AP - 007

STAGE 1 & 2 REPORTS

DATE:

Aug. 2000

SITE INVESTIGATION REPORT

(Pursuant to Stage 1 Abatement Plan)

Prepared for:

Darr Angell-1
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LIST OF ACRONYMS AND ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirement
ASTM	American Society for Testing and Materials
bgs	below ground surface
°C	degrees Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm/sec	centimeters per second
COC	chain of custody
DOT	Department of Transportation
DQO	data quality objective
EC	electrical conductivity
EPA	Environmental Protection Agency
FID	flame ionization detector
FSP	Field Sampling Plan
ft	foot or feet
g/cm^3	grams per cubic centimeter
G	glass
gal/ft^3	gallons per cubic foot
H_2SO_4	sulfuric acid
HCl	hydrochloric acid
HNO_3	nitric acid
HSP	Health and Safety Plan
lbs/gal	pounds per gallon
mL	milliliter
mL/L	milliliters per liter
MS/MSD	matrix spike/matrix spike duplicate
$Na_2S_2O_3$	sodium thiosulfate
NCP	National Contingency Plan
NTU	nephelometric turbidity unit
OD	outside diameter
OSHA	Occupational Safety and Health Administration
OVA	organic vapor analyzer

P	polyethylene
PID	photoionization detector
PO_4^{-3}	phosphate
PPE	personal protective equipment
PVC	polyvinyl chloride
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
RI/FS	remedial investigation/feasibility study
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SO_4^{-2}	sulfate
SOW	statement of work
SP	spontaneous potential
SVOC	semivolatile organic compound
T	California brass
TCLP	toxicity characteristic leaching procedure
TPH	total petroleum hydrocarbon
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
VOC	volatile organic compound
WP	work plan
µm	micrometer
3-D	three-dimensional

EXECUTIVE SUMMARY

This report describes the activities involved in the further delineation of hydrocarbon impacted soil and groundwater attributed to the pipeline release at the Darr Angell-1 site by Environmental Technology Group, Inc. (ETGI) for EOTT Energy Corporation (EOTT). The pipeline release was reported to the New Mexico Oil Conservation Division (NMOCD) on May 5, 1997. Enercon began the initial investigation of the pipeline release prior to the work documented in this report by ETGI. Enercon installed nine monitoring wells, six of which are used as product recovery wells. This investigation was conducted in accordance with NMOCD rules and guidelines.

The time period covered by this report includes June 2000 to July 2000, when an additional eleven monitoring wells were advanced at the site to further delineate groundwater impact. During development of the monitor wells, two monitoring wells displayed evidence of hydrocarbon impact as demonstrated by a slight sheen on the groundwater. Three soil borings were advanced at the site to provide additional soil data to delineate the horizontal and lateral extent of petroleum impacted soil. Activities covered in this report were concluded with the installation of three recovery wells to facilitate the removal of phase separated hydrocarbon (PSH) from the groundwater.

PSH has been documented at the site, with the greatest thickness observed on monitoring well MW-1. This well is located along the pipeline right-of-way, adjacent to the release point as indicated on Figure 2, the Site Map.

Enercon had previously installed automated recovery systems on six of their nine monitoring wells as part of a Stage 1 Investigation Proposal approved by the NMOCD in a letter dated July 20, 1999.

Automated recovery systems will be installed on the recovery wells advanced by ETGI, RW-1, RW-2 and RW-3, to facilitate removal of PSH from the water table. The systems installed by Enercon will be evaluated for efficiency and possibly upgraded to provide more effective PSH removal. The system upgrades and installation of additional recovery systems will occur within the next sixty days at the site.

On completion of PSH removal from the groundwater at the site, a request for No Further Action (NFA), closure, will be submitted for this site.

1.0 INTRODUCTION

1.1 PROJECT PURPOSE AND SCOPE

The purpose of this site investigation report is to describe the additional delineation of the documented groundwater impact as a result of the hydrocarbon release from the EOTT pipeline at the Darr Angell-1 site, located in rural Lea County, New Mexico. This report covers the investigation of the soils at the site and the groundwater impact in compliance with 19 NMAC 15.A19.E(3) and NMOCD *Guidelines for Remediation of Leaks, Spills and Releases*, 1993.

1.1.1 Objectives

The objectives for this site investigation were to 1) delineate the extent of hydrocarbon impact in the soils in the immediate release area via soil borings, sampling and laboratory analysis, 2) investigate the documented impact to the groundwater from the release via monitoring well installation, sampling and laboratory analysis, 3) continue monitoring the groundwater for further impact via sampling and laboratory analysis and 4) provide for recovery of the PSH observed in the groundwater via recovery wells.

1.1.2 Field Activities

Table 1-2

Field Activities Summary

Location	Activity	Number
Perimeter of existing monitoring wells	Monitoring wells to further delineate and monitor any movement of PSH within the site's groundwater	11
Surrounding the site	Soil borings to depths of 15'with sampling at five foot intervals	3
At thickest measured PSH areas	Product recovery wells to facilitate additional removal of PSH from the water table	3
Monitoring wells	Quarterly sampling and laboratory analysis of monitoring wells to identify and monitor any movement of PSH within the site's groundwater	10

This investigation was initiated by installation of eleven monitoring wells (MW-10 through MW-20) to further delineate the extent of PSH within the groundwater. During the installation of these wells the soils were also sampled at five-foot intervals and the samples were submitted for Total Petroleum Hydrocarbons (TPH) analysis as well as Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX) analysis if the field PID reading was over 100ppm for Volatile Organic Compounds (VOC). When conducting the borings or installation of monitoring wells, if observable PSH was encountered in the groundwater, a recovery well (RW) was installed facilitate removal of any product.

Further investigation consisted of the advancement of three soil borings (SB-1, SB-2, SB-3) surrounding the release site. Samples were collected at five-foot intervals from each boring. Laboratory analysis of the samples was performed to give an accurate delineation of any impacted areas. All soil samples were analyzed for TPH, Method SW 846-8015M. Any sample producing a field reading over 100ppm for VOC with a Photoionization Detector (PID) was also tested in the laboratory for BTEX, Method SW 846-8021B.

Three recovery wells (RW) were installed to facilitate removal of PSH on the water table. During the installation on these wells the soils were also sampled at five-foot intervals and the samples were submitted for TPH analysis as well as BTEX analysis if the field PID reading was over 100ppm for VOC.

1.2 PROJECT ORGANIZATION AND RESPONSIBILITY

Beth Aldrich, Geologist, conducted overall project management for this site with assistance from Ken Dutton, Operations Manager. Beth Aldrich also performed the collation and assessment of data obtained from fieldwork as well as laboratory analysis.

Beth Aldrich, Simon Casas and Ken Dutton conducted field activities, i.e. sampling of soils and water and drilling supervision. Simon Casas and Danny Stevens performed the sampling and gauging of all monitoring and recovery wells.

1.2.1 Subcontractors

Subcontractors involved in this project included Eades Drilling (Eades) of Hobbs, New Mexico, who drilled and/or installed the soil borings, monitoring wells and recovery wells. Eades was also responsible for the decontamination the drilling equipment, installation the monitoring well and recovery well hardware and collection and containment of cuttings from the above-mentioned activities.

The soil and groundwater samples that were collected were processed and analyzed by Environmental Laboratory of Texas (ELOT), based out of Midland, Texas, who conducted all required testing of

both the soils and groundwater and submitted reports to ETGI.

John West Surveying Company of Hobbs, New Mexico, a certified land surveyor, surveyed the site, including all soil borings, monitoring wells and recovery wells. A survey plat was provided upon completion of the survey.

2.0 SITE DESCRIPTION

2.1 SITE HISTORY

2.1.1 Operational History

The release point was located on a buried north south trending steel 8" pipeline. The pipeline is currently operated by EOTT. The release was reported to the NMOCD on May 1, 1997.

2.1.2 Nature of Current Release

On May 1, 1997, approximately 25 barrels of crude oil was released from an 8" EOTT pipeline (See Figure 2). EOTT personnel immediately responded, initiating shutdown procedures to terminate the flow of oil from the line failure point. Approximately 15 barrels of crude oil were recovered from the site. Internal corrosion was identified as the cause of the failure of the line.

2.1.3 Summary of Previous Investigations

Enercon conducted a Stage 1 Investigation at this site prior to the involvement of ETGI. This investigation was approved by the NMOCD in a letter dated July 20, 1999.

2.2 ENVIRONMENTAL SETTING

2.2.1 Physical Location, Topography, and Site Layout

As shown in the U.S. Geological Survey (USGS) quadrangle map in Figure 1, the site is located south of US Highway 82 at Latitude 033° 01' 59.5" N and Longitude 103° 10' 03.1" W, in Section 11, Township 15 South, Range 37 East in rural Lea County, New Mexico. Generally, the surface of the site consists of unconsolidated sand covered by moderate to sparse grasses. Oil and gas production facilities are located in the surrounding area.

The site is located at an elevation of approximately 3,783 feet above mean sea level (msl). The topography is relatively flat terrain, sloping to the southeast. Storm water runoff from the site is minimal, trending to the southeast. The surface runoff that does occur is localized into marginally depressed areas on the site. Known utilities on the site consist of electricity in overhead lines as well as crude oil gathering and transportation lines.

A layout of the site is presented in Figure 2, the Site Plan. The site is currently a rural area with no development. Located in the central portion of the site is a small building housing the Enercon installed recovery systems and an adjacent storage tank.

2.2.2 Receptor Identification

As previously discussed, the site is located in a rural area. The site is not fenced on all sides but a fenced tank battery is adjacent to the west side of the site. In the vicinity of the site, access is unrestricted via the adjacent lease roads.

Based on the aforementioned site conditions, the following onsite and offsite potential receptor populations were identified for this risk assessment.

- Onsite:
    - Environmental/Sampling Technician
    - Construction worker
- Offsite:
    - Adult Trespasser
    - Adolescent Trespasser (7 to 15 years of age)

The onsite environmental/sampling technician was considered a potential receptor due to the possibility of exposures from periodic, non-intrusive, maintenance-related operations performed by that receptor at the site. Currently, activities that are conducted by the environmental/sampling technician include site inspections, monitoring and maintenance of the PSH recovery systems, sampling onsite monitoring wells and loading recovered groundwater into a tank mounted on a trailer. Site inspections occur once a week and are done in two hours or less unless maintenance is required on the PSH recovery systems. Groundwater sampling is conducted on a quarterly basis, and requires approximately twenty man-hours per sampling event, with recovered groundwater loading occurring at this time. All current site activities are conducted in accordance with a site Health and Safety Plan that is designed to minimize the potential for exposure to contaminants at the site.

There are no construction plans for the site at this time. However, installation of automated recovery systems will include construction of fencing and the installation of storage tanks, pads and buildings to house the systems. Future activities may include excavation. Therefore, a construction worker will be considered in this risk assessment. All site activities will be conducted in accordance with the site Health and Safety Plan that is designed to minimize the potential for exposure to contaminants at the site.

Sampling data indicate that contaminants are present in the groundwater at the site. Therefore, in addition to the aforementioned onsite receptor, offsite receptors could potentially be exposed to contamination.

Due to the fact that the site has access via adjacent lease roads and oil and gas activities surround the site, adult, and less likely, adolescent trespassers were included as potential receptors in this risk assessment. Due to the locks placed on each monitoring well and recovery well at the site, it is extremely difficult for potential offsite receptors to encounter any groundwater at the site. Site controls (well locks) will be maintained at the site as a part of the ongoing assessment that will further limit unauthorized access.

2.3 GEOLOGY AND HYDROGEOLOGY

The site is located in rural Lea County, New Mexico, east of the town of Lovington, New Mexico. The surface of the site consists of unconsolidated, wind blown sands and finer materials with elevations between 3,783 and 3,786 msl. The topography is predominantly a flat terrain, sloping slightly to the southeast. There is no surface water, not including manmade excavations, within 1,000 feet of the site. The nearest water well is in excess of one half mile away, to the southeast.

2.3.1 Soils

According to the U.S. Department of Agriculture (USDA) Soil Conservation Service soil survey, the soils at the site consist of the Kimbrough-Lea association, with a 0 to 3 percent slope. The soils of the Kimbrough-Lea association are nearly level and gently sloping, gravelly and loamy soils that are very shallow to moderately deep to indurated caliche. The soils are located mainly in the northern half of Lea County.

The surface layer ranges from 6 to 20 inches thick. Color ranges from dark grayish-brown to brown and the soil is mildly alkaline. The texture of the surface layer is loam or loamy sand.

The subsurface layer is from 6 to 40 inches thick. Color ranges from grayish-brown to brown. The texture is gravelly loam or loamy sand, which can be as much as 60 percent by volume. The underlying material is indurated caliche, a very pale tan calcareous sand or unconsolidated red sand. The caliche layer is discontinuous.

Kimbrough-Lea association soils have slow to rapid surface drainage, with permeability that is moderate to moderately rapid. Soil blowing is a slight to severe hazard. Runoff is slow to rapid.

Kimbrough gravelly loam, 0 to 3 percent slopes, soil occurs on prairie uplands and is locally known as "scabland" and is locally interbedded with fragmented caliche. Stegall loam, 0 to 1 percent slopes, soil occurs on uplands in northern Lea County, mixed with Kimbrough-Lea series soils and has a sub angular, blocky structure. Included in the area near the site are patches of Portales loam, 0 to 1 percent slopes and Portales fine sandy loam, 1 to 3 percent slopes.

2.3.2 Regional Geology

The Lea County surface topography consists of unconsolidated, wind blown sands and finer materials associated with the Tertiary Ogalalla Formation, which serves as a major aquifer for southeastern New Mexico and several high plains states. The Triassic Dockum Group, commonly referred to as the "red beds", underlies the Ogalalla. While there are sand lenses within the Dockum Group, it is more typically characterized by red silts and red shales in which detectable groundwater is often absent or of limited extent.

2.3.3 Site Geology

Based on the results of the site investigation, as well as a review of geologic maps, the site appears to lie within the Ogalalla Formation. The uppermost unit was a tan-brown to brown, very fine grained loamy sand with a few calcareous fragment and deposits and was from 2 to 10 feet thick. This unit is underlain by a red to red-brown very fine grained, well-sorted sand with none to abundant caliche nodules and was from 8 to 20 feet thick. That unit was underlain by a tan to white, very hard, calcareous sandstone, which was from 3 to 5 feet thick. The next underlying unit was very fine grained, well sorted, red to red-brown sand with slight moisture at the water table and none to few sandstone fragments with a thickness of between 12 and 32 feet. At depths of 28 to 33 feet bgs lays a discontinuous layer of well-indurated sandstone with calcareous cement, which varies in thickness from one to five feet. The soil boring logs can be found in Appendices C and D.

2.3.4 Regional Hydrogeology

The primary water-bearing formation in Lea County is the Tertiary Ogalalla Formation, which serves as a major aquifer for southeastern New Mexico. Alluvial, unconfined groundwater is typically present in these sands at varying depths and generally flows from north to south. These aquifers are typically characterized by relatively high hydraulic conductivity and transmissivity.

2.3.5 Local Hydrogeology

Shallow groundwater at the site occurs near the unconformity between the underlying red clay of the Dockum Formation and the unconsolidated sands associated with the overlying Ogallala Formation. At the site, this unconformity is present at depths hat range between 56 to 59 feet bgs. The movement of fluids, including groundwater and PSH, is enhanced where the groundwater occurs in the sand. However, the movement of fluids is significantly retarded in areas where the groundwater occurs within the red clay (C.W. Fetter, *Applied Hydrogeology*, 1988). The groundwater observed at this depth is considered to be of beneficial use based on the site-specific concentration of total dissolved solids (TDS) and criteria included in the NMOCD regulations.

2.3.6 Water Well Inventory

For the site investigation report a water well search was performed of the New Mexico Office of the State Engineer's water well database (See Appendix B). The search was conducted on a half-mile radius surrounding the site. No water wells were found within the half-mile radius. This information was verified during the field investigation.

2.4 SURFACE HYDROLOGY

2.4.1 Distance to Nearest Surface Water Body

Based on site reconnaissance and a review of the USGS topographic maps in this area, there are no natural surface bodies of water, either standing (ponds, lakes) or free flowing (rivers or streams) within a half-mile radius of the site.

2.4.2 Seasonal Stream Flow Characteristics

There are no streams within a half-mile radius of the site area; therefore impact from any seasonal flow would be negligible. Seasonal rainfall is negligible, as the area is classified as dry upland.

2.4.3 Groundwater/Surface Water Relationships

As there are no surface water impoundments in the site area, a relationship between surface water and groundwater does not exist. Pooling of rainfall may occur on an intermittent basis, but the arid climate and rapid evaporation associated with it precludes any percolation to the groundwater table.

3.0 FIELD OPERATIONS

3.1 GEOLOGIC STANDARDS

The lithologic descriptions for unconsolidated materials (soils [engineering usage] or deposits) used the name of the predominant particle size (e.g., silt, fine sand, etc.). The dimensions of the predominant and secondary sizes were recorded using the metric system. The grain size and name of the deposit were accompanied by the predominant mineral content, accessory minerals, color, particle angularity, and any other characteristics. The clastic deposit descriptions included, as a supplement, symbols of the Unified Soil Classification System. The color descriptions were designated by the Munsell Color System.

The scales for maps, cross sections, or 3-D diagrams were selected in accordance with the geologic and hydrologic complexity of the area and the purposes of the illustrations. Maps are oriented with North toward the top, unless the shape of the area dictates otherwise. Orientation is indicated with a North arrow.

3.2 SITE RECONNAISSANCE, PREPARATION, AND RESTORATION PROCEDURES

Site investigation and field sampling for laboratory analysis by ETGI personnel were conducted utilizing mobile units (pickup trucks). Each unit is equipped with a first aid kit and a portable fire extinguisher. Onsite personnel were equipped with hardhat, safety glasses, personal H_2S monitor and safety boots. In addition, portable cellular telephones were onsite to facilitate emergency access in the event of fire or accident.

3.3 BOREHOLE DRILLING, LITHOLOGIC SAMPLING, LOGGING, AND ABANDONMENT

3.3.1 General Drilling Procedures

All drilling activities conformed to state and local regulations, were performed by licensed well driller, and were supervised by a geologist. All permits, applications, and other documents required by state and local authorities were obtained.

The location of all borings was coordinated, in writing, with the EOTT Project Manager before drilling commenced. When boreholes were drilled through more than one water bearing zone or aquifer, measures were taken to prevent cross-connection or cross-contamination of the zones or aquifers.

The drill rig was cleaned and decontaminated in accordance with the procedure in Section 3.9. The drill rig did not leak any fluids that might have entered the borehole or contaminated equipment placed in the hole.

A log of drilling activities was kept in a bound field notebook. Information in the log book included location, time on site, personnel and equipment present, down time, materials used, samples collected, measurements taken, and any other observations or information necessary to reconstruct field activities at a later date. At the end of each day of drilling, the drilling supervisor completed a Daily Drilling Log.

The drilling contractor disposed of all trash, waste grout, cuttings, and drilling fluids as coordinated with the EOTT Project Manager or designated representative.

3.3.2 Sampling and Logging

The lithology in all boreholes was logged (See Appendices C and D). The boring log was used for recording the lithologic logging information. Information on the boring log sheet includes the borehole location; drilling information; sampling information such as sample intervals, and recovery; and sample description information. Copies of the boring logs are included the Appendices.

Unconsolidated samples for lithologic description were obtained continuously. Lithologic descriptions of unconsolidated materials encountered in the boreholes was described in accordance with both the New Mexico Oil Conservation Division Guidelines for Remediation of Leaks, Spills and Releases and American Society for Testing and Materials (ASTM) D-2488-90 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) (ASTM, 1990). Descriptive information recorded in the field included: (1) identification of the predominant particles size and range of particle sizes, (2) percent of gravel, sand, fines, or all three, (3) description of grading and sorting of coarse particles, (4) particle angularity and shape, and (5) maximum particle size or dimension. In addition, the unconsolidated materials were ranked as either highly contaminated or saturated soils (based on observable free phase hydrocarbons or immiscible phases and gross staining) or unsaturated contaminated soils (based on PID readings), as applicable.

Identification of the Unified Soil Classification System (USCS) group symbol was used for clastic material. Additional information recorded included the depth to the water table, caving or sloughing of the borehole, changes in drilling rate, depths of samples collected, presence of organic materials, presence of fractures or voids in consolidated materials, and other noteworthy observations or conditions, such as the locations of geologic boundaries.

All samples were monitored with an organic vapor monitor (e.g., PID, organic vapor analyzer [OVA]). The samples were handled in such a way as to minimize the loss of volatiles, and these procedures shall be described in Section 4.0. Cuttings were examined for their hazardous characteristics. Materials suspected to be hazardous because of abnormal color, odor, or organic vapor monitor readings were containerized in conformance with the Resource Conservation and Recovery Act (RCRA) and the state and local requirements.

3.3.3 Abandonment

Boreholes that were not converted to monitoring wells were abandoned in accordance with applicable federal, state and local requirements. Appropriate paperwork was filed with the correct New Mexico department. If slurry was used, a mud balance and/or Marsh Funnel were used to ensure the density (lbs/gal) of the abandonment mud mixture conforms to the manufacturer's specifications. The slurry was emplaced from the bottom to the top of the hole using a tremie pipe.

All abandoned boreholes were checked 24 to 48 hours after mud/solid bentonite emplacement to determine whether curing was occurring properly. If more specific curing specifications were recommended by the manufacturer, these were followed. If settling occurred, a sufficient amount of mud/solid bentonite was added to fill the hole to the ground surface. These curing checks and any addition of mud/solid bentonite were recorded in the field log.

3.4 MONITORING WELL CONSTRUCTION

All monitoring wells were constructed in accordance with criteria set forth in *Guidelines For Remediation of Leaks, Spills and Releases*, 1993 by the NMOCD. The well construction materials were selected according to industry standards, are chemically resistant to the monitored contaminants and were installed without the use of glues/adhesives. The monitoring wells were constructed according to NMOCD approved industry standards to prevent migration of contaminant along the well casing. The monitoring wells were constructed with a minimum of fifteen feet of well screen, at least five feet of which was above the water table to accommodate seasonal fluctuations in the water table.

3.5 MONITORING WELL DEVELOPMENT

The objective of monitoring well development is to repair damage done to the formation by the drilling operation so that the natural hydraulic properties of the formation are restored and to remove any fluids introduced into the formation that could jeopardize the integrity of the sample.

Monitoring well development is accomplished by purging the well a minimum of nine well volumes of groundwater. The turbidity should be reduced to the greatest extent possible before sampling is begun.

3.6 SURVEYING

All surveying locations of field activities were measured by a certified land surveyor as the distance in feet from a reference location that was tied to the state plane system. The surveys were third order (cf. Urquhart, L.C., *1962 Civil Engineering Handbook*, 4th Edition, p. 96 and 97). A XY-coordinate system was used to identify locations. The X-coordinate was the East-West axis; the Y-coordinate was the North-South axis. The reference location was the origin. All surveyed locations were

reported using the state plane coordinate system. The survey plat gives the X and Y coordinates in state plane coordinate values and the elevation of the ground surface.

3.7 EQUIPMENT DECONTAMINATION

Cleaning of drilling equipment was the responsibility of the drilling company. In general, the cleaning procedures consisted of using high-pressure steam to wash the drilling and sampling equipment prior to drilling and prior to starting each hole.

Prior to use, the sampling equipment was cleaned with Liqui-Nox detergent and rinsed with distilled water. The following procedure was used to decontaminate sampling and drilling devices, such as split spoons, bailers and augers that can be hand-manipulated. For sampling and smaller drilling devices, the equipment was scrubbed with a solution of potable water and Alconox. Then the equipment was rinsed with copious quantities of potable water followed by an ASTM Type II Reagent Water. The equipment was air dried on a clean surface or rack, such as Teflon®, stainless steel, or oil-free aluminum elevated at least two feet above ground. If the sampling device was not used immediately after being decontaminated, it was wrapped in oil-free aluminum foil, or placed in a closed stainless steel, glass, or Teflon® container.

3.8 INVESTIGATION DERIVED WASTE HANDLING

3.8.1 General Waste Handling Procedures

Non-investigative waste, such as litter and household garbage, was collected on an as-needed basis to maintain the site in a clean and orderly manner. This waste was containerized and transported to a designated sanitary landfill or collection bin. Acceptable containers holding non-investigative waste were sealed boxes or plastic garbage bags.

Investigation derived waste was properly containerized and temporarily stored at each site, prior to transportation and dsiposal. Depending on the constituents of concern, fencing or other special marking was used as required. The number of containers was estimated on an as-needed basis. Acceptable containers utilized during this investigation were sealed, U.S. Department of Transportation (DOT)-approved steel 55-gallon drums. The containers were transported in such a manner to prevent spillage or particulate loss to the atmosphere and disposed of at an approved solid waste disposal facility.

The investigative derived waste was segregated at the site according to matrix (solid or liquid) and as to how it was derived (drill cuttings, drilling fluid, decontamination fluids, and purged groundwater). Each container was properly labeled with a tracking number, and with site and source identification, sampling point, depth, matrix, constituents of concern, and other pertinent information for handling.

4.0 ENVIRONMENTAL SAMPLING

4.1 SAMPLING PROCEDURES

All purging and sampling equipment was decontaminated according to the specifications in Section 3.7 prior to any sampling activities and was protected from contamination until ready for use.

4.1.1 Groundwater Sampling

When numerous monitoring wells were sampled in succession, those wells expected to have low levels of contamination or no contamination were sampled prior to those wells expected to have higher levels of contamination. This practice helped reduce the potential for cross contamination between wells. All sampling activities were recorded in the field logbook. Additionally, all sampling data were recorded on a well sampling form.

The following information was recorded each time a well was purged and sampled: (1) depth to water before and after purging, (2) well bore volume calculation, (3) measured total depth of the monitoring well, (4) the condition of each well, (5) the thickness of any nonaqueous layer and (6) field parameters, such as turbidity.

4.1.1.1 Water Level Measurement

The groundwater level was then measured to the nearest 0.01 foot using an electric water level indicator. Water levels were measured from the top of the well casing. Following water level measurement, the total depth of the well from the top of the casing was determined and recorded on the well sampling form. The length of well casing above the ground surface was then measured and subtracted from the total depth to obtain a depth of water and total well depth from the groundsurface. All water level and total depth measuring devices were routinely checked with a tape measure to ensure measurements were accurate.

4.1.1.2 Purging Prior to Sampling

Purging of monitoring wells was performed to evacuate water that has been stagnant in the well and may not be representative of the aquifer. Purging was accomplished using a Teflon® bailer. At least three well volumes were removed from the well before it is sampled. The well bore volume is defined as the volume of submerged casing and screen. One well volume can be calculated using the following equation (reference: Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations and Groundwater Monitoring Programs, June 1993):

$$V = H \times F$$

where V = one well volume
H = the difference between the depth of well and depth to water (ft)

F = factor for volume of one foot section of casing (gallons) from Table 4.1

Table 4.1 Volume of Water in One-Foot Section of Well Casing

Diameter of Casing (inches)	F Factor (gallons)
1.5	0.09
2	0.16
3	0.37
4	0.65
6	1.47

F can also be calculated from the formula:

$$F = \Pi (D/2)^2 \times 7.48 \text{ gal/ft}^3$$

where D = the inside diameter of the well casing (feet).

Wells with yields too low to produce three well volumes before the well goes dry were purged to dryness. Water removed from the well during purging was containerized. Detailed information concerning investigative derived wastes is presented in Section 3.8.

4.1.1.3 Sample Collection

Samples were taken within 24 hours of monitoring well development. Except as noted, at least three well volumes were removed from the well before it was sampled.

Field equipment was calibrated in accordance with the QAPP of this site investigation report. VOCs samples were collected as soon as possible after purging, and not more than two hours after purging was completed. If a monitoring well was bailed or pumped dry before three well volumes were obtained, the sample was collected when a sufficient volume of water had accumulated in the well.

Before collecting groundwater samples, the sampler put on clean, phthalate-free protective gloves. Samples were collected first using a Teflon® bailer. Disposable nylon rope was used to lower and retrieve the disposable bailers. A new length of nylon rope was used for each well, and the rope was disposed of following the sampling activities. Each bailer was equipped with a dedicated stainless steel or Teflon® coated leader so that the nylon rope did not contact the water in the well.

Groundwater sample containers were filled in the order of decreasing volatilization sensitivity (i.e., BTEX containers will be filled first and PAH containers second). Groundwater samples, collected for BTEX analysis, were placed in 40 ml glass VOA vials equipped with Teflon-lined caps and preserved with HCI. The sample containers were provided by the analytical laboratory. The vials were filled to

a positive meniscus, sealed, and visually checked to ensure the absence of air bubbles.

Groundwater samples, collected for PAH analysis, were filled to capacity in sterile non-preserved, 1-liter glass containers equipped with Teflon lined caps. Groundwater samples, collected for metals analysis, were filled to capacity in sterile, 1-liter plastic containers equipped with Teflon lined caps preserved with HNO_3. The sample containers were provided by the analytical laboratory.

The filled containers were labeled and placed on ice in an insulated cooler. The cooler was sealed for transportation to the analytical laboratory. Proper chain-of-custody documentation was maintained throughout the sampling process.

Required sample containers, preservation methods, volumes and holding times are given in Section 4.2.2 and Table 4.2.2-1. Sampling equipment shall be decontaminated in accordance with Section 3.7 upon completion of sampling activities.

4.1.2 Subsurface Soil Sampling

Soil samples were collected at five-foot intervals from the surface to the total depth of the boring. Split spoon sampling was the preferred method of sample collection, however, due to local lithology, grab sampling was utilized as a backup method.

4.1.2.1 Split-Spoon Samples

When soil samples were to be submitted for laboratory analysis, they were collected using stainless steel, continuous drive, California modified split-spoon samplers. These samplers are 24 inches in length and have an outside diameter (OD) of 3 inches.

As soon as the split-spoon was opened, samples for field VOC analysis were collected and placed in a resealable plastic bag to facilitate headspace analysis utilizing a PID. The field monitoring results were recorded on the boring log and in the field logbook. If the field PID reading was over 100 ppm, the sample was additionally tested for BTEX at the laboratory.

Samples to be tested were collected by extruding the soil out of the split spoon sampler into 4 ounce, laboratory supplied glass containers with Teflon® lined lids. This was done using clean stainless steel sampling tools. The sample was then sealed, labeled, and place into an iced cooler held at a temperature below 4°C for transportation to the laboratory.

4.1.3 Surface Soil Sampling

Surface soil samples were collected from the land surface to a depth of 6 inches. The sample was homogenized and quartered before being containerized. Stainless steel scoops or trowels, were used to collect samples and prepare the samples, which were then packed into glass jars with Teflon® lids and subsequently delivered to the laboratory.

Unusual surface conditions that may have affected the chemical analyses were recorded in the logbook, such as the following: (1) evidence of dumping or spillage of chemicals, (2) soil discoloration, and/or (3) unusual condition of plants, etc.

4.2 SAMPLE HANDLING

4.2.1 Sample Containers

Sample containers were purchased precleaned and treated according to EPA specifications for the analytical methods. Containers were stored in clean areas to prevent exposure to fuels, solvents, and other contaminants. Amber glass bottles were used for SVOCs and other constituents that may be sensitive to exposure to light.

4.2.2 Sample Volumes, Container Types, and Preservation Requirements

Sample volumes, container types, and preservation requirements for the analytical methods performed on the samples were listed in Table 4.2.2-1.

Sample holding time tracking began with the collection of samples and continued until the analysis was conducted.

Holding times for methods are specified in Table 4.2.2-1.

Table 4.2.2-1 Requirements for Containers, Preservation Techniques, Sample Volumes, and Holding Times

Name	Analytical Methods	Container[a]	Preservation[b,c]	Minimum Sample Volume or Weight	Maximum Holding Time
Conductance	SW 846 Method 9050	P, G	None required	N/A	Analyze immediately
Temperature	E170.1	P, G	None required	N/A	Analyze immediately
Dissolved oxygen	E360.1	G	None required	500 mL	Analyze immediately
Turbidity	E180.1	P, G	4°C	N/A	48 hours
Total Dissolved Solids (TDS)	E160.1	P, G	4°C	N/A	7 days
Metals (except chromium (VI) and mercury)	SW 846 Method 6010B	P, G, T	HNO_3 to pH < 2, 4°C	500 mL or 8 ounces	180 days (water)
Polynuclear Aromatic Hydrocarbons	SW 846 Method 8270C	G, Teflon®-lined cap, T	4°C, 0.008% $Na_2S_2O_3$	1 liter or 8 ounces	7 days until extraction and 40 days after extraction (water);
TPH	SW 846 Method 8015M	P, Teflon®-lined cap, T	Cool, 4°C	4 or 8 ounces	14 days until extraction and 40 days after extraction (water);
BTEX	SW 846 Method 8021B	G, Teflon®-lined septum, T	4°C, 0.008% $Na_2S_2O_3$ (HCl to pH < 2 for volatile aromatics by SW8240 and SW8260)[b]	2 x 40 mL or 4 ounces	14 days (water and soil); 7 days if unpreserved by acid
TCLP/SPLP	SW 846 Method 1311/ 1312	G, Teflon®-lined cap, T	Cool, 4°C	1 liter or 8 ounces	14 days to TCLP/SPLP extraction and 14 days after extraction (volatiles); 14 days to TCLP extraction and 40 days after extraction (semivolatiles); 28 days to TCLP/SPLP extraction and 28 days after extraction (mercury); 180 days to TCLP/SPLS extraction and 180 days after extraction (metals)

a. Polyethylene (P); glass (G); brass sleeves in the sample barrel, sometimes called California brass (T).
b. No pH adjustment for soil.

4.2.3 Sample Identification

Soil samples were assigned numbers based upon their origin, i.e. Soil Boring SB-1, Monitoring well MW-1, the chronology of the event, i.e., first (-1), second (-2) third,(-3), and the depth from which they were obtained, i.e., MW-1, (8-10'). Water samples were assigned numbers based upon the Monitoring well they were collected from, for example MW-1.

4.3 FIELD MEASUREMENTS

4.3.1 PARAMETERS

Field measurements to be conducted include VOC readings of field soil samples, water level measurements in monitoring wells and PSH measurements in recovery wells and tanks. Field VOC readings were measured with a Photoionization Detector (PID). Field water and PSH levels were measured with an Interface Probe/Water Monitor.

4.3.2 EQUIPMENT CALIBRATION AND QUALITY CONTROL

The Photoionization Detector (PID) that was used on field VOC measurements is a MultiRAE Plus manufactured by RAE Systems Inc. of Sunnyvale, CA. This monitor is calibrated using Portagas Specialty gas mixtures. The calibration date is recorded within the monitor's system.

The Interface Probe/Water Monitor used for water and PSH level measurements was a Solinst Interface Probe and Water Monitor manufactured by Solinst Canada Corp. of Georgetown, Ontario, Canada. The fluid level alarm on the interface probe was verified by pressing the test button and confirming its operation prior to each use.

4.3.3 EQUIPMENT MAINTENANCE AND DECONTAMINATION

All field measurement equipment was decontaminated according to the specifications in Section 3.7 in this report prior to any measurement activities and was protected from contamination until ready for use.

4.3.4 FIELD MONITORING MEASUREMENTS

4.3.4.1 Groundwater Level Measurements

Water-level measurements were taken in all wells within a 24-hour time period to determine the elevation of the groundwater level on-site. These measurements were taken after all wells have been installed and developed and their water levels had stabilized. Any conditions (e.g., barometric pressure) that would have affected water levels were recorded in the field log. The field log also included the previous water level measurement for each well (to determine if the measured water

level was reasonable).

Water-level measurements were taken with electric water-level monitors. All measuring equipment was decontaminated according to the specifications in Section 4.3.3 and 3.9 of this report. Groundwater level measurements were measured to the nearest 0.01 foot. (Two or more sequential measurements were taken at each location until two measurements agreed to within + or -0.01 foot.)

Static water levels were measured prior to each groundwater monitoring well sampling event before any purging or sampling equipment was used.

4.4 SAMPLE CUSTODY

Procedures to ensure the custody and integrity of the samples were begun at the time of sampling and continued through transport, sample receipt, preparation and storage, data generation and reporting, and sample disposal. Records concerning the custody and condition of the samples were maintained in field and laboratory records.

ETGI maintained chain-of-custody (COC) records for all field and field QC samples. A sample is defined as being under a person's custody if any of the following conditions exist: (1) it is in their possession, (2) it is in their view, after being in their possession, (3) it was in their possession and they locked it up, or (4) it is in a designated secure area. All sample containers were sealed in a manner that prevented or detected tampering.

The following minimum information concerning the sample was documented on the COC form:

- Unique sample identification
- Date and time of sample collection
- Source of sample (including name, location, and sample type)
- Preservative used
- Analyses required
- Name of collector(s)
- Pertinent field data
- Custody transfer signatures and dates and times of sample transfer from the field to transporters and to the laboratory or laboratories

All samples were uniquely identified, labeled, and documented in the field at the time of collection in accordance with Section 4.2.3 of this report.

Samples collected in the field were transported to the laboratory. When a minimum temperature requirement for preserving the sample was indicated 4°C , the samples were packed in ice to keep them cool during collection and transportation.

5.0 SAMPLE ANALYSIS SUMMARY

Table 1-1
Sample Analysis Summary

Method (prep/analytical)	Matrix	Total # of Samples
TPH-8015M	Soil	194
BTEX - 8021B	Soil	11
BTEX - 8021B	Water	11
Metals - 6010B	Water	11
PAH - 8270C	Water	11
Cations/Anions/ TDS- 375.4,325.3,310,160.1	Water	11

6.0 DATA QA/QC REVIEW AND EVALUATION

6.1 DATA QA/QC REVIEW

The laboratory was responsible for proper QA/QC procedures after signing the chain-of-custody form. These procedures were either transmitted with the laboratory reports or are on file at the laboratory. A review of the QA/QC data, transmitted with the laboratory reports, was performed by ETGI personnel. All instrumentation and extraction accuracy ranges were within acceptable limits.

6.2 DATA EVALUATION

As constituents were detected in the various media sampled at the site (soil and groundwater), ongoing evaluations for determining contaminants were performed. For the purposes of this risk-based assessment, constituent concentration levels will be based upon criteria set forth in the NMOCD guidelines for soils. The cocentration levels for groundwater will follow criteria set forth in the New Mexico Water Quality Control Commission (NMWQCC) guidelines.

Due to the nature of ongoing pipeline operations, it is assumed that the constituents that were detected in the soil originated from the pipeline release. Three soil borings were advanced at the site, with a total of 12 soil samples taken. The samples were analyzed for TPH using SW 846 Method 8015M and BTEX by SW 846 Method 8021B if the field PID reading exceeded 100 ppm. Eleven monitoring wells were advanced at the site, with a total of 143 soil samples taken. The samples were analyzed for TPH using SW 846 Method 8015M and BTEX by SW 846 Method 8021B if the field PID reading exceeded 100 ppm TPH using SW 846. Three product recovery wells were advanced at the site, with a total of 39 soil samples taken. The samples were analyzed for TPH using SW 846 Method 8015M and BTEX by SW 846 Method 8021B if the field PID reading exceeded 100 ppm.

Once the monitoring wells were installed, eleven groundwater samples were collected to determine if the contamination had migrated to the groundwater. The groundwater samples were analyzed for BTEX by SW 846 Method 8021B, Metals by SW 846 Method 6010B, Polynuclear Aromatic Hydrocarbons (PAH) by SW 846 Method 8270 and Cations, Anions and Total Dissolved Solids (TDS) by Methods 375.4, 325.3, 310 and 160.1.

7.0 SUMMARY OF RESULTS

7.1 DELINEATION OF NATURE, EXTENT, AND MAGNITUDE OF CONTAMINATION

The presence of petroleum-impacted soil was detected in the unsaturated and capillary fringe zones in the area of monitoring wells MW-10, MW-13 and MW-14 as well as recovery wells RW-1, RW- 2 and RW- 3. The greatest impact in the unsaturated zone was detected at the depth of 48 to 50 feet bgs in recovery well RW-3, where a TPH concentration of 1,260 mg/kg was measured in the soil sample (Table 1). Visual observations of the soil samples indicated that this soil did not qualify as Highly Contaminated/Saturated Soils as per NMOCD guidelines. Elevated levels of TPH were observed at 48 to 50 feet bgs in samples collected from the borings later completed as monitoring wells MW-10, MW-13 and MW-14. Additionally, elevated levels of TPH were observed in the interval of 38 to 50 feet bgs in samples from the borings later completed as recovery wells RW-1, RW-2 and RW-3 (Table 1). Based on visual observation, none of these samples appeared to qualify as Highly Contaminated/Saturated Soils.

At the recovery well RW-1 location, a TPH concentration of 11,675 mg/kg was measured in the soil sample collected at 55 feet bgs. At the recovery well RW-2 location, a TPH concentration of 12,339 mg/kg was measured in the soil sample collected at 55 feet bgs. At the recovery well RW-3 location, a TPH concentration of 8,457 mg/kg was measured in the soil sample collected at 55 feet bgs. These soil samples showed evidence of petroleum saturation based on the NMOCD guidelines for Highly Contaminated/Saturated Soils. All analytical results are provided in Table 1.

With the exception of the three recovery wells and the three monitoring wells, Highly Contaminated/Saturated and Unsaturated Contaminated Soils were not observed in any of the other soil samples. Therefore, it is assumed that the Highly Contaminated/Saturated Soils and Unsaturated Contaminated Soils are limited to the area immediately surrounding monitoring wells MW-10, MW-13 and MW-14 and recovery wells RW-1, RW-2 and RW-3.

The greatest soil impact within the capillary fringe zone was detected at the recovery well RW-2 location where the TPH concentration in the sample collected from 55 feet bgs was 12,339 mg/kg.

7.1.1 Highly Contaminated/Saturated Soils

As described in the previous section, soils that may be characterized by NMOCD guidelines as Highly Contaminated/Saturated Soils were observed in monitoring wells MW-10, MW-13 and MW-14. These soils were also observed in recovery wells RW-1, RW-2 and RW-3. These soils occurred in the capillary fringe zone, at a depth of 55 feet bgs.

7.1.2 Unsaturated Contaminated Soils

Soil samples taken from the 48 to 50 feet bgs in monitoring wells MW-10, and MW-14 indicated evidence of contamination. Soil samples taken from the 53 to 55 feet bgs level in monitoring wells MW-10, MW-13 and MW-14 also indicated evidence of contamination. Soil samples taken from the 38 to 50 feet bgs levels in recovery wells RW-1, RW-2 and RW-3 indicated evidence of contamination. These samples indicated evidence of contamination that could be classified as Uncontaminated Saturated Soils under NMOCD guidelines.

7.1.3 Groundwater Contamination

The groundwater gradient, Figure 3, is modified by a mounding effect, and slopes to the north, northeast, southwest and southeast. The variations in gradient, as depicted on the map, are most likely a function of variations in lithology at the water table, and the presence of PSH within portions of the mapped area.

A plume of PSH is distributed in the subsurface across the site, centered over monitoring well MW-1 and trending primarily from northwest to southeast. The thickness of PSH is greatest at recovery well RW-1, where the last measured PSH thickness is 9.41 feet (Figure 4).

Dissolved phase petroleum hydrocarbons were detected in the groundwater samples from monitoring wells MW-10, MW-12, MW-13 and MW-15. The groundwater sample from monitoring well MW-13 was in excess of New Mexico Water Quality Control Commission (NMWQCC) standards for other petroleum constituents including naphthalene. All analytical results for groundwater are summarized in Table 2.

Samples collected from monitoring wells MW-17, MW-18, MW-19 and MW-20 were in excess of NMWQCC standards for iron (Table 4). The groundwater samples from monitoring wells MW-10, MW-11 and MW-20 also had levels of manganese slightly above the NMWQCC standard (Table 4). The groundwater sample from monitoring well MW-20 had levels of aluminum and chromium above the NMWQCC standard. All dissolved phase metal contamination results in groundwater are summarized in Table 4.

All of the groundwater samples were non-detect for benzo-a-pyrene, however the laboratory detection limit was 0.005 mg/L while the regulatory limit is 0.0007 mg/L. The analytical method used for this analysis is acceptable to the NMOCD and this detection limit is a function of this method. Therefore, it cannot be concluded that groundwater at the site does not exceed the regulatory limit for benzo-a-pyrene. Dissolved phase semi-volatile results in groundwater are shown in Table 3.

In the site groundwater samples, TDS concentrations range from 344 mg/L to 864 mg/L, as indicated in Table 2. New Mexico WQCC statute 20.6.2 Subpart III.3101 and OCD Rule 19 NMAC 15.A.19.A state that groundwater with a TDS concentration of less than 10,000 mg/L is considered

to be of beneficial use and subject to abatement. Since all of the TDS sample concentrations from the site are below this value, the site groundwater qualifies for beneficial use and is subject to abatement.

7.1.4 Background (Up gradient) Sample Results

The groundwater sample from monitoring well MW-4, the up gradient well, was not in excess of NMWQCC standards (See Tables 2,3,4).

7.2 IDENTIFICATION OF REMEDIAL ACTION LEVELS

7.2.1 Highly Contaminated/Saturated and Unsaturated Contaminated Soils

During the site investigation, soils that may be characterized by NMOCD guidelines as Highly Contaminated/Saturated Soils were observed in the area of monitoring wells MW-10, MW-13 and MW-14 and in recovery wells RW-1, RW-2 and RW-3. These Highly Contaminated/Saturated Soils occurred in the capillary fringe zone, at a depth of 55 feet bgs.

Soil samples that were taken from the 48 to 50 feet bgs in monitoring wells MW-10, and MW-14 indicated evidence of contamination. Soil samples that were taken from the 53 to 55 feet bgs in monitoring wells MW-10, MW-13 and MW-14 also indicated evidence of contamination. Soil samples that were taken from the 38 to 50 feet bgs in recovery wells RW-1, RW-2 and RW-3 indicated evidence of contamination. All these samples indicating evidence of contamination could be classified as Uncontaminated Saturated Soils under NMOCD guidelines.

7.2.1.1 Site Ranking

The groundwater table occurs at a depth of approximately 56 to 59 feet bgs, however the presence of PSH on the groundwater has been observed. Following NMOCD ranking guidelines, the site will have a ranking greater than 19 points.

The nearest water well is to the southeast, in excess of one-half mile away. The distance to the nearest surface water, not including man made excavations, is greater than 1,000 feet from the site. Therefore, these parameters have no bearing on determining the NMOCD ranking.

7.2.1.2 Remedial Action Levels

As per the NMOCD Guidelines (1993), the soil remediation action levels for a site with a Ranking Score of greater than 19 are as follows:

- Benzene-10 ppm
- BTEX-50 ppm
- TPH-100 ppm

7.2.2 Groundwater

The presence of PSH on the water table indicates the need for groundwater remediation. The NMWQCC groundwater remediation levels are as follows:

- Benzene – 0.01 mg/L
- Toluene – 0.75 mg/L
- Ethyl Benzene – 0.75 mg/L
- Total Xylenes – 0.62 mg/L
- PAHs (total naphthalene) – 0.03 mg/L
- Benzo-a-pyrene – 0.0007 mg/L

7.3 COMPARISON TO REMEDIAL ACTION LEVELS

7.3.1 Highly Contaminated/Saturated and Unsaturated Contaminated Soils

At recovery well RW-1, a TPH concentration of 11,675 mg/kg was measured in the soil sample collected at 55 feet bgs. The levels of benzene and BTEX, however, were below the NMOCD regulatory action limits (Table 1).

At recovery well RW-2, a TPH concentration of 12,339 mg/kg was measured in the soil sample collected at 55 feet bgs. The levels of benzene and BTEX, were below the NMOCD regulatory action limits (Table 1).

At recovery well RW-3, a TPH concentration of 8,457 mg/kg was measured in the soil sample collected at 55 feet bgs. The levels of benzene and BTEX were below the NMOCD regulatory action limits (Table 1).

These soil samples showed evidence of petroleum saturation based on the NMOCD guidelines for Highly Contaminated/Saturated Soils. The concentration of TPH in these samples far exceeds the NMOCD regulatory action level for this site of 100 ppm. The levels of benzene and BTEX, however, do not exceed the regulatory action levels at this site of 10 ppm for benzene and 50 ppm for BTEX.

The presence of petroleum-impacted soil was detected in the unsaturated and capillary fringe zones in monitoring wells MW-10, MW-13 and MW-14 as well as the recovery wells RW-1, RW- 2 and RW-3. The greatest impact in the unsaturated zone was detected at the depth of 48 to 50 feet bgs in recovery well RW-3, where a TPH concentration of 1,260 mg/kg was measured in the soil sample (see Table 1). Elevated levels of TPH were observed at 48 to 50 feet bgs in samples from the borings later completed as monitoring wells MW-10, MW-13 and MW-14. Additionally, elevated levels of TPH were observed at the depth of 38 to 50 feet bgs in samples from the borings later completed as

recovery wells RW-1, RW-2 and RW-3 (Table 1).

These soil samples, classified as Unsaturated Contaminated Soils, had TPH concentrations above the regulatory action level of 100 ppm. The concentrations of BTEX and benzene found in these samples were below the regulatory action level of 50 ppm for BTEX and 10 ppm for benzene, respectively.

7.3.2 Groundwater

A plume of PSH spans across the site, centered over monitoring well MW-1 and trending primarily from northwest to southeast. The thickness of PSH is greatest at recovery well RW-1, where the last measured PSH thickness is 9.41 feet (Figure4).

Dissolved phase petroleum constituents were detected in the groundwater samples from monitoring wells MW-10, MW-12, MW-13 and MW-15. Benzene concentrations in these samples ranged from 0.011 mg/L in monitoring well MW-15 to 2.73 mg/L in monitoring well MW-13. The NMWQCC regulatory limit in groundwater for Benzene is 0.01 mg/L.

The groundwater samples from monitoring wells MW-10 and MW-13 had BTEX concentrations of 3.583 mg/L and 3.445 mg/L, respectively. A BTEX concentration of 1.511 mg/L was recorded in MW-12. The NMWQCC regulatory limit for BTEX in groundwater is 2.13 mg/L.

The occurrence of PSH and dissolved phase hydrocarbons at the site substantially exceeds the NMWQCC regulatory limits.

8.0 CONCLUSIONS

8.1 DELINEATION OF CONTAMINANT IMPACTS/PLUME (S)

A plume of PSH is distributed in the subsurface across the site, centered over monitoring well MW-1. The thickness of PSH is greatest at recovery well RW-1, the down gradient recovery well, where the last measured PSH thickness is 9.41 feet (Figure 4). Recovery well RW-1 is located approximately 195 feet southeast of the release point. The PSH level decreases to the southeast (prevailing down gradient), to monitoring well MW-6 where the PSH thickness was measured at 5.33 feet. Monitoring well MW-6 is located approximately 285 feet southeast of recovery well RW-1. Monitoring well MW-7, which is located 200 feet southeast (down gradient) from monitoring well MW-6, has exhibited no levels of PSH or dissolved phase hydrocarbons in the groundwater.

8.1.1 Onsite Impacts from Release

Localized groundwater contamination and PSH impacts have been observed across the site, in the recovery wells, as well as the majority of the monitoring wells. The prevailing up gradient monitoring well, MW-4, is devoid of any hydrocarbon impact.

8.1.2 Offsite Impacts from Release

No offsite impacts have been identified in monitoring wells at this time. At this time monitoring wells that have no hydrocarbon impact bound the site's perimeter.

8.1.3 Impacts from Offsite/Offsite Releases

The lack of identified petroleum-based contaminants in the prevailing up gradient monitoring well, MW-4, indicates that there is no up gradient source causing impact to the referenced site.

8.1.4 Evaluation of Appropriate Plume(s) Boundaries

Based upon the analytical data obtained from the recovery wells RW-1, RW-2 and RW-3 and the monitoring wells, MW-4, MW-7, and MW-10 to MW-20, the down gradient as well as the up gradient extent of the PSH plume has been laterally delineated to the extent of non-detect in the outmost perimeter wells. An estimation of the width of the plume was also made with the existing data. The plume delineation at the site is depicted on Figure 4, Inferred PSH Thickness Map.

8.2 MIGRATION OF CONTAMINANT PLUME (S)

8.2.1 Future Extent of Contamination

The installation of automated recovery systems for the PSH observed in recovery wells RW-1, RW-2 and RW-3 as well as the recovery systems installed in the impacted monitoring wells prior to this investigation by Enercon, will remove the PSH that is present on the water table at the site. This

reduction in source contamination will slow or halt the extension of the PSH plume further down gradient.

Continuing monitoring of the recovery wells, PSH impacted MW's and of the prevailing down gradient monitoring wells, MW-7, MW-12 and MW-19, will identify any change in the contaminant plume size.

8.2.2 Evaluation of Future Offsite Impacts

Ongoing monitoring of the down gradient monitoring wells will identify any spread of the PSH and/or dissolved phase hydrocarbons. The installation of up gradient recovery systems for the PSH observed in the recovery wells will limit the source of contamination. This action will limit or halt the spread of the contaminate plume.

8.3 EXPOSURE ASSESSMENT

8.3.1 Current Exposures

8.3.1.1 Onsite Receptors

Potential pathways for onsite receptors include direct contact with groundwater. The exposure routes are as follows:

- Direct Contact with Groundwater:

  It has been determined that groundwater at the site is contaminated. Sampling/environmental technicians have the potential to come in direct contact with the groundwater when sampling an/or gauging occurs. Therefore, the pathway is considered potentially complete for sampling/environmental technicians.

8.3.1.2 Offsite Receptors

No offsite impact to the groundwater has occurred at the site. Therefore, no potential pathways for offsite exposure exist at this time.

If future unrestricted use residents draw irrigation water from this shallow aquifer, they could be exposed to contamination. Therefore, this pathway must be considered potentially complete. Because residents do not live in the site area, exposure to humans via this pathway is not currently viable.

8.3.2 Future Potential Exposures

8.3.2.1 *Onsite Receptors*

- Direct Contact with Groundwater:

  It has been determined that groundwater at the site is contaminated. Until remediation removes the identified contaminates from the groundwater, sampling/environmental technicians have the potential to come in direct contact with the groundwater when sampling an/or gauging occurs. Therefore, the pathway is considered potentially complete for sampling/environmental technicians.

8.3.2.2 *Offsite Receptors*

At this time, no offsite impact to the groundwater has occurred at the site. Pending the outcome of the PSH recovery systems effectiveness, the potential for offsite exposure exist and the potential pathways are as follows:

- Infiltration/Migration to Shallow Groundwater:

At this time, contamination of shallow groundwater does not exist offsite. The documented plume of contamination has not spread down gradient to any domestic use water wells. Therefore, the pathway is considered incomplete.

- Infiltration/Migration to a Potable Aquifer:

Based upon NMWQCC guidelines the groundwater at the site is considered of beneficial use and therefore a potable aquifer. At this time, no contamination of the shallow groundwater exists offsite. The documented plume of contamination has not spread down gradient to any domestic use water wells. Therefore, the pathway is considered incomplete.

If future unrestricted use residents draw irrigation water from this shallow aquifer, they could be exposed to contamination. Therefore, this pathway must be considered potentially complete.

These pathways were thoroughly evaluated for completeness and applicability based on known and potential receptor behavior patterns. However, significant data gaps are present. Once information is supplied to fill the data gaps, modification of the exposure pathways may occur.

CONCLUSIONS

This exposure assessment is intended to evaluate the potential for site-specific receptors to be exposed to the contaminants at the site. Based on the analytical data, the assumed contaminants are TPH and BTEX. Several different receptor populations were addressed based on the likely activities that are currently conducted or may be conducted in the future at the site or in areas impacted by contamination generated at the site. Based on the assumptions in the text, the following list highlights the exposure pathways by which each receptor could be exposed.

- A sampling/environmental technician could only be exposed to the contaminants via exposure

to groundwater when sampling and/or gauging occurs.

- No complete pathways are present for recreational users.
- A future, unrestricted use resident could only be exposed to the contaminants via infiltration/migration to shallow groundwater and uptake/assimilation via shallow groundwater from onsite irrigation of plants/crops.

Only the complete pathways listed above need to be considered in the quantitative risk assessment that follows this exposure assessment. These pathways are predicated on the accuracy of the assumptions listed in the text. Once the accuracy has been determined, these exposure pathways will be finalized.

8.3.3 Site Conceptual Exposure Model

Based on the field activities, the contamination delineation, soil and groundwater classification, receptor and migration pathway identification, past history, and land use information documented in this report, a site conceptual exposure model (SCEM) was developed and is presented as Figure 5. All potentially complete exposure pathways are addressed qualitatively, based on current and realistic future exposure scenarios.

An exposure pathway describes a specific environmental transport pathway by which receptor populations can be potentially exposed to the contaminates present at or originating from the site. An exposure pathway consists of four necessary elements:

- A source and mechanism of chemical release to the environment
- An environmental retention or transport medium for the released chemical
- A point of potential human contact with the medium and the receptors located at these points
- A human uptake route (intake of media containing site-related chemicals) at the point of exposure

All four elements must be present for an exposure pathway to be complete and for exposure to occur. If any one of the four elements is absent, the pathway is incomplete and no exposure can occur. A quantitative assessment of exposure will occur at a later date based on this exposure assessment and the results of subsequent field activities.

The results of the qualitative and quantitative exposure assessments will be used to make human-health risk-based decisions at the site.

9.0 RECOMMENDATIONS

9.1 MONITORING PROGRAM

All site monitoring wells will be gauged and sampled on a quarterly basis. Each well will be measured for the depth to PSH and/or groundwater. All of the groundwater monitoring wells, with the exception of those with measurable PSH on the water table, will be purged and sampled for BTEX and TPH.

After purging the wells, groundwater samples will be collected with a disposable Teflon® sampler and polyethylene liner by personnel wearing clean, disposable gloves. Groundwater sample containers will be filled in the order of decreasing volatilization sensitivity (i.e., BTEX containers will be filled first and PAH containers second).

Groundwater samples collected for BTEX analysis will be placed in preserved 40 ml glass VOA vials equipped with Teflon® lined caps. The analytical laboratory will provide the containers. The vials will be filled to a positive meniscus, sealed, and visually checked to ensure the absence of air bubbles. The analytical laboratory will provide the containers.

The filled containers will be labeled and placed on ice in an insulated cooler. The cooler will be sealed for transportation to the analytical laboratory. Proper chain-of-custody documentation will be maintained throughout the sampling process.

The groundwater samples will be analyzed as follows:

- BTEX concentrations in accordance with EPA Method 8021B, 5030
- TPH concentrations in accordance with modified EPA Method 8015-GRO/DRO

The quarterly monitoring data will be compiled and summarized in an annual report. The annual report will be submitted prior to April 1 of the following year.

9.2 FUTURE ACTIVITIES

At the present time, installation of automated skimmer systems is ongoing in the recovery wells, RW-1, RW-2 and RW-3. These recovery systems will allow the removal of PSH from these wells on a 24-hour basis once power is provided to the site. These systems will be operational by September 2000 and will continue until measurable PSH has been removed from the site's recovery wells. The previously installed skimmer systems will be evaluated for upgrading to newer automated recovery systems to enhance recovery of the PSH on the water table. The upgrade evaluations are ongoing and will be completed by October 2000, with installation of newer systems as appropriate.

The first quarterly groundwater sampling event of the monitoring wells is scheduled for August 2000. A subsequent quarterly sampling event will be conducted in November of the year 2000. The annual report will be provided to the NMOCD prior to April 1, 2001.

A Stage 2 Abatement Report, which will address the impacted soil and groundwater, will be provided in the near future. Based on site conditions, future activities will include the abatement of soil and groundwater as appropriate. Details of these remedial activities will be provided under separate cover.

Upon completion of remedial activities at the site, a No Further Action (NFA) closure request will be submitted to the NMOCD for approval.

10. REFERENCES

1. NMOCD *Guidelines For Remediation of Leaks, Spills and Releases*, August 1993 (NMOCD, 1993)
2. Title 19 NMAC 15.A.19
3. Title 20 NMAC 6.2.III.3103

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Quality Control Review

TABLES

Table 1

CONCENTRATIONS OF TPH & BTEX IN SOIL

EOTT Energy Corp.
DARR ANGELL #1
LEA COUNTY, NM
ETGI Project # EOT2055C

All concentrations are in mg/kg

SAMPLE DATE	SAMPLE LOCATION	Methods: EPA SW 846-8021B, 5030			SW 846-8021B, 5030					
		GRO C_6-C_{10}	DRO >C_{10}-C_{28}	TPH C_6-C_{28}	BENZENE	TOLUENE	ETHYL-BENZENE	M,P-XYLENES	O-XYLENES	BTEX
06/20/2000	MW10 0-2' C	<10	<10	<20						
	MW10 3-5' C	<10	<10	<20						
	MW10 8-10' C	<10	<10	<20						
	MW10 13-15' C	<10	<10	<20						
	MW10 18-20' C	<10	<10	<20						
	MW10 23-25' SS	<10	<10	<20						
	MW10 28-30' SS	<10	<10	<20						
	MW10 33-35' SS	<10	<10	<20						
	MW10 38-40' SS	<10	<10	<20						
	MW10 43-45' SS	<10	<10	<20						
	MW10 48-50' SS	37	339	376	<0.100	<0.100	<0.100	0.3	0.155	0.455
	MW10 53-55' SS	147	443	590						
	MW10 65' C	<10	148	148						
06/21/2000	MW11 0-2' C	<10	<10	<20						
	MW11 3-5' C	<10	<10	<20						
	MW11 8-10' C	<10	<10	<20						
	MW11 13-15' C	<10	<10	<20						
	MW11 18-20' C	<10	<10	<20						
	MW11 23-25' SS	<10	<10	<20						
	MW11 28-30' SS	<10	<10	<20						
	MW11 33-35' SS	<10	<10	<20						
	MW11 38-40' SS	<10	<10	<20						
	MW11 43-45' SS	<10	<10	<20						
	MW11 48-50' SS	<10	<10	<20						
	MW11 53-55' SS	<10	<10	<20						
	MW11 58-60' C	<10	<10	<20						
06/21/2000	MW12 0-2' C	<10	<10	<20						
	MW12 3-5' C	<10	<10	<20						
	MW12 8-10' C	<10	<10	<20						
	MW12 13-15' C	<10	<10	<20						
	MW12 18-20' C	<10	<10	<20						
	MW12 23-25' SS	<10	<10	<20						
	MW12 28-30' SS	<10	<10	<20						
	MW12 33-35' SS	<10	<10	<20						
	MW12 38-40' SS	<10	<10	<20						
	MW12 43-45' SS	<10	<10	<20						
	MW12 48-50' SS	<10	<10	<20						
	MW12 53-55' SS	<10	<10	<20						
	MW12 58-60' SS	<10	<10	<20						
06/22/2000	MW13 0-2' C	<10	<10	<20						
	MW13 3-5' C	<10	<10	<20						
	MW13 13-15' C	<10	<10	<20						
	MW13 18-20' C	<10	<10	<20						
	MW13 23-25' SS	<10	<10	<20						
	MW13 28-30' SS	<10	<10	<20						
	MW13 33-35' SS	<10	<10	<20						
	MW13 38-40' SS	<10	<10	<20						
	MW13 43-45' SS	<10	<10	<20						
	MW13 48-50' SS	<10	<10	<20						

CONCENTRATIONS OF TPH & BTEX IN SOIL

EOTT Energy Corp.
DARR ANGELL #1
LEA COUNTY, NM
ETGI Project # EOT2055C

All concentrations are in mg/kg

SAMPLE DATE	SAMPLE LOCATION	Methods: EPA SW 846-8021B, 5030			SW 846-8021B, 5030					
		GRO C_6-C_{10}	DRO >C_{10}-C_{28}	TPH C_6-C_{28}	BENZENE	TOLUENE	ETHYL-BENZENE	M,P-XYLENES	O-XYLENES	BTEX
	MW13 53-55' SS	<10	331	331	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
	MW13 58-60'	<10	125	125						
06/22/2000	MW14 0-2' C	<10	<10	<20						
	MW14 3-5' C	<10	<10	<20						
	MW14 8-10' C	<10	<10	<20						
	MW14 13-15' C	<10	<10	<20						
	MW14 18-20' C	<10	<10	<20						
	MW14 23-25' SS	<10	<10	<20						
	MW14 28-30' SS	<10	<10	<20						
	MW14 33-35' SS	<10	<10	<20						
	MW14 38-40' SS	<10	<10	<20						
	MW14 43-45' SS	<10	<10	<20						
	MW14 48-50' SS	24	735	759	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
	MW14 53-55' SS	385	3170	3555	<0.100	0.192	0.463	1.74	0.758	3.153
	MW14 58-60' SS	<10	191	191						
06/22/2000	MW15 0-2' C	<10	27	27						
	MW15 3-5' C	<10	<10	<20						
	MW15 8-10' C	<10	<10	<20						
	MW15 13-15' C	<10	<10	<20						
	MW15 18-20' C	<10	10	10						
	MW15 23-25' C	<10	<10	<20						
	MW15 28-30' C	<10	<10	<20						
	MW15 33-35' SS	<10	<10	<20						
	MW15 38-40' SS	<10	<10	<20						
	MW15 43-45' SS	<10	<10	<20						
	MW15 48-50' SS	<10	<10	<20						
	MW15 53-55' SS	<10	<10	<20						
	MW15 58-60' SS	<10	<10	<20						
06/22/2000	MW16 0-2' C	<10	<10	<20						
	MW16 3-5' C	<10	<10	<20						
	MW16 8-10' C	<10	<10	<20						
	MW16 13-15' C	<10	<10	<20						
	MW16 18-20' C	<10	<10	<20						
	MW16 23-25' C	<10	<10	<20						
	MW16 28-30' SS	<10	<10	<20						
	MW16 33-35' SS	<10	<10	<20						
	MW16 38-40' SS	<10	<10	<20						
	MW16 43-45' SS	<10	<10	<20						
	MW16 48-50' SS	<10	<10	<20						
	MW16 53-55' SS	<10	<10	<20						
	MW16 58-60' SS	<10	<10	<20						
07/03/2000	MW17 0-2' C	<10	22							
	MW17 3-5' C	<10	<10	<20						
	MW17 8-10' C	<10	<10	<20						
	MW17 13-15' C	<10	<10	<20						
	MW17 18-20' C	<10	<10	<20						
	MW17 23-25' C	<10	<10	<20						
	MW17 28-30' C	<10	<10	<20						
	MW17 33-35' C	<10	<10	<20						
	MW17 38-40' C	<10	<10	<20						
	MW17 43-45' SS	<20	<20	<40						

CONCENTRATIONS OF TPH & BTEX IN SOIL

EOTT Energy Corp.
DARR ANGELL #1
LEA COUNTY, NM
ETGI Project # EOT2055C

All concentrations are in mg/kg

SAMPLE DATE	SAMPLE LOCATION	Methods: EPA SW 846-8021B, 5030			SW 846-8021B, 5030					
		GRO C_6-C_{10}	DRO >C_{10}-C_{28}	TPH C_6-C_{28}	BENZENE	TOLUENE	ETHYL-BENZENE	M,P-XYLENES	O-XYLENES	BTEX
	MW17 48-50' SS	<20	<20	<40						
	MW17 53-55' SS	<10	<10	<20						
	MW17 58-60' SS	<10	<10	<20						
07/03/2000	MW18 0-2' C	<10	<10	<20						
	MW18 3-5' C	<10	<10	<20						
	MW18 8-10' C	<10	<10	<20						
	MW 18 13-15' C	<10	<10	<20						
	MW18 18-20' C	<10	<10	<20						
	MW18 23-25' SS	<10	<10	<20						
	MW18 28-30' SS	<10	<10	<20						
	MW18 33-35' C	<10	<10	<20						
	MW18 38-40' SS	<10	<10	<20						
	MW18 43-45' SS	<10	<10	<20						
	MW18 48-50' SS	<10	<10	<20						
	MW18 53-55' C	<10	<10	<20						
	MW18 58-60' C	<10	<10	<20						
07/05/2000	MW19 0-2' C	<10	<10	<20						
	MW19 3-5' C	<10	<10	<20						
	MW19 8-10' C	<10	<10	<20						
	MW19 13-15' C	<10	<10	<20						
	MW19 18-20' C	<10	<10	<20						
	MW19 23-25' SS	<10	<10	<20						
	MW19 28-30' SS	<10	<10	<20						
	MW19 33-35' SS	<10	<10	<20						
	MW19 38-40' SS	<10	<10	<20						
	MW19 43-45' SS	<10	<10	<20						
	MW19 48-50' SS	<10	<10	<20						
	MW19 53-55' SS	<10	<10	<20						
	MW19 58-60' SS	<10	<10	<20						
07/05/2000	MW20 0-2' C	<10	<10	<20						
	MW20 3-5' C	<10	<10	<20						
	MW20 8-10' C	<10	<10	<20						
	MW20 13-15' C	<10	<10	<20						
	MW20 18-20' C	<10	<10	<20						
	MW20 23-25' SS	<10	<10	<20						
	MW20 28-30' C	<10	<10	<20						
	MW20 33-35' SS	<10	<10	<20						
	MW20 38-40' SS	<10	<10	<20						
	MW20 43-45' SS	<10	<10	<20						
	MW20 48-50' SS	<10	<10	<20						
	MW20 53-55' SS	<10	<10	<20						
	MW20 58-60' SS	<10	<10	<20						
06/20/2000	SB1 0-2' C	<10	<10	<20						
	SB1 3-5' C	<10	<10	<20						
	SB1 8-10' C	<10	<10	<20						
	SB1 13-15' C	<10	11	11						
06/20/2000	SB2 0-2' C	<10	<10	<20						
	SB2 3-5' C	<10	<10	<20						
	SB2 8-10' C	<10	<10	<20						
	SB2 13-15' C	<10	<10	<20						

CONCENTRATIONS OF TPH & BTEX IN SOIL

EOTT Energy Corp.
DARR ANGELL #1
LEA COUNTY, NM
ETGI Project # EOT2055C

All concentrations are in mg/kg

SAMPLE DATE	SAMPLE LOCATION	Methods: EPA SW 846-8021B, 5030			SW 846-8021B, 5030					
		GRO C_6-C_{10}	DRO >C_{10}-C_{28}	TPH C_6-C_{28}	BENZENE	TOLUENE	ETHYL-BENZENE	M,P-XYLENES	O-XYLENES	BTEX
06/20/2000	SB3 0-2' C	<10	<10	<20						
	SB3 3-5' C	<10	<10	<20						
	SB3 8-10' C	<10	<10	<20						
	SB3 13-15' C	<10	<10	<20						
07/06/2000	RW1 0-2' C	<10	<10	<20						
	RW1 3-5' C	<10	<10	<20						
	RW1 8-10' C	<10	<10	<20						
	RW1 13-15' C	<10	<10	<20						
	RW1 18-20' C	<10	<10	<20						
	RW1 23-25' SS	<10	<10	<20						
	RW1 28-30' C	<10	<10	<20						
	RW1 33-35' C	<10	<10	<20						
	RW1 38-40' SS	260	729	989						
	RW1 43-45' SS	491	926	1417						
	RW1 48-50' SS	61	1116	1177						
	RW1 53-55' SS	1545	10090	11635	<0.100	3.31	3.25	13.1	5.36	25.02
	RW1 58-60' SS	78	1921	1999						
07/07/2000	RW2 0-2'	<10	<10	<20						
	RW2 3-5'	<10	<10	<20						
	RW2 8-10'	<10	<10	<20						
	RW2 13-15'	<10	<10	<20						
	RW2 18-20'	<10	<10	<20						
	RW2 23-25'	<10	<10	<20						
	RW2 28-30'	<10	<10	<20						
	RW2 33-35'	<10	<10	<20						
	RW2 38-40'	13	333	346						
	RW2 43-45'	14	672	686						
	RW2 48-50'	18	728	746						
	RW2 53-55'	1282	11057	12339	<0.100	2.23	2.04	7.14	2.97	14.38
	RW2 58-60'	196	5594	5790	<0.100	0.127	<0.100	0.637	0.259	1.023
07/10/2000	RW3 0-2'	<10	34	34						
	RW3 3-5'	<10	23	23						
	RW3 8-10'	<10	<10	<20						
	RW3 13-15'	<10	<10	<20						
	RW3 18-20'	<10	<10	<20						
	RW3 23-25'	<10	<10	<20	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
	RW3 28-30'	<10	<10	<20						
	RW3 33-35'	<10	80	80						
	RW3 38-40'	21	632	653						
	RW3 43-45'	43	838	881	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
	RW3 48-50'	120	1140	1260	<0.100	<0.100	0.146	0.774	0.387	1.307
	RW3 53-55'	942	7515	8457	<0.100	4.9	4.04	14.3	5.61	28.85
	RW3 58-60'	<10	567	567	<0.100	<0.100	<0.100	0.172	<0.100	0.172

Table 2

CHEMICAL CONCENTRATIONS IN GROUNDWATER

EOTT Energy Corp.
DARR ANGELL #1
LEA COUNTY, NM
ETGI Project # EOT2055C

All concentrations are in mg/L

SAMPLE DATE	SAMPLE LOCATION	SW 846-8021B, 5030						Methods: EPA 375.4, 325.3, 310. 160.1				
		BENZENE	TOLUENE	ETHYL-BENZENE	M,P-XYLENES	O-XYLENES	BTEX	Sulfate	Chloride	Carbonate	Bicarbonate	TDS
05/05/2000	MW4	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	154	71	<5	350	654
05/05/2000	MW7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	69.4	27	<5	227	399
06/28/2000	MW10	1.52	0.787	0.303	0.711	0.262	3.583	87.8	186	<5	286	864
06/28/2000	MW11	0.007	0.006	0.003	0.007	0.003	0.026	70.5	115	<5	386	806
06/28/2000	MW12	1.36	<0.050	<0.050	0.151	<0.050	1.511	88	53	<5	278	524
06/28/2000	MW13	2.73	0.186	0.115	0.338	0.076	3.445	113	44	<5	357	602
06/28/2000	MW15	0.011	0.003	0.001	0.004	0.001	0.02	100	44	<5	185	414
06/28/2000	MW16	0.008	0.004	0.001	0.003	0.001	0.017	104	44	<5	177	436
06/28/2000	MW17	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	130	75	0	172	468
07/14/2000	MW18	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	129	40	0	146	379
07/14/2000	MW19	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	141	93	0	197	504
07/14/2000	MW20	<0.001	0.002	0.001	<0.001	<0.005	0.003	121	35	0	203	341

Table 3

CONCENTRATIONS OF SEMI-VOLATILES IN GROUNDWATER

EOTT Energy Corp.
DARR ANGELL #1
LEA COUNTY, NM
ETGI Project # EOT2055C

All soil concentrations are in mg/kg
All water concentrations are in mg/L

SAMPLE DATE	SAMPLE LOCATION	SAMPLE TYPE	EPA SW846-8270C, 3510																
			Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo[a]anthracene	Chrysene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	Dibenz[a,h]anthracene	Benzo[g,h,i]perylene	REPORTING LIMIT
05/05/2000	MW4	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
05/05/2000	MW7	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
06/27/2000	MW10	Water	0.024	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
06/27/2000	MW11	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
06/27/2000	MW12	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
06/27/2000	MW13	Water	0.013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
06/27/2000	MW15	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
06/27/2000	MW16	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
07/14/2000	MW17	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
07/14/2000	MW18	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005

CONCENTRATIONS OF SEMI-VOLATILES IN GROUNDWATER

EOTT Energy Corp.
DARR ANGELL #1
LEA COUNTY, NM
ETGI Project # EOT2055C

All soil concentrations are in mg/kg
All water concentrations are in mg/L

SAMPLE DATE	SAMPLE LOCATION	SAMPLE TYPE	EPA SW846-8270C, 3510																
			Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo[a]anthracene	Chrysene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	Dibenz[a,h]anthracene	Benzo[g,h,i]perylene	REPORTING LIMIT
07/14/2000	MW19	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
07/14/2000	MW20	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005

Table 4

CONCENTRATIONS OF METALS IN GROUNDWATER

EOTT Energy Corp.
DARR ANGELL #1
LEA COUNTY, NM
ETGI Project # EOT2055C

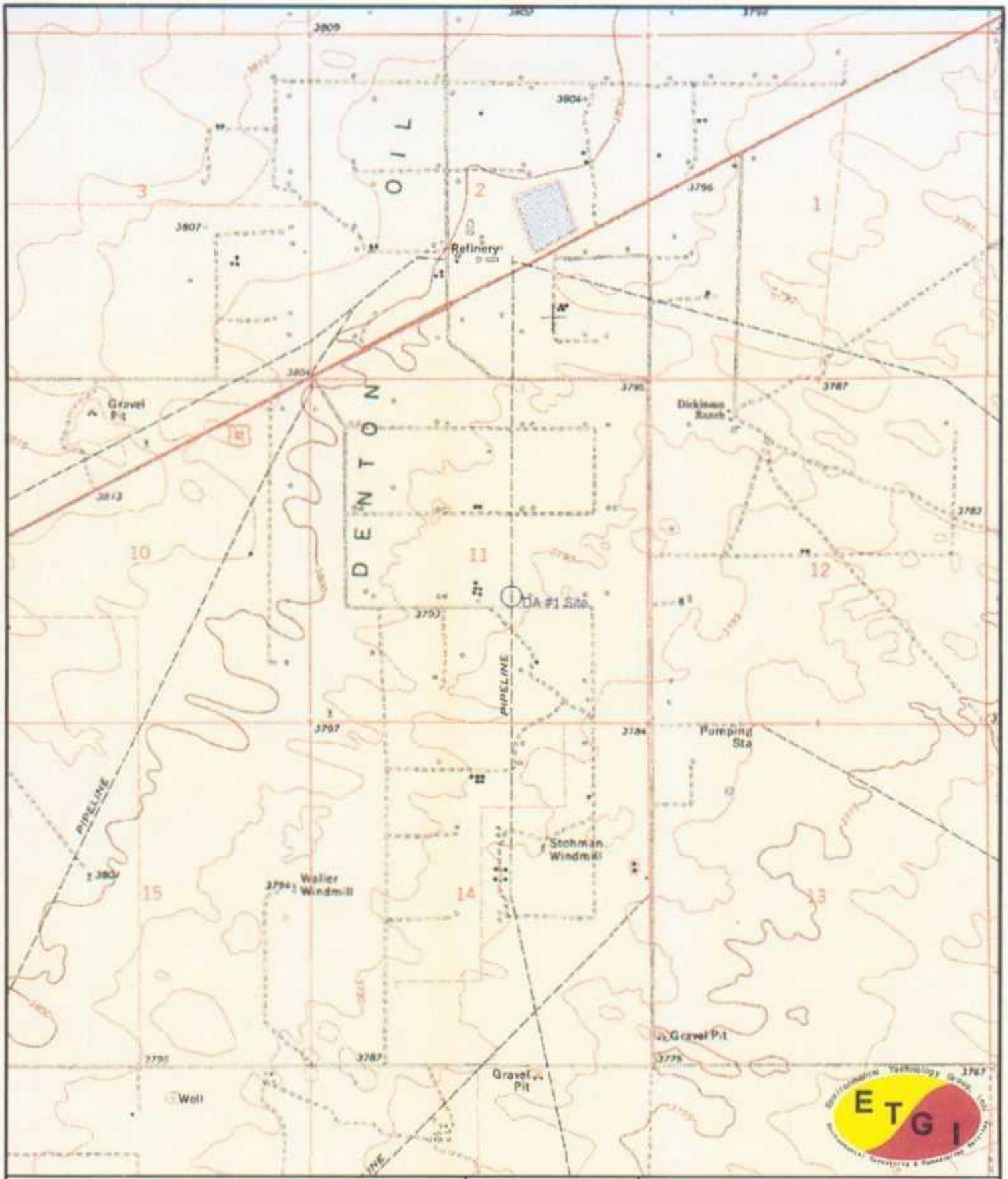
All soil concentrations are in mg/kg
All water concentrations are in mg/L

			EPA SW846-6010B, 7470																						
SAMPLE DATE	SAMPLE LOCATION	SAMPLE TYPE	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Tin	Vanadium	Zinc	Boron	Strontium
05/05/2000	MW4	Water	0.074	<0.005	0.1555	<0.004	<0.001	135	<0.005	<0.02	<0.01	0.057	<0.003	23.5	<0.015	<0.0002	<0.05	<0.01	3.68	<0.005	<0.005	71.3	<0.05	0.03	<0.02	0.204	0.828
05/05/2000	MW7	Water	0.647	0.006	0.086	<0.004	<0.001	78.2	<0.005	<0.02	<0.01	0.342	<0.003	12.1	0.039	<0.0002	<0.05	<0.01	3.12	<0.005	<0.005	54.7	<0.05	0.051	<0.02	0.158	0.424
06/27/2000	MW10	Water	1.08	0.008	0.223	<0.004	0.006	<1.00	0.01	<0.02	<0.01	0.99	<0.003	33.3	0.203	<0.002	<0.050	0.046	6.01	<0.005	<0.005	73.5	<0.05	0.033	0.083	0.231	1.05
06/27/2000	MW11	Water	1.44	0.008	0.228	<0.004	<0.001	451	0.01	<0.02	<0.01	0.25	<0.003	27.2	0.233	<0.002	<0.050	0.034	8.77	<0.005	<0.005	161	<0.05	<0.02	0.045	0.178	0.92
06/27/2000	MW12	Water	0.098	<0.005	0.136	<0.004	<0.001	244	<0.005	<0.02	<0.01	<0.05	<0.003	19.5	0.093	<0.002	<0.05	0.019	5.6	<0.005	<0.005	76.5	<0.05	<0.02	<0.02	0.239	0.659
06/27/2000	MW13	Water	0.228	0.01	0.183	<0.004	<0.001	362	<0.005	<0.02	<0.01	<0.05	<0.003	23	0.171	<0.002	<0.05	0.01	5.27	<0.005	<0.005	69.6	<0.05	0.025	<0.02	0.221	0.858
06/27/2000	MW15	Water	0.065	0.009	0.105	<0.004	<0.001	143	<0.005	<0.02	<0.01	<0.05	<0.003	16.5	0.027	<0.002	<0.05	<0.01	4.46	<0.005	<0.005	50.4	<0.05	0.036	<0.02	0.154	0.626
06/27/2000	MW16	Water	0.705	<0.005	0.16	<0.004	<0.001	420	0.006	<0.02	<0.01	0.081	<0.003	17.1	0.111	<0.002	<0.05	0.055	4.75	<0.005	<0.005	58.7	<0.05	<0.02	<0.02	0.159	0.63
07/14/2000	MW17	Water	2.09	<0.005	0.168	<0.004	<0.001	108	0.025	<0.02	<0.01	1.64	<0.003	19	0.051	<0.002	<0.05	0.033	4.6	<0.005	<0.005	67	<0.05	0.027	0.052	0.211	0.521
07/14/2000	MW18	Water	4.94	<0.005	0.159	<0.004	<0.001	153	0.029	<0.02	<0.01	3.55	<0.003	26.8	0.068	<0.002	<0.05	0.033	5.93	<0.005	<0.005	74.7	<0.05	0.032	0.069	0.215	0.634
07/14/2000	MW19	Water	1.79	<0.005	0.102	<0.004	<0.001	78.1	0.012	<0.02	<0.01	1.39	<0.003	14	0.031	<0.002	<0.05	0.016	3.85	<0.005	<0.005	51.4	<0.05	0.02	0.028	0.161	0.382
07/14/2000	MW20	Water	33.2	<0.005	0.696	<0.004	<0.001	651	0.053	0.032	0.034	23.6	0.01	50.6	0.375	<0.002	<0.05	0.078	14.7	<0.005	<0.005	61.4	<0.05	0.122	0.069	0.18	0.841

Table 5

DARR ANGELL #1 GROUNDWATER ELEVATION TABLE PROJECT # EOT2055C 08/15/00					
Well Number	Casing Well Elevation	Depth to Product	Depth to Water	PSH Thickness	Corrected Groundwater Elevation
MW - 1	3,785.74	54.63	64.03	9.40	3,729.70
MW - 2	3,785.88	55.45	61.73	6.28	3,729.49
MW - 3	3,786.05	56.17	61.27	5.10	3,729.12
MW - 4	3,786.47	-	57.91	0.00	3,728.56
MW - 5	3,785.55	54.51	63.48	8.97	3,729.69
MW - 6	3,785.47	55.29	60.62	5.33	3,729.38
MW - 7	3,785.48	-	56.56	0.00	3,728.92
MW - 8	3,785.76	55.02	62.09	7.07	3,729.68
MW - 9	3,785.79	55.08	64.42	9.34	3,729.31
MW - 10	3,785.99	-	57.50	0.00	3,728.49
MW - 11	3,786.32	-	58.09	0.00	3,728.23
MW - 12	3,785.79	-	57.29	0.00	3,728.50
MW - 13	3,786.01	-	57.71	0.00	3,728.30
MW - 14	3,786.06	57.58	60.10	2.52	3,728.10
MW - 15	3,786.13	-	57.44	0.00	3,728.69
MW - 16	3,786.33	-	57.89	0.00	3,728.44
MW - 17	3,785.83	-	57.26	0.00	3,728.57
MW - 18	3,786.10	-	57.74	0.00	3,728.36
MW - 19	3,785.71	-	57.27	0.00	3,728.44
MW - 20	3,786.00	-	57.34	0.00	3,728.66
RW - 1	3,785.94	55.42	64.83	9.41	3,729.11
RW - 2	3,786.14	55.86	64.98	9.12	3,728.91
RW - 3	3,786.14	55.99	64.38	8.39	3,728.89

FIGURES



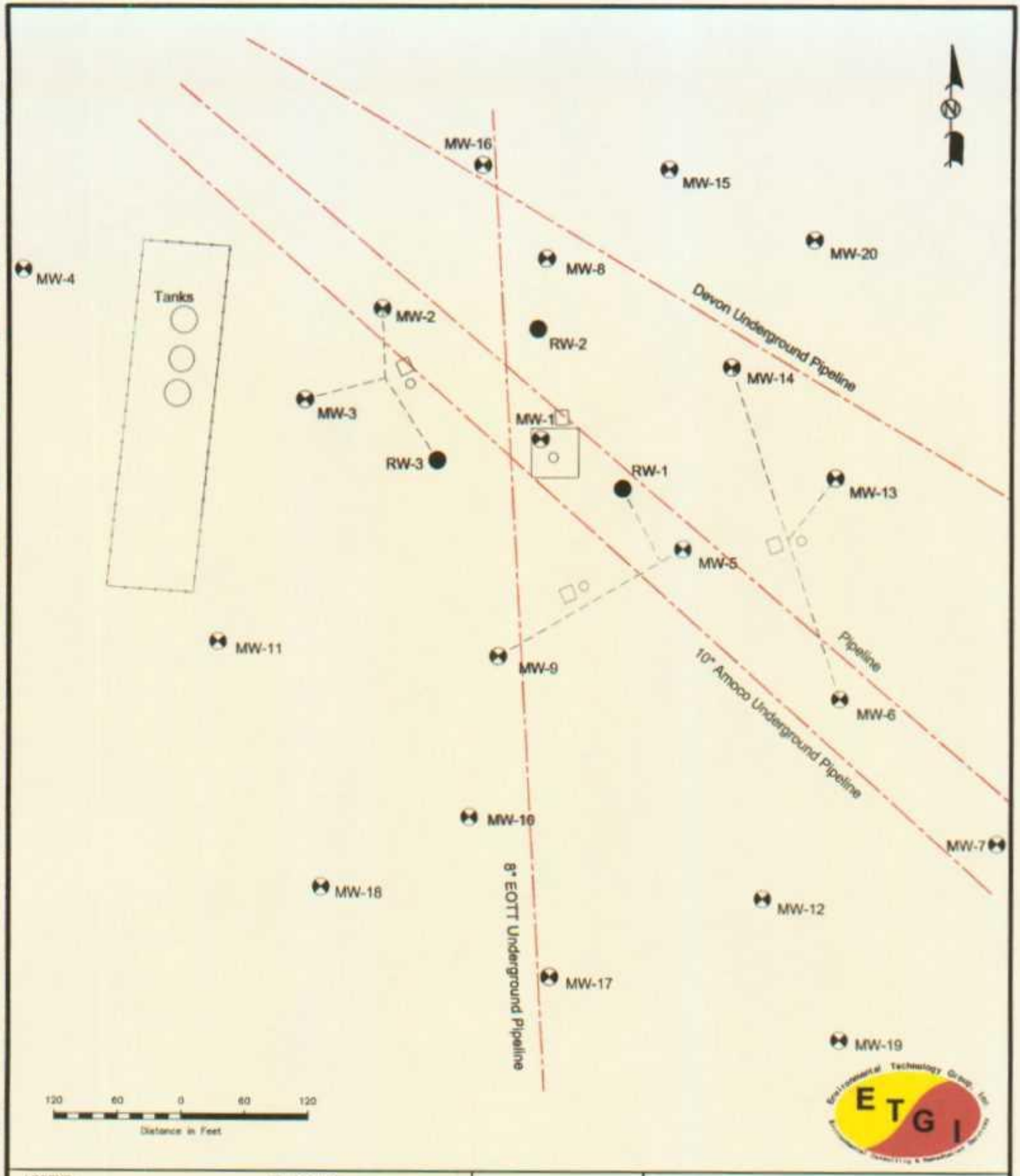
Location
33° 01' 59.5" N 103° 10' 03.1" W

Figure 1
Site Location Map

EOTT Energy Corp.
Darr Angell #1
Lea County, NM

Environmental Technology Group, INC.

Scale: 1"=2000'	Prep By: JDJ	Checked By: MVS
July 26, 2000	ETGI Project # EOT 2055C	



LEGEND:

- Monitoring Well Locations
- Recovery Well Locations
- Product/Recovery Line
- Shed
- Poly Tank

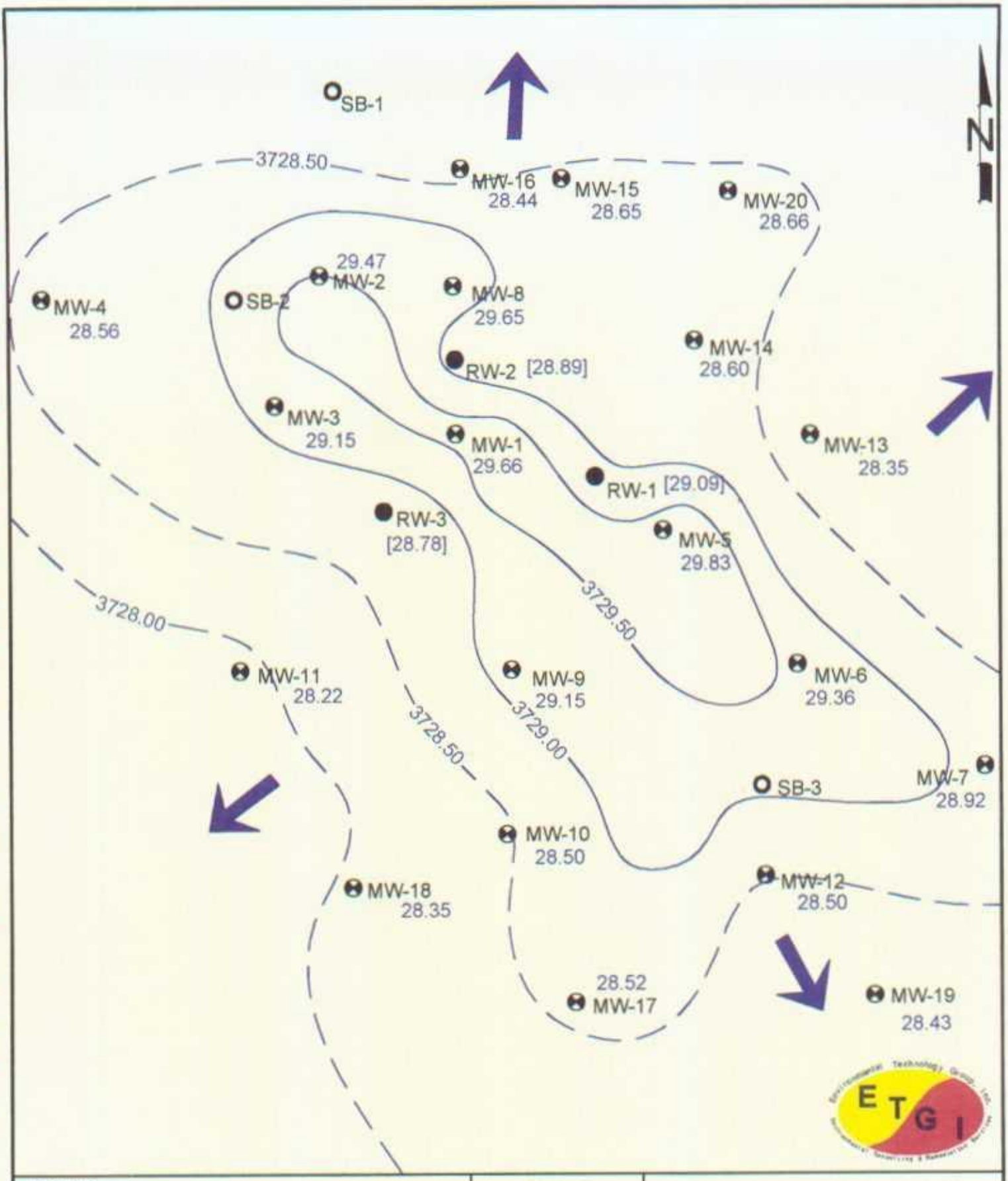
Site Location:

Figure 2
Site Map

EOTT Energy Corp.
Darr Angell #1
Lea County, NM

Environmental Technology Group, INC.

Scale: 1"=120'	Prep By: JDJ	Checked By: KD
January 23, 2002	ETGI Project # EOT 2055C	



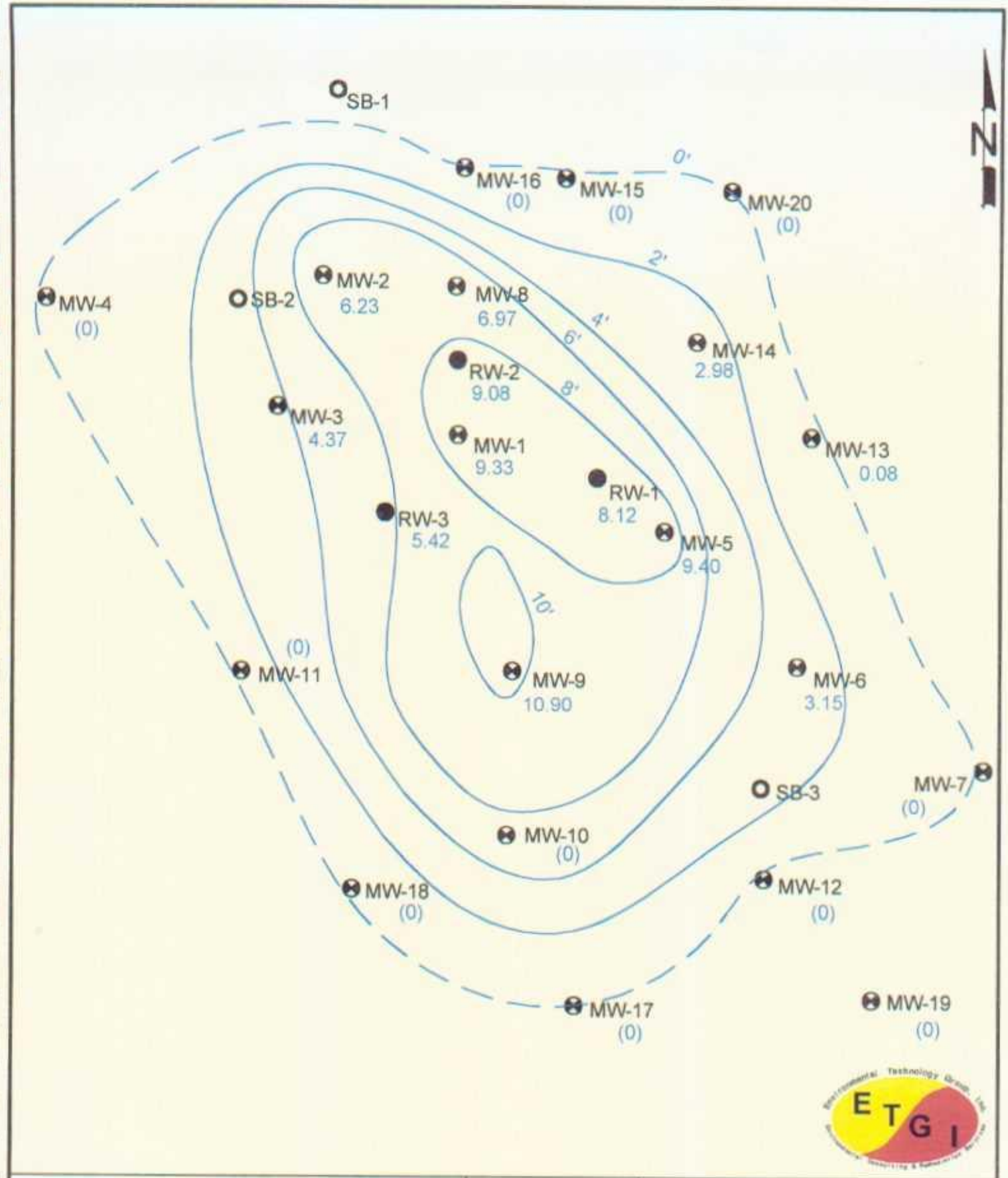
LEGEND:
- Monitoring Well Locations
- Recovery Well Locations
- Soil Boring Locations
- Ground Water Gradient Line
- 28.35 Ground Water Elevation in Feet

Figure 3
Inferred Ground Water Map

EOTT Energy Corp.
Darr Angell #1
Lea County, NM

Environmental Technology Group, INC.

Scale: 1"=120'	Prep By: JDJ	Checked By: MVS
August 17, 2000	ETGI Project # EOT 2055C	



LEGEND:

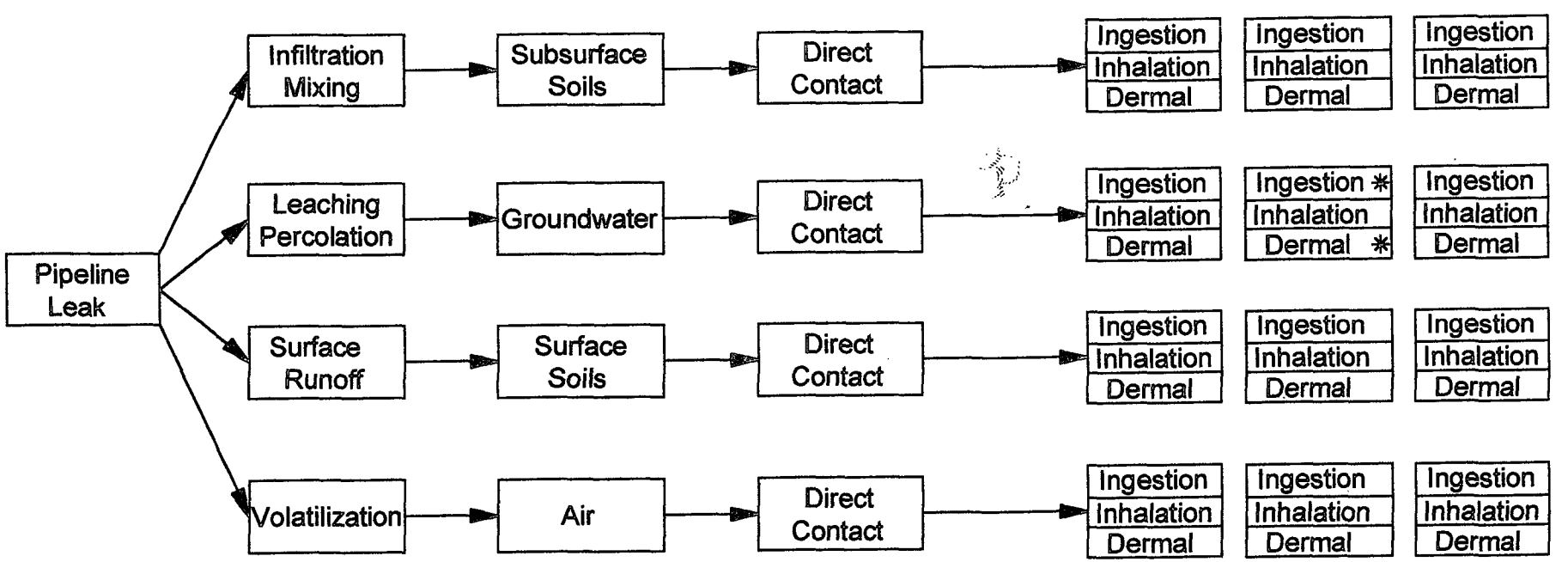
- Monitoring Well Locations
- Recovery Well Locations
- Soil Boring Locations
- PSH Thickness Contour (in feet)

Figure 4
PSH Thickness Map

EOTT Energy Corp.
Darr Angell #1
Lea County, NM

Environmental Technology Group, INC.

Scale: 1"=120'	Prep By: JDJ	Checked By: MVS
August 17, 2000	ETGI Project # EOT 2066C	



Note: "*" denotes potentially complete pathways

Figure 5

Site Conceptual Exposure Model for Present Conditions

E.O.T.T. Energy Corp. Darr Angell # 1 Lovington, NM

Environmental Technology Group, Inc.

Scale: NTS	Prep By: RS	Checked By: BA
August 24, 2000	ETGI Project # EOT 2055C	

APPENDICES

APPENDIX A

WATER WELL INVENTORY

New Mexico Office of the State Engineer

Well Reports and Downloads

Township: 15S Range: 37E Sections: 11,14

NAD27 X: Y: Zone: Search Radius:

County: LE Basin: Number: Suffix:

Owner Name: (First) (Last) ○ Non-Domestic ○ Domestic

◉ All

[redacted]

WATER COLUMN REPORT 08/13/2000

(quarters are biggest to smallest)

Well Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Wat Colu
L 02317 APPRO	15S	37E	11	1	1					110	65	
L 01182 APPRO	15S	37E	11	1	1	1				110	35	
L 01322 APPRO	15S	37E	11	1	1	2				120		
L 01430 APPRO	15S	37E	11	1	2					120	33	
L 01324 APPRO	15S	37E	11	2	1					120	32	
L 07610	15S	37E	11	2	3					100		
L 01283 APPRO	15S	37E	11	2	3					120	40	
L 01321 APPRO	15S	37E	11	2	4					120	32	
L 01323 APPRO	15S	37E	11	2	4					120	32	
L 01117 APPRO	15S	37E	11	2	4	3				120	50	
L 02391 APPRO	15S	37E	11	3	3	3				80	37	
L 07665	15S	37E	11	4	4	4				136	40	
L 01199 APPRO	15S	37E	14	1	4	2				121	37	
L 01080 APPRO	15S	37E	14	2	2	1				120	32	
L 01045 APPRO	15S	37E	14	2	3	1				120	70	

Record Count: 15

APPENDIX B

BORING LOGS

Soil Boring SB-1

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		(0.0)	None	None	Sand - (SP) - Red tan, very fine grained, well sorted, dry, caliche nodules.
5		(0.0)	None	None	
10		(0.0)	None	None	Sand - (SP) - Red tan, very fine grained, well sorted, dry, caliche nodules.
15	TD	(0.0)	None	None	

Legend

PID Head-space reading in ppm obtained with a photo-ionization detector.

(0.0) Indicates samples selected for laboratory analysis.

Soil Boring Details

Date Drilled 06 / 21 / 00

Plugged - Surface to TD with Bentonite and hydrated with deionized water.

Soil Boring Log Details

Soil Boring SB-1

EOTT Energy Corp. Darr Anglell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: NTS	Prep By: RS	Checked By: JN
June 21, 2000	ETGI Project # EOT 2055C	

Soil Boring SB-2

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		0.0	None	None	Sand - (SP) - Tan, very fine grained, well sorted, dry, caliche nodules.
5		0.0	None	None	
10		0.0	None	None	Sand - (SP) - Red tan, very fine grained, well sorted, dry, caliche nodules.
15	TD	0.0	None	None	

Legend

PID Head-space reading in ppm obtained with a photo-ionization detector

Indicates samples selected for laboratory analysis

Soil Boring Details

Date Drilled 064 / 21 / 00

Plugged - Surface to TD with Bentonite and hydrated with deionized water

Soil Boring Log Details

Soil Boring SB-2

EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: NTS	Prep By: RS	Checked By: JN
June 21, 2000	ETGI Project # EOT 2055C	

Soil Boring SB-3

Depth (feet)	Soil Columns	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0		4.6	None	None	Sand - (SP) - Brown, very fine grained, well sorted, dry, caliche nodules and asphaltine.
5		3.3	None	None	
10		2.5	None	None	Sand - (SP) - Red tan, very fine grained, well sorted, dry, caliche nodules.
15	TD	1.4	None	None	

Legend

PID Head-space reading in ppm obtained with a photo-ionization detector.

Indicates samples selected for laboratory analysis.

Soil Boring Details

Date Drilled 064 / 21 / 00

Plugged - Surface to TD with Bentonite and hydrated with deionized water.

Soil Boring Log Details

Soil Boring SB-3

EOTT Energy Corp. Darr Angell #1 Lea County, NM

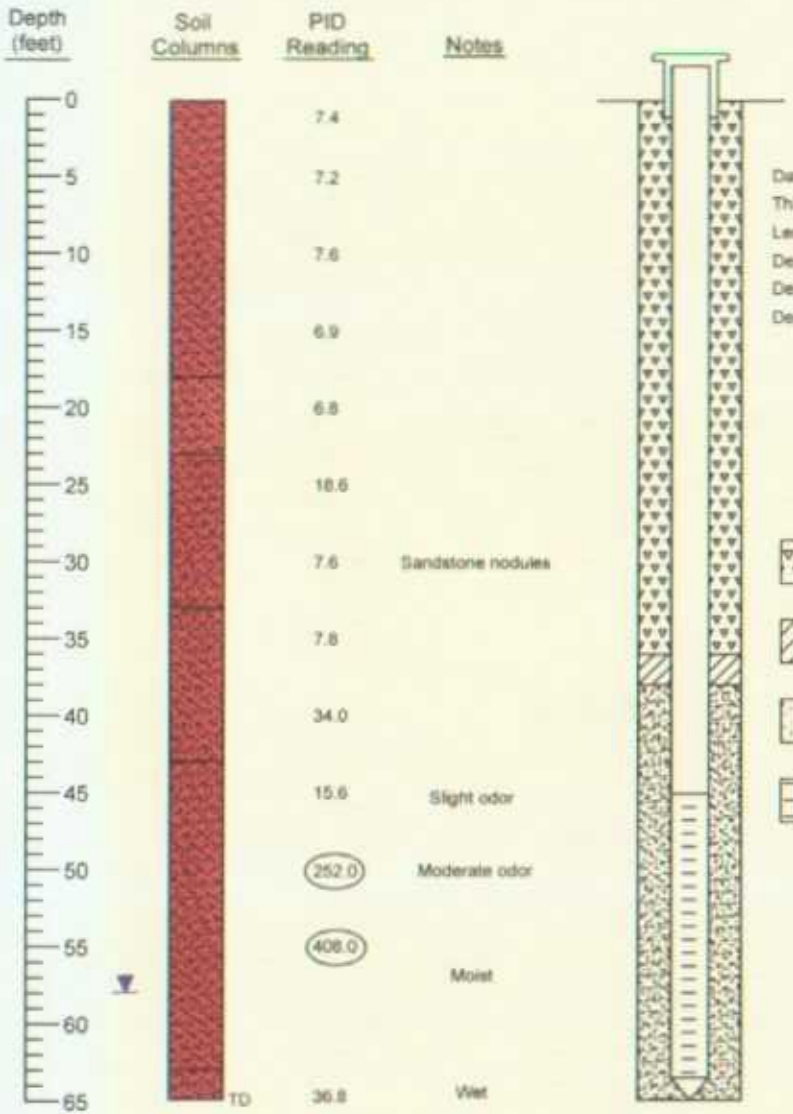
Environmental Technology Group, Inc.

Scale: NTS	Prep By: RS	Checked By: JN
June 21, 2000	ETGI Project # EOT 2055C	

APPENDIX C

WELL CONSTRUCTION DIAGRAMS

Monitoring Well MW - 10



Monitoring Well Details

Date Drilled	06 - 22 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	65 ft
Depth of Exploratory Well	65 ft
Depth to Ground Water	58 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked slick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

Monitoring Well - 10

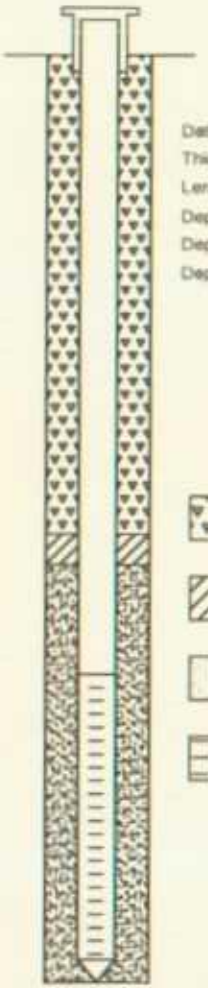
EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
June 22, 2000	ETGI Project # EOT 2055C	

Monitoring Well MW - 11

Depth (feet)	Soil Columns	PID Reading	Notes
0		8.2	Asphaltine
5		8.2	
10		8.1	
15		7.4	
20		6.5	
25		6.1	
30		6.2	
35		4.6	
40		4.8	
45		3.8	Moist
50		3.5	Wet
55		2.2	Moist
60	TD	2.3	
65			



Monitoring Well Details

Date Drilled	06 - 21 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	53.5 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

Monitoring Well - 11

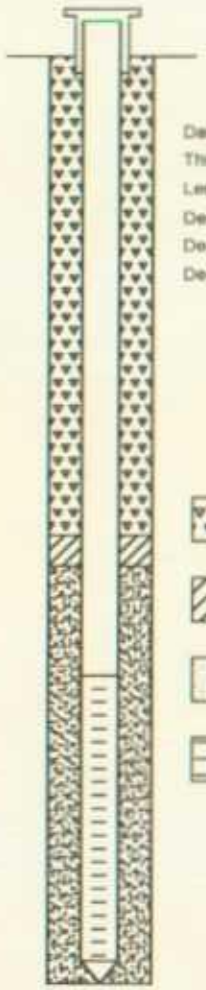
EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
June 21, 2000	ETGI Project # EOT 2068C	

Monitoring Well MW - 12

Depth (feet)	Soil Columns	PID Reading	Notes
0		0.0	Moist Sandstone nodules
5		0.0	
10		4.2	
15		2.4	
20		2.4	
25		2.4	
30		4.3	
35		1.6	Moist
40		2.4	
45		1.8	Wet
50		5.6	
55		6.7	Wet
60	TD	6.0	
65			



Monitoring Well Details

Date Drilled	06 - 21 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	53.5 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

- Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.
- Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.
- Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.
- Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.
- Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

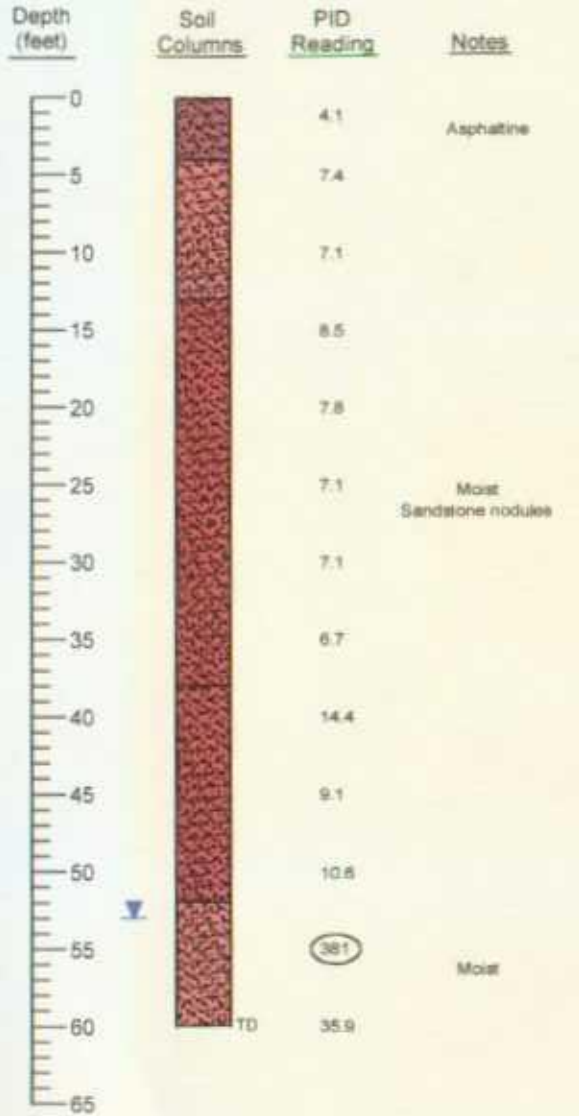
Monitoring Well - 12

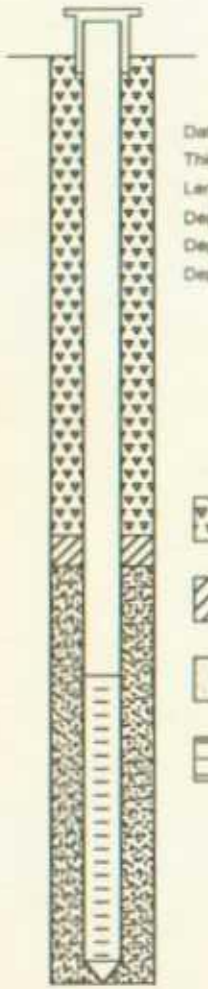
EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
June 21, 2000	ETGI Project # EOT 2055C	

Monitoring Well MW - 13





Monitoring Well Details

Date Drilled	06 - 22 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	53 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

Monitoring Well - 13

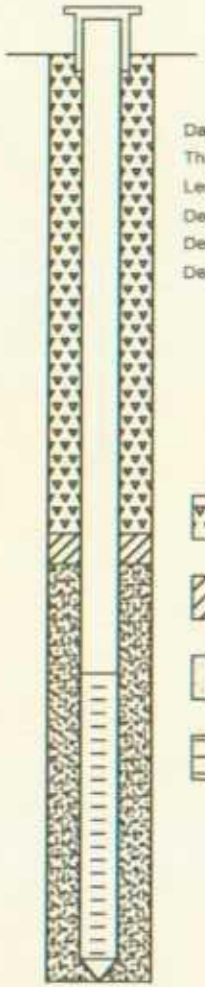
EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
June 22, 2000	ETGI Project # EOT 2055C	

Monitoring Well MW - 14

Depth (feet)	Soil Columns	PID Reading	Notes
0		7.2	Sandstone nodules
5		8.0	
10		9.4	
15		9.1	
20		10.0	
25		9.4	
30		8.4	
35		9.5	
40		9.6	
45		32.8	
50	▼	(129)	
55		(245)	Wet
60	TD	47.4	
65			



Monitoring Well Details

Date Drilled	06 - 22 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	52.5 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

▽ Indicates the PSH level measured on date.

▼ Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked slick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

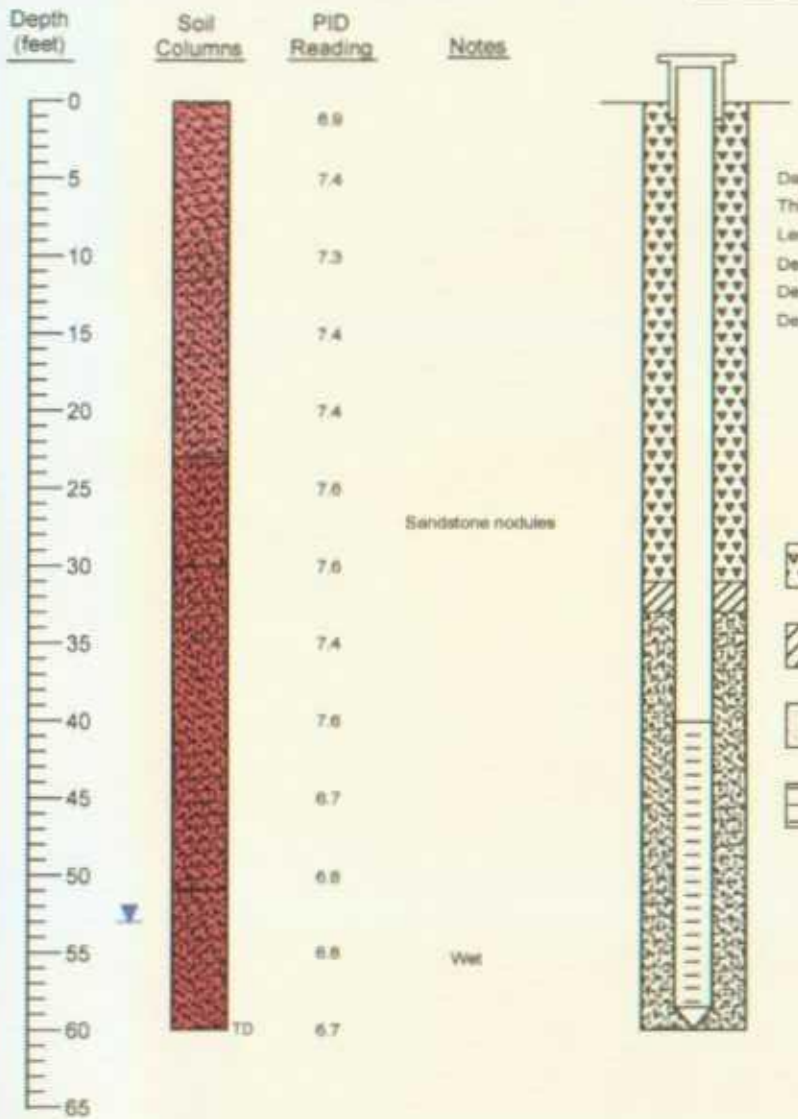
Monitoring Well - 14

EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
June 22, 2000	ETGI Project # EOT 2056C	

Monitoring Well MW - 15



Monitoring Well Details

Date Drilled	06 - 22 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	53 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

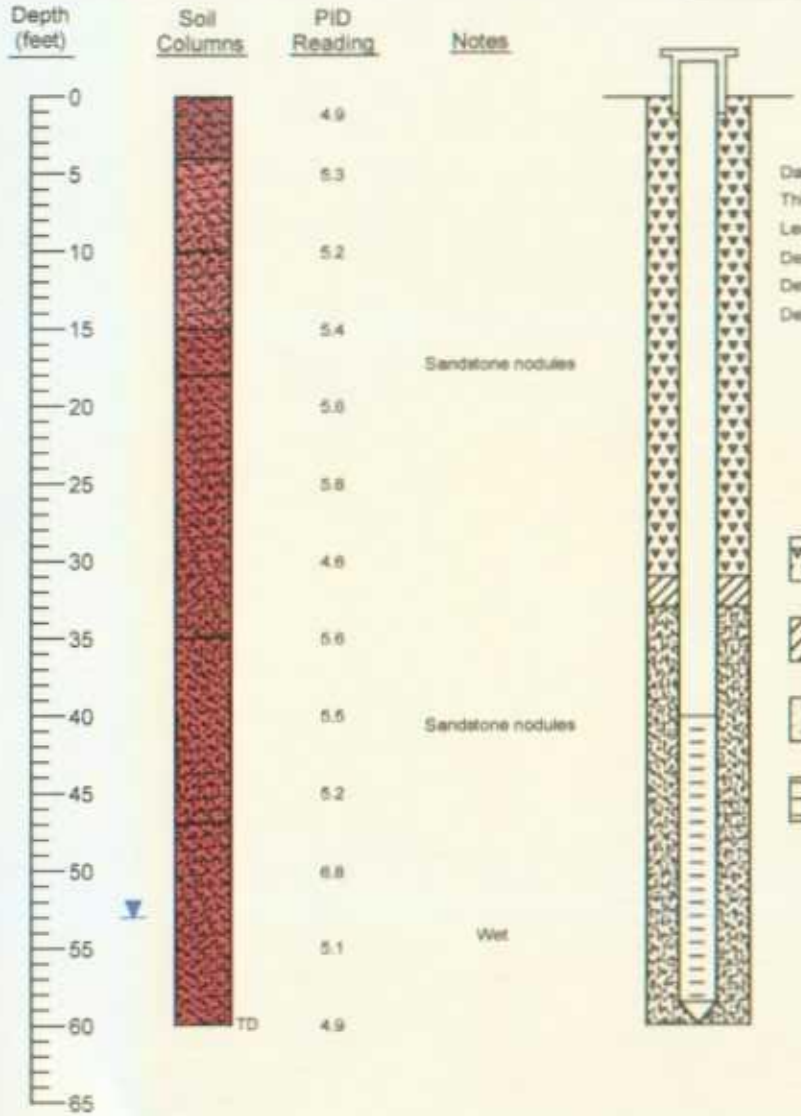
Monitoring Well - 15

EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
June 22, 2000	ETGI Project # EOT 2050C	

Monitoring Well MW - 16



Monitoring Well Details

Date Drilled	06 - 22 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	53 ft

Legend

- Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.
- Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.
- Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.
- Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.
- Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.
- Indicates samples selected for laboratory analysis.
- Indicates the PSH level measured on date.
- Indicates the ground water level measured on date.
- PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked slick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

Monitoring Well - 16

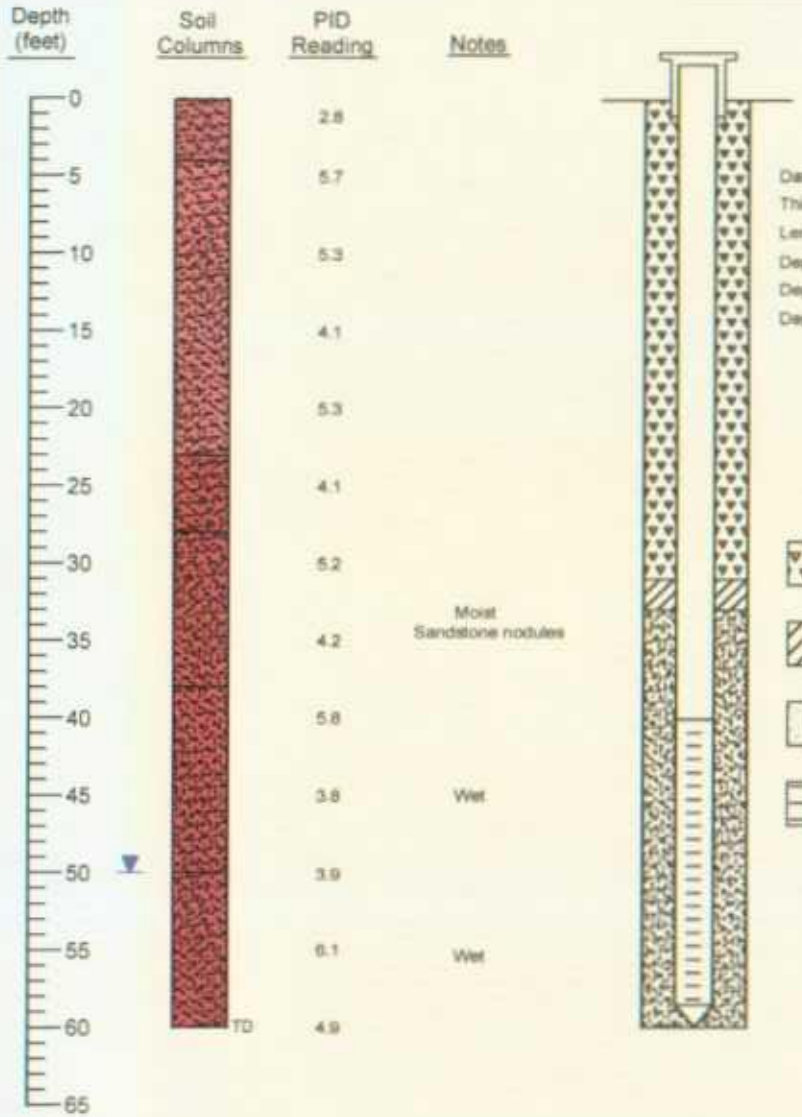
EOTT Energy Corp. Darr Angell #1 Lea County, NM

ETGI

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
June 22, 2000	ETGI Project # EOT 2059C	

Monitoring Well MW - 17



Monitoring Well Details

Date Drilled	07 - 09 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	50 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked slick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

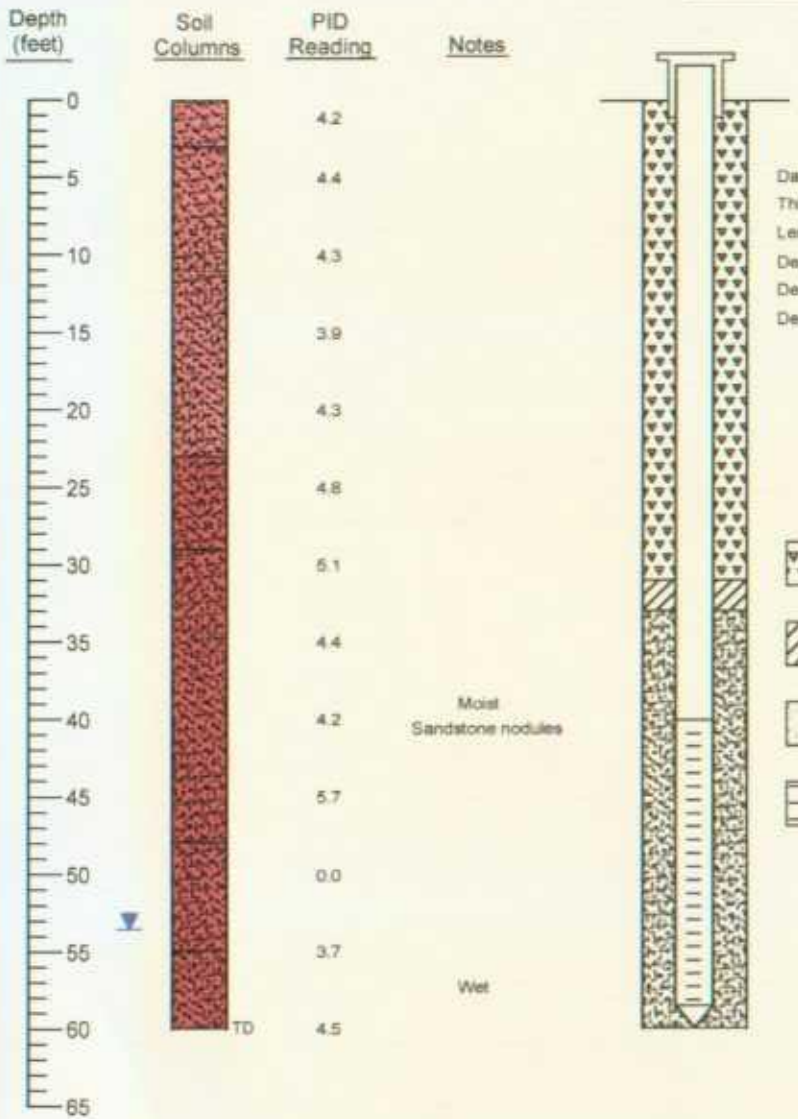
Monitoring Well - 17

EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
July 09, 2000	ETGI Project # EOT 2068C	

Monitoring Well MW - 18



Monitoring Well Details

Date Drilled	07 - 03 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	53.5 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

Monitoring Well - 18

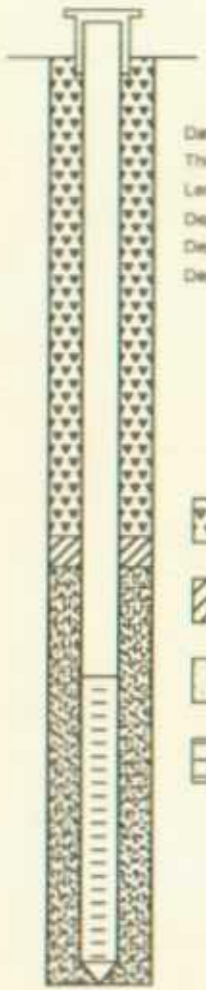
EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
July 03, 2000	ETGI Project # EOT 2055C	

Monitoring Well MW - 19

Depth (feet)	Soil Columns	PID Reading	Notes
0		3.7	
5		3.6	
10		3.4	
15		3.4	
20		3.4	
25		3.9	
30		3.3	
35		3.5	
40		3.1	
45		3.2	
50		3.2	
55		3.1	Wet
60	TD	6.7	
65			



Monitoring Well Details

Date Drilled	07 - 03 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	53.5 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

Monitoring Well - 19

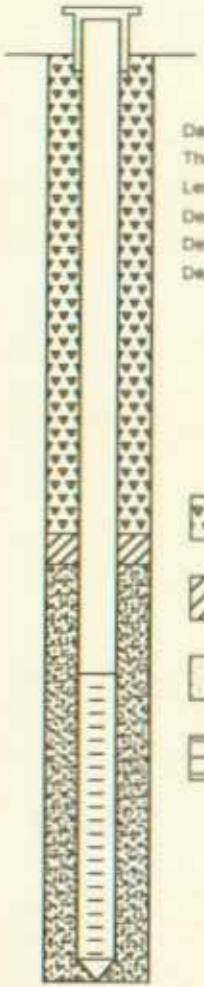
EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
July 03, 2000	ETGI Project # EOT 2000C	

Monitoring Well MW - 20

Depth (feet)	Soil Columns	PID Reading	Notes
0			
5		5.4	
10		5.6	
15		5.4	
20		5.0	
25		5.3	
30		4.8	Moist Sandstone nodules
35		4.7	
40		4.5	
45		4.9	
50		4.4	
55		4.5	Wet
60	TD	5.3	
65		4.2	



Monitoring Well Details

Date Drilled	07 - 03 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	60 ft
Depth of Exploratory Well	60 ft
Depth to Ground Water	53.5 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

Indicates samples selected for laboratory analysis.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 2" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked slick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

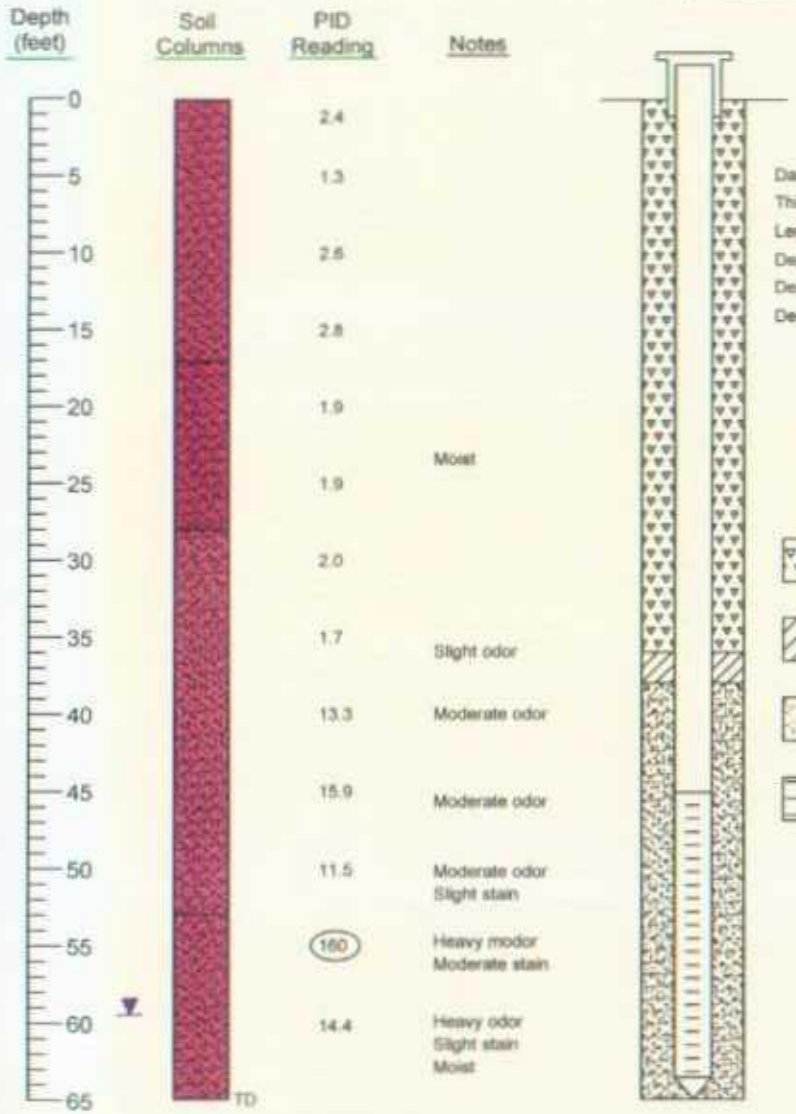
Monitoring Well - 20

EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
July 03, 2000	ETGI Project # EOT 2055C	

Recovery Well RW - 1



Monitoring Well Details

Date Drilled	07 - 06 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	65 ft
Depth of Exploratory Well	65 ft
Depth to Ground Water	54.5 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

All PID readings were analyzed.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 6" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked slick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

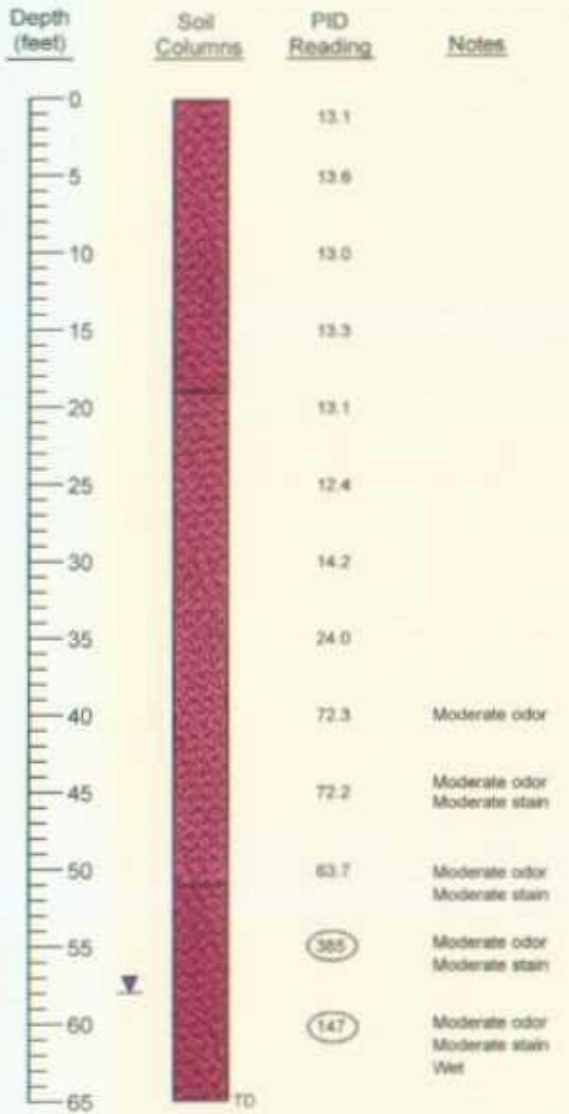
Recovery Well - 1

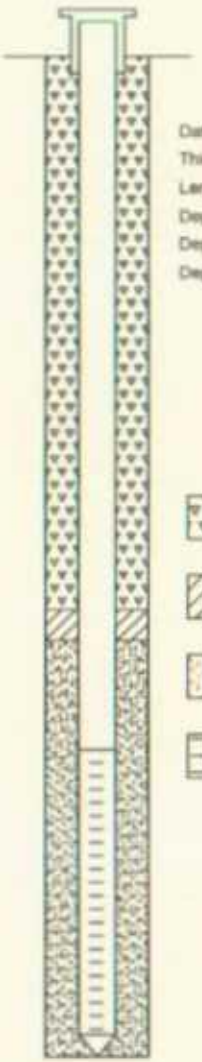
EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RB	Checked By: JT
July 6, 2000	ETGI Project # EOT 2059C	

Recovery Well RW - 2





Monitoring Well Details

Date Drilled	07 - 07 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	65 ft
Depth of Exploratory Well	65 ft
Depth to Ground Water	53 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

All PID readings were analyzed.

Indicates the PSH level measured on date.

Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 6" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked stick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

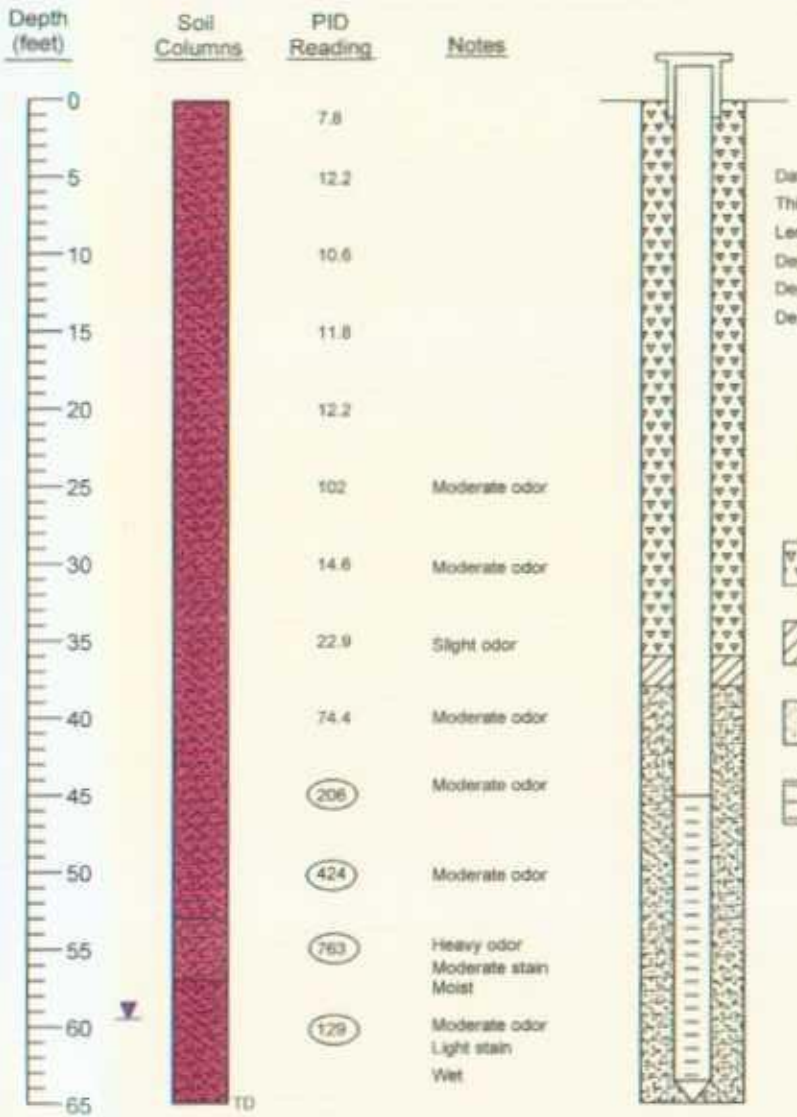
Recovery Well - 2

EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: see scale	Prep By: RS	Checked By: JT
July 7, 2000	ETGI Project # EOT 2888C	

Recovery Well RW - 3



Monitoring Well Details

Date Drilled	07 - 10 - 00
Thickness of Bentonite Seal	2 ft
Lenght of PVC Well Screen	25 ft
Depth of PVC Well	65 ft
Depth of Exploratory Well	65 ft
Depth to Ground Water	54.5 ft

Grout Surface Seal

Bentonite Pellet Seal

Sand Pack

Screen

Legend

Sand - (SP) - Tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Red tan, very fine grained, well sorted, dry, no stain, no odor, caliche nodules.

Sand - (SP) - Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Dark Brown, very fine grained, well sorted, dry, no stain, no odor.

Sand - (SP) - Red, very fine grained, well sorted, dry, no stain, no odor.

All PID readings were analyzed.

▽ Indicates the PSH level measured on date.

▼ Indicates the ground water level measured on date.

PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1. The monitoring well was installed on date using air rotary drilling techniques.
2. The well was constructed with 6" ID, 0.020 inch factory slotted, threaded joint, schedule 40 PVC pipe.
3. The well is protected with a locked slick up steel cover and a compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

Boring Log And Monitoring Well Details

Recovery Well - 3

EOTT Energy Corp. Darr Angell #1 Lea County, NM

Environmental Technology Group, Inc.

Scale: use scale	Prep By: RS	Checked By: JT
July 10, 2000	ETGI Project # EOT 2055C	

APPENDIX D

ANALYTICAL RESULTS

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 915-520-4310
FAX: 505-392-3760

Sample Type: Water
Sample Condition: Intact/ Iced/ HCl/ 47 deg. F
Project #: EOT 1020R
Project Name: Darr Angel
Project Location: Lea County, N.M.

Sampling Date: 05/05/00
Receiving Date: 05/05/00
Analysis Date: 05/05/00

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
25565	MW 4	<0.001	<0.001	<0.001	<0.001	<0.001
25566	MW 7	<0.001	<0.001	<0.001	<0.001	<0.001
	% IA	106	100	103	113	102
	% EA	101	96	98	105	97
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8021B,5030

Umesh Rao, Ph. D.

5/17/00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 505-392-3760
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 47 deg. F
Project #: EOT 1020R
Project Name: Darr Angel
Project Location: Lea County, N.M.

Sampling Date: 05/05/00
Receiving Date: 05/05/00
Analysis Date: See Below

ELT#	FIELD CODE	Sulfate mg/L	Chloride mg/L	Carbonate mg/L	Bicarbonate mg/L	TDS mg/L
25565	MW-4	154	71	<5	350	654
25566	MW-7	69.4	27	<5	227	399
	QUALITY CONTROL	56.4	5140	*	*	*
	TRUE VALUE	50.0	5000	*	*	*
	% PRECISION	113	103	*	*	*
	ANALYSIS DATE	05/10/0	05/09/00	05/10/00	05/10/00	05/09/00

METHODS: EPA 375.4, 325.3, 310, 160.1

Umesh Rao
Umesh Rao, Ph. D.

5/17/00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 505-392-3760
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/Iced/HNO3/ 47 deg. F
Project #: EOT 1020R
Project Name: Darr Angel
Project Location: Lea County, N.M.

Sample Date: 05/05/00
Receiving Date: 05/05/00
Analysis Date: 05/16/00
Analysis Date: Hg 05/12/00

Analyte (mg/L)	MW 4 25565	MW 7 25566	Reporting Limit	%IA	%EA	BLANK	RPD
Aluminum	0.0740	0.6470	0.0500	98	102	<0.0500	5.29
Arsenic	ND	0.0060	0.0050	102	106	<0.0050	3.70
Barium	0.1550	0.0860	0.0100	96	95	<0.0100	2.52
Beryllium	ND	ND	0.0040	102	100	<0.0040	3.92
Cadmium	ND	ND	0.0010	94	92	<0.0010	1.98
Calcium	135.0	78.20	1.000	95	*	<1.000	0.00
Chromium	ND	ND	0.0050	98	98	<0.0050	2.52
Cobalt	ND	ND	0.0200	96	94	<0.0200	2.32
Copper	ND	ND	0.0100	96	98	<0.0100	2.82
Iron	0.0570	0.3420	0.0500	96	111	<0.0500	7.04
Lead	ND	ND	0.0030	90	96	<0.0030	4.08
Magnesium	23.50	12.10	1.000	97	*	<1.000	0.00
Manganese	ND	0.0390	0.0150	97	95	<0.0150	2.35
Mercury	ND	ND	0.00020	96	99	<0.00020	5.18
Molybdenum	ND	ND	0.050	98	96	<0.050	3.27
Nickel	ND	ND	0.0100	96	93	<0.0100	2.33
Potassium	3.680	3.120	1.000	86	*	<1.000	4.23
Selenium	ND	ND	0.0050	96	94	<0.0050	4.17
Silver	ND	ND	0.00500	98	98	<0.0050	4.00
Sodium	71.30	54.70	1.000	115	*	<1.000	0.18
Tin	ND	ND	0.0500	100	95	<0.0500	3.82
Vanadium	0.0300	0.0510	0.0200	97	97	<0.0200	2.25
Zinc	ND	ND	0.0200	96	96	<0.0200	2.06
Boron	0.204	0.158	0.050	104	106	<0.050	0.94
Strontium	0.828	0.424	0.050	102	93	<0.050	2.47

ND = Below Reporting Limit
METHOD: EPA SW846-6010B, 7470

Umesh Rao
Umesh Rao, Ph. D.

5/17/00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 505-392-3760
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/HCl/ 47 deg. F
Project #: EOT 1020R
Project Name: Darr Angel
Project Location: Lea County, N.M.
Field Code: MW 4

Sampling Date: 05/05/00
Receiving Date: 05/05/00
Analysis Date: 05/12/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 25565	RPD	%EA	%DEV
Naphthalene	0.005	ND			0.4
Acenaphthylene	0.005	ND			3.9
Acenaphthene	0.005	ND	20	84	-9.8
Fluorene	0.005	ND			-9.6
Phenanthrene	0.005	ND			-2.4
Anthracene	0.005	ND			-3.6
Fluoranthene	0.005	ND			-4.9
Pyrene	0.005	ND	16	96	-9.6
Benzo[a]anthracene	0.005	ND			-6.1
Chrysene	0.005	ND			-6.8
Benzo[b]fluoranthene	0.005	ND			16.1
Benzo[k]fluoranthene	0.005	ND			-11.0
Benzo [a]pyrene	0.005	ND			0.4
Indeno[1,2,3-cd]pyrene	0.005	ND			2.8
Dibenz[a,h]anthracene	0.005	ND			2.4
Benzo[g,h,i]perylene	0.005	ND			8.9

	% RECOVERY
Nitrobenzene-d5 SURR	185*
2-Fluorobiphenyl SURR	245*
Terphenyl-d14 SURR	306*

ND= not detected at reporting limit
Method: EPA SW 846 8270C , 3510
*NOTE: Matrix Interference

Umesh Rao
Umesh Rao, Ph. D.

5/17/00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 505-392-3760
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/HCl/ 47 deg. F
Project #: EOT 1020R
Project Name: Darr Angel
Project Location: Lea County, N.M.
Field Code: MW 7

Sampling Date: 05/05/00
Receiving Date: 05/05/00
Analysis Date: 05/12/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 25566	RPD	%EA	%DEV
Naphthalene	0.005	ND			0.4
Acenaphthylene	0.005	ND			3.9
Acenaphthene	0.005	ND	20	84	-9.8
Fluorene	0.005	ND			-9.6
Phenanthrene	0.005	ND			-2.4
Anthracene	0.005	ND			-3.6
Fluoranthene	0.005	ND			-4.9
Pyrene	0.005	ND	16	96	-9.6
Benzo[a]anthracene	0.005	ND			-6.1
Chrysene	0.005	ND			-6.8
Benzo[b]fluoranthene	0.005	ND			16.1
Benzo[k]fluoranthene	0.005	ND			-11.0
Benzo [a]pyrene	0.005	ND			0.4
Indeno[1,2,3-cd]pyrene	0.005	ND			2.8
Dibenz[a,h]anthracene	0.005	ND			2.4
Benzo[g,h,i]perylene	0.005	ND			8.9

	% RECOVERY
Nitrobenzene-d5 SURR	198*
2-Fluorobiphenyl SURR	135*
Terphenyl-d14 SURR	141*

ND= not detected at reporting limit
Method: EPA SW 846 8270C , 3510
*NOTE: Matrix Interference

Umesh Rao

Umesh Rao, Ph. D.

5/17/00

Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC 133

Project Manager: Jesse Taylor
Phone #: (915) 664-9166
FAX #: (505) 392-3760

Company Name & Address: ETGI
P.O. Box 4845 Midland TX 79704

Project #: EOT 1020R

Project Name: Dark Angel

Project Location: Lea County, NM

Sampler Signature: Simon Casas

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME
25565	MW 4	5	40 ml	X					X	X	X			5-5	0950
25566	MW 7	5	40 ml	X					X	X	X			5-5	1040

ANALYSIS REQUEST

BTEX 8021B/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS 160.1	RCI	CATIONS 6010	ANIONS 300.0	PAH 8100 or 8270	HEAVY METALS 6010
X						X		X	X	X	X
↓						↓		↓	↓	↓	↓

Relinquished by:	Date:	Time:	Received by:
Simon Casas	5-5-00	1200	
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date: 5/5/00	Time: 15:00	Received by Laboratory: Celey Keene

REMARKS
Mail Results: K. Dutton
4/7°F
Invoice: EOT 1015 M

May 17 00 08:19a

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 30 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: See Below
Receiving Date: 06/23/00
Analysis Date: 06/26/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg	SAMPLE DATE
27249	MW-10 0-2C	<10	<10	06/20/00
27250	MW-10 3-5C	<10	<10	06/20/00
27251	MW-10 8-10C	<10	<10	06/20/00
27252	MW-10 13-15C	<10	<10	06/20/00
27253	MW-10 18-20C	<10	<10	06/20/00
27254	MW-10 23-25SS	<10	<10	06/20/00
27255	MW-10 28-30SS	<10	<10	06/20/00
27256	MW-10 33-35SS	<10	<10	06/20/00
27257	MW-10 38-40SS	<10	<10	06/20/00
27258	MW-10 43-45SS	<10	<10	06/20/00
27259	MW-10 48-50SS	87	399	06/20/00
27260	MW-10 53-55SS	147	443	06/20/00
27261	MW-10 65C	<10	148	06/20/00
27262	MW-11 0-2C	<10	<10	None Given
27263	MW-11 3-5C	<10	<10	None Given
27264	MW-11 8-10C	<10	<10	None Given
27265	MW-11 13-15C	<10	<10	None Given
27266	MW-11 18-20C	<10	<10	None Given
27267	MW-11 23-25SS	<10	<10	None Given
27268	MW-11 28-30SS	<10	<10	None Given
27269	MW-11 33-35SS	<10	<10	None Given
	% IA	66	72	
	% EA	73	80	
	BLANK	<10	<10	

METHODS: SW 846-8015M GRO/DRO

Raland K Tuttle

Raland K. Tuttle

6-30-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 30 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: See Below
Receiving Date: 06/23/00
Analysis Date: 06/26/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg	SAMPLE DATE
27270	MW-11 38-40SS	<10	<10	06/21/00
27271	MW-11 43-45SS	<10	<10	06/21/00
27272	MW-11 48-50SS	<10	<10	06/21/00
27273	MW-11 53-55SS	<10	<10	06/21/00
27274	MW-11 58-60C	<10	<10	06/21/00
27275	MW-12 0-2C	<10	<10	06/21/00
27276	MW-12 3-5C	<10	<10	06/21/00
27277	MW-12 8-10C	<10	<10	06/21/00
27278	MW-12 13-15C	<10	<10	06/21/00
27279	MW-12 18-20C	<10	<10	06/21/00
27280	MW-12 23-25SS	<10	<10	06/21/00
27281	MW-12 28-30SS	<10	<10	06/21/00
27282	MW-12 33-35SS	<10	<10	06/21/00
27283	MW-12 38-40SS	<10	<10	06/21/00
27284	MW-12 43-45SS	<10	<10	06/21/00
27285	MW-12 48-50SS	<10	<10	06/21/00
27286	MW-12 53-55SS	<10	<10	06/21/00
27287	MW-12 58-60SS	<10	<10	06/21/00
27288	MW-13 02C	<10	<10	06/22/00
27289	MW-13 3-5C	<10	<10	06/22/00
	% IA	85	97	
	% EA	82	94	
	BLANK	<10	<10	

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

6-30-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 30 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: 06/22/00
Receiving Date: 06/23/00
Analysis Date: 06/26/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
27290	MW-13 8-10C	<10	<10
27291	MW-13 13-15C	<10	<10
27292	MW-13 18-20C	<10	<10
27293	MW-13 23-25SS	<10	<10
27294	MW-13 28-30SS	<10	<10
27295	MW-13 33-35SS	<10	<10
27296	MW-13 38-40SS	<10	<10
27297	MW-13 43-45SS	<10	<10
27298	MW-13 48-50SS	<10	<10
27299	MW-13 53-55SS	<10	331
27300	MW-13 58-60	<10	125
27301	MW-14 0-2C	<10	<10
27302	MW-14 3-5C	<10	<10
27303	MW-14 8-10C	<10	<10
27304	MW-14 13-15C	<10	<10
27305	MW-14 18-20C	<10	<10
27306	MW-14 23-25SS	<10	<10
27307	MW-14 28-30SS	<10	<10
27308	MW-14 33-35SS	<10	<10
27309	MW-14 38-40SS	<10	<10
27310	MW-14 43-45SS	<10	<10
27311	MW-14 48-50SS	24	735
	% IA	81	93
	% EA	88	96
	BLANK	<10	<10

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

6-30-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 30 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: 06/22/00
Receiving Date: 06/23/00
Analysis Date: 06/26/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
27312	MW-14 53-55SS	385	3170
27313	MW-14 58-60SS	<10	191
27314	MW-15 0-2C	<10	27
27315	MW-15 3-5C	<10	<10
27316	MW-15 8-10C	<10	10
27317	MW-15 13-15C	<10	<10
27318	MW-15 18-20C	<10	<10
27319	MW-15 23-25C	<10	<10
27320	MW-15 28-30C	<10	<10
27321	MW-15 33-35SS	<10	<10
27322	MW-15 38-40SS	<10	<10
27323	MW-15 43-45SS	<10	<10
27324	MW-15 48-50SS	<10	<10
27325	MW-15 53-55SS	<10	<10
27326	MW-15 58-60SS	<10	<10
27327	MW-16 0-2C	<10	<10
27328	MW-16 3-5C	<10	<10
27329	MW-16 8-10C	<10	<10
27330	MW-16 13-15C	<10	<10
27331	MW-16 18-20C	<10	<10
	% IA	63	74
	% EA	73	120
	BLANK	<10	<10

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

6-30-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 30 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: See Below
Receiving Date: 06/23/00
Analysis Date: 06/26/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg	SAMPLE DATE
27332	MW-16 23-25C	<10	<10	06/22/00
27333	MW-16 28-30SS	<10	<10	06/22/00
27334	MW-16 33-35SS	<10	<10	06/22/00
27335	MW-16 38-40SS	<10	<10	06/22/00
27336	MW-16 43-45SS	<10	<10	06/22/00
27337	MW-16 48-50SS	<10	<10	06/22/00
27338	MW-16 53-55SS	<10	<10	06/22/00
27339	MW-16 58-60SS	<10	<10	06/22/00
27340	SB-1 0-2C	<10	<10	06/20/00
27341	SB-1 3-5C	<10	<10	06/20/00
27342	SB-1 8-10C	<10	<10	06/20/00
27343	SB-1 13-15C	<10	<10	06/20/00
27344	SB-2 0-2C	<10	11	06/20/00
27345	SB-2 3-5C	<10	<10	06/20/00
27346	SB-2 8-10C	<10	<10	06/20/00
27347	SB-2 13-15C	<10	<10	06/20/00
27348	SB-3 0-2C	<10	<10	06/20/00
27349	SB-3 3-5C	<10	<10	06/20/00
27350	SB-3 8-10C	<10	<10	06/20/00
27351	SB-3 13-15C	<10	<10	06/20/00
	% IA	69	76	
	% EA	86	96	
	BLANK	<10	<10	

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

6-30-00
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 168

Project Manager: J. TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

ANALYSIS REQUEST

1 of 9

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ken Dutton

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE (2004)	TIME	BTEX 8021B/5030	TPH ~~8015~~ 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27249	MW-10 0-2C	1	4oz		X						X			6/20	0950		X						
27250	MW-10 3-5C														0953								
27251	MW-10 8-10C														0957								
27252	MW-10 13-15C														0959								
27253	MW-10 18-20C														1001								
27254	MW-10 23-25SS														1015								
27255	MW-10 28-30 SS														1030								
27256	MW-10 33-35SS														1047								
27257	MW-10 38-40 SS														1103								
27258	MW-10 43-45 SS														1119								
27259	MW-10 48-50SS														1137	X							

Relinquished by:	Date:	Time:	Received by:
Ken Dutton	23 JUN 04	1432	
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FR: (505) 397-4701

ATTN: KD

30°F

INVOICE: EOTT

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

CoC # 168

Project Manager: J. TAYLOR

Phone #: (505) 397-4882
FAX #: (505) 397-4701

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ben Dutton

ANALYSIS REQUEST

2 of 9

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 8015 D/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TOS	RCI
27260	MW-10 53-55SS	1	4oz		X						X			6/20	1202		X						
~~27261~~	~~MW-10 58-60C~~														~~1222~~		NO SAMPLE						
27261	MW-10 65C														1309		X						
27262	MW-11 0-2C														0952								
27263	MW-11 3-5 C														1003								
27264	MW-11 8-10 C														1010								
27265	MW-11 13-15C														1020								
27266	MW-11 18-20 C														1030								
27267	MW-11 23-25 SS														1040								
27268	MW-11 28-30 SS														1050								
27269	MW-11 33-35 SS														1100								

Relinquished by:	Date:	Time:	Received by:
Ben Dutton	23 Jun 00	1432	
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FR: (505) 397-4701
ATTN: KD

30PF

INVOICE: EOTT

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 168

Project Manager: J. TAYLOR

Phone #: (505) 397-4882
FAX #: (505) 397-4701

ANALYSIS REQUEST

3 of 9

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ken Dutton

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME
27270	MW-11 38-40 SS	1	4oz		X						X			6/21	1111
27271	MW-11 43-45 SS														1130
27272	MW-11 48-50 SS														1222
27273	MW-11 53-55 SS														1241
27274	MW-11 58-60C														1300
27275	MW-12 0-2C														1445
27276	MW-12 3-5C														1457
27277	MW-12 8-10C														1459
27278	MW-12 13-15C														1501
27279	MW-12 18-20C														1503
27280	MW-12 23-25SS														1510

BTEX 8021B/5030 8015 Modified
TPH
TCLP Metals Ag As Ba Cd Cr Pb Hg Se
Total Metals Ag As Ba Cd Cr Pb Hg Se
TCLP Volatiles
TCLP Semi Volatiles
TDS
RCI

Relinquished by:	Date:	Time:	Received by:
Ken Dutton	23 Jun 00	1432	
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FR: (505) 397-4701
KD

30°F

INVOICE: EOTT

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 168

3 of 9

Project Manager: J. TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ken Dutton

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021/5030	TPH ~~8100~~ 8015 Dro/Gro	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27281	MW-12 28-30 SS	1	4oz	X							X			6/21	1625		X						
27282	MW-12 33-35 SS														1545								
27283	MW-12 38-40 SS														1600								
27284	MW-12 43-45 SS														1625								
27285	MW-12 48-50 SS														1655								
27286	MW-12 53-55 SS														1725								
27287	MW-12 58-60 SS														1810								
27288	MW-13 0-2 C													6/22	0820								
27289	MW-13 3-5 C														0825								
27290	MW-13 8-10 C														0831								
27291	MW-13 13-15 C														0842								

Relinquished by:	Date:	Time:	Received by:
Ken Dutton	23 JUN 00	1432	
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FR: (505) 397-4701

30°P

INVOICE: EOTT

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC# 168

Project Manager: J. TAYLOR

Phone #: (505) 397-4882
FAX #: (505) 397-4701

ANALYSIS REQUEST

4 of 9

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ken Dutton

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021/5030	TPH 418.1 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TOS	RCI
27292	MW-13 18-20C	1	4oz		X						X			6/22	0851		X						
27293	MW-13 23-25SS														0905								
27294	MW-13 28-30SS														0921								
27295	MW-13 33-35SS														0943								
27296	MW-13 38-40SS														1002								
27297	MW-13 43-45SS														1019								
27298	MW-13 48-50SS														1038								
27299	MW-13 53-55SS														1101	X							
27300	MW-13 58-60														1120								
27301	MW-14 0-2C														1140								
27302	MW-14 3-5C														1142								

Relinquished by:	Date:	Time:	Received by:	REMARKS
Ken Dutton	23 Jun 00	1432		FR: (505) 397-4701
Relinquished by:	Date:	Time:	Received by:	30°F
Relinquished by:	Date:	Time:	Received by Laboratory:	INVOICE: EOTT

Environmental Lab of Texas, Inc. 12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 168

Project Manager: J. TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ken Dutton

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	Matrix: WATER	Matrix: SOIL	Matrix: AIR	Matrix: SLUDGE	Matrix: OTHER	Preservative: HCL	Preservative: HNO3	Preservative: ICE	Preservative: NONE	Preservative: OTHER	Sampling: DATE (2000)	Sampling: TIME	BTEX 8021/5030	TPH 8015 GRO/DRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27303	MW-14 8-10C	1	4oz		X						X			6/22	1147		X						
27304	MW-14 13-15C														1153								
27305	MW-14 18-20C														1157								
27306	MW-14 23-25SS														1205								
27307	MW-14 28-30SS														1215								
27308	MW-14 33-35SS														1225								
27309	MW-14 38-40SS														1236								
27310	MW-14 43-45SS														1248								
27311	MW-14 48-50SS														1257	X							
27312	MW-14 53-55SS														1308	X							
27313	MW-14 58-60SS														1317								

Relinquished by:	Date:	Time:	Received by:
Ken Dutton	23 Jun 00	2432	[signature]
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FR: (505) 397-4701

30°F

INVOICE: EOTT

Jun 30 00 05:03p P. 12

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC# 168

Project Manager: J. TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

ANALYSIS REQUEST

6 of 9

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ken Dutton

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 418.1 8015 Mod.	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TOS	RCI
27314	MW-15 0-2C	1	4oz		X						X			6/22	1330		X						
27315	MW-15 3-5C														1332								
27316	MW-15 8-10C														1336								
27317	MW-15 13-15C														1340								
27318	MW-15 18-20C														1343								
27319	MW-15 23-25C														1346								
27320	MW-15 28-30C														1349								
27321	MW-15 33-35SS														1355								
27322	MW-15 38-40SS														1408								
27323	MW-15 43-45SS														1420								
27324	MW-15 48-50SS														1430								

Relinquished by:	Date:	Time:	Received by:
[signature]	23 Jun 00	1432	[signature]
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FR: (505) 397-4701

30°F

INVOICE: EOTT

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC# 168

7 of 9

Project Manager: J. TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ken Dutton

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8112D/5030	TPH 418.1 8015 MOD/TX1005	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27325	MW-15 53-55SS	1	4oz		X						X			6/22 2000	1437		X						
27326	MW-15 58-60SS														1449								
27327	MW-16 0-2C														1510								
27328	MW-16 3-5C														1513								
27329	MW-16 8-10C														1516								
27330	MW-16 13-15C														1519								
27331	MW-16 18-20C														1525								
27332	MW-16 23-25C														1529								
27333	MW-16 28-30SS														1544								
27334	MW-16 33-35SS														1550								
27335	MW-16 38-40SS														1510								

Relinquished by:	Date:	Time:	Received by:
Ken Dutton	23 Jan 00	1432	
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FAX: (505) 397-4701

ATTN: KD

30°F

INVOICE: EOTT

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 168

Project Manager: J. TAYLOR

Phone #: (505) 397-4882
FAX #: (505) 397-4701

ANALYSIS REQUEST

8 of 9

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Jen Dutton

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME
27336	MW-16 43-45S	1	4oz		X						X			6/22	1622
27337	MW-16 48-50S														1636
27338	MW-16 53-55S														1651
27339	MW-16 58-60S														1710
27340	SB-1 0-2C													6/20	1422
27341	SB-1 3-5C														1425
27342	SB-1 8-10C														1433
27343	SB-1 13-15C														1436
27344	SB-2 0-2C														1453
27345	SB-2 3-5C														1455
27346	SB-2 8-10C														1458

BTEX 8021B/5030 — TPH ~~418.1~~ 8015 M/D — TCLP Metals Ag As Ba Cd Cr Pb Hg Se — Total Metals Ag As Ba Cd Cr Pb Hg Se — TCLP Volatiles — TCLP Semi Volatiles — TDS — RCI

Relinquished by:	Date:	Time:	Received by:
Jen Dutton	23 Jun 00	1432	
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FR: (505) 397-4701
ATTN KD

300#

INVOICE: EOTT

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 168

Project Manager: J. TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: LOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA CTY NM

Sampler Signature: Ken Dutton

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH ~~418.1~~ 8015 Mod/CED	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27347	SB-2 13-15C	1	4oz		X						X			6/20 2000	1500		X						
27348	SB-3 0-2C														1345								
27349	SB-3 3-5C														1400								
27350	SB-3 8-10C														1415								
27351	SB-3 13-15C														1430								

Relinquished by:	Date:	Time:	Received by:	REMARKS
Ken Dutton	23 Jun 00	1432		
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date:	Time:	Received by Laboratory:	

13.0°F

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 26 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: 07/03/00
Receiving Date: 07/07/00
Analysis Date: 07/10/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
27794	MW-18SS 23-25'	<10	<10
27795	MW-18SS 28-30'	<10	<10
27796	MW-18C 33-35'	<10	<10
27797	MW-18SS 38-40'	<10	<10
27798	MW-18SS 43-45'	<10	<10
	% IA	93	113
	% EA	90	97
	BLANK	<10	<10

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

7-13-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 26 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: 07/03/00
Receiving Date: 07/07/00
Analysis Date: 07/09/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
27776	MW-17C 4-2'	<10	22
27777	MW-17C 3-5'	<10	<10
27778	MW-17C 8-10'	<10	<10
27779	MW-17C 13-15'	<10	<10
27780	MW-17C 18-20'	<10	<10
27781	MW-17SS 23-25'	<10	<10
27782	MW-17C 28-30'	<10	<10
27783	MW-17C 33-35'	<10	<10
27784	MW-17C 38-40'	<10	<10
27785	MW-17SS 43-45'	<20	<20
27786	MW-17SS 48-50'	<20	<20
27787	MW-17SS 53-55'	<10	<10
27788	MW-17SS 58-60'	<10	<10
27789	MW-18C 0-2'	<10	<10
27790	MW-18C 3-5'	<10	<10
27791	MW-18C 8-10'	<10	<10
27792	MW-18C 13-15'	<10	<10
27793	MW-18C 18-20'	<10	<10
	% IA	93	113
	% EA	79	94
	BLANK	<10	<10

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

7-13-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 26 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: See Below
Receiving Date: 07/07/00
Analysis Date: 07/11/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg	SAMPLE DATE
27799	MW-18SS 48-50'	<10	<10	07/03/00
27800	MW-18C 53-55'	<10	<10	07/03/00
27801	MW-18C 58-60'	<10	<10	07/03/00
27802	MW-19C 0-2'	<10	<10	07/05/00
27803	MW-19C 3-5'	<10	<10	07/05/00
27804	MW-19C 8-10'	<10	<10	07/05/00
27805	MW-19C 13-15'	<10	<10	07/05/00
27806	MW-19C 18-20'	<10	<10	07/05/00
27807	MW-19SS 23-25'	<10	<10	07/05/00
27808	MW-19SS 28-30'	<10	<10	07/05/00
27809	MW19SS 33-35'	<10	<10	07/05/00
27810	MW-19SS 38-40'	<10	<10	07/05/00
27811	MW-19SS 43-45'	<10	<10	07/05/00
27812	MW-19SS 48-50'	<10	<10	07/05/00
27813	MW-19SS 53-55'	<10	<10	07/05/00
27814	MW-19SS 58-60'	<10	<10	07/05/00
27815	MW-20C 0-2'	<10	<10	07/05/00
	% IA	93	113	
	% EA	90	97	
	BLANK	<10	<10	

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

7-13-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 26 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: See Below
Receiving Date: 07/07/00
Analysis Date: 07/11/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg	SAMPLE DATE
27816	MW-20C 3-5'	<10	<10	07/05/00
27817	MW-20C 8-10'	<10	<10	07/05/00
27818	MW-20C 13-15'	<10	<10	07/05/00
27819	MW-20C 18-20'	<10	<10	07/05/00
27820	MW-20SS 23-25'	<10	<10	07/05/00
27821	MW-20C 28-30'	<10	<10	07/05/00
27822	MW-20SS 33-35'	<10	<10	07/05/00
27823	MW-20SS 38-40'	<10	<10	07/05/00
27824	MW-20SS 43-45'	<10	<10	07/05/00
27825	MW-70SS 48-50'	<10	<10	07/05/00
27826	MW-20SS 53-55'	<10	<10	07/05/00
27827	MW-20SS 58-60'	<10	<10	07/05/00
27828	RW-1C 0-2'	<10	<10	07/06/00
27829	RW-1C 3-5'	<10	<10	07/06/00
27830	RW-1C 8-10'	<10	<10	07/06/00
27831	RW-1C 13-15'	<10	<10	07/06/00
27832	RW-1C 18-20'	<10	<10	07/06/00
27833	RW-1SS 23-25'	<10	<10	07/06/00
27834	RW-1C 28-30'	<10	<10	07/06/00
	% IA	99	106	
	% EA	87	95	
	BLANK	<10	<10	

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

7-13-00
Date

ENVIRONMENTAL LAB OF TEXAS, INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 26 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: 07/06/00
Receiving Date: 07/07/00
Analysis Date: 07/11/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
27835	RW-1C 33-35'	<10	<10
27836	RW-1SS 38-40'	260	729
27837	RW-1SS 43-45'	491	926
27838	RW-1SS 48-50'	61	1116
27839	RW-1SS 53-55'	1545	10090
27840	RW-1SS 58-60'	78	1921
	% IA	87	106
	% EA	96	103
	BLANK	<10	<10

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

7-13-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88242
FAX: 915-520-4310
FAX: 505-397-4701

SampleType: Soil
Sample Condition: Intact/ Iced/ 26 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sampling Date: 07/06/00
Receiving Date: 07/07/00
Analysis Date: 07/11/00

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
27839	RW-1SS 53-55'	<0.100	3.31	3.25	13.1	5.36
% IA		96	92	95	103	96
% EA		87	87	88	98	86
BLANK		<0.100	<0.100	<0.100	<0.100	<0.100

METHODS: SW 846-8021B,5030

Raland K. Tuttle

7-13-00
Date

Environmental Lab of Texas, Inc. 12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC 181

1 of 7

Project Manager: JESSE TAYLOR
Phone #: (505) 397-4882
FAX #: (505) 397-4701

Company Name & Address: ETGI
2540 W. MARLAND HOBBS NM 88242

Project #: EOT 2Ø55C
Project Name: DARR ANGELL # 1

Project Location: LEA COUNTY NM
Sampler Signature: [signature]

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	Matrix: WATER	Matrix: SOIL	Matrix: AIR	Matrix: SLUDGE	Matrix: OTHER	Preservative: HCL	Preservative: HNO3	Preservative: ICE	Preservative: NONE	Preservative: OTHER	Sampling DATE (2ØØØ)	Sampling TIME	BTEX 8021B/5030	TPH 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27776	MW-17C Ø-2	1	4oz		X						X			7/3	Ø9Ø1		X						
27777	MW-17C 3-5'	↓	↓		↓						↓			↓	Ø910		↓						
27778	MW-17C 8-10'	↓	↓		↓						↓			↓	Ø913		↓						
27779	MW-17C 13-15'	↓	↓		↓						↓			↓	Ø916		↓						

Relinquished by:	Date:	Time:	Received by:
[signature]	7/7/ØØ	1Ø65	[signature]
[signature]	7-7-00	2:20	[signature]
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS: Rec 26°F
F. R. HOBBS OFFICE
Called Jesse on 7/7/00 and all samples are 8015 DRO Page 5 is not TCLP metals. COK
INVOICE: EOTT 1015M

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC 181

Project Manager: JESSE TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

Company Name & Address: ETGI 2540 W. MARLAND HOBBS NM 88242

Project #: EOY 2055C

Project Name: DARR ANGEL #1

Project Location: LEA COUNTY NM

Sampler Signature: Ken Dutton

ANALYSIS REQUEST

2 of 7

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27780	MW-17C 18-20	1	40z	X							X			7/3 2000	0920		X						
27781	MW-17SS 23-25'														0930								
27782	MW-17C 28-30														0941								
27783	MW-17C 33-35														0953								
27784	MW-17C 38-40														1026								
27785	MW-17SS 43-45'														1047								
27786	MW-17SS 48-50'														1105								
27787	MW-17SS 53-55'														1121								
27788	MW-17SS 58-60'														1137								
27789	MW-18C 0-2'														1250								
27790	MW-18C 3-5'														1253								

Relinquished by:	Date:	Time:	Received by:
Ken Dutton	7/7/00	1005	
Relinquished by:	Date:	Time:	Received by:
	7-7-00	2:20	
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS: Rec 26°F

F. R. HOBBS OFFICE

INVOICE: EOTT 1015M

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC 181

Project Manager: JESSE TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

Company Name & Address: ETGI 2540 W. MARLAND HOBBS NM 88242

Project #: EOT 2055C

Project Name: DARK ANGEL #1

Project Location: LEA COUNTY NM

Sampler Signature:

ANALYSIS REQUEST

3 of 7

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE (2000)	TIME	BTEX 8021B/5030	TPH 418.1 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27991	MW-18C 8-10'	1	4oz		X						X			7/3	1257		X						
27992	MW-18C 13-15'														1301								
27993	MW-18C 18-20'														1305								
27994	MW-18SS 23-25'														1312								
27995	MW-18SS 28-30'														1327								
27996	MW-18C 33-35														1332								
27997	MW-18SS 38-40'														1344								
27998	MW-18SS 43-45'														1359								
27999	MW-18SS 48-50'														1416								
27900	MW-18C 53-55'														1427								
27801	MW-18C 58-60'														1448								

Relinquished by:	Date:	Times:	Received by:
Jesse Taylor	7/7/00	1005	
Relinquished by:	Date:	Times:	Received by:
Tracy Peters	7-7-00	2:20	
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS: Rec 26°F F.R. HOBBS OFFICE

INVOICE: EOTT 1015M

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC 181

Project Manager: JESSE TAYLOR
Phone #: (505) 397-4882
FAX #: (505) 397-4701

Company Name & Address: ETGI
2540 W. MARLAND HOBBS NM 88242

Project #: EOT 2055C
Project Name: DARR ANGEL #1

Project Location: LEA COUNTY NM
Sampler Signature:

ANALYSIS REQUEST

4 of 7

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27802	MW 19C 0'-2'	1	40z	X							X			7-5	0905		X						
27803	MW 19C 3'-5'														0915								
27804	MW 19C 8'-10'														0925								
27805	MW 19C 13'-15'														0935								
27806	MW 19C 18-20'														0945								
27807	MW 19SS 23'-25'														1000								
27808	MW 19SS 28'-30'														1015								
27809	MW 19SS 33'-35'														1035								
27810	MW 19SS 38'-40'														1050								
27811	MW 19SS 43'-45'														1105								
27812	MW 19SS 48'-50'														1130								

Relinquished by:	Date:	Times:	Received by:
Ken Dutton	7/7/00	1005	
Relinquished by:	Date:	Times:	Received by:
	7-7-00	2:20	
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS: Rec 26°F
F.R. HOBBS OFFICE

INVOICE: EOTT 1015M

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC 181

Project Manager: JESSE TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

Company Name & Address: ETGI 2540 W. MARLAND HOBBS NM 88242

Project #: EOT 2055C

Project Name: DARR ANGEL #1

Project Location: LEA COUNTY NM

Sampler Signature: Lemon Casas

ANALYSIS REQUEST 5 of 7

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE 7-00	TIME	BTEX 8021/5030	TPH [redacted] 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27813	MW 19SS 53-55'	1	40z		X						X			7-5	1150		X	X					
27814	MW 19SS 58-60'	1	4oz		X						X			7-5	1215								
27815	MW 20C 0-2'														1300								
27816	MW 20C 3-5'														1308								
27817	MW 20C 8-10'														1311								
27818	MW 20C 13-15'														1315								
27819	MW 20C 18-20'														1320								
27820	MW 20SS 23-25'														1330								
27821	MW 20C 28-30														1335								
27822	MW 20SS 33-35														1345								
27823	MW 20SS 38-40														1400								

Relinquished by:	Date:	Time:	Received by:
Lea Dutton	7/7/00	1005	
Relinquished by:	Date:	Time:	Received by:
Troy Fetten	7-7-00	2:20	D McMurrey
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS: Rec 26°F Run 8015 not TCLP Meta COK.

F. R. HOBBS OFFICE

INVOICE: EOTT 1015M

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC 181

Project Manager: JESSE TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

ANALYSIS REQUEST

6 of 7

Company Name & Address: ETGI
2540 W. MARLAND HOBBS NM 88242

Project #: EOT 2055C

Project Name: DARR ANGEL #1

Project Location: LEA COUNTY NM

Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 418.1/8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27824	MW 20SS 43-45'	1	4oz		X						X			7/5	1415		X						
27825	MW 20SS 48-50'														1430								
27826	MW 20SS 53-55'														1450								
27827	MW 20SS 58-60'														1570								
27828	RW-1C 0-2'													7/6	0825								
27829	RW-1C 3-5'														0830								
27830	RW-1C 8-10'														0838								
27831	RW-1C 13-15'														0845								
27832	RW-1C 18-20'														0900								
27833	RW-1SS 23-25'														0910								
27834	RW-1C 28-30'														0925								

Relinquished by:	Date:	Time:	Received by:
	7/7/00	1005	
Relinquished by:	Date:	Time:	Received by:
	7-7-00	2:20	
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS: Rec 26°F

F.R. HOBBS OFFICE

INVOICE: EOTT 1015M

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC

Project Manager: JESSE TAYLOR
Phone #: (505) 397-4882
FAX #: (505) 397-4701

Company Name & Address: ETGI
2540 W. MARLAND HOBBS NM 88242

Project #: EOT2055C
Project Name: DARR ANGEL #1

Project Location: LEA COUNTY NM
Sampler Signature:

ANALYSIS REQUEST

7 of 7

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 8015 Ext/CAD	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27835	RW-1C 33-35'	1	4oz	X							X			7/6	0930		X						
27836	RW-1SS 38-40'														0941								
27837	RW-1SS 43-45'														0955								
27838	RW-1 SS 48-50'														1300								
27839	RW-1 SS 53-55'														1405	X							
27840	RW-1 SS 58-60'														1430								

Relinquished by:	Date:	Times:	Received by:
Jesse Taylor	7/7/04	1005	
Relinquished by:	Date:	Times:	Received by:
Greg Peterson	7-7-04	2:20	
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS: Rec 26°F
F.E. HOBBS OFFICE

INVOICE: EOTT 1015M

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, NM 88242
FAX: 505-397-4701

SampleType: Soil
Sample Condition: Intact/ Iced/ 27 deg. F
Project #: EOT 2055C
Project Name: DARR ANGELL #1
Project Location: Lea County, NM

Sampling Date: 07/07/00
Receiving Date: 07/10/00
Analysis Date: 07/11/00

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
27982	RW 2 53-55'	<0.100	2.23	2.04	7.14	2.97
27983	RW 2 58-60'	<0.100	0.127	<0.100	0.637	0.259
% IA		96	92	95	103	96
% EA		87	87	88	98	86
BLANK		<0.100	<0.100	<0.100	<0.100	<0.100

METHODS: SW 846-8021B,5030

Raland K. Tuttle

7-18-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88242
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 27 deg. F
Project #: EOT 2055C
Project Name: DARR ANGELL #1
Project Location: Lea County, N.M.

Sampling Date: 07/07/00
Receiving Date: 07/10/00
Analysis Date: 07/14/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
27971	RW 2 0-2'	<10	<10
27972	RW 2 3-5'	<10	<10
27973	RW 2 8-10'	<10	<10
27974	RW 2 13-15'	<10	<10
27975	RW 2 18-20'	<10	<10
27976	RW 2 23-25'	<10	<10
27977	RW 2 28-30'	<10	<10
27978	RW 2 33-35'	<10	<10
27979	RW 2 38-40'	13	333
27980	RW 2 40-45'	14	672
27981	RW 2 48-50'	18	728
27982	RW 2 53-55'	1282	11057
27983	RW 2 58-60'	196	5594
	% IA	85	105
	% EA	91	111
	BLANK	<10	<10

METHODS: SW 846-8015M GRO/DRO

Raland K. Tuttle

7-18-00
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

1 of 2.

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 183

Project Manager: JESSE TAYLOR	Phone #: (505) 397-4882 FAX #: (505) 397-4701
Company Name & Address: ETGT P 2540 W MARLAND, HOBBS NM 88242	
Project #: EOT 2055C	Project Name: VARE ANGELL #1
Project Location: LEA COUNTY, NM	Sampler Signature: Simon Casas

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME
27971	RW 2 0'-2'	1	40Z		X						X			7-7	0905
27972	RW 2 3'-5'														0915
27973	RW 2 8'-10'														0925
27974	RW 2 13'-15'														0930
27975	RW 2 18'-20'														0935
27976	RW 2 23'-25'														0950
27977	RW 2 28'-30'														1000
27978	RW 2 33'-35'														1020
27979	RW 2 38'-40'														1045
27980	RW 2 40'-45'														1115
27981	RW 2 48'-50'	↓	↓		↓						↓			↓	1150

ANALYSIS REQUEST

BTEX 8021B/5030 | TPH ~~8015~~ 8015 DRO/GRO | TCLP Metals Ag As Ba Cd Cr Pb Hg Se | Total Metals Ag As Ba Cd Cr Pb Hg Se | TCLP Volatiles | TCLP Semi Volatiles | TDS | RCI

Relinquished by:	Date:	Time:	Received by:
Simon Casas	7-10-00	0800	Jerry Peterson
Relinquished by: Jerry Peterson	Date: 7/10/00	Time: 1210	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

FAX RESULTS: HOBBS OFFICE

27°F

INVOICE: EOTT 1015M

2 of 2

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 183

Project Manager: JESSE TAYLOR

Phone #: (505) 397-4882
FAX #: (505) 397-4701

Company Name & Address: E.T.G.I.
P. 2540 W MARLAND, HOBBS NM 88242

Project #: EOT 2055C

Project Name: DARR ANGELL #1

Project Location: LEA COUNTY NM

Sampler Signature: Simon Casas

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	MATRIX: OTHER	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: NONE	PRESERVATIVE METHOD: OTHER	SAMPLING: DATE (2000)	SAMPLING: TIME	BTEX 8021/~~5030~~	TPH ~~418.1~~ 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
27982	RW 2 53-55'	1	4oz	~~X~~	X						X			7-7	1230	↓	↓						
27983	RW 2 58-60'	1	4oz		X						X			7-7	1345	↓	↓						

Relinquished by:	Date:	Time:	Received by:
Simon Casas	7-10-00	0800	Tracey Peterson
Relinquished by: Tracey Peterson	Date: 7/10/00	Time: 1210	Received by: Rula dejurd
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

27°

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 27 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea Co., N.M.

Sampling Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: See Below

ELT#	FIELD CODE	Sulfate mg/L	Chloride mg/L	Carbonate mg/L	Bicarbonate mg/L	TDS mg/L
27474	MW 10	87.8	186	<5	286	864
27475	MW 11	70.5	115	<5	386	806
27476	MW 12	88.0	53	<5	278	524
27477	MW 13	113	44	<5	357	602
27478	MW 15	100	44	<5	185	414
27479	MW 16	104	44	<5	177	436
	QUALITY CONTROL	47.6	5229	*	*	*
	TRUE VALUE	50.0	5000	*	*	*
	% PRECISION	95	104	*	*	*
	ANALYSIS DATE	07/11/00	7/6/00	07/10/00	07/10/00	07/03/0

METHODS: EPA 375.4, 325.3, 310, 160.1

Raland K. Tuttle

7-21-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 27 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.
Field Code: MW 10

Sampling Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: 07/01/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 27474	RPD	%EA	%DEV
Naphthalene	0.005	0.024			-1.7
Acenaphthylene	0.005	ND			0.4
Acenaphthene	0.005	ND	0	89	-6.3
Fluorene	0.005	ND			-1.6
Phenanthrene	0.005	ND			-3.0
Anthracene	0.005	ND			-1.7
Fluoranthene	0.005	ND			-2.2
Pyrene	0.005	ND	4	80	-1.2
Benzo[a]anthracene	0.005	ND			-0.4
Chrysene	0.005	ND			2.1
Benzo[b]fluoranthene	0.005	ND			-9.9
Benzo[k]fluoranthene	0.005	ND			12.4
Benzo [a]pyrene	0.005	ND			0.1
Indeno[1,2,3-cd]pyrene	0.005	ND			-1.2
Dibenz[a,h]anthracene	0.005	ND			-2.8
Benzo[g,h,i]perylene	0.005	ND			4.4

	% RECOVERY
Nitrobenzene-d5 SURR	76
2-Fluorobiphenyl SURR	60
p-Terphenyl-d14 SURR	69

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

7-21-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 915-520-4310
FAX: 505-397-4701

SampleType: Water
Sample Condition: Intact/ Iced/ HCl/ 27 deg. F
Project #: EOT 2055C
Project Name: DARR ANGELL #1
Project Location: Lea Co., N.M.

Sampling Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: 07/12/00

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
27474	MW-10	1.52	0.787	0.303	0.711	0.262
27475	MW-11	0.007	0.006	0.003	0.007	0.003
27476	MW-12	1.36	<0.050	<0.050	0.151	<0.050
27477	MW-13	2.73	0.186	0.115	0.338	0.076
27478	MW-15	0.011	0.003	0.001	0.004	0.001
27479	MW-16	0.008	0.004	0.001	0.003	0.001
	% IA	88	92	87	108	94
	% EA	89	88	88	96	89
	BLANK	<0.100	<0.100	<0.100	<0.100	<0.100

METHODS: SW 846-8021B,5030

Raland K. Tuttle

7-21-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 27 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.
Field Code: MW 11

Sampling Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: 07/01/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 27475	RPD	%EA	%DEV
Naphthalene	0.005	ND			-1.7
Acenaphthylene	0.005	ND			0.4
Acenaphthene	0.005	ND	0	89	-6.3
Fluorene	0.005	ND			-1.6
Phenanthrene	0.005	ND			-3.0
Anthracene	0.005	ND			-1.7
Fluoranthene	0.005	ND			-2.2
Pyrene	0.005	ND	4	80	-1.2
Benzo[a]anthracene	0.005	ND			-0.4
Chrysene	0.005	ND			2.1
Benzo[b]fluoranthene	0.005	ND			-9.9
Benzo[k]fluoranthene	0.005	ND			12.4
Benzo [a]pyrene	0.005	ND			0.1
Indeno[1,2,3-cd]pyrene	0.005	ND			-1.2
Dibenz[a,h]anthracene	0.005	ND			-2.8
Benzo[g,h,i]perylene	0.005	ND			4.4

	% RECOVERY
Nitrobenzene-d5 SURR	76
2-Fluorobiphenyl SURR	60
p-Terphenyl-d14 SURR	69

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

7-21-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 27 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.
Field Code: MW 12

Sampling Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: 07/01/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 27476	RPD	%EA	%DEV
Naphthalene	0.005	ND			-1.7
Acenaphthylene	0.005	ND			0.4
Acenaphthene	0.005	ND	0	89	-6.3
Fluorene	0.005	ND			-1.6
Phenanthrene	0.005	ND			-3.0
Anthracene	0.005	ND			-1.7
Fluoranthene	0.005	ND			-2.2
Pyrene	0.005	ND	4	80	-1.2
Benzo[a]anthracene	0.005	ND			-0.4
Chrysene	0.005	ND			2.1
Benzo[b]fluoranthene	0.005	ND			-9.9
Benzo[k]fluoranthene	0.005	ND			12.4
Benzo [a]pyrene	0.005	ND			0.1
Indeno[1,2,3-cd]pyrene	0.005	ND			-1.2
Dibenz[a,h]anthracene	0.005	ND			-2.8
Benzo[g,h,i]perylene	0.005	ND			4.4

	% RECOVERY
Nitrobenzene-d5 SURR	76
2-Fluorobiphenyl SURR	60
p-Terphenyl-d14 SURR	69

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

7-21-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 27 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.
Field Code: MW 15

Sampling Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: 07/01/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 27478	RPD	%EA	%DEV
Naphthalene	0.005	ND			-1.7
Acenaphthylene	0.005	ND			0.4
Acenaphthene	0.005	ND	0	89	-6.3
Fluorene	0.005	ND			-1.6
Phenanthrene	0.005	ND			-3.0
Anthracene	0.005	ND			-1.7
Fluoranthene	0.005	ND			-2.2
Pyrene	0.005	ND	4	80	-1.2
Benzo[a]anthracene	0.005	ND			-0.4
Chrysene	0.005	ND			2.1
Benzo[b]fluoranthene	0.005	ND			-9.9
Benzo[k]fluoranthene	0.005	ND			12.4
Benzo [a]pyrene	0.005	ND			0.1
Indeno[1,2,3-cd]pyrene	0.005	ND			-1.2
Dibenz[a,h]anthracene	0.005	ND			-2.8
Benzo[g,h,i]perylene	0.005	ND			4.4

	% RECOVERY
Nitrobenzene-d5 SURR	58
2-Fluorobiphenyl SURR	63
p-Terphenyl-d14 SURR	89

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

7-21-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 27 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.
Field Code: MW 16

Sampling Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: 07/01/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 27479	RPD	%EA	%DEV
Naphthalene	0.005	ND			-1.7
Acenaphthylene	0.005	ND			0.4
Acenaphthene	0.005	ND	0	89	-6.3
Fluorene	0.005	ND			-1.6
Phenanthrene	0.005	ND			-3.0
Anthracene	0.005	ND			-1.7
Fluoranthene	0.005	ND			-2.2
Pyrene	0.005	ND	4	80	-1.2
Benzo[a]anthracene	0.005	ND			-0.4
Chrysene	0.005	ND			2.1
Benzo[b]fluoranthene	0.005	ND			-9.9
Benzo[k]fluoranthene	0.005	ND			12.4
Benzo [a]pyrene	0.005	ND			0.1
Indeno[1,2,3-cd]pyrene	0.005	ND			-1.2
Dibenz[a,h]anthracene	0.005	ND			-2.8
Benzo[g,h,i]perylene	0.005	ND			4.4

	% RECOVERY
Nitrobenzene-d5 SURR	58
2-Fluorobiphenyl SURR	63
p-Terphenyl-d14 SURR	89

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

7-21-00
Date

ENVIRONMENTAL
LAB OF , INC.
"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/Iced/HNO3/ 27 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sample Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: 07/10/00
Analysis Date: Hg 07/14/00

Analyte (mg/L)	MW 10 27474	MW 11 27475	MW 12 27476	Report Limit	%IA	%EA	BLANK	RPD
Aluminum	1.08	1.44	0.0980	0.0500	98	103	<0.0500	1.86
Arsenic	0.0080	0.0080	ND	0.0050	112	124#	<0.0050	0.00
Barium	0.2230	0.2280	0.1360	0.0100	100	103	<0.0100	1.41
Beryllium	ND	ND	ND	0.0040	104	106	<0.0040	0.00
Cadmium	0.0060	ND	ND	0.0010	100	102	<0.0010	1.98
Calcium	ND	451.0	244.0	1.000	96	N/A	<1.000	0.79
Chromium	0.0100	0.0100	ND	0.0050	100	102	<0.0050	0.99
Cobalt	ND	ND	ND	0.0200	100	103	<0.0200	0.98
Copper	ND	ND	ND	0.0100	103	112	<0.0100	1.44
Iron	0.9900	0.2500	ND	0.0500	92	97	<0.0500	2.25
Lead	ND	ND	ND	0.0030	98	100	<0.0030	0.00
Magnesium	33.30	27.20	19.50	1.000	99	N/A	<1.000	0.92
Manganese	0.2030	0.2330	0.0930	0.0150	99	101	<0.0150	1.19
Mercury	ND	ND	ND	0.002	95	104	<0.002	0.00
Molybdenum	ND	ND	ND	0.050	99	104	<0.050	0.88
Nickel	0.0460	0.0340	0.0190	0.0100	102	104	<0.0100	0.93
Potassium	6.010	8.770	5.600	1.000	85	N/A	<1.000	1.06
Selenium	ND	ND	ND	0.0050	114	116	<0.0050	0.00
Silver	ND	ND	ND	0.00500	92	92	<0.0050	0.00
Sodium	73.50	161.0	76.50	1.000	106	N/A	<1.000	0.86
Tin	ND	ND	ND	0.0500	103	109	<0.0500	2.71
Vanadium	0.0330	ND	ND	0.0200	98	104	<0.0200	1.17
Zinc	0.0830	0.0450	ND	0.0200	109	109	<0.0200	0.00
Boron	0.231	0.178	0.239	0.050	111	110	<0.050	1.28
Strontium	1.05	0.920	0.659	0.050	100	92	<0.050	0.93

ND = Below Reporting Limit
METHOD: EPA SW846-6010B, 7470

Raland K. Tuttle

7-21-00
Date

ENVIRONMENTAL
LAB OF , INC.
"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/Iced/HNO3/ 27 deg. F
Project #: EOT 2055C
Project Name: Darr Angel #1
Project Location: Lea County, N.M.

Sample Date: 06/27/00
Receiving Date: 06/28/00
Analysis Date: 07/10/00
Analysis Date: Hg 07/14/00

Analyte (mg/L)	MW 13 27477	MW 15 27478	MW 16 27479	Report Limit	%IA	%EA	BLANK	RPD
Aluminum	0.228	0.0650	0.705	0.0500	98	103	<0.0500	1.86
Arsenic	0.0100	0.0090	ND	0.0050	112	124#	<0.0050	0.00
Barium	0.1830	0.1050	0.1600	0.0100	100	103	<0.0100	1.41
Beryllium	ND	ND	ND	0.0040	104	106	<0.0040	0.00
Cadmium	ND	ND	ND	0.0010	100	102	<0.0010	1.98
Calcium	362.0	143.0	420.0	1.000	96	N/A	<1.000	0.79
Chromium	ND	ND	0.0060	0.0050	100	102	<0.0050	0.99
Cobalt	ND	ND	ND	0.0200	100	103	<0.0200	0.98
Copper	ND	ND	ND	0.0100	103	112	<0.0100	1.44
Iron	ND	ND	0.0810	0.0500	92	97	<0.0500	2.25
Lead	ND	ND	ND	0.0030	98	100	<0.0030	0.00
Magnesium	23.0	16.50	17.10	1.000	99	N/A	<1.000	0.92
Manganese	0.1710	0.0270	0.1110	0.0150	99	101	<0.0150	1.19
Mercury	ND	ND	ND	0.002	95	104	<0.002	0.00
Molybdenum	ND	ND	ND	0.050	99	104	<0.050	0.88
Nickel	0.0100	ND	0.0550	0.0100	102	104	<0.0100	0.93
Potassium	5.270	4.460	4.750	1.000	85	N/A	<1.000	1.06
Selenium	ND	ND	ND	0.0050	114	116	<0.0050	0.00
Silver	ND	ND	ND	0.00500	92	92	<0.0050	0.00
Sodium	69.60	50.40	58.70	1.000	106	N/A	<1.000	0.86
Tin	ND	ND	ND	0.0500	103	109	<0.0500	2.71
Vanadium	0.0250	0.0360	ND	0.0200	98	104	<0.0200	1.17
Zinc	ND	ND	ND	0.0200	109	109	<0.0200	0.00
Boron	0.221	0.154	0.159	0.050	111	110	<0.050	1.28
Strontium	0.858	0.626	0.630	0.050	100	92	<0.050	0.93

ND = Below Reporting Limit
METHOD: EPA SW846-6010B, 7470

Raland K. Tuttle

7-21-00
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC 170

Project Manager: Jesse Taylor
Phone #: (505) 397-4882
FAX #: (505) 397-4201

Company Name & Address: ETGI
2540 W Marland Hobbs NM

Project #: EOT 2055C
Project Name: Dark Angel #1

Project Location: Lea County NM
Sampler Signature: Simon Casas

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS 160.1	RCI	PAH 8100	CATIONS 6010	ANIONS 300.0	HEAVY METALS 6010
27474	MW 10	5	V.S	X					X	X	X			6-27	0945	X						X		X	X	X	X
27475	MW 11														1023												
27476	MW 12														1050												
27477	MW 13														1118												
	~~MW 14~~																										
27478	MW 15														1150												
27479	MW 16	↓	↓	↓					↓	↓	↓			↓	1215	↓						↓		↓	↓	↓	↓

Relinquished by:	Date:	Time:	Received by:
Simon Casas	6-28-00	0900	Tracy Peterson
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:
Tracy Peterson	06-28-00	1345	J McMurry

REMARKS: Rec 27°F
F.R. Hobbs Office
INVOICE: EOTT 10157

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88242
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Soil
Sample Condition: Intact/Iced/ 30 deg. F
Project #: EOT 2055C
Project Name: DARR ANGELL #1
Project Location: Lea County, N.M.

Sampling Date: 07/10/00
Receiving Date: 07/12/00
Analysis Date: 07/18/00

ELT#	FIELD CODE	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	m,p-XYLENE (mg/kg)	o-XYLENE (mg/kg)
28055	RW 3 23-25'	<0.100	<0.100	<0.100	<0.100	<0.100
28059	RW 3 43-45'	<0.100	<0.100	<0.100	<0.100	<0.100
28060	RW 3 48-50'	<0.100	<0.100	0.146	0.774	0.387
28061	RW 3 53-55'	<0.100	4.90	4.04	14.3	5.61
28062	RW 3 58-60'	<0.100	<0.100	<0.100	0.172	<0.100
%IA		93	91	92	104	94
%EA		94	94	91	107	91
BLANK		<0.100	<0.100	<0.100	<0.100	<0.100

METHODS: EPA SW 846-8021B,5030

Raland K. Tuttle

Raland K. Tuttle

7-24-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS,N.M. 88242
FAX: 505-397-4701
FAX: 915-520-4310

SampleType: Soil
Sample Condition: Intact/ Iced/ 30 deg. F
Project #: EOT 2055C
Project Name: DARR ANGELL #1
Project Location: Lea County, N.M.

Sampling Date: 07/10/00
Receiving Date: 07/12/00
Analysis Date: 07/14/00

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
28050	RW 3 0-2'	<10	34
28051	RW 3 3-5'	<10	23
28052	RW 3 8-10'	<10	<10
28053	RW 3 13-15'	<10	<10
28054	RW 3 18-20'	<10	<10
28055	RW 3 23-25'	<10	<10
28056	RW 3 28-30'	<10	<10
28057	RW 3 33-35'	<10	80
28058	RW 3 38-40'	21	632
28059	RW 3 43-45'	43	838
28060	RW 3 48-50'	120	1140
28061	RW 3 53-55'	942	7515
28062	RW 3 58-60'	<10	567
	% IA	85	105
	% EA	91	111
	BLANK	<10	<10

METHODS: SW 846-8015M GRO/DRO

Raland K Tuttle
Raland K. Tuttle

7-24-00
Date

Environmental Lab of Texas, Inc. 12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 184

Project Manager: JESSE TAYLOR
Phone #: (505) 397-4882
FAX #: (505) 397-4701

Company Name & Address: ETGI
2540 W. MARLAND HOBBS NM 88242

Project #: EOT 2055C
Project Name: DARR ANGELL #1

Project Location: LEA COUNTY, NM
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8021B	TPH 8015 DRO/GRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
28050	RW 3 0'-2'	1	4oz		X						X			7-10	0905		X						
28051	RW 3 3'-5'														0910								
28052	RW 3 8'-10'														0918								
28053	RW 3 13'-15'														0930								
28054	RW 3 18-20'														0940								
28055	RW 3 23-25'														0955	X							
28056	RW 3 28-30'														1005								
28057	RW 3 33-35'														1030								
28058	RW3 38-40'														1055								
28059	RW 3 43-45'														1120	X							
28060	RW3 48-50'	↓	↓	↓							↓			↓	1200	X	↓						

Relinquished by:	Date:	Times:	Received by:
	7-12-00	0800	
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:
	7/12/00	16:30	

REMARKS
F. R. HOBBS OFFICE

INVOICE: EOTT 1015M

3 OF

P.3

Jul 24 00 01:10p

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC #: 184

Project Manager: JESSE TAYLOR
Phone #: (505) 397-4882
FAX #: (505) 397-4701

Company Name & Address: ETGI
2540 MARLAND HOBBS NM 88242

Project #: EOT 2055C
Project Name: DARK ANGEL #1

Project Location: LEA COUNTY NM
Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8021/~~8260~~	TPH ~~418.1~~ 8015 Desired	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
28061	RW3 53-55'	1	40Z	X							X			7-10	1300	X	X						
28062	RW3 58-60'	1	40Z	X							X			7-10	1345	X	X						

Relinquished by:	Date:	Times:	Received by:	REMARKS
	7-12-00	0840		
Relinquished by:	Date:	Times:	Received by:	
Relinquished by:	Date: 7/12/00	Times: 16:30	Received by laboratory:	

3 of 3

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 915-520-4310
FAX: 505-397-4701

SampleType: Water
Sample Condition: Intact/ Iced/ HCl/ 34 deg. F
Project #: EOT 2055C
Project Name: Darr Angell 1
Project Location: Lovington

Sampling Date: 07/14/00
Receiving Date: 07/14/00
Analysis Date: 07/20/00

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
28197	MW-17	<0.001	<0.001	<0.001	<0.001	<0.001
28198	MW-18	<0.001	<0.001	<0.001	<0.001	<0.001
28199	MW-19	<0.001	<0.001	<0.001	<0.001	<0.001
28200	MW-20	<0.001	0.002	0.001	<0.001	0.005
% IA		95	94	94	105	95
% EA		93	90	93	102	94
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8021B,5030

Raland K Tuttle
Raland K. Tuttle

7-27-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 34 deg. F
Project #: EOT 2055C
Project Name: Darr Angell 1
Project Location: Lovington
Field Code: MW 17

Sampling Date: 07/14/00
Receiving Date: 07/14/00
Analysis Date: 07/14/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 28197	RPD	%EA	%DEV
Naphthalene	0.005	ND			2.1
Acenaphthylene	0.005	ND			1.8
Acenaphthene	0.005	ND	19	106	-5.4
Fluorene	0.005	ND			4.0
Phenanthrene	0.005	ND			2.5
Anthracene	0.005	ND			1.1
Fluoranthene	0.005	ND			8.8
Pyrene	0.005	ND	21	84	-4.4
Benzo[a]anthracene	0.005	ND			-2.8
Chrysene	0.005	ND			2.3
Benzo[b]fluoranthene	0.005	ND			-5.2
Benzo[k]fluoranthene	0.005	ND			9.2
Benzo [a]pyrene	0.005	ND			0.8
Indeno[1,2,3-cd]pyrene	0.005	ND			15.4
Dibenz[a,h]anthracene	0.005	ND			12.9
Benzo[g,h,i]perylene	0.005	ND			23.4#

	% RECOVERY
Nitrobenzene-d5 SURR	30
2-Fluorobiphenyl SURR	43
p-Terphenyl-d14 SURR	47

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

7-27-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 34 deg. F
Project #: EOT 2055C
Project Name: Darr Angell 1
Project Location: Lovington
Field Code: MW 18

Sampling Date: 07/14/00
Receiving Date: 07/14/00
Analysis Date: 07/14/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 28198	RPD	%EA	%DEV
Naphthalene	0.005	ND			2.1
Acenaphthylene	0.005	ND			1.8
Acenaphthene	0.005	ND	19	106	-5.4
Fluorene	0.005	ND			4.0
Phenanthrene	0.005	ND			2.5
Anthracene	0.005	ND			1.1
Fluoranthene	0.005	ND			8.8
Pyrene	0.005	ND	21	84	-4.4
Benzo[a]anthracene	0.005	ND			-2.8
Chrysene	0.005	ND			2.3
Benzo[b]fluoranthene	0.005	ND			-5.2
Benzo[k]fluoranthene	0.005	ND			9.2
Benzo [a]pyrene	0.005	ND			0.8
Indeno[1,2,3-cd]pyrene	0.005	ND			15.4
Dibenz[a,h]anthracene	0.005	ND			12.9
Benzo[g,h,i]perylene	0.005	ND			23.4#

	% RECOVERY
Nitrobenzene-d5 SURR	39
2-Fluorobiphenyl SURR	59
p-Terphenyl-d14 SURR	58

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

7-27-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 34 deg. F
Project #: EOT 2055C
Project Name: Darr Angell 1
Project Location: Lovington
Field Code: MW 19

Sampling Date: 07/14/00
Receiving Date: 07/14/00
Analysis Date: 07/14/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 28199	RPD	%EA	%DEV
Naphthalene	0.005	ND			2.1
Acenaphthylene	0.005	ND			1.8
Acenaphthene	0.005	ND	19	106	-5.4
Fluorene	0.005	ND			4.0
Phenanthrene	0.005	ND			2.5
Anthracene	0.005	ND			1.1
Fluoranthene	0.005	ND			8.8
Pyrene	0.005	ND	21	84	-4.4
Benzo[a]anthracene	0.005	ND			-2.8
Chrysene	0.005	ND			2.3
Benzo[b]fluoranthene	0.005	ND			-5.2
Benzo[k]fluoranthene	0.005	ND			9.2
Benzo [a]pyrene	0.005	ND			0.8
Indeno[1,2,3-cd]pyrene	0.005	ND			15.4
Dibenz[a,h]anthracene	0.005	ND			12.9
Benzo[g,h,i]perylene	0.005	ND			23.4#

	% RECOVERY
Nitrobenzene-d5 SURR	16
2-Fluorobiphenyl SURR	30
p-Terphenyl-d14 SURR	34

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K Tuttle

7-27-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 W. MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 34 deg. F
Project #: EOT 2055C
Project Name: Darr Angell 1
Project Location: Lovington
Field Code: MW 20

Sampling Date: 07/14/00
Receiving Date: 07/14/00
Analysis Date: 07/14/00

EPA SW846 8270 (mg/L)	REPORT LIMIT	ELT# 28200	RPD	%EA	%DEV
Naphthalene	0.005	ND			2.1
Acenaphthylene	0.005	ND			1.8
Acenaphthene	0.005	ND	19	106	-5.4
Fluorene	0.005	ND			4.0
Phenanthrene	0.005	ND			2.5
Anthracene	0.005	ND			1.1
Fluoranthene	0.005	ND			8.8
Pyrene	0.005	ND	21	84	-4.4
Benzo[a]anthracene	0.005	ND			-2.8
Chrysene	0.005	ND			2.3
Benzo[b]fluoranthene	0.005	ND			-5.2
Benzo[k]fluoranthene	0.005	ND			9.2
Benzo [a]pyrene	0.005	ND			0.8
Indeno[1,2,3-cd]pyrene	0.005	ND			15.4
Dibenz[a,h]anthracene	0.005	ND			12.9
Benzo[g,h,i]perylene	0.005	ND			23.4#

	% RECOVERY
Nitrobenzene-d5 SURR	42
2-Fluorobiphenyl SURR	64
p-Terphenyl-d14 SURR	70

ND= not detected at report limit.
Method: EPA SW 846 8270C , 3510

Raland K. Tuttle

7-27-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
2540 MARLAND
HOBBS, N.M. 88240
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/Iced/HNO3/ 34 deg. F
Project #: EOT 2055C
Project Name: Darr Angell 1
Project Location: Lovington

Sample Date: 07/14/00
Receiving Date: 07/14/00
Analysis Date: 07/25/00
Analysis Date: Hg 07/26/00

Analyte (mg/L)	MW17 28197	MW18 28198	MW19 28199	MW20 28200	Report Limit	%IA	%EA	BLANK	RPD
Aluminum	2.09	4.94	1.79	33.2	0.0500	96	101	<0.0500	4.04
Arsenic	ND	ND	ND	ND	0.0050	100	104	<0.0050	1.90
Barium	0.1680	0.1590	0.1020	0.6960	0.0100	100	109	<0.0100	2.54
Beryllium	ND	ND	ND	ND	0.0040	96	102	<0.0040	1.98
Cadmium	ND	ND	ND	ND	0.0010	100	108	<0.0010	1.87
Calcium	108.0	153.0	78.10	651.0	1.000	94	N/A	<1.000	3.12
Chromium	0.0250	0.0290	0.0120	0.0530	0.0050	94	104	<0.0050	2.93
Cobalt	ND	ND	ND	0.0320	0.0200	94	100	<0.0200	2.63
Copper	ND	ND	ND	0.0340	0.0100	98	110	<0.0100	3.31
Iron	1.540	3.550	1.390	23.60	0.0500	104	108	<0.0500	4.65
Lead	ND	ND	ND	0.0100	0.0030	98	106	<0.0030	1.90
Magnesium	19.00	26.80	14.00	50.60	1.000	97	N/A	<1.000	3.39
Manganese	0.0510	0.0680	0.0310	0.3750	0.0150	94	99	<0.0150	2.44
Mercury	ND	ND	ND	ND	0.002	99	107	<0.002	10.70
Molybdenum	ND	ND	ND	ND	0.050	95	101	<0.050	2.19
Nickel	0.0330	0.0330	0.0160	0.0780	0.0100	95	103	<0.0100	2.37
Potassium	4.600	5.930	3.850	13.70	1.000	84	N/A	<1.000	4.98
Selenium	ND	ND	ND	ND	0.0050	106	112	<0.0050	5.50
Silver	ND	ND	ND	ND	0.00500	82	98	<0.0050	10.75
Sodium	67.00	74.70	51.40	61.40	1.000	81	N/A	<1.000	7.00
Tin	ND	ND	ND	ND	0.0500	97	104	<0.0500	2.44
Vanadium	0.0270	0.0320	0.0200	0.1220	0.0200	91	98	<0.0200	2.90
Zinc	0.0520	0.0690	0.0280	0.0690	0.0200	101	108	<0.0200	2.25
Boron	0.211	0.215	0.161	0.180	0.050	106	118	<0.050	2.13
Strontium	0.521	0.634	0.382	0.841	0.050	102	109	<0.050	2.08

ND = Below Reporting Limit
METHOD: EPA SW846-6010B, 7470

Raland K. Tuttle

7-26-00
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 505-397-4701
FAX: 915-520-4310

Sample Type: Water
Sample Condition: Intact/ Iced/ 34 deg. F
Project #: EOT 2055C
Project Name: Darr Angell 1
Project Location: Lovington

Sampling Date: 07/14/00
Receiving Date: 07/14/00
Analysis Date: See Below

ELT#	FIELD CODE	Sulfate mg/L	Chloride mg/L	Carbonate mg/L	Bicarbonate mg/L	TDS mg/L
28197	MW 17	130	75	0	172	468
28198	MW 18	129	40	0	146	379
28199	MW 19	141	93	0	197	504
28200	MW 20	121	35	0	203	341
	QUALITY CONTROL	47.7	5406	*	*	*
	TRUE VALUE	50.0	5000	*	*	*
	% PRECISION	95	108	*	*	*
	ANALYSIS DATE	07/19/00	07/18/00	7/18/00	07/18/00	07/19/00

METHODS: EPA 375.4, 325.3, 310, 160.1

Raland K Tuttle
Raland K. Tuttle

7-26-00
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC# 189

Project Manager: J. TAYLOR

Phone #: (505) 397-4882

FAX #: (505) 397-4701

Company Name & Address: ETGI, 2540 W. Marland, Hobbs, NM 88240

Project #: EOT 2055C

Project Name: Darr Angel 1

Project Location: Lovington

Sampler Signature: Dany Daniel

ANALYSIS REQUEST

1 of 1

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021M~~8021~~	TPH 418.1	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS EPA 160.1	RCI	PAH EPA 8100	Cations EPA 6010	Anions EPA 300	Heavy metals (ICP Scan) EPA 6010
28197	MW 17	5	VIAL 40ml	X					X	X	X			7-14	10:00	X						X		X	X	X	X
28198	MW 18	↓	↓	↓					↓	↓	↓			7-14	10:21	↓						↓		↓	↓	↓	↓
28199	MW 19													7-14	9:45												
28200	MW 20													7-14	10:47												

Relinquished by:	Date:	Time:	Received by:
Dany Daniel	7-14-00	12:30	Tracy Peterson
Relinquished by:	Date:	Time:	Received by:
Relinquished by: Tracy Peterson	Date: 7-14-00	Time: 1700	Received by Laboratory: Rebecca Hale

REMARKS

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