Duke Energy Field Services

VERBAL OK 10-27-05 BG

SITE CHARACTERIZATION

AND

PROPOSAL FOR RISK-BASED CLOSURE

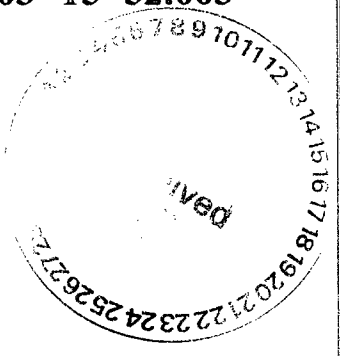
G-28-4 (REF. #130002)

UL-P (SE¼ OF THE SE¼) OF SECTION 21 T22S R36E

~7.7 MILES SOUTHWEST (BEARING 227°) OF EUNICE

LEA COUNTY, NEW MEXICO

LATITUDE: N32° 22' 23.073" LONGITUDE: W103° 15' 52.003"



OCTOBER 2005

PREPARED BY:

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STANDARD OF CARE

Site Characterization and Proposal for Risk-Based Closure

G-28-4

Ref. # 130002

The information provided in this report was collected consistent with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993), the NMOCD Unlined Surface Impoundment Closure Guidelines (February 1993), and the Environmental Plus, Inc. (EPI) Standard Operating Procedures and Quality Assurance/Quality Control Plan. The conclusions are based on field observations and laboratory analytical reports as presented in the report. Recommendations follow NMOCD guidance and represent the professional opinions of EPI staff. These opinions were arrived at with currently accepted geologic, hydrogeologic and engineering practices at this time and location. The report was prepared or reviewed by a certified or registered EPI professional with a background in engineering, environmental, and/or the natural sciences.

This report was prepared by:

Iain A Olness — 7 October 2005

Iain A. Olness, P.G. — Date

Hydrogeologist

This report was reviewed by:

Pat McCasland — 10.7.05

Pat McCasland — Date

Environmental Consultant

LINE HAD 5 CLAMPS

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NMOCD – New Mexico Oil Conservation Division

DEFS – Duke Energy Field Services

EPI – Environmental Plus, Inc.

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Project Summary

Site Specific:

- **Company Name:** Duke Energy Field Services
- **Facility Name:** G-28-4
- **Project Reference:** 130002
- **Company Contact:** Steve Weathers
- **Site Location:** WGS84: N 32° 22' 23.073" and W 103° 15' 52.003"
- **Legal Description:** UL-P (SE¼ of the SE¼) of Section 21, T 22 S, R 36 E
- **General Description:** ~7.7 miles southwest of Eunice, Lea County, New Mexico
- **Elevation:** 3,507-ft amsl **Depth to Ground Water:** ~160-ft
- **Land Ownership:** Millard Deck Estate
- **EPI Personnel:** Project Consultant – Iain Olness
  Project Foreman – Morris Burkett

Release Specific:

- **Product Released:** Natural Gas & NGL
- **Volume Released:** Unknown **Volume Recovered:** 0 bbl
- **Time of Occurrence:** Unknown **Time of Discovery:** 14 April 2004
- **Release Source:** 8" Steel Pipeline
- **Initial Surface Area Affected:** ~2,010-ft^2

Remediation Specific:

- **Final Vertical extent of contamination:** 120-ft bgs; Remaining depth to ground water: ~40-ft
- **Water wells within 1000-ft:** 0 **Surface water bodies within 1000-ft:** 0
- **NMOCD Site Ranking Index:** 10 points (water table between 50 and 100 feet)
- **Remedial goals for Soil: 0-59-ft bgs** TPH – 5,000 ppm; BTEX – 50 ppm; Benzene – 10 ppm; Chlorides – 250 ppm; Sulfates – 600 ppm.
  60-109-ft bgs TPH – 1,000 ppm; BTEX – 50 ppm; Benzene – 10 ppm; Chlorides – 250 ppm; Sulfates – 600 ppm.
  110-160-ft bgs TPH – 100 ppm; BTEX – 50 ppm; Benzene – 10 ppm; Chlorides – 250 ppm; Sulfates – 600 ppm.
- **RCRA Waste Classification:** Exempt
- **Remediation Option Selected:** a) Excavation and transport of soil impacted above NMOCD remedial goals to an approved land farm; b) Vertical delineation of soil contamination; c) Risk-based closure assessment; d) Installation of impermeable layer (i.e., clay barrier or poly liner) and backfill with clean soil upon NMOCD approval.
- **Disposal Facility:** NM-01-0013 **Volume disposed of:** ~1,190 yds^3
- **Project Completion Date:** NA

1.0 Introduction & Background

This report addresses the site investigation and remediation of the Duke Energy Field Services (DEFS) G-28-4 (Ref. #130002) natural gas discharge line remediation site. On April 5, 2004, Environmental Plus, Inc. (EPI), Eunice-NM, was notified by DEFS regarding a natural gas and associated natural gas liquid (NGL) release at this site. The initial C-141 Form submitted to NMOCD (May 3, 2004) reports the release volume (NGL) as unknown with no recovery. On April 14, 2004, EPI mobilized to the site and commenced GPS delineation, photography and preliminary evaluation of the site. The overall affected site consisted of a ~1,190–ft^2 release area with a small (~880-ft^2) historical release area (reference *Figure 3*). Remediation of this release site consisted of the excavation and disposal (at a State of New Mexico Land Treatment Facility) of the visibly contaminated soil from the release areas to a depth of approximately 7 feet below ground surface (bgs). Samples were collected at 5 and 10 feet bgs to determine the extents and magnitude of contamination associated with the release site. The samples were analyzed in the field for the presence of organic vapors utilizing an UltraRae™ photoionization detector (PID) equipped with a 9.8 electron volt (eV) lamp. Hydrocarbon contaminant concentrations were confirmed at the 5-foot, and 10-foot depths with composite samples and lab analyses (reference *Table 1* and *Appendix I*). Additionally, analyses of the 5-foot and 10-foot samples for chlorides indicated that this inorganic contaminant was of no concern at this site. The excavation was expanded laterally in all directions to a surface area of ~1,910-ft^2. The contaminated soil was transported to the Environmental Plus, Inc. (EPI) land treatment facility located south of Eunice, New Mexico.

Due to the high concentrations of total petroleum hydrocarbons (TPH) situated at 5 and 10 feet bgs, a soil boring was advanced to delineate the vertical extent of contamination. Soil boring SB-1 was advanced to a depth of 74 feet bgs, the maximum depth for the drilling rig. The last sample analyzed was collected from the 62-64 feet bgs sampling interval with analytical results indicating TPH concentrations in excess of the NMOCD remedial thresholds for this site. Based on this, a larger drilling rig was utilized to advance a second soil boring at the site to further delineate the vertical extent of contaminated soil. The second soil boring, SB-2, was advanced to a depth of 70 feet bgs and samples collected at 60, 65 and 70 feet bgs. Field and laboratory analyses indicated contaminant concentrations were below NMOCD remedial thresholds. However, due to the fact that the soil boring was advanced on the north side of the pipeline, approximately 15 feet from the original soil boring and conflicting analytical results, a third soil boring was advanced, SB-1A, was advanced adjacent to soil boring SB-1. This soil boring was advanced to a depth of 120 feet bgs, at which depth, field analyses indicated the vertical extent of contamination had been delineated. Analytical results for the sample collected from the 120 to 122 feet bgs sampling interval confirmed that the vertical extent of contamination had been delineated.

The natural gas and associated NGL release at this site was discovered on April 5, 2004 by DEFS personnel and reported to NMOCD on May 3, 2004 by Iain Olness of EPI, on behalf of DEFS. The Initial NMOCD C-141 Form was submitted on May 3, 2004 by EPI. The leak was the result of internal pipe corrosion and was repaired by replacement of a section of the pipeline.

2.0 Site Description

The site is located approximately 7.7 miles southwest of Eunice, Lea County, New Mexico on property owned by the Millard Deck Estate.

2.1 Historical Use

The area has historically been used for livestock grazing and access to oil and gas production facilities.

2.2 Legal Description

The legal description for the site is: Unit Letter-P (SE¼ of the SE¼) of Section 21, Township 22 South, Range 36 East at latitude N 32° 22' 23.073" and longitude W 103° 15' 52.003". The site is at an elevation of approximately 3,507 feet above mean sea level.

2.3 Photographic Documentation

Photographs are included as Appendix II.

2.4 Geological Description

The United States Geological Survey (USGS) Ground-Water Report 6, "Geology and Ground-Water Conditions in Southern Lea County, New Mexico," A. Nicholson and A. Clebsch, 1961, describes the near surface geology of southern Lea County as "an intergrade of the Quaternary Alluvium (QA) sediments, i.e., fine to medium sand, with the mostly eroded Cenozoic Ogallala (CO) formation. Typically, the QA and CO formations in the area are capped by a thick interbed of caliche and generally overlain by sandy soil."

The release site is located in the Eunice Plain physiographic subdivision, described by Nicholson & Clebsch as an area "underlain by a hard caliche surface and is almost entirely covered by reddish-brown dune sand". The thickness of the sand cover ranges from 2-5 feet in most areas to as much as 20-30 feet in drift areas.

2.5 Ecological Description

The area is typical of the Upper Chihuahuan Desert Biome consisting primarily of hummocky sand hills covered with Harvard Shin Oak (*Querqus harvardi*) interspersed with Honey Mesquite (*Prosopis glandulosa*) along with typical desert grasses, flowering annuals and flowering perennials. Mammals represented, include Orrd's and Merriam's Kangaroo Rat, Deer Mouse, White Throated Wood Rat, Cottontail Rabbit, Black Tailed Jackrabbit, Mule Deer, Bobcat, Red Fox and Coyote. Reptiles, Amphibians, and Birds are numerous and typical of area. A survey of Listed, Threatened, or Endangered species was not conducted.

2.3 Area Groundwater

The unconfined groundwater aquifer at this site is projected to be ~160-ft bgs based on water depth data obtained from the NM State Engineers Office data base for water wells located in this portion of Lea County. Groundwater gradient in this area is generally to the east-southeast.

2.4 Area Water Wells

All recorded wells are greater than 1,000 horizontal feet from the site.

2.5 Area Surface Water Features

No surface water bodies exist within 1,000 horizontal feet of the site.

3.0 Environmental Media Characterization

Contaminant delineation and remedial work done at this site indicate that the chemical parameters of the soil and the physical parameters of the ground water were characterized consistent with the characterization and remediation/abatement goals and objectives set forth in the following New Mexico Oil Conservation Division (NMOCD) publications:

- ***Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993)***
- ***Unlined Surface Impoundment Closure Guidelines (February 1993)***

Acceptable thresholds for contaminants/constituents of concern (CoCs) were determined based on the NMOCD Ranking Criteria as follows:

- *Depth to Groundwater (i.e., distance from the lower most acceptable concentration to the groundwater);*
- *Wellhead Protection Area (i.e., distance from fresh water supply wells); and*
- *Distance to Surface Water Body (i.e., horizontal distance to all down gradient surface water bodies).*

3.1 Area Groundwater Levels

The New Mexico Office of the State Engineer database indicates there are four water supply wells located within 8,000 feet of the release site (reference *Table 3*). The closest of these wells (CP 00485 EXP) is located approximately 1,800 feet northeast of the release site. Records from the New Mexico Office of the State Engineer indicate an average depth to water of approximately 160 feet bgs in the vicinity of the release. Drilling activities associated with delineating the vertical extent of hydrocarbon impacted soil extended to a depth of 120 feet bgs. During these activities, no groundwater or saturated soil was encountered; verifying the depth to groundwater at least exceeds 120 feet bgs.

3.2 Depth to Groundwater Calculation

The NMOCD requires the site to be ranked to determine applicable remedial thresholds for TPH, benzene and total BTEX. The depth to groundwater is defined as the vertical distance from the lowermost contaminants to the seasonal high groundwater elevation. Depth to groundwater at the release site is approximately 160 feet bgs. Soil samples collected during the advancement of soil borings at the site indicated contamination exists to depths of at least 117 feet bgs. The calculated NMOCD depth to groundwater is approximately 43 feet. ?

FROM BOTTOM OF CONTAM.

3.3 Groundwater Gradient

The groundwater gradient in the area of the release is generally to the southeast according to the USGS Groundwater Report #6 – *Geology and Groundwater Conditions in Southern Lea County, New Mexico* (Nicholson, Jr. and Clebsch, 1961).

3.4 Wellhead Protection Area

There are no water supply wells located within a 1,000-foot radius of the release site, based on information available from the New Mexico Office of the State Engineer.

3.5 Distance to Nearest Surface Water Body

There are no bodies of surface water located within a 1,000-foot radius of the release site.

3.6 Identification of Remedial Action Levels

Remedial goals for the impacted soil at this site were determined in accordance with the NMOCD Guidelines. The NMOCD depth to groundwater is calculated to be approximately 43 feet bgs.

3.6.1 Site Ranking

Based on the proximity of the site to protectable area water wells, surface water bodies, and depth to ground water from the lower most contamination, the NMOCD ranking score for the site varies with the depth of the contamination with the soil remedial goals highlighted in the Site Ranking table presented below.

1. Groundwater	2. Wellhead Protection Area	3. Distance to Surface Water
Depth to GW <50 feet: *20 points*	If <1000' from water source, or; <200' from private domestic water source: *20 points*	<200 horizontal feet: *20 points*
Depth to GW 50 to 99 feet: *10 points*		200-1000 horizontal feet: *10 points*
Depth to GW >100 feet: 0 points	If >1000' from water source, or; >200' from private domestic water source: *0 points*	>1000 horizontal feet: *0 points*
Groundwater Score = 0, 10 or 20 as outlined below	Wellhead Protection Score= 0	Surface Water Score= 0

GW + WP + SW = Score

Site Rank (1+2+3) = 0 + 0 + 0 = 0 points (for soil 0-59'bgs)

Site Rank (1+2+3) = 10 + 0 + 0 = 10 points (for soil 60-109'bgs)

Site Rank (1+2+3) = 20 + 0 + 0 = 20 points (for soil 110-160'bgs)

3.6.2 Remedial Action Levels

Based on the Site Ranking, the remedial action levels for the soil at this site, according to NMOCD Guidelines, are:

Total Site Ranking Score and Acceptable Remedial Goal Concentrations			
Parameter	20 or >	10	0
Benzene[1]	10 ppm	10 ppm	10 ppm
BTEX[1]	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1,000 ppm	5,000 ppm

The New Mexico Water Quality Control Commission (NMWQCC) groundwater maximum contaminant levels for TPH, BTEX and chloride are as follows:

Parameter	NMWQCC Groundwater Standard
TPH	No standard
Benzene	10 micrograms per liter (µg/L)
Toluene	750 µg/L
Ethylbenzene	750 µg/L
Total Xylenes	620 µg/L
Chloride	250 micrograms per liter (mg/L)

4.0 Subsurface Soil Investigation

The vertical and lateral extents of hydrocarbon contamination at the site were determined by excavation of the release area to a depth of approximately 7 feet bgs and the advancement of a soil boring to a depth of 120 feet bgs. It was determined that the NGL had penetrated the soil to a depth of ~117 feet beneath the POR. The lateral extent of contamination was within a ~25 to 40 foot radius of the POR. Contamination extent was determined by utilizing PID to measure organic vapors in the soil samples collected during delineation activities. Discrete soil samples were submitted to an independent laboratory for quantification of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and total xylenes (BTEX constituents) and chloride to confirm field analyses. Laboratory analyses indicated high levels of contaminants to a depth of ~102 feet bgs, with levels dissipating to non-detectable at a depth of 122 feet bgs (reference *Table 2*).

Soil samples collected from the sidewalls of the excavation indicated low levels of organic vapors present in the north, east and west sidewalls (i.e., <100 ppm) and moderate levels present in the south sidewall (i.e., <1,000 ppm). These samples were not submitted to an independent laboratory for quantification; however, soil samples will be submitted to ensure that the sidewalls of the excavation contain no contaminated soil. Should contaminated soil remain in the sidewall, excavation activities will resume and continue until such time that field and laboratory analyses indicate the successful removal of the contaminated soil.

5.0 Soil Remediation

The excavated soil, ~1,190 yds^3, was transported to the Environmental Plus, Inc. (EPI) land treatment facility located south of Eunice, New Mexico.

6.0 Groundwater Investigation

The projected depth to groundwater at this site is ~160-ft bgs. Delineation activities determined that hydrocarbon impacts extend to a depth of approximately 117 feet bgs. Based on the depth to groundwater and analytical results obtained from soil samples collected during the advancement of the soil borings, it is believed that groundwater was not impacted due to this release. Therefore, no groundwater investigation is required.

7.0 Closure Proposal

Approximately 1,820 yds^3 of hydrocarbon-impacted soil remain at the site and is represented by an inverted cone extending from the release area to a depth of approximately 117 feet bgs. It is proposed to isolate the remaining source term with an impermeable barrier constructed of dense compactable red clay with a minimum permeability of 1×10^{-5} cm/sec. The barrier will extend a minimum of three feet beyond the edges of soil impacted above the NMOCD remedial thresholds for this site and will be a minimum of one-foot thick. The barrier will be installed in six-inch lifts, compacted and tested to verify that the compaction has achieved a minimum of 95% of its Proctor Density. Installation of the clay barrier at a depth of approximately 7 feet bgs will protect the barrier from erosion and human intrusion for a term sufficient to allow natural biodegradation of contaminants in the soil. After the barrier has been installed and tested to be acceptable, the excavation will be backfilled with clean soil purchased from the land owner and currently stockpiled on site.

8.0 Risk / Exposure Assessment

To support and justify the closure proposal discussed in Section 7.0, a conservative risk/exposure assessment was conducted utilizing RISC Version 4.03, developed by Lynn R. Spence for BP Oil and previously provided to the NMOCD. The analytical information collected and the viable and conservative RISC risk/exposure assessment supports approval of this closure proposal addressing the soil contamination at the DEFS G-28-4 release site.

8.1 Contaminated Soil Distribution

It is estimated that approximately 1,820 yds^3 of hydrocarbon-impacted soil remain, extending approximately 110 feet from the base of the current excavation. In addition, there appears, based on field analyses, to be a limited amount of impacted soil in the sidewall(s) of the excavation. The quantity of impacted soil remaining in the sidewall(s) has not been calculated; however, it will be removed prior to the placement of the clay barrier.

8.2 Engineered Barrier

The proposed compacted clay barrier will extend a minimum of three feet past the edges of soil impacted above the NMOCD remedial thresholds for this site, will be a minimum of one-foot thick following compaction, be installed in six-inch lifts and contoured radially to shed water. The oversized barrier will prevent further vertical migration of the hydrocarbon source term. The clay barrier will have a minimum permeability of 1×10^{-5} cm/sec and 95% of its Proctor Density. The barrier will be installed from 6 to 7 feet bgs and will be sufficiently isolated as to ensure the barrier will not be eroded nor penetrated inadvertently by human activity. A conservative groundwater risk/exposure assessment was conducted to demonstrate the effectiveness of the clay barrier in preventing groundwater impacts by isolating the remaining hydrocarbon source term and interrupting the vertical migration pathway.

8.3 Conservative Model Inputs

To ensure the closure proposal would prevent contaminants from impacting the area groundwater, conservative hydrogeologic parameters were used in the simulations. The input parameters/variables are included in Appendix IV.

8.4 Simulation I: No Barrier

A model was completed to simulate existing conditions to determine if groundwater would be impacted by the release. The input parameters for this model are included in Appendix IV.

Results of the simulation indicated groundwater would be impacted in approximately 11 years, with concentrations exceeding the NMWQCC standards (reference *Tables 4 & 5* and *Figures 7 & 8*).

8.5 Simulation II: Barrier

A model was completed to simulate the placement of a clay barrier in the excavation at a depth of approximately 7 to 8 feet bgs. The input parameters for this model are included in Appendix IV.

Results of this simulation indicate the barrier will be effective in eliminating the vertical transport mechanism (i.e., infiltration) and adequately isolate the remaining source term (reference *Tables 4 & 5* and *Figures 7 & 8*).

9.0 CONCLUSIONS

The computer modeling efforts illustrate that the installation of an engineered barrier will adequately protect groundwater from future impacts by permanently interrupting the vertical transport mechanism. In addition, the engineered barrier will serve to isolate the hydrocarbon source term from the environment for a duration sufficient to allow natural biodegradation of contaminant concentrations to below acceptable levels.

10.0 RECOMMENDATIONS

Based on the results of the computer modeling efforts, it is recommended that a clay barrier be installed in the base of the excavation. The clay barrier should be installed in 6-inch lifts, compacted and tested to verify the barrier has been compacted to a minimum of at least 95% of its Proctor Density. Prior to installing the clay barrier, hydrocarbon impacted soil remaining in the sidewalls of the excavation above the NMOCD remedial thresholds shall be removed and transported to EPI's Land Farm, located south of Eunice, New Mexico. The removal of the aforementioned soil shall be documented via laboratory analyses. Upon documentation that the impacted soil has been removed, the clay barrier should be installed.

Results of these proposed remedial activities will be documented in a final report submitted to DEFS and the NMOCD. EPI, on behalf of DEFS, requests formal written approval from the NMOCD to implement these proposed remedial activities.

FIGURES

Figure 1
Area Map
Duke Energy Field Services
Duke G28-4

Lea County, New Mexico
SE 1/4 of the SE 1/4, Sec. 21, T22S, R36E
N 32° 22' 23.1" W 103° 15' 52.1"
Elevation: 3,507 feet amsl

DWG By: Iain Olness
April 2004

REVISED:
Sept. 2005

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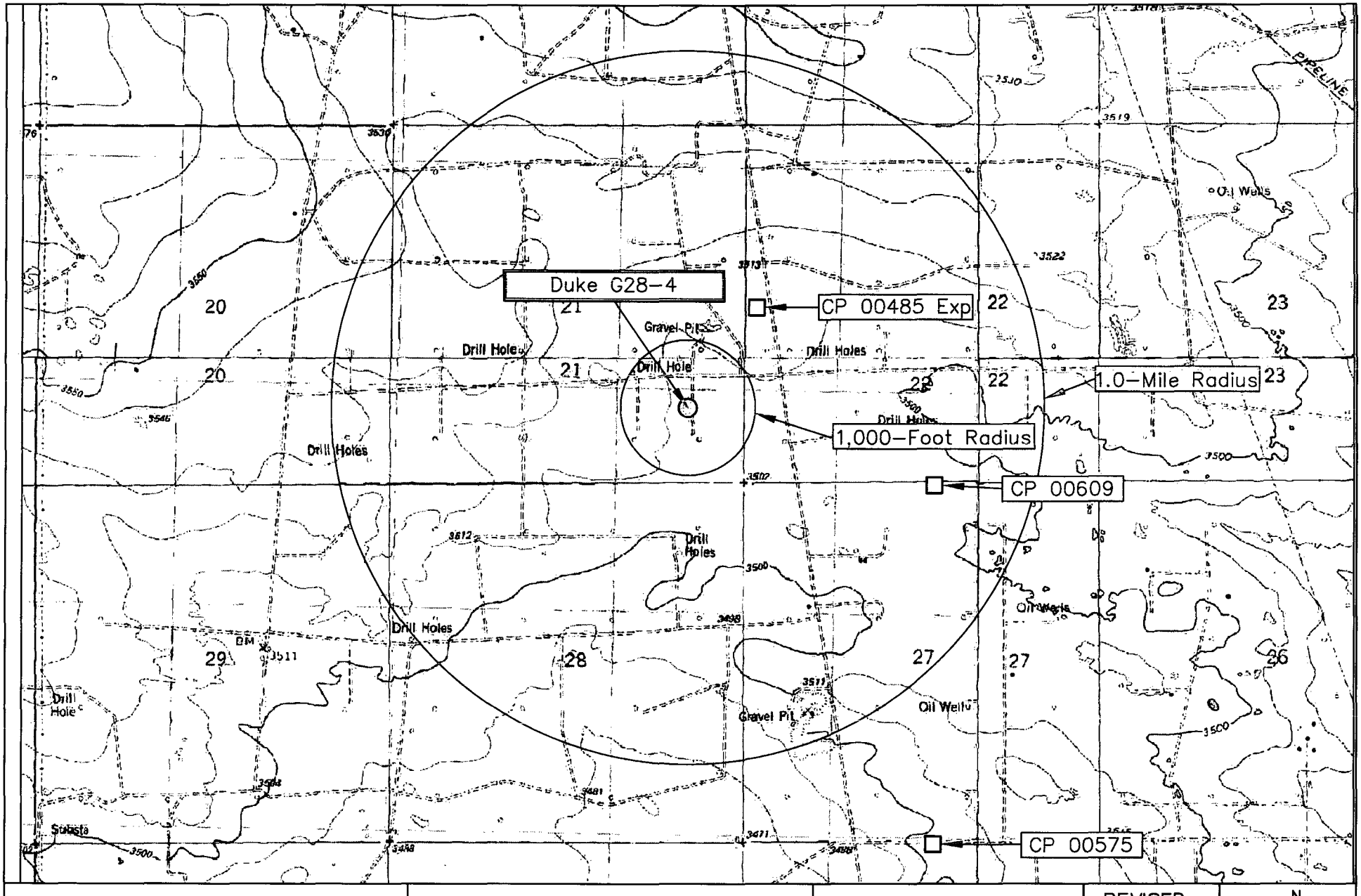

Figure 2
Site Location Map
Duke Energy Field Services
Duke G28-4

Lea County, New Mexico
SE 1/4 of the SE 1/4, Sec. 21, T22S, R36E
N 32° 22' 23.1" W 103° 15' 52.1"
Elevation: 3,507 feet amsl

DWG By: Daniel Dominguez
September 2005

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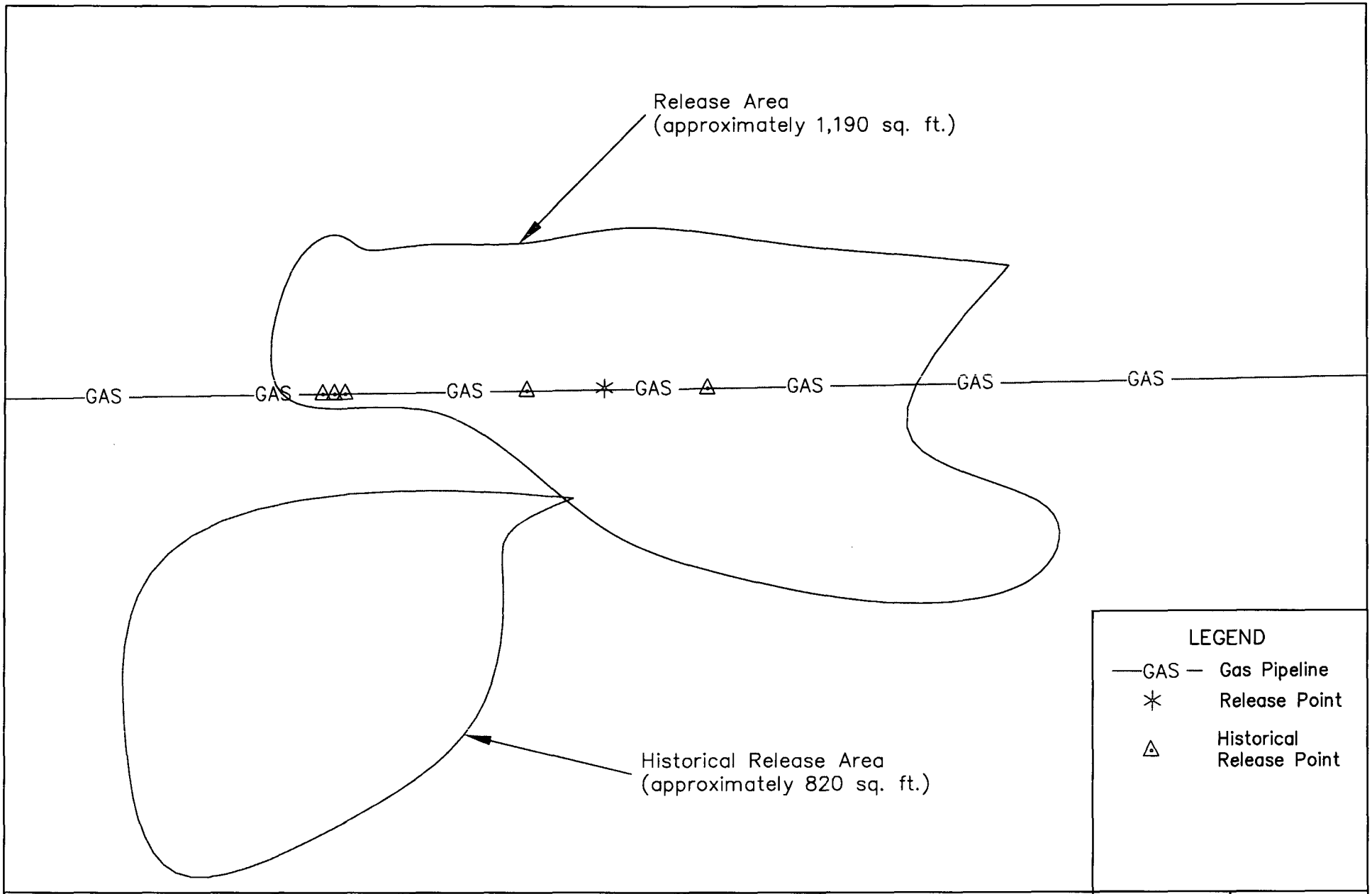

Figure 3 Site Map Duke Energy Field Services Duke G-28-4	Lea County, New Mexico SE 1/4 of the SE 1/4, Sec. 21, T22S, R36E N 32° 22' 23.1" W 103° 15' 52.1" Elevation: 3,507 feet amsl	DWG By: Iain Olness May 2004 0 10 20 Feet	REVISED: SHEET 1 of 1	N

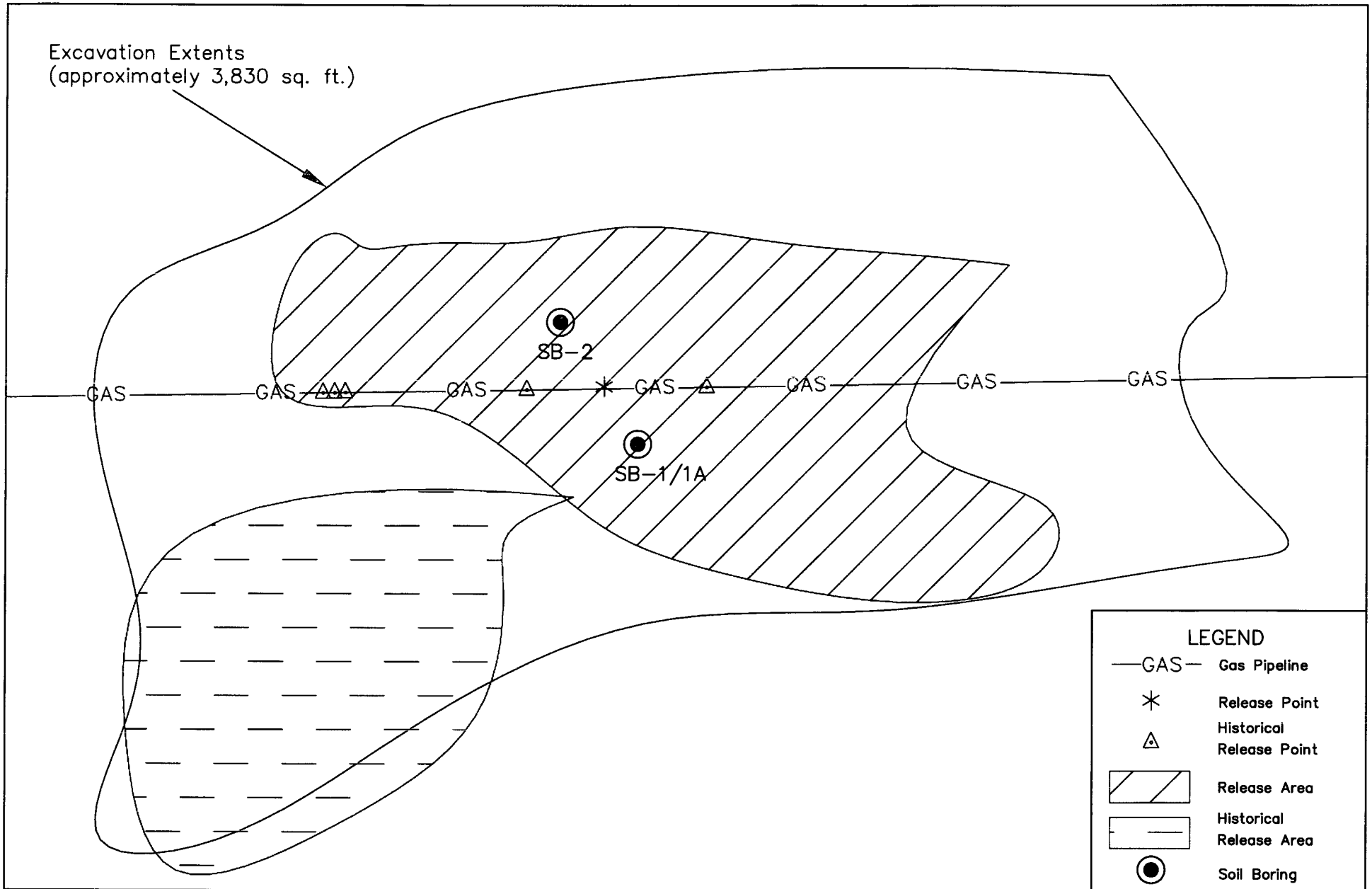

Figure 4
Soil Boring Location Map
Duke Energy Field Services
Duke G-28-4

Lea County, New Mexico
SE 1/4 of the SE 1/4, Sec. 21, T22S, R36E
N 32° 22' 23.1" W 103° 15' 52.1"
Elevation: 3,507 feet amsl

DWG By: Iain Olness
May 2004

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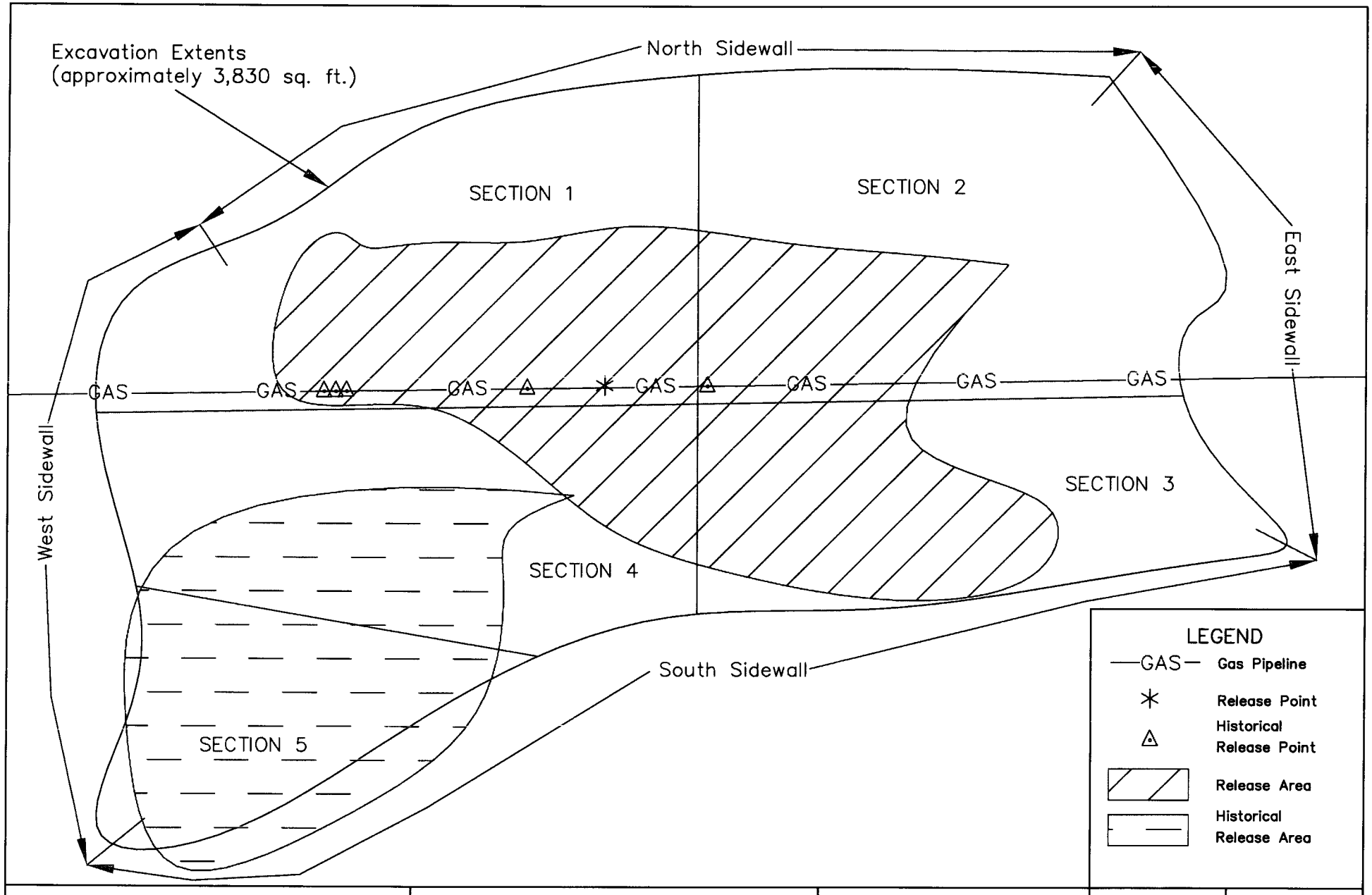

Figure 5
Sample Location Map
Duke Energy Field Services
Duke G-28-4

Lea County, New Mexico
SE 1/4 of the SE 1/4, Sec. 21, T22S, R36E
N 32° 22' 23.1" W 103° 15' 52.1"
Elevation: 3,507 feet amsl

DWG By: Iain Olness
May 2004

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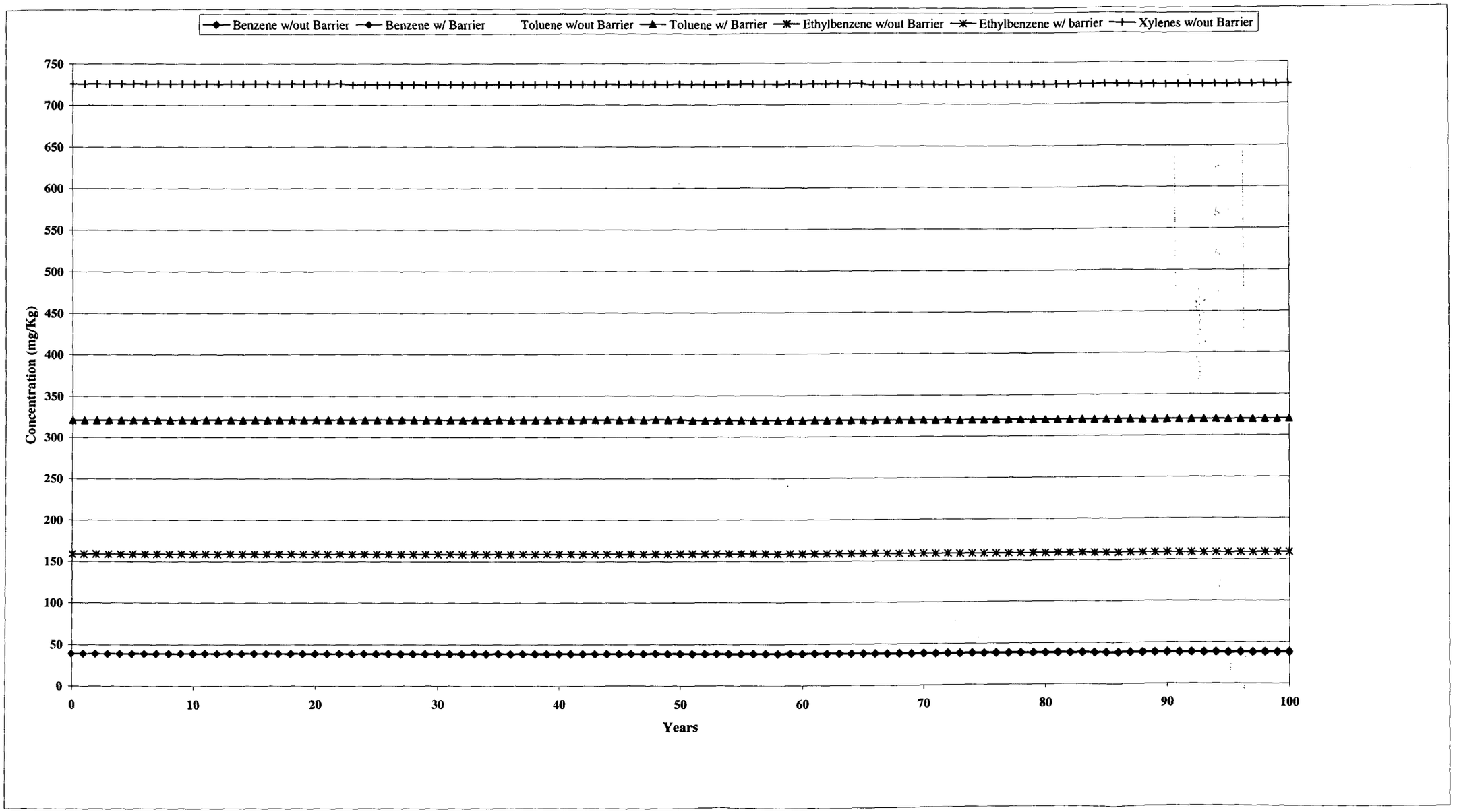

Figure 6: Contaminant Concentrations in the Source Area With and Without an Engineered Barrier.

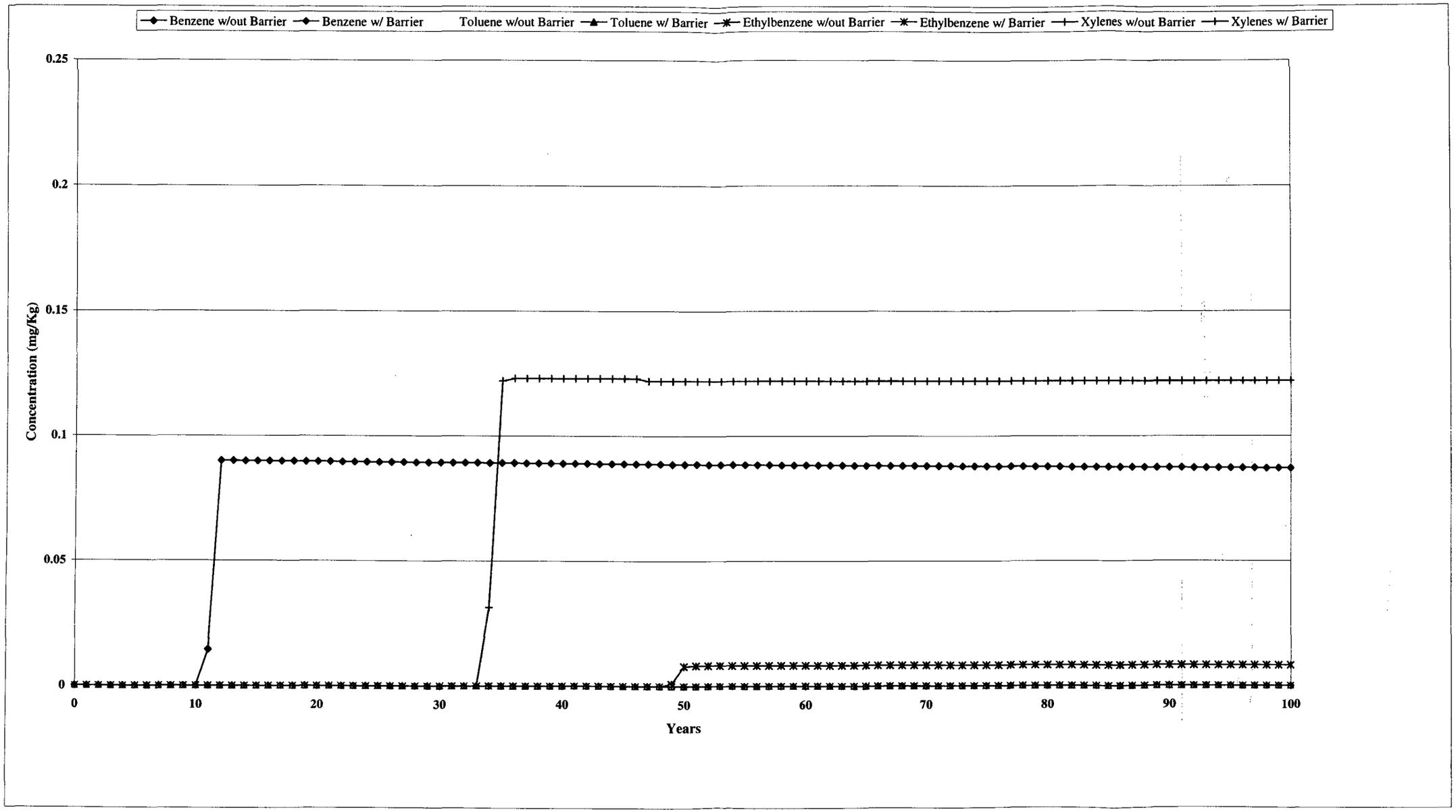

Figure 7: Contaminant Concentrations at the Watertable With and Without an Engineered Barrier.

TABLES

TABLE 1

Summary of Excavation Analytical Results

Duke G-28-4 (Ref. #130002)

Sample Name	Date	Sample Type	Location	Depth	Soil Status	PID Analysis (ppm)	GRO (mg/Kg)	DRO (mg/Kg)	Total TPH (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	BTEX (µg/Kg)	Chloride (mg/Kg)
G28-4#1compB.H.130002	22-Apr-04	Composite	Section 1 Bottomhole	3	Excavated	819	--	--	--	--	--	--	--	--	--
G28-4#2compB.H.130002	22-Apr-04	Composite	Section 2 Bottomhole	3	Excavated	728	--	--	--	--	--	--	--	--	--
G28-4#3compB.H.130002	22-Apr-04	Composite	Section 3 Bottomhole	3	Excavated	404	--	--	--	--	--	--	--	--	--
G28-4#4compB.H.130002	22-Apr-04	Composite	Section 4 Bottomhole	3	Excavated	874	--	--	--	--	--	--	--	--	--
G28-4#5compB.H.130002	22-Apr-04	Composite	Section 5 Bottomhole	2	Excavated	1,271	--	--	--	--	--	--	--	--	--
G28-4NSWC130002	22-Apr-04	Composite	North Sidewall	2	In Situ	16.2	--	--	--	--	--	--	--	--	--
G28-4SSWC130002	22-Apr-04	Composite	South Sidewall	1.5	In Situ	737	--	--	--	--	--	--	--	--	--
G28-4ESWC130002	22-Apr-04	Composite	East Sidewall	2	In Situ	12.6	--	--	--	--	--	--	--	--	--
G28-4WSWC130002	22-Apr-04	Composite	West Sidewall	2	In Situ	61.1	--	--	--	--	--	--	--	--	--
SDG284042304BH1-5'	23-Apr-04	Composite	Section 1 Bottomhole	5	Excavated	571	18,200	32,500	**50,700**	**27.6**	272	159	726	**1,185**	96
SDG284042304BH1-10'	23-Apr-04	Composite	Section 1 Bottomhole	10	In Situ	480	23,400	35,200	**58,600**	**39**	321	131	656	**1,147**	64
SDG284042304BH2-5'	23-Apr-04	Composite	Section 2 Bottomhole	5	Excavated	449	--	--	--	--	--	--	--	--	--
SDG284042304BH2-10'	23-Apr-04	Composite	Section 2 Bottomhole	10	In Situ	646	--	--	--	--	--	--	--	--	--
SDG284042304BH3-5'	23-Apr-04	Composite	Section 3 Bottomhole	5	Excavated	706	--	--	--	--	--	--	--	--	--
SDG284042304BH3-10'	23-Apr-04	Composite	Section 3 Bottomhole	10	In Situ	601	--	--	--	--	--	--	--	--	--
SDG284042304BH4-5'	23-Apr-04	Composite	Section 4 Bottomhole	5	Excavated	682	3,050	12,000	**15,050**	0.848	10.7	10.0	48.1	**69.6**	48
SDG284042304BH4-10'	23-Apr-04	Composite	Section 4 Bottomhole	10	In Situ	626	3,120	11,000	**14,120**	0.422	9.04	10.7	56.4	**76.6**	112
SDG284042304BH5-5'	23-Apr-04	Composite	Section 5 Bottomhole	5	Excavated	27.8	<10.0	97.8	97.8	<0.005	<0.005	<0.005	<0.015	<0.030	48
SDG284042304BH5-10'	23-Apr-04	Composite	Section 5 Bottomhole	10	In Situ	17.3	--	--	--	--	--	--	--	--	--
NMOCD Remedial Thresholds									5,000	10				50	250

ppm = parts per million, which is equivalent to milligrams per kilogram

mg/Kg = miiligrams per kilogram, which is equivalent to parts per million

- - = Not Analyzed

Results in Bold are above the remedial action levels as set by the NMOCD.

TABLE 2

Summary of Soil Boring Analytical Results

Duke G-28-4 (Ref. #130002)

Borehole	Sample ID	Interval	Soil Status	PID Analysis (ppm)	GRO (mg/Kg)	DRO (mg/Kg)	Total TPH (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	BTEX (mg/Kg)
SB-1		9-11	In Situ	2,999	--	--	--	--	--	--	--	--
		12-14	In Situ	1,791	--	--	--	--	--	--	--	--
	SDEG284-051804-SB1(17')	17-19	In Situ	1,640	7,190	13,000	**20,190**	6.57	104	69.1	308	**488**
		22-24	In Situ	1,030	--	--	--	--	--	--	--	--
		27-29	In Situ	1,448	--	--	--	--	--	--	--	--
	SDEG284-051804-SB1(32')	32-34	In Situ	1,117	4,653	6,060	**10,713**	**16.4**	179	87	417	**700**
		37-39	In Situ	998	--	--	--	--	--	--	--	--
		42-44	In Situ	960	--	--	--	--	--	--	--	--
	SDEG284-051804-SB1(47')	47-49	In Situ	842	3,240	5,750	**8,990**	1.95	45.6	32.3	154	**234**
		52-54	In Situ	469	--	--	--	--	--	--	--	--
		57-59	In Situ	342	--	--	--	--	--	--	--	--
	SDEG284-051804-SB1(62')	62-64	In Situ	350	6,530	11,700	**18,230**	**10.1**	172	78.6	420	**681**
		67-69	In Situ	--	--	--	--	--	--	--	--	--
		72-74	In Situ	--	--	--	--	--	--	--	--	--
SB-2	SB-2 (60')	65-67	In Situ	5.4	<10.0	65	65	<0.025	<0.025	<0.025	<0.050	<0.125
		70-72	In Situ	5.0	--	--	--	--	--	--	--	--
	SB-2 (70')	75-78	In Situ	9.2	5.98[A]	26.5	26.5	<0.025	<0.025	<0.025	<0.050	<0.125
SB-1A		35-37	In Situ	1,024	--	--	--	--	--	--	--	--
	SB-1A (62')	60-62	In Situ	686	13,200	12,200	**25,400**	**34.9**	110	35.7	150	**331**
		65-67	In Situ	586	--	--	--	--	--	--	--	--
		70-72	In Situ	760	--	--	--	--	--	--	--	--
		75-77	In Situ	715	--	--	--	--	--	--	--	--
		80-82	In Situ	508	--	--	--	--	--	--	--	--
	SB-1A (87')	85-87	In Situ	965	10,800	10,000	**20,800**	**22.8**	103	38.1	167	**331**
		90-92	In Situ	694	--	--	--	--	--	--	--	--
		95-97	In Situ	712	--	--	--	--	--	--	--	--
	SB-1A (102')	100-102	In Situ	659	7,150	8,550	**15,700**	**12.9**	66.7	28.0	125	**233**
		105-107	In Situ	649	--	--	--	--	--	--	--	--
	SB-1A (112')	110-112	In Situ	64.8	33.6	188	**222**	<0.250	0.0353	0.0549	0.308	0.398
	SB-1A (117')	115-117	In Situ	56.1	95.3	175	**270**	<0.0250	0.188	0.236	1.37	1.79
	SB-1A (122')	120-122	In Situ	10.1	<10.0	<10.0	<10.0	<0.0250	<0.0250	<0.0250	<0.050	<0.125
					100		5,000	10				50

ppm = parts per million, which is equivalent to milligrams per kilogram

mg/Kg = miiligrams per kilogram, which is equivalent to parts per million

- - = Not Sampled

Results in **Bold** are above the remedial action levels as set by the NMOCD.

[A]Detected, but below the Reporting Limit; therefore, result is an estiamted concentration (CLP J-Flag)

TABLE 3

WELL INFORMATION REPORT*

Duke Energy Field Services G28-4 - Ref #130002

Well Number	Diversion[A]	Owner	Use	Source	Twsp	Rng	Sec q q q	Latitude	Longitude	Date Measured	Surface Elevation[B]	Depth to Water (ft bgs)
CP 00070 2	3	MCVAY DRILLING CO.	STK	Shallow	22S	36E	16 1 2 2	N32° 23' 42.95"	W103° 16' 26.28"	05-Oct-72		170
CP 00485 EXP	70	EL PASO NATURAL GAS COMPANY	NON		22S	36E	22 1 3	N32° 22' 37.79"	W103° 15' 40.09"		3,517	
CP 00609	3	U R CATTLE COMPANY	DOM		22S	36E	22 4 3 1	N32° 22' 11.77"	W103° 15' 9.23"	28-Jun-80	3,507	22
CP 00575	3	MILLARD DECK	STK	Shallow	22S	36E	27 4 3	N32° 21' 19.49"	W103° 15' 9.39"	13-Nov-78	3,507	160

* = Data obtained from the New Mexico Office of the State Engineer Website (http://iwaters.ose.state.nm.us:7001/iWATERS/wr_RegisServlet1) and USGS Database.
Shaded well information indicates well location shown on Figure 2
[A] = in acre feet per annum
[B] = Interpolated from USGS Topographical Map
STK = Livestock Watering
NON = Non-Profit Organizational Use
DOM = 72-12-1 Domestic One Household
(quarters are 1=NW, 2=NE, 3=SW, 4=SE)
(quarters are biggest to smallest - X Y are in Feet - UTM are in Meters)

TABLE 4

Contaminant Concentrations in the Soil at the Source Area

Duke G-28-4 (Ref. #130002)

Time	Benzene		Toluene		Ethylbenzene		Total Xylenes	
	Without Barrier	With Barrier	Without Barrier	With Barrier	Without Barrier	With Barrier	Without Barrier	With Barrier
(years)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/ Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
0	39.0	39.0	321	321	159	159	726	726
1	39.0	39.0	321	321	159	159	726	726
2	39.0	39.0	321	321	159	159	726	726
3	39.0	39.0	321	321	159	159	726	726
4	38.9	39.0	321	321	159	159	726	726
5	38.9	39.0	321	321	159	159	726	726
6	38.9	39.0	321	321	159	159	726	726
7	38.9	39.0	321	321	159	159	726	726
8	38.9	39.0	321	321	159	159	726	726
9	38.9	39.0	321	321	159	159	726	726
10	38.9	39.0	321	321	159	159	726	726
11	38.8	39.0	321	321	159	159	726	726
12	38.8	39.0	321	321	159	159	726	726
13	38.8	39.0	321	321	159	159	726	726
14	38.8	39.0	321	321	159	159	726	726
15	38.8	39.0	321	321	159	159	726	726
16	38.8	39.0	320	321	159	159	726	726
17	38.8	39.0	320	321	159	159	726	726
18	38.7	39.0	320	321	159	159	726	726
19	38.7	39.0	320	321	159	159	726	726
20	38.7	39.0	320	321	159	159	726	726
21	38.7	39.0	320	321	159	159	726	726
22	38.7	39.0	320	321	159	159	726	726
23	38.7	39.0	320	321	159	159	725	726
24	38.7	39.0	320	321	159	159	725	726
25	38.6	39.0	320	321	159	159	725	726
26	38.6	39.0	320	321	159	159	725	726
27	38.6	39.0	320	321	159	159	725	726
28	38.6	39.0	320	321	159	159	725	726
29	38.6	39.0	320	321	159	159	725	726
30	38.6	39.0	320	321	159	159	725	726
31	38.6	39.0	320	321	159	159	725	726
32	38.5	39.0	320	321	159	159	725	726
33	38.5	39.0	320	321	159	159	725	726
34	38.5	39.0	320	321	159	159	725	726
35	38.5	39.0	320	321	159	159	725	726
36	38.5	39.0	320	321	159	159	725	726
37	38.5	39.0	320	321	159	159	725	726
38	38.5	39.0	320	321	159	159	725	726
39	38.4	39.0	320	321	159	159	725	726
40	38.4	39.0	320	321	159	159	725	726
41	38.4	39.0	320	321	159	159	725	726
42	38.4	38.9	320	321	159	159	725	726
43	38.4	38.9	320	321	159	159	725	726
44	38.4	38.9	320	321	159	159	725	726
45	38.4	38.9	320	321	159	159	725	726
46	38.3	38.9	320	321	159	159	725	726
47	38.3	38.9	319	321	159	159	725	726
48	38.3	38.9	319	321	159	159	725	726
49	38.3	38.9	319	321	159	159	725	726
50	38.3	38.9	319	321	159	159	725	726
51	38.3	38.9	319	320	159	159	725	726
52	38.3	38.9	319	320	159	159	725	726
53	38.2	38.9	319	320	159	159	725	726
54	38.2	38.9	319	320	159	159	725	726
55	38.2	38.9	319	320	159	159	725	726

TABLE 4

Contaminant Concentrations in the Soil at the Source Area

Duke G-28-4 (Ref. #130002)

Time	Benzene		Toluene		Ethylbenzene		Total Xylenes	
	Without Barrier	With Barrier	Without Barrier	With Barrier	Without Barrier	With Barrier	Without Barrier	With Barrier
(years)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/ Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
56	38.2	38.9	319	320	159	159	725	726
57	38.2	38.9	319	320	159	159	725	726
58	38.2	38.9	319	320	159	159	725	726
59	38.2	38.9	319	320	159	159	725	726
60	38.1	38.9	319	320	159	159	725	726
61	38.1	38.9	319	320	159	159	725	726
62	38.1	38.9	319	320	159	159	725	726
63	38.1	38.9	319	320	159	159	725	726
64	38.1	38.9	319	320	159	159	725	726
65	38.1	38.9	319	320	159	159	725	726
66	38.1	38.9	319	320	159	159	724	726
67	38.0	38.9	319	320	159	159	724	726
68	38.0	38.9	319	320	159	159	724	726
69	38.0	38.9	319	320	159	159	724	726
70	38.0	38.9	319	320	159	159	724	726
71	38.0	38.9	319	320	159	159	724	726
72	38.0	38.9	319	320	159	159	724	726
73	38.0	38.9	319	320	159	159	724	726
74	37.9	38.9	319	320	159	159	724	726
75	37.9	38.9	319	320	159	159	724	726
76	37.9	38.9	319	320	159	159	724	726
77	37.9	38.9	319	320	159	159	724	725
78	37.9	38.9	318	320	159	159	724	725
79	37.9	38.9	318	320	159	159	724	725
80	37.9	38.9	318	320	159	159	724	725
81	37.8	38.9	318	320	159	159	724	725
82	37.8	38.9	318	320	159	159	724	725
83	37.8	38.9	318	320	159	159	724	725
84	37.8	38.9	318	320	159	159	724	725
85	37.8	38.9	318	320	159	159	724	725
86	37.8	38.9	318	320	159	159	724	725
87	37.8	38.9	318	320	159	159	724	725
88	37.7	38.9	318	320	159	159	724	725
89	37.7	38.9	318	320	159	159	724	725
90	37.7	38.9	318	320	159	159	724	725
91	37.7	38.9	318	320	159	159	724	725
92	37.7	38.9	318	320	159	159	724	725
93	37.7	38.9	318	320	159	159	724	725
94	37.7	38.9	318	320	159	159	724	725
95	37.6	38.9	318	320	159	159	724	725
96	37.6	38.9	318	320	159	159	724	725
97	37.6	38.9	318	320	159	159	724	725
98	37.6	38.9	318	320	159	159	724	725
99	37.6	38.9	318	320	159	159	724	725
100	37.6	38.9	318	320	159	159	724	725

TABLE 5

Contaminant Concentrations in the Soil at the Watertable

Duke G-28-4 (Ref. #130002)

Time	Benzene		Toluene		Ethylbenzene		Total Xylenes	
	Without Barrier	With Barrier	Without Barrier	With Barrier	Without Barrier	With Barrier	Without Barrier	With Barrier
(years)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/ Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
0	0.0	0.0	321	0.0	0.0	0.0	726	0.0
1	0.0	0.0	321	0.0	0.0	0.0	726	0.0
2	0.0	0.0	321	0.0	0.0	0.0	726	0.0
3	0.0	0.0	321	0.0	0.0	0.0	726	0.0
4	0.0	0.0	321	0.0	0.0	0.0	726	0.0
5	0.0	0.0	321	0.0	0.0	0.0	726	0.0
6	0.0	0.0	321	0.0	0.0	0.0	726	0.0
7	0.0	0.0	321	0.0	0.0	0.0	726	0.0
8	0.0	0.0	321	0.0	0.0	0.0	726	0.0
9	0.0	0.0	321	0.0	0.0	0.0	726	0.0
10	0.0	0.0	321	0.0	0.0	0.0	726	0.0
11	0.015	0.0	321	0.0	0.0	0.0	726	0.0
12	0.090	0.0	321	0.0	0.0	0.0	726	0.0
13	0.090	0.0	321	0.0	0.0	0.0	726	0.0
14	0.090	0.0	321	0.0	0.0	0.0	726	0.0
15	0.090	0.0	321	0.0	0.0	0.0	726	0.0
16	0.090	0.0	321	0.0	0.0	0.0	726	0.0
17	0.090	0.0	321	0.0	0.0	0.0	726	0.0
18	0.090	0.0	321	0.0	0.0	0.0	726	0.0
19	0.090	0.0	321	0.0	0.0	0.0	726	0.0
20	0.090	0.0	321	0.0	0.0	0.0	726	0.0
21	0.090	0.0	321	0.0	0.0	0.0	726	0.0
22	0.090	0.0	321	0.0	0.0	0.0	726	0.0
23	0.090	0.0	321	0.0	0.0	0.0	726	0.0
24	0.090	0.0	321	0.0	0.0	0.0	726	0.0
25	0.090	0.0	321	0.0	0.0	0.0	726	0.0
26	0.090	0.0	321	0.0	0.0	0.0	726	0.0
27	0.090	0.0	321	0.0	0.0	0.0	726	0.0
28	0.089	0.0	321	0.0	0.0	0.0	726	0.0
29	0.089	0.0	321	0.0	0.0	0.0	726	0.0
30	0.089	0.0	321	0.0	0.0	0.0	726	0.0
31	0.089	0.0	321	0.0	0.0	0.0	726	0.0
32	0.089	0.0	321	0.0	0.0	0.0	726	0.0
33	0.089	0.0	321	0.0	0.0	0.0	726	0.0
34	0.089	0.0	321	0.0	0.0	0.0	726	0.0
35	0.089	0.0	321	0.0	0.0	0.0	726	0.0
36	0.089	0.0	321	0.0	0.0	0.0	726	0.0
37	0.089	0.0	321	0.0	0.0	0.0	726	0.0
38	0.089	0.0	321	0.0	0.0	0.0	726	0.0
39	0.089	0.0	321	0.0	0.0	0.0	726	0.0
40	0.089	0.0	321	0.0	0.0	0.0	726	0.0
41	0.089	0.0	321	0.0	0.0	0.0	726	0.0
42	0.089	0.0	321	0.0	0.0	0.0	726	0.0
43	0.089	0.0	321	0.0	0.0	0.0	726	0.0
44	0.089	0.0	321	0.0	0.0	0.0	726	0.0
45	0.089	0.0	321	0.0	0.0	0.0	726	0.0
46	0.089	0.0	321	0.0	0.0	0.0	726	0.0
47	0.089	0.0	321	0.0	0.0	0.0	726	0.0
48	0.089	0.0	321	0.0	0.0	0.0	726	0.0
49	0.089	0.0	321	0.0	0.00093	0.0	726	0.0
50	0.089	0.0	321	0.0	0.00793	0.0	726	0.0
51	0.089	0.0	320	0.0	0.00828	0.0	726	0.0
52	0.089	0.0	320	0.0	0.00828	0.0	726	0.0
53	0.089	0.0	320	0.0	0.00828	0.0	726	0.0
54	0.089	0.0	320	0.0	0.00828	0.0	726	0.0
55	0.089	0.0	320	0.0	0.00828	0.0	726	0.0

TABLE 5

Contaminant Concentrations in the Soil at the Watertable

Duke G-28-4 (Ref. #130002)

Time	Benzene		Toluene		Ethylbenzene		Total Xylenes	
	Without Barrier	With Barrier	Without Barrier	With Barrier	Without Barrier	With Barrier	Without Barrier	With Barrier
(years)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/ Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
56	0.089	0.0	320	0.0	0.00828	0.0	726	0.0
57	0.089	0.0	320	0.0	0.00828	0.0	726	0.0
58	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
59	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
60	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
61	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
62	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
63	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
64	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
65	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
66	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
67	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
68	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
69	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
70	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
71	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
72	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
73	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
74	0.088	0.0	320	0.0	0.00828	0.0	726	0.0
75	0.088	0.0	320	0.0	0.00827	0.0	726	0.0
76	0.088	0.0	320	0.0	0.00827	0.0	726	0.0
77	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
78	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
79	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
80	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
81	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
82	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
83	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
84	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
85	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
86	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
87	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
88	0.088	0.0	320	0.0	0.00827	0.0	725	0.0
89	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
90	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
91	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
92	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
93	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
94	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
95	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
96	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
97	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
98	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
99	0.087	0.0	320	0.0	0.00827	0.0	725	0.0
100	0.087	0.0	320	0.0	0.00827	0.0	725	0.0

APPENDICES

APPENDIX A

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY FORMS

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: IAIN OLNESS
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 04/26/04
Reporting Date: 04/28/04
Project Owner: DUKE ENERGY
Project Name: G 28-4
Project Location: NOT GIVEN

Sampling Date: 04/23/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC/GP

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	Cl* (mg/Kg)
ANALYSIS DATE		04/26/04	04/26/04	04/27/04
H8642-1	SDG284042304BH1-5'	18200	32500	96
H8642-2	SDG284042304BH1-10'	23400	35200	64
H8642-3	SDG284042304BH4-5'	3050	12000	48
H8642-4	SDG284042304BH4-10'	3120	11000	112
H8642-5	SDG284042304BH5-5'	<10.0	97.8	48
Quality Control		790	762	1010
True Value QC		1000	1000	1000
% Recovery		98.8	95.3	101
Relative Percent Difference		2.5	6.3	3.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl^-: Std. Methods 4500-Cl^-B
*Analyses performed on 1:4 w:v aqueous extracts.

Burgett A Cooke
Chemist

4/28/04
Date

H8642A.XLS

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ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: IAIN OLNESS
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 04/26/04
Reporting Date: 04/28/04
Project Owner: DUKE ENERGY
Project Name: G 28-4
Project Location: NOT GIVEN

Sampling Date: 04/23/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		04/27/04	04/27/04	04/27/04	04/27/04
H8642-1	SDG284042304BH1-5'	27.6	272	159	726
H8642-2	SDG284042304BH1-10'	38.5	321	131	656
H8642-3	SDG284042304BH4-5'	0.848	10.7	10.0	48.1
H8642-4	SDG284042304BH4-10'	0.422	9.04	10.7	56.4
H8642-5	SDG284042304BH5-5'	<0.005	<0.005	<0.005	<0.015
Quality Control		0.100	0.092	0.086	0.258
True Value QC		0.100	0.100	0.100	0.100
% Recovery		99.9	92.4	86.2	85.9
Relative Percent Difference		6.9	9.6	12.3	10.6

METHOD: EPA SW-846 8260

Chemist

4/28/04
Date

FB642304XLS

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Cardinal Laboratories Inc.

2111 Beechwood, Abilene, TX 79603
915-673-7001 Fax 915-673-7020

101 East Marland, Hobbs, NM 88240
505-393-2326 Fax 505-393-2476

Company Name	Duke Energy
Project Manager	Paul Mulkey
Address	
City, State, Zip	
Phone#/Fax#	
Project #/Owner	130002
Project Name	G 28-4
Project Location	
Sampler Name	Morris Burkett

Bill To

Environmental Plus Inc.

Analysis Request

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	MATRIX: WASTEWATER	MATRIX: SOIL	MATRIX: CUDE OIL	MATRIX: SLUDGE	MATRIX: OTHER:	PRESERV.: ACID/BASE	PRESERV.: ICE/COOL	PRESERV.: OTHER	SAMPLING: DATE	SAMPLING: TIME	BTEX 8021B	TPH8015M	Cl
H&C42-1	SDG284042304BH1-5'	C	1			X					X		4/23	9:00	X	X	X
-2	SDG284042304BH1-10'	C	1			X					X		4/23	9:05	X	X	X
-3	SDG284042304BH4-5'	C	1			X					X		4/23	9:30	X	X	X
-4	SDG284042304BH4-10'	C	1			X					X		4/23	9:35	X	X	X
-5	SDG284042304BH5-5'	C	1			X					X		4/23	9:40	X	X	X

Sampler Relinquished: Morris Burkett	Date: 4/24/09 Time: 1:50 PM	Received By: Cindy Miller	Fax Results To Iain Olness 505-394-2601
Relinquished by: Cindy Miller	Date: 4/24/09 Time: 3:05 PM	Received By: (lab staff)	Remarks
Delivered by Sampler	Sample Cool & Intact (Yes) (No)	Checked By:	

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: IAIN OLNESS
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 05/19/04
Reporting Date: 05/21/04
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G28-4
Project Location: 130002

Sampling Date: 05/18/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NO. SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:	05/19/04	05/19/04	05/20/04	05/20/04	05/20/04	05/20/04
H8711-1 SDEG284-051804-SB1(17')	7190	13000	6.57	104	69.1	308
H8711-2 SDEG284-051804-SB1(32')	4653	6060	16.4	179	87.1	417
H8711-3 SDEG284-051804-SB1(47')	3240	5750	1.95	45.6	32.3	154
H8711-4 SDEG284-051804-SB1(62')	6530	11700	10.1	172	78.6	420
Quality Control	826	753	0.098	0.091	0.086	0.259
True Value QC	800	800	0.100	0.100	0.100	0.300
% Recovery	103	94.1	98.4	90.9	86.3	86.3
Relative Percent Difference	2.5	2.8	3.8	5.1	5.9	7.9

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

Burgess J.A. Cooke, Ph. D.

5/21/04
Date

H8711.XLS

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Cardinal Laboratories Inc.

101 East Marland, Hobbs, NM 88240
505-393-2326 Fax 505-393-2476

2111 Beechwood, Abilene, TX 79603
915-673-7001 Fax 915-673-7020

Company Name	Environmental Plus, Inc.
EPI Project Manager	Iain olness
Billing Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
EPI Phone#/Fax#	505-394-3481 / 505-394-2601
Client Company	Duke Energy Field Services
Facility Name	G28-4
Project Reference	130002
EPI Sampler Name	Manuel Gonzales

Bill To

ANALYSIS REQUEST

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES ($SO_4^{=}$)	pH	TCLP	OTHER >>>
H8711-1	1 SDEG284-051804-SB1(17')	G	1			X					X		18-May	10:00	X	X					
-2	2 SDEG284-051804-SB1(32')	G	1			X					X		18-May	12:00	X	X					
-3	3 SDEG284-051804-SB1(47')	G	1			X					X		18-May	13:45	X	X					
-4	4 SDEG284-051804-SB1(62')	G	1			X					X		18-May	17:15	X	X					
	5																				
	6																				
	7																				
	8																				
	9																				
	10																				

Sampler Relinquished: Manuel Gonzales	Date	Received By:	Fax Results To Iain Olness @ (505) 394-2601
Relinquished by:	Time	Date 5/19/04 Received By: (lab staff)	REMARKS:
Delivered by:	Time 3:35	Sample Cool & Intact Yes / No	Checked By:

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Iain Olness

Environmental Plus, Incorporated

2100 Avenue 6

Eunice, NM 88231

Project: DEFS G28-4 (130002)

Project Number: 130002

Location: UL-P Section 21 T22S R36E

Lab Order Number: 4F17008

Report Date: 06/21/04

Environmental Plus, Incorporated
2100 Avenue 6
Eunice NM, 88231

Project: DEFS G28-4 (130002)
Project Number: 130002
Project Manager: Iain Olness

Fax: 505-394-2601

Reported:
06/21/04 16:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-2 (60')	4F17008-01	Soil	06/16/04 15:15	06/17/04 12:40
SB-2 (70')	4F17008-02	Soil	06/16/04 15:42	06/17/04 12:40

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB-2 (60') (4F17008-01) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EF42112	06/19/04	06/21/04	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*88.2 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91.1 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EF41705	06/17/04	06/18/04	EPA 8015M	
Diesel Range Organics >C12-C35	**65.0**	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**65.0**	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*102 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*94.6 %*	*70-130*		"	"	"	"	
SB-2 (70') (4F17008-02) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EF42112	06/19/04	06/20/04	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*90.7 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88.5 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	**J [5.98]**	10.0	mg/kg dry	1	EF41705	06/17/04	06/18/04	EPA 8015M	J
Diesel Range Organics >C12-C35	**26.5**	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**26.5**	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*111 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*97.4 %*	*70-130*		"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB-2 (60') (4F17008-01) Soil									
% Solids	**98.0**		%	1	EF41806	06/17/04	06/17/04	% calculation	
SB-2 (70') (4F17008-02) Soil									
% Solids	**98.0**		%	1	EF41806	06/17/04	06/17/04	% calculation	

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EF41705 - Solvent Extraction (GC)										
Blank (EF41705-BLK1)				Prepared & Analyzed: 06/17/04						
Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	*41.2*		*mg/kg*	*50.0*		*82.4*	*70-130*			
Surrogate: 1-Chlorooctadecane	*35.7*		*"*	*50.0*		*71.4*	*70-130*			
Blank (EF41705-BLK2)				Prepared: 06/17/04 Analyzed: 06/18/04						
Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	*40.4*		*mg/kg*	*50.0*		*80.8*	*70-130*			
Surrogate: 1-Chlorooctadecane	*35.1*		*"*	*50.0*		*70.2*	*70-130*			
LCS (EF41705-BS1)				Prepared & Analyzed: 06/17/04						
Gasoline Range Organics C6-C12	480	10.0	mg/kg wet	500		96.0	75-125			
Diesel Range Organics >C12-C35	536	10.0	"	500		107	75-125			
Total Hydrocarbon C6-C35	1020	10.0	"	1000		102	75-125			
Surrogate: 1-Chlorooctane	*57.0*		*mg/kg*	*50.0*		*114*	*70-130*			
Surrogate: 1-Chlorooctadecane	*38.2*		*"*	*50.0*		*76.4*	*70-130*			
LCS (EF41705-BS2)				Prepared: 06/17/04 Analyzed: 06/18/04						
Gasoline Range Organics C6-C12	461	10.0	mg/kg wet	500		92.2	75-125			
Diesel Range Organics >C12-C35	536	10.0	"	500		107	75-125			
Total Hydrocarbon C6-C35	997	10.0	"	1000		99.7	75-125			
Surrogate: 1-Chlorooctane	*55.5*		*mg/kg*	*50.0*		*111*	*70-130*			
Surrogate: 1-Chlorooctadecane	*36.8*		*"*	*50.0*		*73.6*	*70-130*			
Calibration Check (EF41705-CCV1)				Prepared & Analyzed: 06/17/04						
Gasoline Range Organics C6-C12	523		mg/kg	500		105	80-120			
Diesel Range Organics >C12-C35	562		"	500		112	80-120			
Total Hydrocarbon C6-C35	1090		"	1000		109	80-120			
Surrogate: 1-Chlorooctane	*53.3*		*"*	*50.0*		*107*	*70-130*			
Surrogate: 1-Chlorooctadecane	*42.9*		*"*	*50.0*		*85.8*	*70-130*			

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EF41705 - Solvent Extraction (GC)										
Calibration Check (EF41705-CCV2)				Prepared: 06/17/04 Analyzed: 06/18/04						
Gasoline Range Organics C6-C12	518		mg/kg	500		104	80-120			
Diesel Range Organics >C12-C35	570		"	500		114	80-120			
Total Hydrocarbon C6-C35	1090		"	1000		109	80-120			
Surrogate: 1-Chlorooctane	*54.5*		*"*	*50.0*		*109*	*70-130*			
Surrogate: 1-Chlorooctadecane	*46.7*		*"*	*50.0*		*93.4*	*70-130*			
Matrix Spike (EF41705-MS1)		**Source: 4F17003-01**		Prepared & Analyzed: 06/17/04						
Gasoline Range Organics C6-C12	595	10.0	mg/kg dry	538	ND	111	75-125			
Diesel Range Organics >C12-C35	657	10.0	"	538	ND	122	75-125			
Total Hydrocarbon C6-C35	1250	10.0	"	1080	ND	116	75-125			
Surrogate: 1-Chlorooctane	*62.9*		*mg/kg*	*50.0*		*126*	*70-130*			
Surrogate: 1-Chlorooctadecane	*53.2*		*"*	*50.0*		*106*	*70-130*			
Matrix Spike (EF41705-MS2)		**Source: 4F17007-02**		Prepared: 06/17/04 Analyzed: 06/18/04						
Gasoline Range Organics C6-C12	681	10.0	mg/kg dry	633	ND	108	75-125			
Diesel Range Organics >C12-C35	759	10.0	"	633	ND	120	75-125			
Total Hydrocarbon C6-C35	1440	10.0	"	1270	ND	113	75-125			
Surrogate: 1-Chlorooctane	*58.3*		*mg/kg*	*50.0*		*117*	*70-130*			
Surrogate: 1-Chlorooctadecane	*49.3*		*"*	*50.0*		*98.6*	*70-130*			
Matrix Spike Dup (EF41705-MSD1)		**Source: 4F17003-01**		Prepared & Analyzed: 06/17/04						
Gasoline Range Organics C6-C12	599	10.0	mg/kg dry	538	ND	111	75-125	0.670	20	
Diesel Range Organics >C12-C35	645	10.0	"	538	ND	120	75-125	1.84	20	
Total Hydrocarbon C6-C35	1240	10.0	"	1080	ND	115	75-125	0.803	20	
Surrogate: 1-Chlorooctane	*63.0*		*mg/kg*	*50.0*		*126*	*70-130*			
Surrogate: 1-Chlorooctadecane	*52.7*		*"*	*50.0*		*105*	*70-130*			
Matrix Spike Dup (EF41705-MSD2)		**Source: 4F17007-02**		Prepared: 06/17/04 Analyzed: 06/18/04						
Gasoline Range Organics C6-C12	677	10.0	mg/kg dry	633	ND	107	75-125	0.589	20	
Diesel Range Organics >C12-C35	777	10.0	"	633	ND	123	75-125	2.34	20	
Total Hydrocarbon C6-C35	1450	10.0	"	1270	ND	114	75-125	0.692	20	
Surrogate: 1-Chlorooctane	*60.5*		*mg/kg*	*50.0*		*121*	*70-130*			
Surrogate: 1-Chlorooctadecane	*50.7*		*"*	*50.0*		*101*	*70-130*			

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Organics by GC - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EF42112 - EPA 5030C (GC)										
Blank (EF42112-BLK1)				Prepared & Analyzed: 06/19/04						
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	*85.6*		*ug/kg*	*100*		*85.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*92.1*		"	*100*		*92.1*	*80-120*			
LCS (EF42112-BS1)				Prepared & Analyzed: 06/19/04						
Benzene	96.1		ug/kg	100		96.1	80-120			
Toluene	92.5		"	100		92.5	80-120			
Ethylbenzene	89.0		"	100		89.0	80-120			
Xylene (p/m)	180		"	200		90.0	80-120			
Xylene (o)	93.8		"	100		93.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	*86.4*		"	*100*		*86.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*101*		"	*100*		*101*	*80-120*			
Calibration Check (EF42112-CCV1)				Prepared: 06/19/04 Analyzed: 06/21/04						
Benzene	90.9		ug/kg	100		90.9	80-120			
Toluene	88.6		"	100		88.6	80-120			
Ethylbenzene	83.7		"	100		83.7	80-120			
Xylene (p/m)	168		"	200		84.0	80-120			
Xylene (o)	88.0		"	100		88.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	*87.9*		"	*100*		*87.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*87.2*		"	*100*		*87.2*	*80-120*			
Matrix Spike (EF42112-MS1)	**Source: 4F18007-23**			Prepared: 06/19/04 Analyzed: 06/21/04						
Benzene	2280		ug/kg	2500	36.8	89.7	80-120			
Toluene	2190		"	2500	36.5	86.1	80-120			
Ethylbenzene	2160		"	2500	32.5	85.1	80-120			
Xylene (p/m)	4390		"	5000	123	85.3	80-120			
Xylene (o)	2260		"	2500	21.7	89.5	80-120			
Surrogate: a,a,a-Trifluorotoluene	*84.3*		"	*100*		*84.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*97.0*		"	*100*		*97.0*	*80-120*			

Organics by GC - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EF42112 - EPA 5030C (GC)										
Matrix Spike Dup (EF42112-MSD1)	**Source: 4F18007-23**			Prepared: 06/19/04 Analyzed: 06/21/04						
Benzene	2380		ug/kg	2500	36.8	93.7	80-120	4.36	20	
Toluene	2310		"	2500	36.5	90.9	80-120	5.42	20	
Ethylbenzene	2290		"	2500	32.5	90.3	80-120	5.93	20	
Xylene (p/m)	4650		"	5000	123	90.5	80-120	5.92	20	
Xylene (o)	2420		"	2500	21.7	95.9	80-120	6.90	20	
Surrogate: a,a,a-Trifluorotoluene	*89.1*		"	*100*		*89.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*98.6*		"	*100*		*98.6*	*80-120*			

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General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EF41806 - General Preparation (Prep)										
Blank (EF41806-BLK1)				Prepared & Analyzed: 06/17/04						
% Solids	100		%							
Duplicate (EF41806-DUP1)		**Source: 4F17003-01**		Prepared & Analyzed: 06/17/04						
% Solids	93.0		%		93.0			0.00	20	

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Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 6-21-04

Raland K. Tuttle, QA Officer
Celey D. Keene, Lab Director, Org. Tech Director
Jeanne Mc Murrey, Inorg. Tech Director
James L. Hawkins, Chemist/Geologist
Sara Molina, Chemist
Sandra Biezugbe, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas, Inc.

12600 West I-20 East Phone: 915-563-1800
Odessa Texas 79763 Fax: 915-563-1713

Project Manager: Iain Olness
Company Name: Environmental Plus, Inc.
Company Address: P.O. Box 1558
City/State/Zip: Eunice, NM 88231
Telephone No: (505) 394-3481
Sampler Signature: [signature] for Eddie Harper EPI - Environmental Consultant

Project Name: DEFS G28-4 (130002)
Project #: 130002
Project Loc: UL-P Section 21 T22S R36E
PO#:

LAB ID 4F17008	SAMPLE IDENTIFICATION	Date Sampled	Time Sampled	No. of Containers	Preservative: ICE	HNO	HCl	NaOH	HSO	None	Other (Specify)	Type: Water	Sludge	Soil	Other (Specify)	Analyze For (TCLP / TOTAL): TDS/Cl/SAR/EC	TPH 418.1	TPH TX 1005/1006	TPH 8015M GRO/DRO	Metals *	Volatiles *	Semivolatiles *	BTEX 8021B/5030	Reactivity	Corrosivity	Ignitability	Chlorides	Sulfates		RUSH TAT	Standard TAT
-01	SB-2 (60')	16-Jun	15:15	1	X									X					X				X								X
-02	SB-2 (70')	16-Jun	15:42	1	X									X					X				X								X

Special Instructions: Bill Env. Plus.

FAX RESULTS TO Iain Olness ASAP [505-394-2601]

Relinquished:	Date	Time	Received by:	Date	Time
[signature]	6/17/04	0930	[signature]		
Relinquished: [signature]			Received by: [signature]	6-17-04	1240

Sample Containers Intact? Y N
Temperature Upon Request
Laboratory Comments:
Rec 4°C.

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: Env. Plus, Inc.

Date/Time: 06-17-04 @ 1315

Order #: 4F17008

Initials: JMM

Sample Receipt Checklist

Temperature of container/cooler?	(Yes)	No	4.0 C
Shipping container/cooler in good condition?	Yes	No	N/A
Custody Seals intact on shipping container/cooler?	Yes	No	~~Not present~~
Custody Seals intact on sample bottles?	Yes	No	(Not present)
Chain of custody present?	~~Yes~~	No	
Sample Instructions complete on Chain of Custody?	~~Yes~~	No	
Chain of Custody signed when relinquished and received?	~~Yes~~	No	
Chain of custody agrees with sample label(s)	~~Yes~~	No	
Container labels legible and intact?	~~Yes~~	No	
Sample Matrix and properties same as on chain of custody?	~~Yes~~	No	
Samples in proper container/bottle?	~~Yes~~	No	
Samples properly preserved?	~~Yes~~	No	
Sample bottles intact?	~~Yes~~	No	
Preservations documented on Chain of Custody?	~~Yes~~	No	
Containers documented on Chain of Custody?	~~Yes~~	No	
Sufficient sample amount for indicated test?	~~Yes~~	No	
All samples received within sufficient hold time?	~~Yes~~	No	
VOC samples have zero headspace?	Yes	No	Not Applicable

Other observations:

Variance Documentation:

Contact Person: - _____ Date/Time: _____ Contacted by: _____

Regarding:

Corrective Action Taken:

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Iain Olness

Environmental Plus, Incorporated

P.O. Box 1558

Eunice, NM 88231

Project: Duke Energy- G-28-4 (ref. #130002)

Project Number: None Given

Location: UL p, Sec 21, T22S, R36E

Lab Order Number: 5B23008

Report Date: 02/25/05

Environmental Plus, Incorporated	Project: Duke Energy- G-28-4 (ref. #130002)	Fax: 505-394-2601
P.O. Box 1558	Project Number: None Given	**Reported:**
Eunice NM, 88231	Project Manager: Iain Olness	02/25/05 11:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-1A (62')	5B23008-01	Soil	02/21/05 09:50	02/23/05 13:25
SB-1A (87')	5B23008-02	Soil	02/21/05 11:30	02/23/05 13:25
SB-1A (102')	5B23008-03	Soil	02/21/05 13:35	02/23/05 13:25
SB-1A (112')	5B23008-04	Soil	02/21/05 14:20	02/23/05 13:25
SB-1A (117')	5B23008-05	Soil	02/21/05 14:50	02/23/05 13:25
SB-1A (122)	5B23008-06	Soil	02/21/05 15:20	02/23/05 13:25

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Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB-1A (62') (5B23008-01) Soil									
Benzene	**34.9**	0.100	mg/kg dry	100	EB52408	02/23/05	02/23/05	EPA 8021B	
Toluene	**110**	0.100	"	"	"	"	"	"	
Ethylbenzene	**35.7**	0.100	"	"	"	"	"	"	
Xylene (p/m)	**119**	0.100	"	"	"	"	"	"	
Xylene (o)	**30.6**	0.100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*929 %*	*80-120*		"	"	"	"	*S-04*
Surrogate: 4-Bromofluorobenzene		*90.4 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	**13200**	50.0	mg/kg dry	5	EB52307	02/23/05	02/24/05	EPA 8015M	
Diesel Range Organics >C12-C35	**12200**	50.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**25400**	50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*59.4 %*	*70-130*		"	"	"	"	*S-06*
Surrogate: 1-Chlorooctadecane		*18.7 %*	*70-130*		"	"	"	"	*S-06*
SB-1A (87') (5B23008-02) Soil									
Benzene	**22.8**	0.100	mg/kg dry	100	EB52408	02/23/05	02/23/05	EPA 8021B	
Toluene	**103**	0.100	"	"	"	"	"	"	
Ethylbenzene	**38.1**	0.100	"	"	"	"	"	"	
Xylene (p/m)	**129**	0.100	"	"	"	"	"	"	
Xylene (o)	**37.9**	0.100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*815 %*	*80-120*		"	"	"	"	*S-04*
Surrogate: 4-Bromofluorobenzene		*90.9 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	**10800**	50.0	mg/kg dry	5	EB52307	02/23/05	02/24/05	EPA 8015M	
Diesel Range Organics >C12-C35	**10000**	50.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**20800**	50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*47.2 %*	*70-130*		"	"	"	"	*S-06*
Surrogate: 1-Chlorooctadecane		*16.3 %*	*70-130*		"	"	"	"	*S-06*
SB-1A (102') (5B23008-03) Soil									
Benzene	**12.9**	0.100	mg/kg dry	100	EB52408	02/23/05	02/23/05	EPA 8021B	
Toluene	**66.7**	0.100	"	"	"	"	"	"	
Ethylbenzene	**28.0**	0.100	"	"	"	"	"	"	
Xylene (p/m)	**97.7**	0.100	"	"	"	"	"	"	
Xylene (o)	**27.5**	0.100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*591 %*	*80-120*		"	"	"	"	*S-04*
Surrogate: 4-Bromofluorobenzene		*119 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	**7150**	50.0	mg/kg dry	5	EB52307	02/23/05	02/24/05	EPA 8015M	
Diesel Range Organics >C12-C35	**8550**	50.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**15700**	50.0	"	"	"	"	"	"	

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Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB-1A (102') (5B23008-03) Soil									
Surrogate: 1-Chlorooctane		*39.6 %*	*70-130*		*EB52307*	*02/23/05*	*02/24/05*	*EPA 8015M*	*S-06*
Surrogate: 1-Chlorooctadecane		*14.9 %*	*70-130*		"	"	"	"	*S-06*
SB-1A (112') (5B23008-04) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EB52408	02/23/05	02/24/05	EPA 8021B	
Toluene	**0.0353**	0.0250	"	"	"	"	"	"	
Ethylbenzene	**0.0549**	0.0250	"	"	"	"	"	"	
Xylene (p/m)	**0.234**	0.0250	"	"	"	"	"	"	
Xylene (o)	**0.0741**	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*84.3 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	**33.6**	10.0	mg/kg dry	1	EB52307	02/23/05	02/24/05	EPA 8015M	
Diesel Range Organics >C12-C35	**188**	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**222**	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*78.0 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*81.0 %*	*70-130*		"	"	"	"	
SB-1A (117') (5B23008-05) Soil									
Benzene	**ND**	0.0250	mg/kg dry	25	EB52408	02/23/05	02/23/05	EPA 8021B	
Toluene	**0.188**	0.0250	"	"	"	"	"	"	
Ethylbenzene	**0.236**	0.0250	"	"	"	"	"	"	
Xylene (p/m)	**1.01**	0.0250	"	"	"	"	"	"	
Xylene (o)	**0.358**	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*87.1 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	**95.3**	10.0	mg/kg dry	1	EB52307	02/23/05	02/24/05	EPA 8015M	
Diesel Range Organics >C12-C35	**175**	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**270**	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*97.0 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*86.2 %*	*70-130*		"	"	"	"	

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Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB-1A (122) (5B23008-06) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EB52408	02/23/05	02/23/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*80.4 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.9 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EB52307	02/23/05	02/24/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*89.0 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*75.4 %*	*70-130*		"	"	"	"	

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB-1A (62') (5B23008-01) Soil									
Chloride	**37.9**	5.00	mg/kg	10	EB52503	02/24/05	02/24/05	EPA 300.0	
% Moisture	**5.1**	0.1	%	1	EB52401	02/23/05	02/24/05	% calculation	
SB-1A (87') (5B23008-02) Soil									
Chloride	**22.4**	5.00	mg/kg	10	EB52503	02/24/05	02/24/05	EPA 300.0	
% Moisture	**4.2**	0.1	%	1	EB52401	02/23/05	02/24/05	% calculation	
SB-1A (102') (5B23008-03) Soil									
Chloride	**15.1**	5.00	mg/kg	10	EB52503	02/24/05	02/24/05	EPA 300.0	
% Moisture	**2.5**	0.1	%	1	EB52401	02/23/05	02/24/05	% calculation	
SB-1A (112') (5B23008-04) Soil									
Chloride	**15.0**	5.00	mg/kg	10	EB52503	02/24/05	02/24/05	EPA 300.0	
% Moisture	**1.9**	0.1	%	1	EB52401	02/23/05	02/24/05	% calculation	
SB-1A (117') (5B23008-05) Soil									
Chloride	**18.5**	5.00	mg/kg	10	EB52503	02/24/05	02/24/05	EPA 300.0	
% Moisture	**1.5**	0.1	%	1	EB52401	02/23/05	02/24/05	% calculation	
SB-1A (122) (5B23008-06) Soil									
Chloride	**15.8**	5.00	mg/kg	10	EB52503	02/24/05	02/24/05	EPA 300.0	
% Moisture	**1.6**	0.1	%	1	EB52401	02/23/05	02/24/05	% calculation	

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Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB52307 - Solvent Extraction (GC)										
Blank (EB52307-BLK1)				Prepared: 02/23/05 Analyzed: 02/24/05						
Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	*44.9*		*mg/kg*	*50.0*		*89.8*	*70-130*			
Surrogate: 1-Chlorooctadecane	*41.1*		*"*	*50.0*		*82.2*	*70-130*			
LCS (EB52307-BS1)				Prepared: 02/23/05 Analyzed: 02/24/05						
Gasoline Range Organics C6-C12	453	10.0	mg/kg wet	500		90.6	75-125			
Diesel Range Organics >C12-C35	460	10.0	"	500		92.0	75-125			
Total Hydrocarbon C6-C35	913	10.0	"	1000		91.3	75-125			
Surrogate: 1-Chlorooctane	*46.7*		*mg/kg*	*50.0*		*93.4*	*70-130*			
Surrogate: 1-Chlorooctadecane	*36.7*		*"*	*50.0*		*73.4*	*70-130*			
Calibration Check (EB52307-CCV1)				Prepared: 02/23/05 Analyzed: 02/24/05						
Gasoline Range Organics C6-C12	509		mg/kg	500		102	80-120			
Diesel Range Organics >C12-C35	565		"	500		113	80-120			
Total Hydrocarbon C6-C35	1070		"	1000		107	80-120			
Surrogate: 1-Chlorooctane	*48.6*		*"*	*50.0*		*97.2*	*70-130*			
Surrogate: 1-Chlorooctadecane	*47.8*		*"*	*50.0*		*95.6*	*70-130*			
Matrix Spike (EB52307-MS1)	**Source: 5B23007-03**			Prepared: 02/23/05 Analyzed: 02/24/05						
Gasoline Range Organics C6-C12	530	10.0	mg/kg dry	602	ND	88.0	75-125			
Diesel Range Organics >C12-C35	579	10.0	"	602	ND	96.2	75-125			
Total Hydrocarbon C6-C35	1110	10.0	"	1200	ND	92.5	75-125			
Surrogate: 1-Chlorooctane	*37.3*		*mg/kg*	*50.0*		*74.6*	*70-130*			
Surrogate: 1-Chlorooctadecane	*39.3*		*"*	*50.0*		*78.6*	*70-130*			
Matrix Spike Dup (EB52307-MSD1)	**Source: 5B23007-03**			Prepared: 02/23/05 Analyzed: 02/24/05						
Gasoline Range Organics C6-C12	516	10.0	mg/kg dry	602	ND	85.7	75-125	2.68	20	
Diesel Range Organics >C12-C35	600	10.0	"	602	ND	99.7	75-125	3.56	20	
Total Hydrocarbon C6-C35	1120	10.0	"	1200	ND	93.3	75-125	0.897	20	
Surrogate: 1-Chlorooctane	*41.4*		*mg/kg*	*50.0*		*82.8*	*70-130*			
Surrogate: 1-Chlorooctadecane	*38.0*		*"*	*50.0*		*76.0*	*70-130*			

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Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB52408 - EPA 5030C (GC)										
Blank (EB52408-BLK1)				Prepared & Analyzed: 02/23/05						
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	*84.0*		*ug/kg*	*100*		*84.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*97.1*		*"*	*100*		*97.1*	*80-120*			
LCS (EB52408-BS1)				Prepared & Analyzed: 02/23/05						
Benzene	91.7		ug/kg	100		91.7	80-120			
Toluene	96.7		"	100		96.7	80-120			
Ethylbenzene	105		"	100		105	80-120			
Xylene (p/m)	237		"	200		118	80-120			
Xylene (o)	119		"	100		119	80-120			
Surrogate: a,a,a-Trifluorotoluene	*89.5*		*"*	*100*		*89.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*104*		*"*	*100*		*104*	*80-120*			
Calibration Check (EB52408-CCV1)				Prepared: 02/23/05 Analyzed: 02/24/05						
Benzene	95.1		ug/kg	100		95.1	80-120			
Toluene	98.1		"	100		98.1	80-120			
Ethylbenzene	100		"	100		100	80-120			
Xylene (p/m)	229		"	200		114	80-120			
Xylene (o)	117		"	100		117	80-120			
Surrogate: a,a,a-Trifluorotoluene	*90.3*		*"*	*100*		*90.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*99.0*		*"*	*100*		*99.0*	*80-120*			
Matrix Spike (EB52408-MS1)	**Source: 5B23009-03**			Prepared & Analyzed: 02/23/05						
Benzene	101		ug/kg	100	ND	101	80-120			
Toluene	104		"	100	ND	104	80-120			
Ethylbenzene	104		"	100	ND	104	80-120			
Xylene (p/m)	236		"	200	ND	118	80-120			
Xylene (o)	116		"	100	ND	116	80-120			
Surrogate: a,a,a-Trifluorotoluene	*93.7*		*"*	*100*		*93.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*113*		*"*	*100*		*113*	*80-120*			

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Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB52408 - EPA 5030C (GC)										
Matrix Spike Dup (EB52408-MSD1)	**Source: 5B23009-03**		Prepared & Analyzed: 02/23/05							
Benzene	90.4		ug/kg	100	ND	90.4	80-120	11.1	20	
Toluene	94.5		"	100	ND	94.5	80-120	9.57	20	
Ethylbenzene	102		"	100	ND	102	80-120	1.94	20	
Xylene (p/m)	235		"	200	ND	118	80-120	0.00	20	
Xylene (o)	117		"	100	ND	117	80-120	0.858	20	
Surrogate: a,a,a-Trifluorotoluene	*82.4*		"	*100*		*82.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*114*		"	*100*		*114*	*80-120*			

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General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB52401 - General Preparation (Prep)										
Blank (EB52401-BLK1)				Prepared: 02/23/05 Analyzed: 02/24/05						
% Moisture	ND	0.1	%							
Duplicate (EB52401-DUP1)		**Source: 5B23001-01**		Prepared: 02/23/05 Analyzed: 02/24/05						
% Moisture	1.0	0.1	%		1.0			0.00	20	
Batch EB52503 - Water Extraction										
Blank (EB52503-BLK1)				Prepared & Analyzed: 02/24/05						
Chloride	ND	0.500	mg/kg							
Blank (EB52503-BLK2)				Prepared & Analyzed: 02/24/05						
Chloride	ND	0.500	mg/kg							
LCS (EB52503-BS1)				Prepared & Analyzed: 02/24/05						
Chloride	10.3		mg/L	10.0		103	80-120			
LCS (EB52503-BS2)				Prepared & Analyzed: 02/24/05						
Chloride	10.4		mg/L	10.0		104	80-120			
Calibration Check (EB52503-CCV1)				Prepared & Analyzed: 02/24/05						
Chloride	10.4		mg/L	10.0		104	80-120			
Calibration Check (EB52503-CCV2)				Prepared & Analyzed: 02/24/05						
Chloride	10.4		mg/L	10.0		104	80-120			
Duplicate (EB52503-DUP1)		**Source: 5B22006-01**		Prepared & Analyzed: 02/24/05						
Chloride	35.3	5.00	mg/kg		42.2			17.8	20	

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General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB52503 - Water Extraction										
Duplicate (EB52503-DUP2)		**Source: 5B24002-02**		Prepared & Analyzed: 02/24/05						
Chloride	17.2	5.00	mg/kg		17.1			0.583	20	

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 2-25-05

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
James L. Hawkins, Chemist/Geologist
Sandra Sanchez, Lab Tech.

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If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas, Inc.

Chain of Custody Form

12600 West I-20 East, Odessa Texas 79763
432-563-1800 FAX: 432-563-1713

Company Name:	Environmental Plus, Inc.
EPI Project Manager:	Iain Olness
Mailing Address:	P.O. BOX 1558
City, State, Zip:	Eunice New Mexico 88231
EPI Phone#/Fax#:	505-394-3481 / 505-394-2601
Client Company:	Duke Energy Field Services
Facility Name:	G-28-4 (Ref. #130002)
Project Location:	UL P, Sec 21, T22S, R36E
EPI Sampler Name:	Roger Boone

Bill To

Attn: Iain Olness
PO Box 1558,
Eunice, NM 88231

ANALYSIS REQUEST

LAB I.D. 58230		SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl^-)	SULFATES ($SO_4^=$)	pH	TCLP	OTHER >>>	PAH				
-01	1	SB-1A (62')	G	1			X				X	X		21-Feb	9:50	X	X	X									
-02	2	SB-1A (87')	G	1			X				X	X		21-Feb	11:30	X	X	X									
-03	3	SB-1A (102')	G	1			X				X	X		21-Feb	13:35	X	X	X									
-04	4	SB-1A (112')	G	1			X				X	X		21-Feb	14:20	X	X	X									
-05	5	SB-1A (117')	G	1			X				X	X		21-Feb	14:50	X	X	X									
-06	6	SB-1A (122')	G	1			X				X	X		21-Feb	15:20	X	X	X									
	7																									
	8																									
	9																									
	10																									

Sampler Relinquished: Iain Olness for Roger Boone	Date 2/23/05 Time 1035	Received By:	E-mail results to: iolness@hotmail.com
Relinquished by:	Date 2-23-05 Time 1325	Received By: (lab staff)	REMARKS: 3.5°C 4oz jar
Delivered by:	3.5°C Sample Cool & Intact Yes / No	Checked By:	

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

Client: Environ. Plus, Inc.

Date/Time: 2/23/05 1:37

Order #: SB23008

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	3.5 C
Shipping container/cooler in good condition?	Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	Not present
Custody Seals intact on sample bottles?	Yes	No	Not present
Chain of custody present?	Yes	No	
Sample Instructions complete on Chain of Custody?	Yes	No	
Chain of Custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample label(s)	Yes	No	
Container labels legible and intact?	Yes	No	
Sample Matrix and properties same as on chain of custody?	Yes	No	
Samples in proper container/bottle?	Yes	No	
Samples properly preserved?	Yes	No	
Sample bottles intact?	Yes	No	
Preservations documented on Chain of Custody?	Yes	No	
Containers documented on Chain of Custody?	Yes	No	
Sufficient sample amount for indicated test?	Yes	No	
All samples received within sufficient hold time?	Yes	No	
VOC samples have zero headspace?	Yes	No	Not Applicable

Other observations:

_____

_____

_____

Variance Documentation:

Contact Person: -_____ Date/Time: _____ Contacted by: _____

Regarding:

_____

_____

_____

Corrective Action Taken:

_____

_____

_____

_____

_____

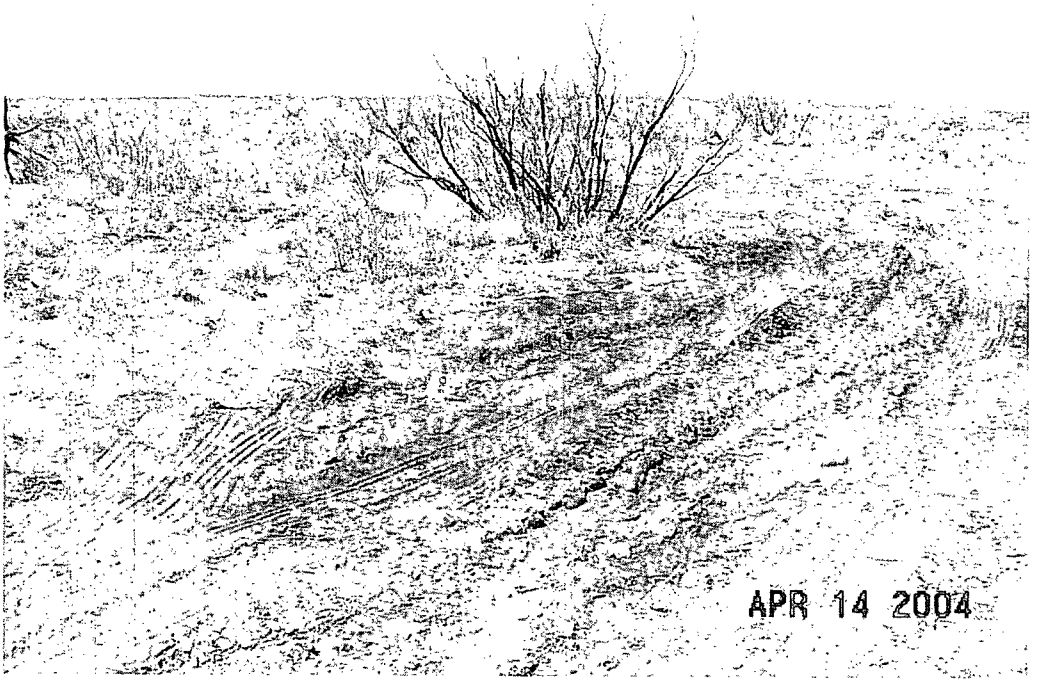
_____

_____

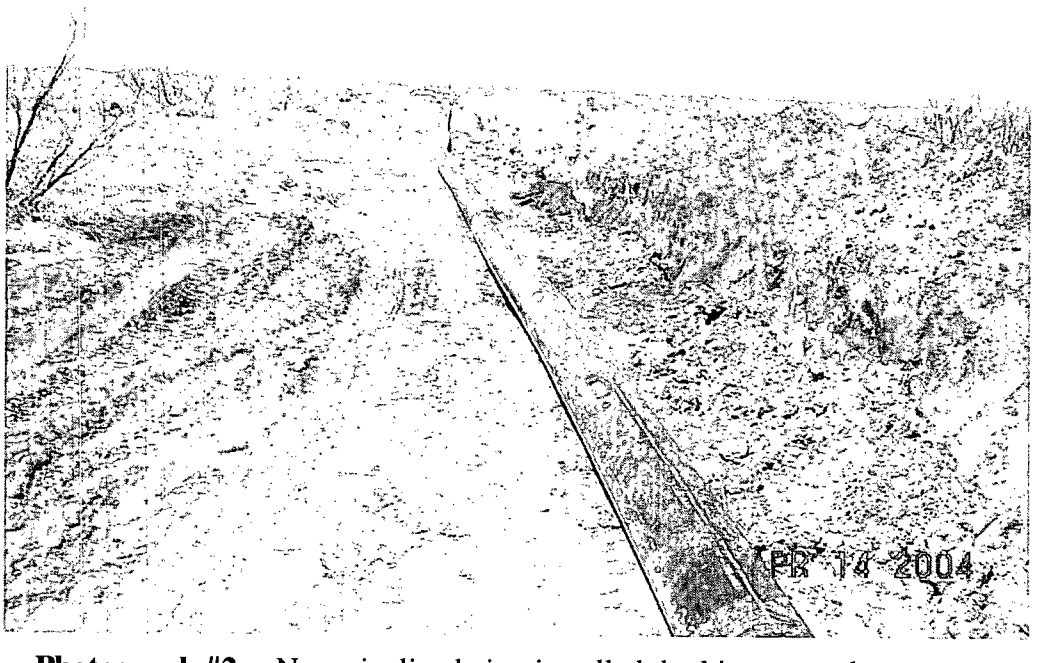
_____

APPENDIX II

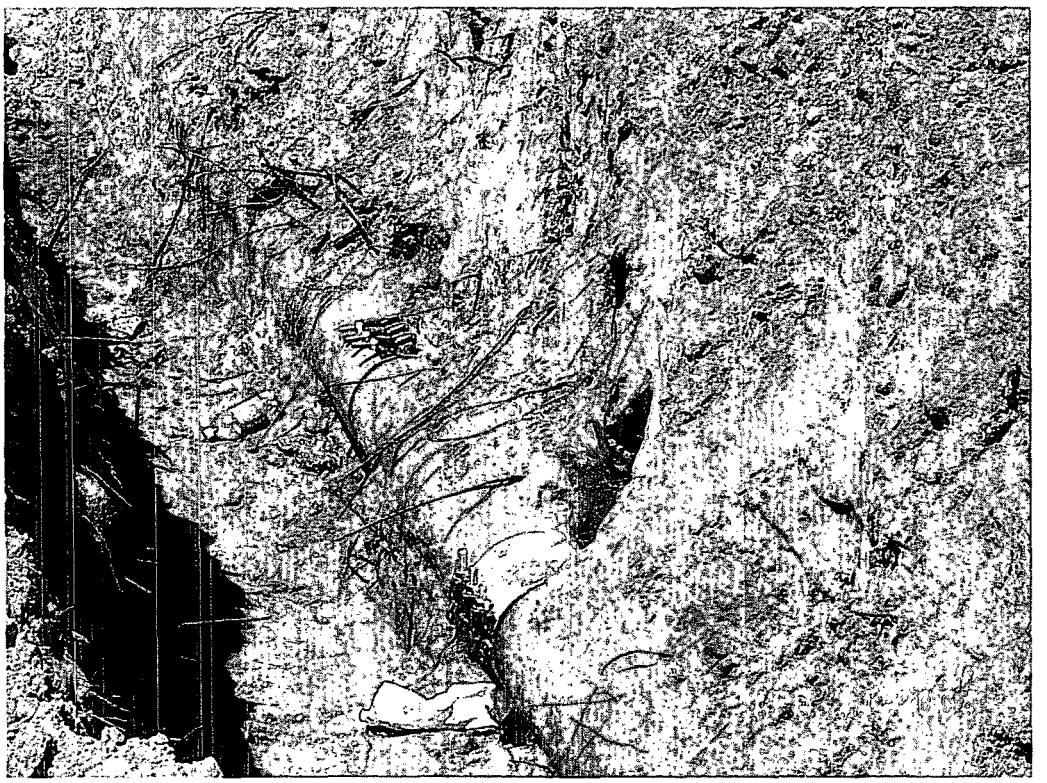
SITE PHOTOGRAPHS



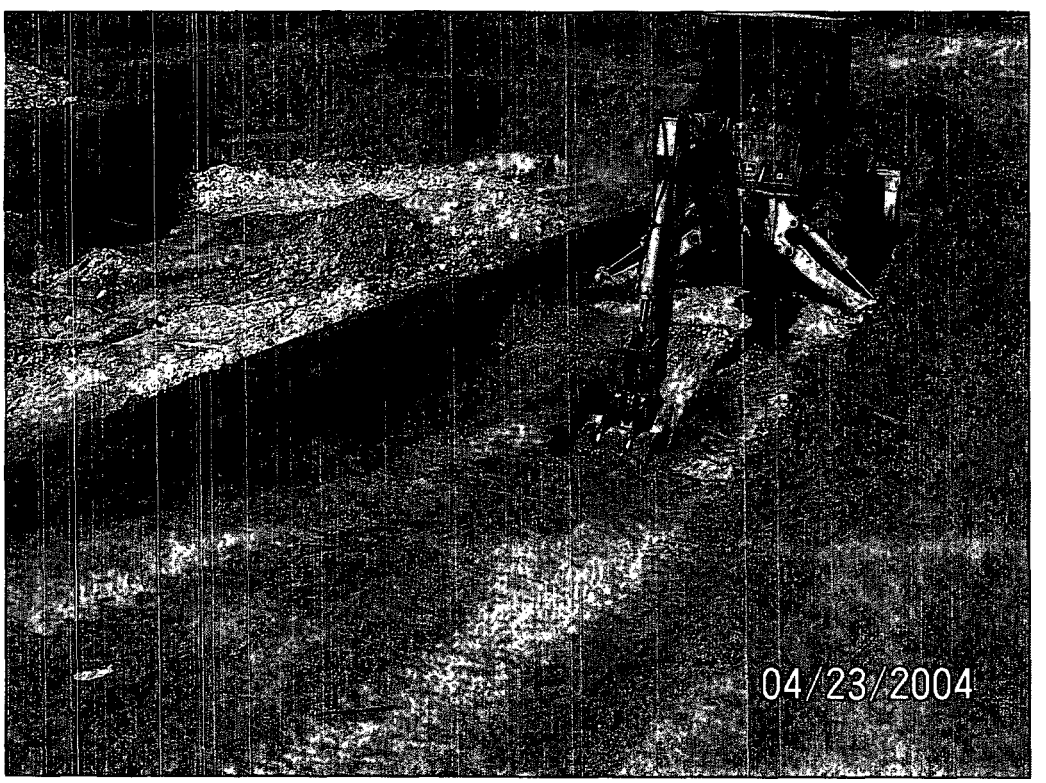
Photograph #1: Stained soil indicating release area, looking westerly.



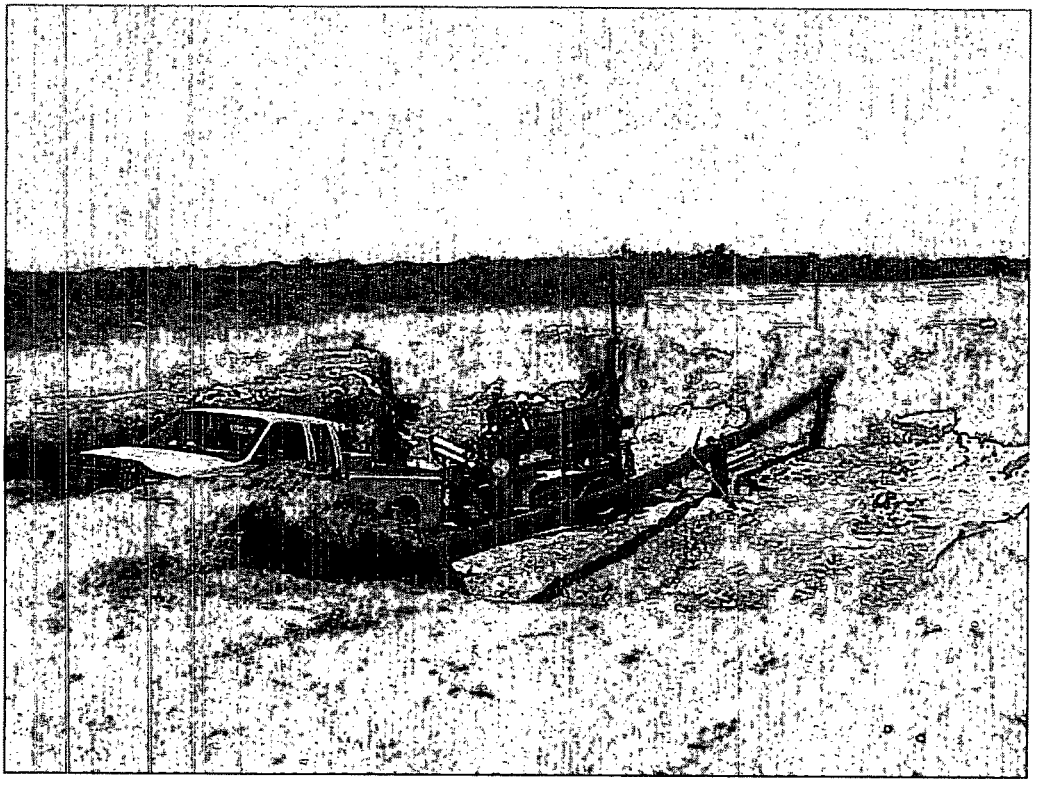
Photograph #2: New pipeline being installed, looking westerly.



Photograph #3: Original line that was replaced, showing numerous clamps, looking westerly.



Photograph #4: Excavation and test trench, looking westerly.



Photograph #5: Advancement of original soil boring, looking southwesterly across the excavation.

Photograph #6: Advancement of original soil boring, looking southerly.

APPENDIX III

RISK / EXPOSURE ASSESSMENT INPUT DATA

FATE AND TRANSPORT MODEL INPUT SUMMARY FILE

Model Description: Unsaturated zone model linked with saturated zone model

Title: DEFS G-28-4: No Barrier

Simulation time (years): 100

Vadose Zone Source Parameters

Thickness of contamination (m)-------- 34.
Depth to top of contamination (m)----- 2.1
Length of source (m)---------- 13.
Width of source (m)---------- 8.0

Unsaturated Zone Properties

Total Porosity in vadose zone (cm^3/cm^3)------ 0.30
Residual water content (cm^3/cm^3)---------- 5.00E-02
Fraction organic carbon (g oc/g soil) ---------- 2.00E-03
Soil bulk density (g/cm^3) ---------- 1.7
Infiltration Rate (cm/yr) ---------- 36.
Saturated conductivity (m/d)---------- 5.0
Van Genuchten's N ---------- 2.7
Thickness of vadose zone (m) ---------- 49.

Aquifer Properties

Effective porosity (cm^3/cm^3)---------- 0.30
Fraction organic carbon (g oc/g soil) -- 2.00E-03
Hydraulic conductivity (m/d) ---------- 5.0
Soil bulk density (g/cm^3) ---------- 1.7
Hydraulic gradient (m/m) ---------- 1.00E-03
***Longitudinal dispersivity (m) ------ code calculated
***Transverse dispersivity (m)--------- code calculated
***Vertical dispersivity (m) ---------- code calculated

Receptor Well Location

Distance downgradient (m) ---------- 0.10
Distance cross-gradient (m)---------- 0.10
Depth to top of well screen (m)--------- 49.
Depth to bottom of well screen(m)----- 55.
Number of points used to calc. conc. -- 5

TPH Data for Unsaturated Zone Source

Concentration of TPH in soil (mg/kg)---------- 5.86E+04
Molecular weight of TPH (g/mol) ---------- 1.00E+02

CHEMICAL DATA FOR: TPH Aromatic C8-10

Diffusion coefficient in air (cm^2/s)----------0.10
Diffusion coefficient in water (cm^2/s) ----------1.00E-05
Solubility (mg/l) ----------65.
Vapor pressure (mmHg)----------4.8
KOC (L/kg)----------1.60E+03
Henry's Law coefficient (-)----------0.49
Molecular weight (g/mol) ----------1.20E+02
Degradation rate, saturated zone (1/d)----------0.0
Degradation rate, vadose zone (1/d) ----------0.0

Source conc. for unsaturated zone model (mg/kg) -------2.34E+04

CHEMICAL DATA FOR: TPH Aromatic C21-35

Diffusion coefficient in air (cm^2/s)----------0.10
Diffusion coefficient in water (cm^2/s) ----------1.00E-05
Solubility (mg/l) ----------6.60E-03
Vapor pressure (mmHg)----------3.30E-06
KOC (L/kg)----------1.30E+05
Henry's Law coefficient (-)----------6.80E-04
Molecular weight (g/mol) ---------- 2.40E+02
Degradation rate, saturated zone (1/d)----------0.0
Degradation rate, vadose zone (1/d) ----------0.0

Source conc. for unsaturated zone model (mg/kg) -------3.52E+04

CHEMICAL DATA FOR: Benzene

Diffusion coefficient in air (cm^2/s)----------8.80E-02
Diffusion coefficient in water (cm^2/s) ----------9.80E-06
Solubility (mg/l) ----------1.75E+03
Vapor pressure (mmHg)----------95.
KOC (L/kg)----------59.
Henry's Law coefficient (-)----------0.23
Molecular weight (g/mol) ----------78.
Degradation rate, saturated zone (1/d)----------9.60E-04
Degradation rate, vadose zone (1/d) ----------9.60E-04

Source conc. for unsaturated zone model (mg/kg) -------39.

CHEMICAL DATA FOR: Ethylbenzene

Diffusion coefficient in air (cm^2/s)----------7.50E-02
Diffusion coefficient in water (cm^2/s)----------7.80E-06
Solubility (mg/l)----------1.69E+02
Vapor pressure (mmHg)----------9.6
KOC (L/kg)----------3.60E+02
Henry's Law coefficient (-)----------0.32
Molecular weight (g/mol)----------1.06E+02
Degradation rate, saturated zone (1/d)----------3.00E-03
Degradation rate, vadose zone (1/d)----------3.00E-03

Source conc. for unsaturated zone model (mg/kg) -------1.59E+02

CHEMICAL DATA FOR: Toluene

Diffusion coefficient in air (cm^2/s)----------8.70E-02
Diffusion coefficient in water (cm^2/s)---------- 8.60E-06
Solubility (mg/l)----------5.26E+02
Vapor pressure (mmHg)----------28.
KOC (L/kg)----------1.80E+02
Henry's Law coefficient (-)----------0.27
Molecular weight (g/mol)----------92.
Degradation rate, saturated zone (1/d)----------2.50E-02
Degradation rate, vadose zone (1/d)----------2.50E-02

Source conc. for unsaturated zone model (mg/kg) -------3.21E+02

CHEMICAL DATA FOR: Xylenes

Diffusion coefficient in air (cm^2/s)----------7.20E-02
Diffusion coefficient in water (cm^2/s)----------8.50E-06
Solubility (mg/l)----------1.98E+02
Vapor pressure (mmHg)----------8.8
KOC (L/kg)----------2.40E+02
Henry's Law coefficient (-)----------0.29
Molecular weight (g/mol)----------1.06E+02
Degradation rate, saturated zone (1/d)----------1.90E-03
Degradation rate, vadose zone (1/d)----------1.90E-03

Source conc. for unsaturated zone model (mg/kg) -------7.26E+02

FATE AND TRANSPORT MODEL INPUT SUMMARY FILE

Model Description: Unsaturated zone model linked with saturated zone model

Title: DEFS G-28-4: Barrier

Simulation time (years): 100

Vadose Zone Source Parameters

Thickness of contamination (m)-------- 34.
Depth to top of contamination (m)----- 2.1
Length of source (m)---------- 13.
Width of source (m)---------- 8.0

Unsaturated Zone Properties

Total Porosity in vadose zone (cm^3/cm^3)------ 0.30
Residual water content (cm^3/cm^3)---------- 5.00E-02
Fraction organic carbon (g oc/g soil) ---------- 2.00E-03
Soil bulk density (g/cm^3) ---------- 1.7
Infiltration Rate (cm/yr) ---------- 1.00E-02
Saturated conductivity (m/d)---------- 5.0
Van Genuchten's N ---------- 2.7
Thickness of vadose zone (m) ---------- 49.

Lens Parameters

Thickness of lens (m) ---------- 0.30
Total porosity in lens (cm^3/cm^3)---------- 0.45
Residual water content--lens (cm^3/cm^3)-------- 0.17
Saturated conductivity (m/d)---------- 1.50E-02
Van Genuchten N in lens---------- 1.1

Aquifer Properties

Effective porosity (cm3/cm3)----------0.30
Fraction organic carbon (g oc/g soil) -------2.00E-03
Hydraulic conductivity (m/d) ----------5.0
Soil bulk density (g/cm3)----------1.7
Hydraulic gradient (m/m) ----------1.00E-03
***Longitudinal dispersivity (m) ----------code calculated
***Transverse dispersivity (m)----------code calculated
***Vertical dispersivity (m) ----------code calculated

Receptor Well Location

Distance downgradient (m) ----------0.10
Distance cross-gradient (m)----------0.10
Depth to top of well screen (m)----------49.
Depth to bottom of well screen(m)----------55.
Number of points used to calc. conc. -------5

TPH Data for Unsaturated Zone Source

Concentration of TPH in soil (mg/kg)------5.86E+04
Molecular weight of TPH (g/mol) ----------1.00E+02

CHEMICAL DATA FOR: Benzene

Diffusion coefficient in air (cm2/s) ----------8.80E-02
Diffusion coefficient in water (cm2/s)----------9.80E-06
Solubility (mg/l) ----------1.75E+03
Vapor pressure (mmHg)----------95.
KOC (L/kg)----------59.
Henry's Law coefficient (-)----------0.23
Molecular weight (g/mol) ----------78.
Degradation rate, saturated zone (1/d)----------9.60E-04
Degradation rate, vadose zone (1/d) ----------9.60E-04

Source conc. for unsaturated zone model (mg/kg)--------39.

CHEMICAL DATA FOR: Ethylbenzene

Diffusion coefficient in air (cm2/s) ----------7.50E-02
Diffusion coefficient in water (cm2/s)----------7.80E-06
Solubility (mg/l) ----------1.69E+02
Vapor pressure (mmHg)----------9.6
KOC (L/kg)----------3.60E+02
Henry's Law coefficient (-)----------0.32
Molecular weight (g/mol) ----------1.06E+02
Degradation rate, saturated zone (1/d)----------3.00E-03
Degradation rate, vadose zone (1/d) ----------3.00E-03

Source conc. for unsaturated zone model (mg/kg)--------1.59E+02

CHEMICAL DATA FOR: Toluene

Diffusion coefficient in air (cm2/s) ----------8.70E-02
Diffusion coefficient in water (cm2/s)----------8.60E-06
Solubility (mg/l) ----------5.26E+02
Vapor pressure (mmHg)----------28.
KOC (L/kg)----------1.80E+02
Henry's Law coefficient (-)----------0.27
Molecular weight (g/mol) ----------92.
Degradation rate, saturated zone (1/d)----------2.50E-02
Degradation rate, vadose zone (1/d) ----------2.50E-02

Source conc. for unsaturated zone model (mg/kg)--------3.21E+02

CHEMICAL DATA FOR: TPH Aromatic C10-12

Diffusion coefficient in air (cm2/s) ----------0.10
Diffusion coefficient in water (cm2/s)----------1.00E-05
Solubility (mg/l) ----------25.
Vapor pressure (mmHg)----------0.48
KOC (L/kg)----------2.50E+03
Henry's Law coefficient (-)----------0.14
Molecular weight (g/mol) ----------1.30E+02
Degradation rate, saturated zone (1/d)----------0.0
Degradation rate, vadose zone (1/d) ----------0.0

Source conc. for unsaturated zone model (mg/kg)--------2.34E+04

CHEMICAL DATA FOR: TPH Aromatic C21-35

Diffusion coefficient in air (cm2/s) ----------0.10
Diffusion coefficient in water (cm2/s)----------1.00E-05
Solubility (mg/l) ----------6.60E-03
Vapor pressure (mmHg)----------3.30E-06
KOC (L/kg)----------1.30E+05
Henry's Law coefficient (-)----------6.80E-04
Molecular weight (g/mol) ----------2.40E+02
Degradation rate, saturated zone (1/d)----------0.0
Degradation rate, vadose zone (1/d) ----------0.0

Source conc. for unsaturated zone model (mg/kg)--------3.52E+04

CHEMICAL DATA FOR: Xylenes

Diffusion coefficient in air (cm2/s)	7.20E-02
Diffusion coefficient in water (cm2/s)	8.50E-06
Solubility (mg/l)	1.98E+02
Vapor pressure (mmHg)	8.8
KOC (L/kg)	2.40E+02
Henry's Law coefficient (-)	0.29
Molecular weight (g/mol)	1.06E+02
Degradation rate, saturated zone (1/d)	1.90E-03
Degradation rate, vadose zone (1/d)	1.90E-03
Source conc. for unsaturated zone model (mg/kg)	7.26E+02

APPENDIX IV

SITE INFORMATION AND METRICS FORM

AND

INITIAL C-141

Duke Energy Field Services Site Information and Metrics	**Incident Date:** 14 April 2004	**NMOCD Notified:** 03 May 2004 @ 0730 hrs

Site: G28-4	**Assigned Site Reference #:** 130002
Company: Duke Energy Field Services	
Street Address:	
Mailing Address: 11525 West Carlsbad Highway	
City, State, Zip: Hobbs, New Mexico 88240	
Representative: Paul Mulkey	
Representative Telephone: (505) 397-5716	
Telephone:	
Fluid volume released (bbls): unknown	**Recovered (bbls):** 0 bbls
>25 bbls: Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)	
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)	
Leak, Spill, or Pit (LSP) Name: G28-4	
Source of contamination: 8" Steel Pipeline	
Land Owner, i.e., BLM, ST, Fee, Other: Miller Deck Estate	
LSP Dimensions: 47' x 27'	
LSP Area: 1,205 sqft ft^2	
Location of Reference Point (RP):	
Location distance and direction from RP:	
Latitude: N 32° 22' 23.06"	
Longitude: W 103° 15' 52.09"	
Elevation above mean sea level: 3,510' amsl	
Feet from South Section Line:	
Feet from West Section Line:	
Location- Unit or ¼¼: SE¼ of the SE¼	Unit Letter: P
Location- Section: 21	
Location- Township: T22S	
Location- Range: R36E	
Surface water body within 1000 ' radius of site: none	
Surface water body within 1000 ' radius of site: none	
Domestic water wells within 1000' radius of site: none	
Domestic water wells within 1000' radius of site: none	
Agricultural water wells within 1000' radius of site: none	
Agricultural water wells within 1000' radius of site: none	
Public water supply wells within 1000' radius of site: none	
Public water supply wells within 1000' radius of site: none	
Depth from land surface to ground water (DG): 160 bgs	
Depth of contamination (DC): Unknown	
Depth to ground water (DG – DC = DtGW): Unknown, however, it is assumed to be greater than 100 feet.	

1. Ground Water	2. Wellhead Protection Area	3. Distance to Surface Water Body
If Depth to GW <50 feet: *20 points*	If <1000' from water source, or;<200' from private domestic water source: *20 points*	<200 horizontal feet: *20 points*
If Depth to GW 50 to 99 feet: *10 points*		200-100 horizontal feet: *10 points*
If Depth to GW >100 feet: *0 points*	If >1000' from water source, or; >200' from private domestic water source: *0 points*	>1000 horizontal feet: *0 points*
Ground water Score = 0	*Wellhead Protection Area Score= 0*	*Surface Water Score= 0*
Site Rank (1+2+3) = 0		

Total Site Ranking Score and Acceptable Concentrations

Parameter	>19	10-19	0-9
Benzene[1]	10 ppm	10 ppm	10 ppm
BTEX[1]	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1000 ppm	5000 ppm

[1]100 ppm field VOC headspace measurement may be substituted for lab analysis

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised March 17, 1999

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Duke Energy Field Services	**Contact** Paul Mulkey
Address 11525 West Carlsbad Highway Hobbs, New Mexico 88240	**Telephone No.** (505) 397-5716
Facility Name G28-4	**Facility Type** 8" Steel Pipeline

Surface Owner	**Mineral Owner**	**Lease No.**
Miller Deck Estate		

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the North/South Line	Feet from the East/West Line	County: Lea Lat. N 32° 22' 23.06" Lon. W 103° 15' 52.09"
P	21	T22S	R36E			

NATURE OF RELEASE

Type of Release Natural Gas Pipeline Fluids	**Volume of Release** unknown barrels	**Volume Recovered** 0 barrels
Source of Release 8" Steel Pipeline	**Date and Hour of Occurrence** Duke Energy Field Services	**Date and Hour of Discovery** 04-14-04 @ 1600 hrs
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	**If YES, To Whom?** Larry Johnson	
By Whom? Iain Olness, EPI	**Date and Hour** 3 May 2004 @ 0730 hrs	
Was a Watercourse Reached? ☐ Yes ☒ No	**If YES, Volume Impacting the Watercourse.** NA	

If a Watercourse was Impacted, Describe Fully.*
NA

Describe Cause of Problem and Remedial Action Taken.*
Steel line began leaking due to internal corrosion. Pipe replaced and line tested.

Describe Area Affected and Cleanup Action Taken.*
Approximately 1,205 square feet of pipeline right-of-way and pasture land were affected by the release. Soil contaminated above the NMOCD Remedial Guidelines will be disposed of at an approved facility or remediated on site. Remedial Goals: TPH 8015m = 5,000 mg/Kg, Benzene = 10 mg/Kg, and BTEX, i.e., the mass sum of Benzene, Ethyl Benzene, Toluene, and Xylenes = 50 mg/Kg.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	**OIL CONSERVATION DIVISION**	
Printed Name: Paul Mulkey **E-mail Address:** pdmulkey@duke-energy.com	**Approved by District Supervisor:**	
Title: Maintenance Construction Supervisor	**Approval Date:**	**Expiration Date:**
Date: 3 May 2004 **Phone:** (505) 397-5716	**Conditions of Approval:**	**Attached** ☐

* Attach Additional Sheets If Necessary