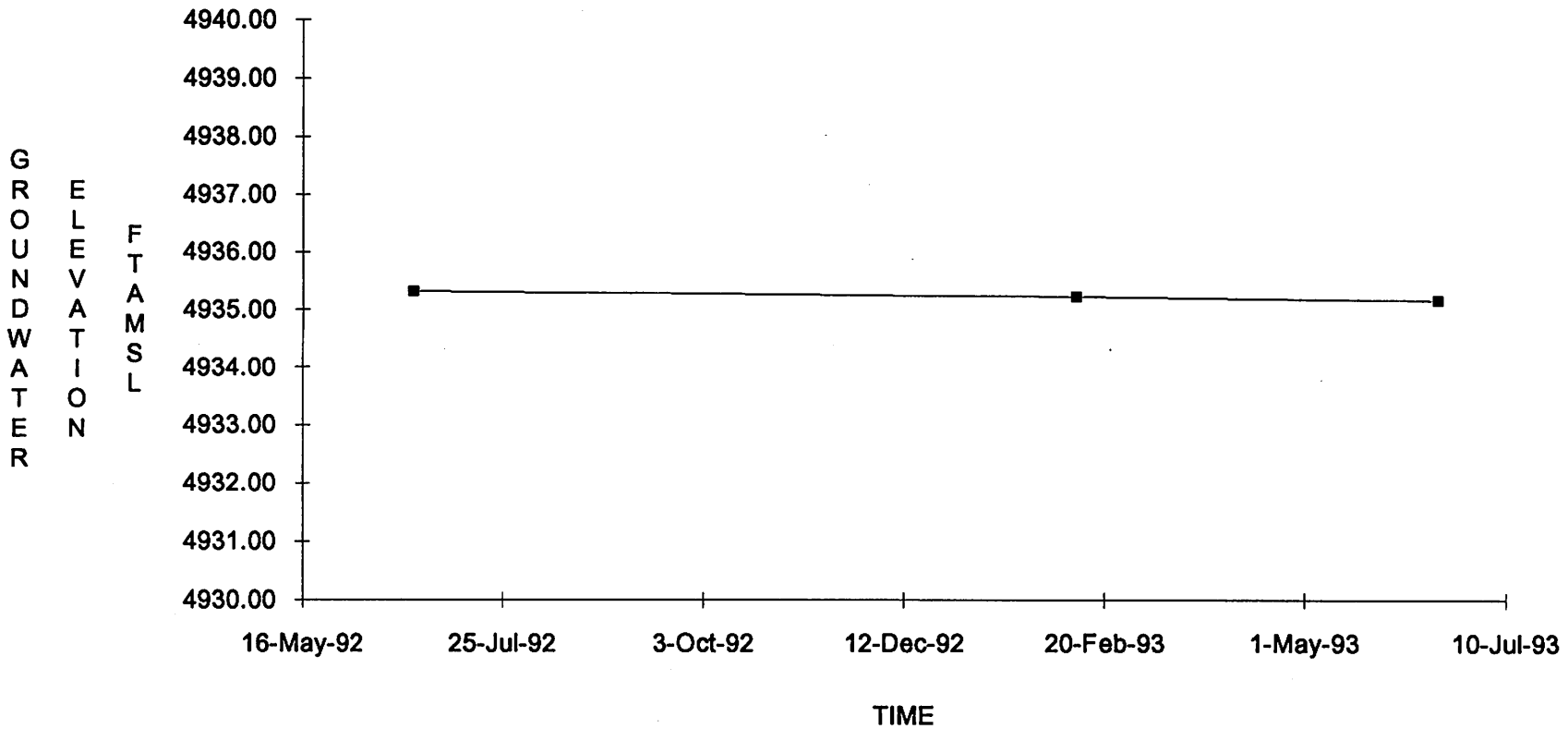
GROUNDWATER TECHNOLOGY

HYDROGRAPH: MONITOR WELL MW-5



GROUNDWATER TECHNOLOGY

HYDROGRAPH: MONITOR WELL MW-8

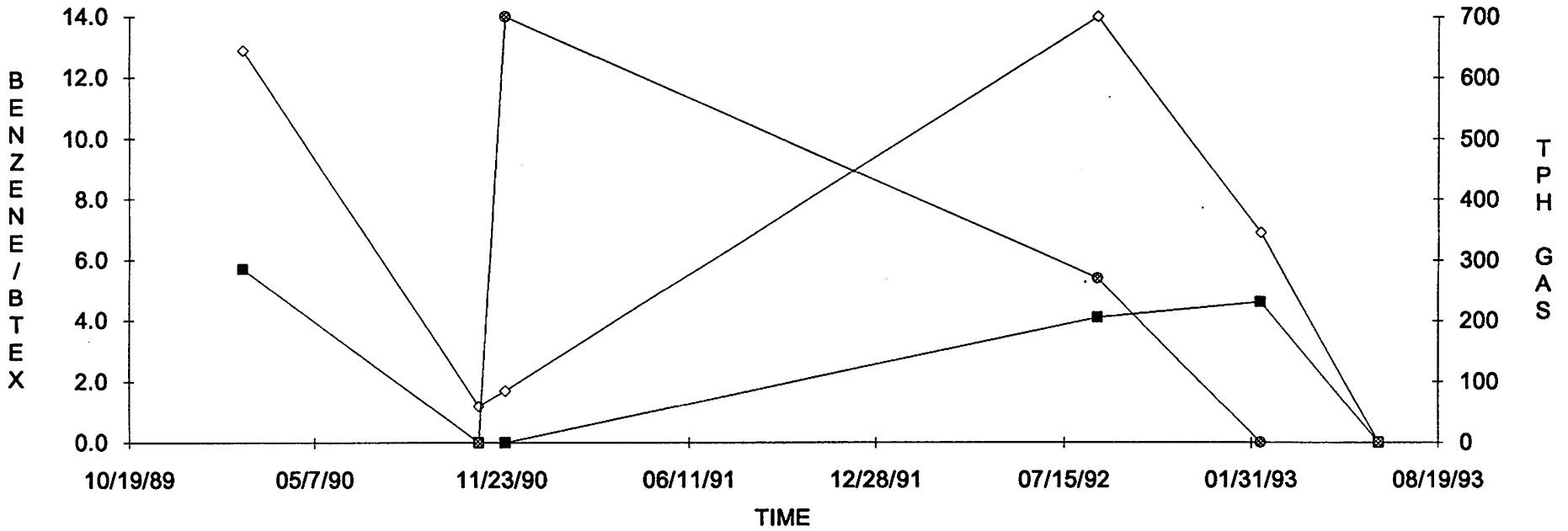


GROUNDWATER TECHNOLOGY

APPENDIX K

CONCENTRATION PLOTS OF BENZENE, BTEX, AND TPH-AS-GASOLINE CONCENTRATIONS VERSUS TIME FOR SELECT MONITOR WELLS

MONITOR WELL MW-2
DISSOLVED BENZENE/BTEX AND TPH-AS-GAS CONCENTRATIONS -VS- TIME

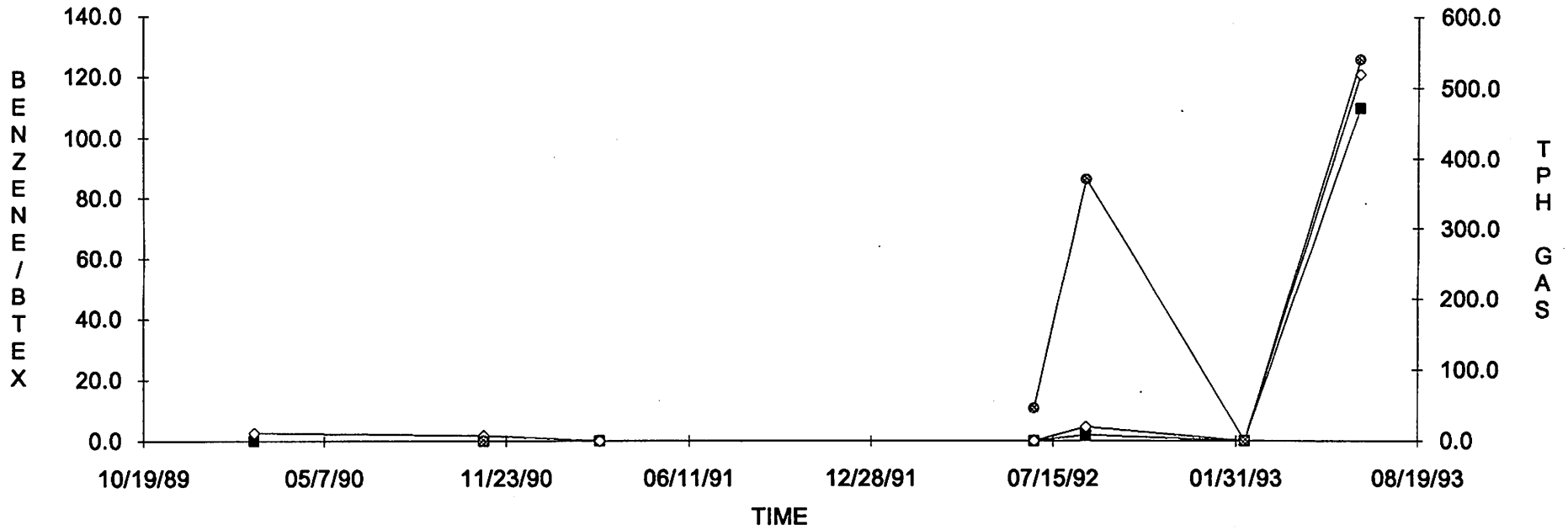


(All concentrations in UG/L)

BENZENE — TOTAL BTEX — TPH-AS-GASOLINE

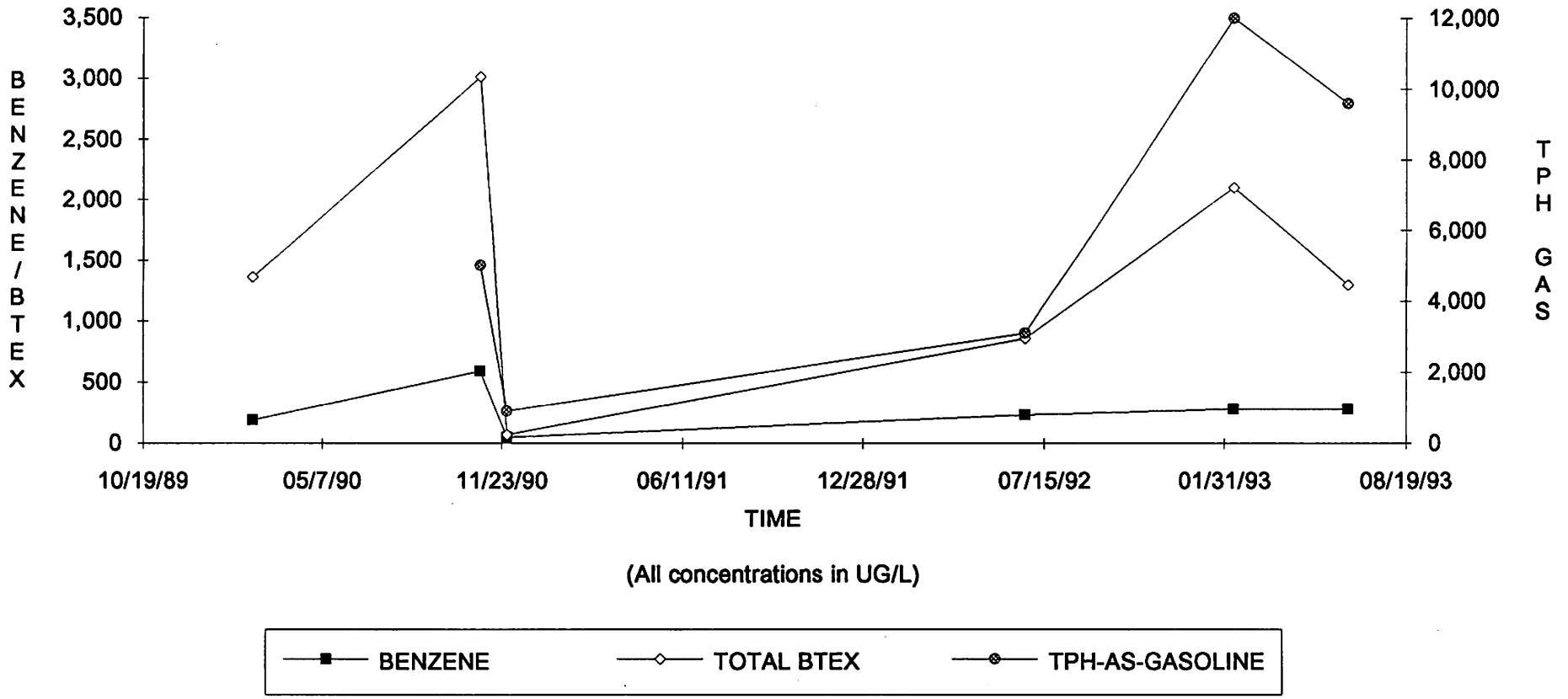
GROUNDWATER TECHNOLOGY

MONITOR WELL MW-3
DISSOLVED BENZENE/BTEX AND TPH-AS-GAS
CONCENTRATIONS -VS- TIME



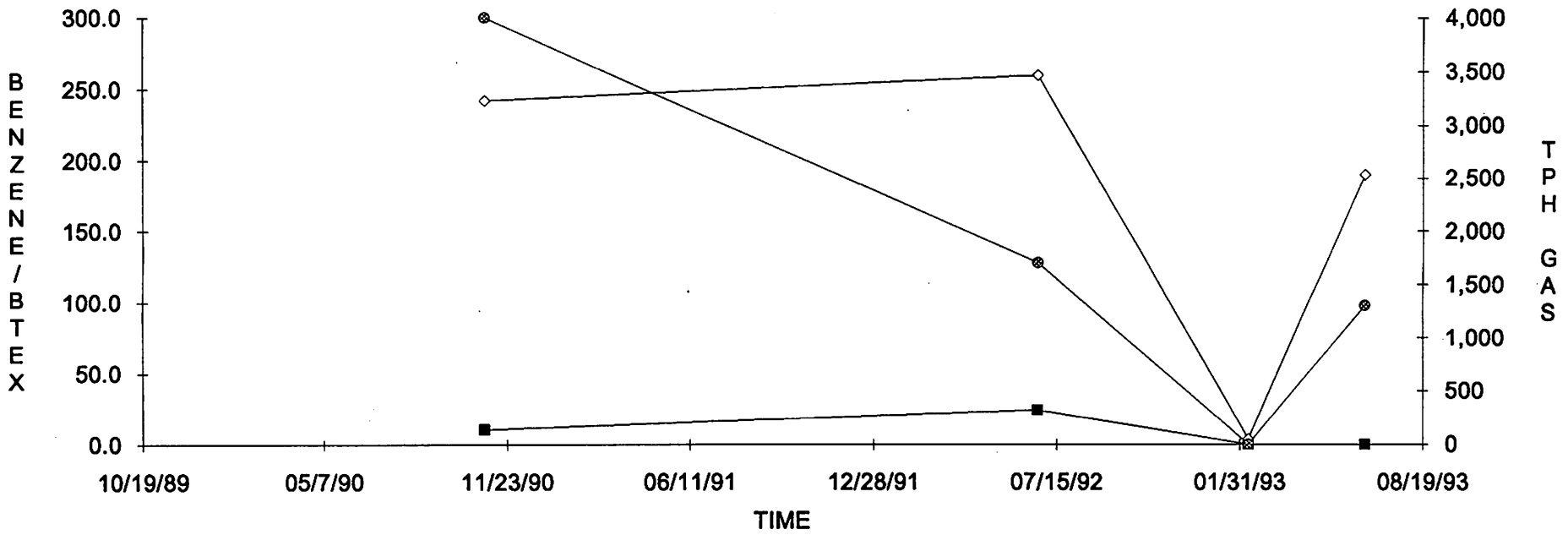
GROUNDWATER TECHNOLOGY

MONITOR WELL MW-4
DISSOLVED BENZENE/BTEX AND TPH-AS-GAS
CONCENTRATIONS -VS- TIME



GROUNDWATER TECHNOLOGY

MONITOR WELL MW-6
DISSOLVED BENZENE/BTEX AND TPH-AS-GAS
CONCENTRATIONS -VS- TIME

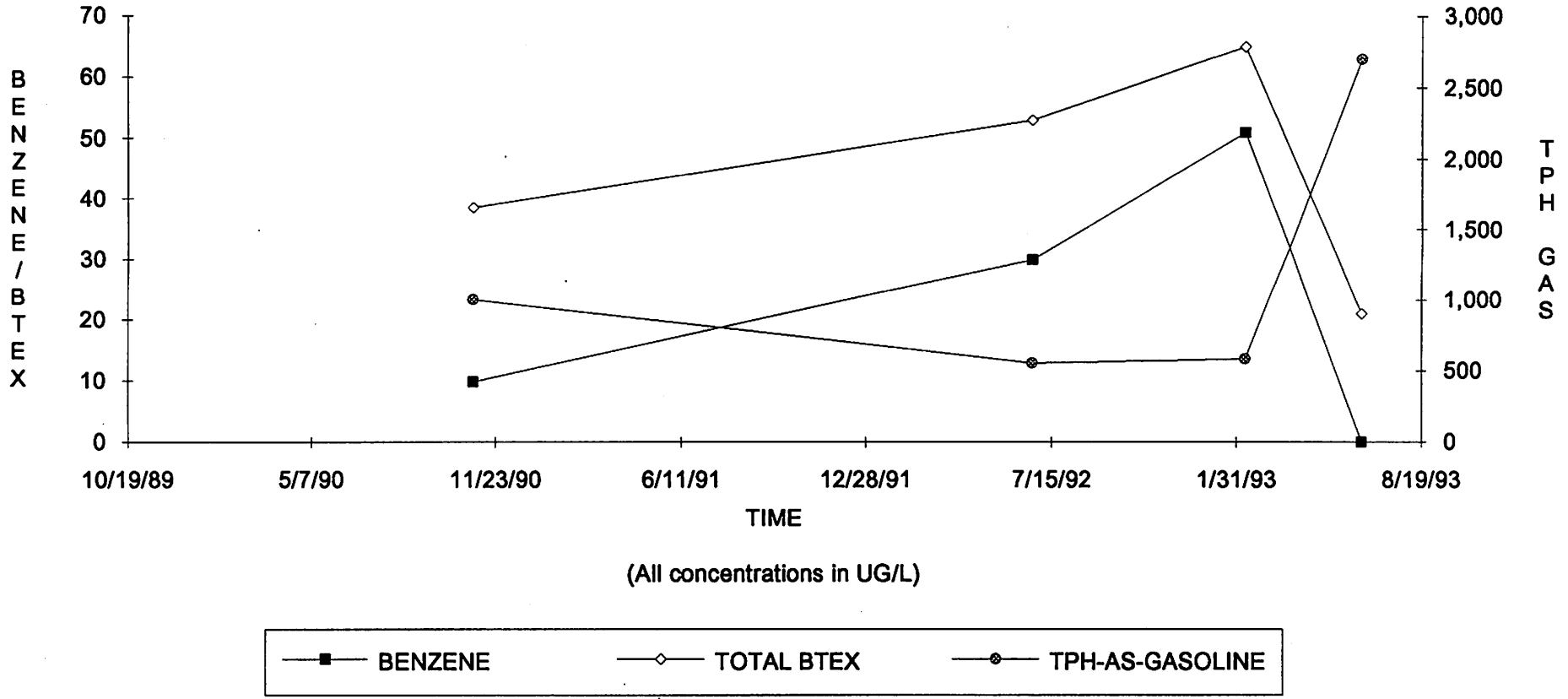


(All concentrations in UG/L)

BENZENE — TOTAL BTEX — TPH-AS-GASOLINE

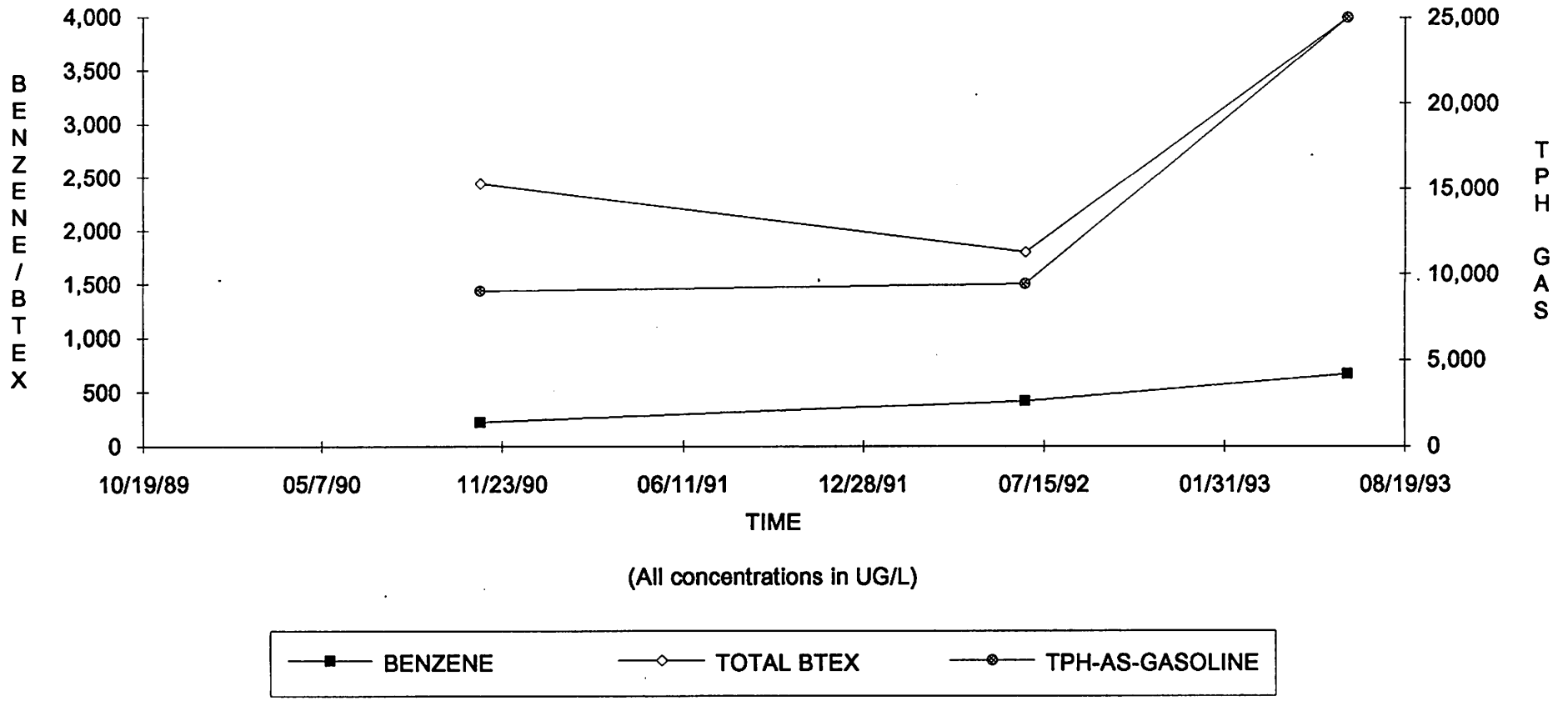
GROUNDWATER TECHNOLOGY

MONITOR WELL MW-7
DISSOLVED BENZENE/BTEX AND TPH-AS-GAS CONCENTRATIONS -VS- TIME



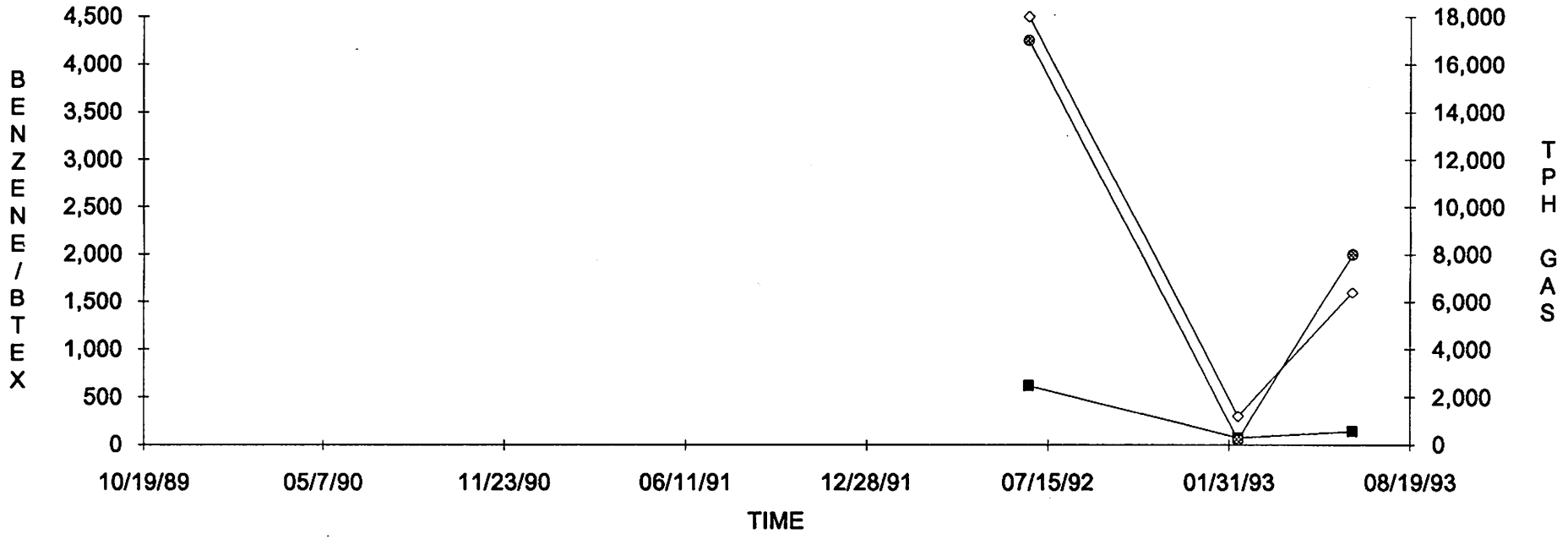
GROUNDWATER TECHNOLOGY

MONITOR WELL MW-8
DISSOLVED BENZENE/BTEX AND TPH-AS-GAS
CONCENTRATIONS -VS- TIME



GROUNDWATER TECHNOLOGY

MONITOR WELL MW-9
DISSOLVED BENZENE/BTEX AND TPH-AS-GAS
CONCENTRATIONS -VS- TIME



(All concentrations in UG/L)

BENZENE — TOTAL BTEX — TPH-AS-GASOLINE

GROUNDWATER TECHNOLOGY

APPENDIX A

AS-BUILT DIAGRAMS OF REMEDIATION SYSTEM AND SITE SURVEY

SOIL VAPOR EXTRACTION AND AIR SPARGE REMEDIATION SYSTEM

800 BRIDGE BLVD. S.W.
ALBUQUERQUE, NEW MEXICO

Prepared for:

NEW MEXICO ENVIRONMENT DEPARTMENT
UNDERGROUND STORAGE TANK BUREAU

PROJECT NO. 023352875

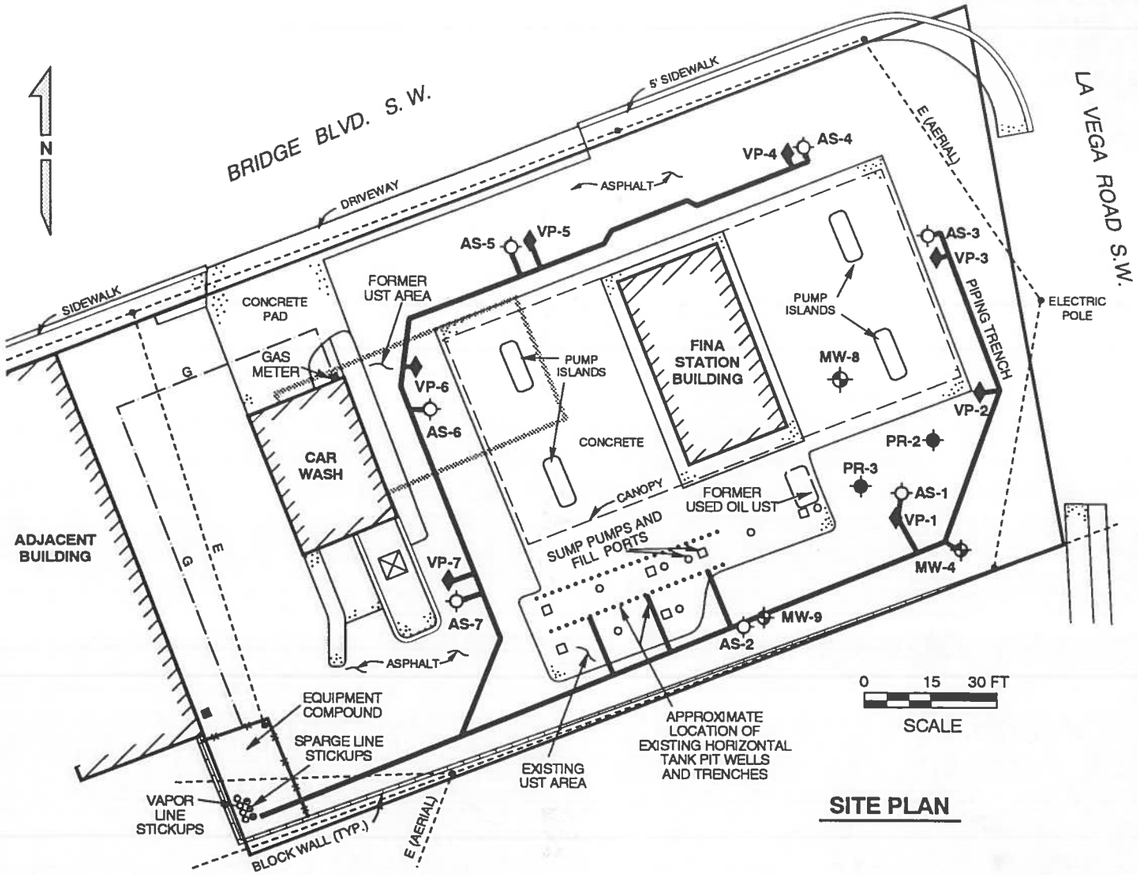
AS-BUILT DIAGRAMS
APRIL – MAY 1993

SHEET INDEX

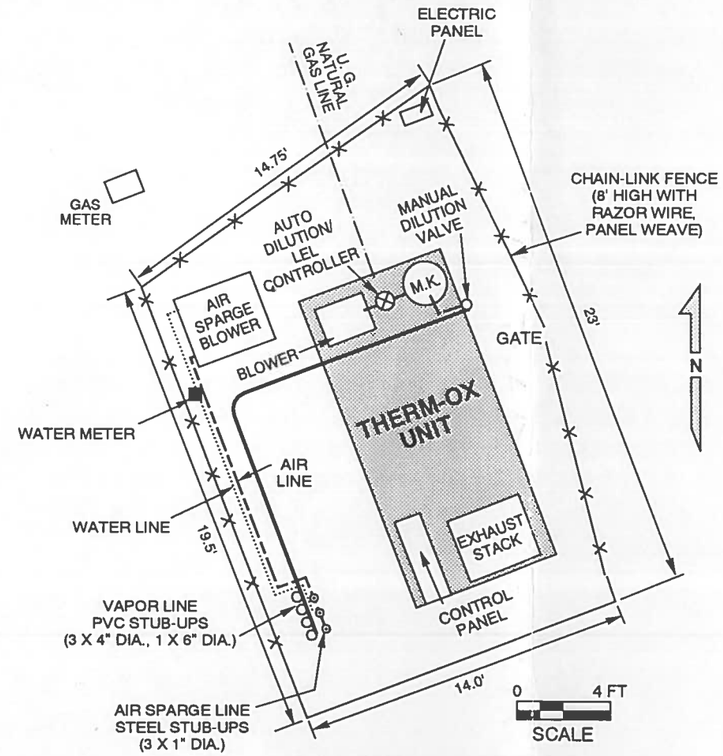
DWG. NO.	TITLE
Y1	SITE PLAN
Y2	WELLHEAD AND PIPING MANIFOLD DETAILS
Y3	TRENCH DETAIL

GROUNDWATER TECHNOLOGY

2501 E. YALE BLVD. SE SUITE 204
ALBUQUERQUE, NEW MEXICO 87106

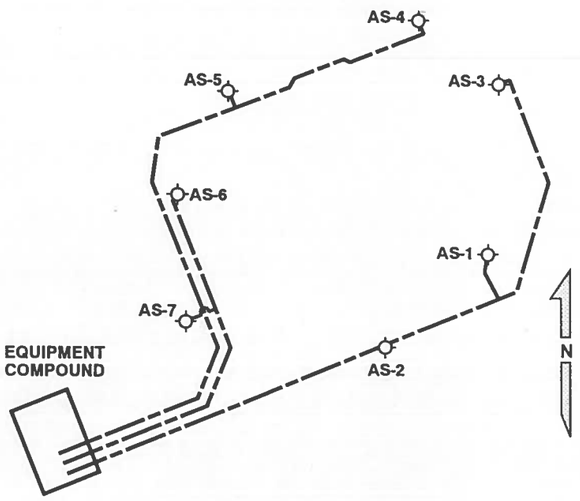


SITE PLAN



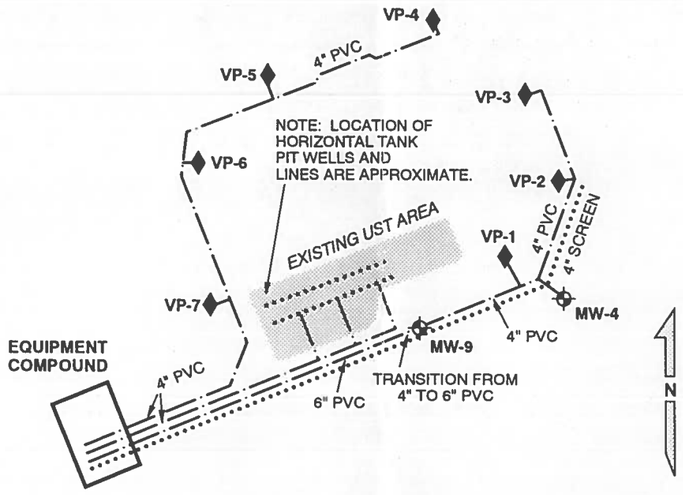
EQUIPMENT DIMENSION NOTES:
AIR SPARGE UNIT: 3' X 3' X 5.5' (TOP OF PIPING)
THERM-OX UNIT: 13.75' X 6' X 6.5' (TOP OF STACK - 11')

EQUIPMENT COMPOUND DETAIL



SIMPLIFIED PIPING SCHEMATIC - AIR SPARGING SYSTEM

NO SCALE



SIMPLIFIED PIPING SCHEMATIC - VAPOR EXTRACTION SYSTEM

NO SCALE

NO.	DATE	BY	REVISION

LEGEND

- MW-9 — MONITOR WELL
- VP-1 — VAPOR EXTRACTION WELL
- AS-1 — AIR SPARGING WELL
- PR-3 — VADOSE ZONE MONITOR WELL
- PIPING TRENCH
- E — OVERHEAD ELECTRIC LINE
- G — GAS LINE
- ELECTRIC POLE
- GAS METER
- VES LINE (BLANK)
- VES LINE (SCREENED)
- AIR SPARGE LINE

NOTE:
ALL WELLS AND TRENCH LINES ON SITE PLAN ARE SURVEYED LOCATIONS.

ATTENTION

SIGNATURE	DATE
PDG MGR:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

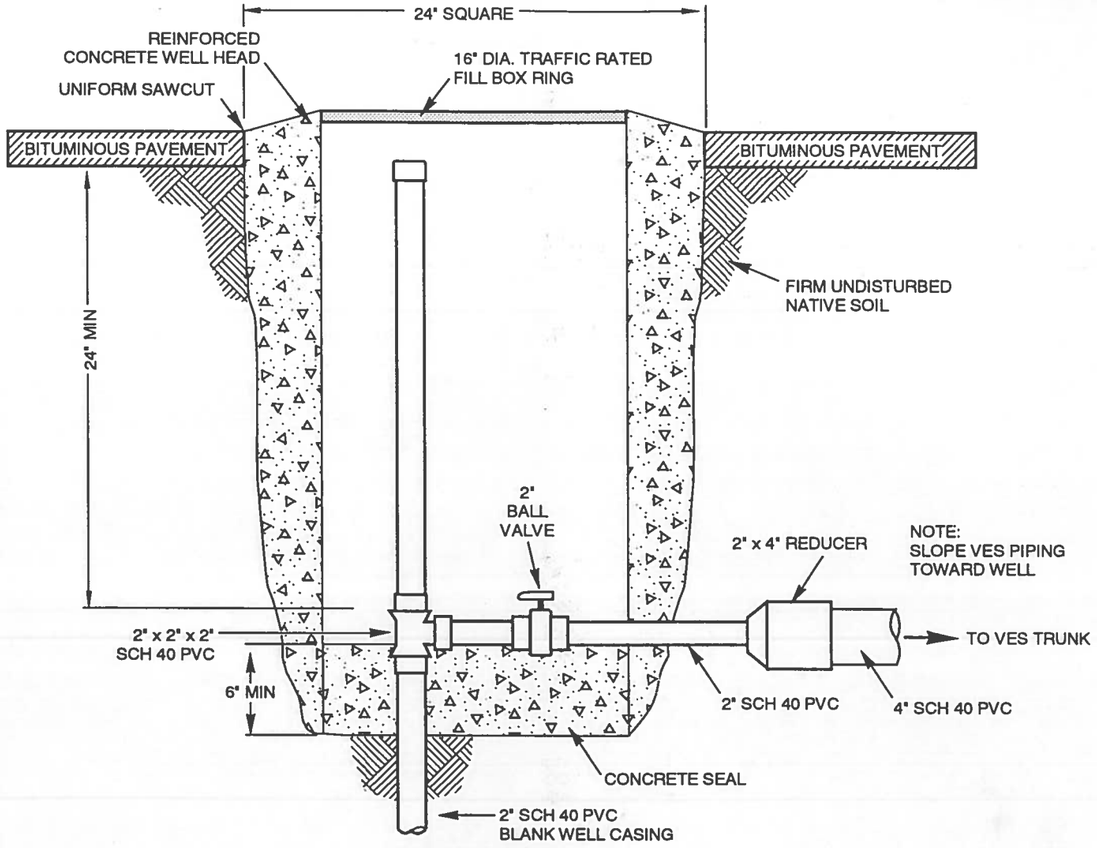
NEW MEXICO ENVIRONMENT DEPT.
UNDERGROUND STORAGE TANK BUREAU
800 BRIDGE BLVD. S.W.
ALBUQUERQUE, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, N.M. 87106 (505) 242-3113

SITE PLAN

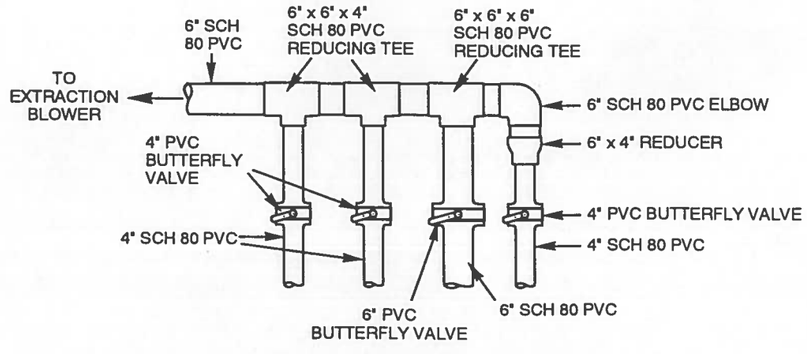
DESIGNED BY:	DETAILED BY:	CHECKED BY:
TT/JMW	CARTO-GRAPHICS	TB 9/13/93

DATE: 9/2/93	FILE: NMED-Y1
PROJECT NO.: 023352875	CONTRACT:
DRAWING: Y1	REVISION: –



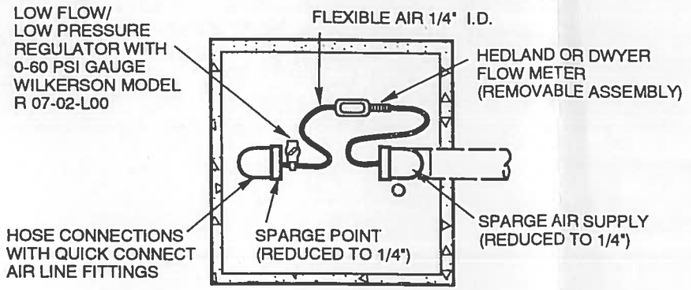
VAPOR EXTRACTION WELLHEAD (TYPICAL)

NO SCALE



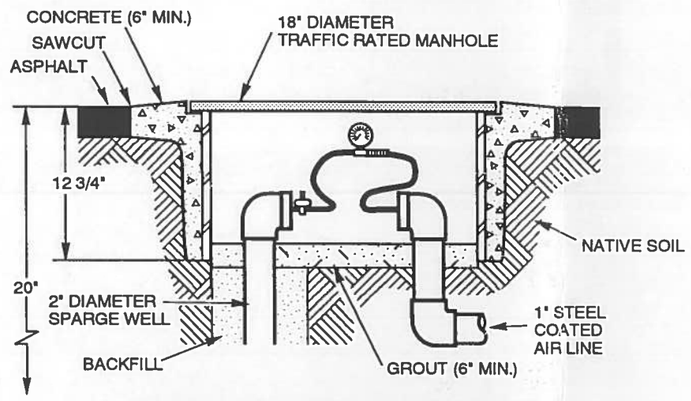
VES PIPING MANIFOLD (TYPICAL)

NO SCALE



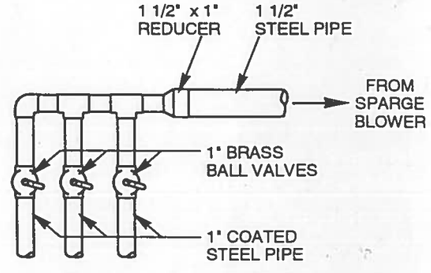
SPARGE WELLHEAD DETAIL (TYPICAL) PLAN VIEW

NO SCALE



SPARGE WELLHEAD DETAIL (TYPICAL)

NO SCALE



SPARGE PIPING MANIFOLD (TYPICAL)

NO SCALE

NO.	DATE	BY	REVISION

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UNDERGROUND STORAGE TANK BUREAU
800 BRIDGE BLVD. S.W.
ALBUQUERQUE, NEW MEXICO

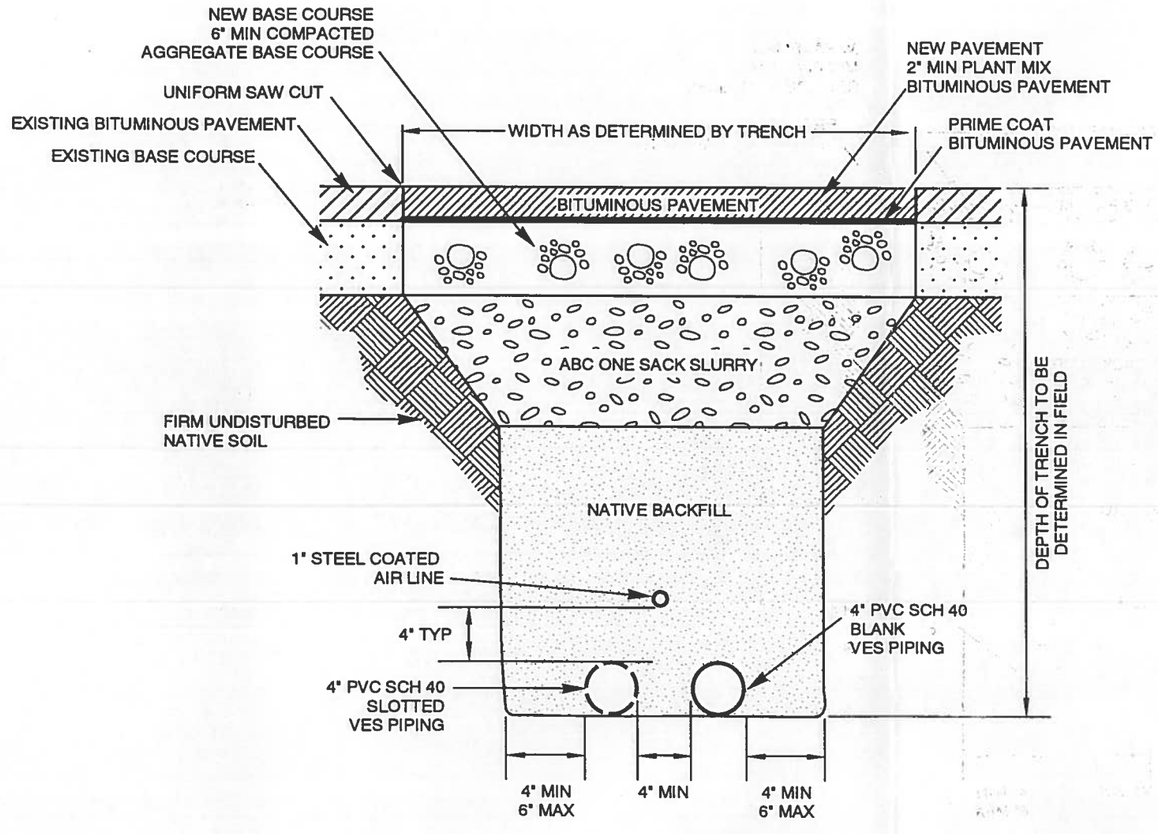
GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, N.M. 87106 (505) 242-3113

WELLHEAD AND PIPING MANIFOLD DETAILS

DESIGNED BY:	DETAILED BY:	CHECKED BY:
TT/JMW	CARTO-GRAPHICS	TB 9/2/93

DATE:	FILE:
9/1/93	NMED-Y2
PROJECT NO.: 023352875	CONTRACT:
DRAWING: Y2	REVISION: –

NOTE:
VES PIPING SLOPES FROM
EQUIPMENT COMPOUND TOWARD
WELLS - MINIMUM 1% SLOPE



TRENCH DETAIL (TYPICAL)

NO SCALE

NO.	DATE	BY	REVISION

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TRENCH DETAIL

DESIGNED BY:	DETAILED BY:	CHECKED BY:
TT/JMW	CARTO-GRAPHICS	TB/9/2/93

DATE:	FILE:
9/1/93	NMED-Y3
PROJECT NO.: 023352875	CONTRACT:
DRAWING: Y3	REVISION: –