



SITE INVESTIGATION, REMEDICATION AND FINAL C-141 CLOSURE DOCUMENTATION

J-4-2-7-4 RELEASE SITE

DEFS REF: 130004

UL-M (SW¼ OF THE SW¼) OF SECTION 8 T19S R35E

~20 MILES WEST -SOUTHWEST OF HOBBS

LEA COUNTY, NEW MEXICO

LATITUDE: N 32° 40' 8.098"

LONGITUDE: W 103° 29' 6.381"

JUNE 2005

PREPARED BY:

Environmental Plus, Inc.

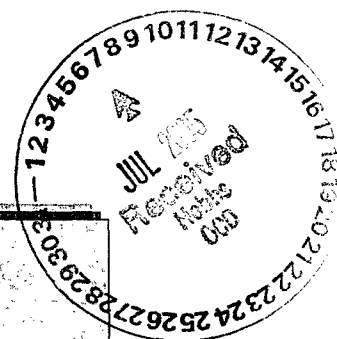
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NMOCD - New Mexico Oil Conservation Division

EPI - Environmental Plus, Inc.

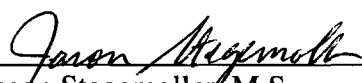
Standard of Care

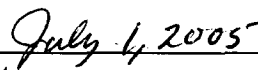
Closure Report

J-4-2-7-4 Release Site

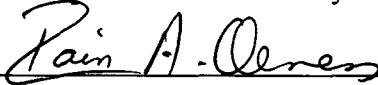
The information provided in this report was collected consistent with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993), the NMOCD Unlined Surface Impoundment Closure Guidelines (February 1993), and the Environmental Plus, Inc. (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:


Jason Stegemoller, M.S.
Environmental Scientist


Date

This report was reviewed by:


Iain A. Olness, P.G.
Hydrogeologist

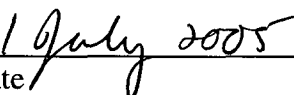

Date

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Project Summary

Site Specific:

- ◆ **Company Name:** Duke Energy Field Services
- ◆ **Facility Name:** J-4-2-7-4 Natural Gas Gathering Pipeline
- ◆ **Project Reference** 130004
- ◆ **Company Contacts:** Mark Owens
- ◆ **Site Location:** WGS84 N32° 40' 8.098"; W103° 29' 6.381"
- ◆ **Legal Description:** Unit Letter M, (SW¼ of the SW¼), Section 8, T19S, R35E
- ◆ **General Description:** approximately 20-miles west-southwest of Hobbs, New Mexico
- ◆ **Elevation:** 3,838-ft amsl **Depth to Ground Water:** ≈45-ft
- ◆ **Land Ownership:** Snyder Ranches
- ◆ **EPI Personnel:** Project Consultant – Iain Olness
 Site Foreman – Eddie Joe Harper

Release Specific:

- ◆ **Product Released:** Natural Gas & NGL
- ◆ **Volume Released:** ≈8-bbl **Volume Recovered:** 0-bbl
- ◆ **Time of Occurrence:** 21-June-04 **Time of Discovery:** 21-June-04
- ◆ **Release Source:** 6" polyethylene NG pipeline; structural integrity compromised; repaired by clamping.
- ◆ **Initial Surface Area Affected:** ≈2,780-ft²

Remediation Specific:

- ◆ **Final Vertical extent of contamination:** 16-ft bgs; Remaining depth to ground water: <50-ft
- ◆ **Water wells within 1,000-ft:** 0 **Surface water bodies within 1,000-ft:** 0
- ◆ **NMOCD Site Ranking Index:** 20 points (<50-ft to top of water table)
- ◆ **Remedial thresholds for Soil:** TPH – 100 mg/kg; BTEX – 10 mg/kg; Benzene – 50 mg/kg
- ◆ **RCRA Waste Classification:** Exempt
- ◆ **Remediation Option Selected:** a) Excavation of contaminated soil above NMOCD remedial goals; b) laboratory analyses to confirm removal of soil impacted above NMOCD remedial thresholds; c) blend excavated soil with surrounding clean soil and backfill the excavation.
- ◆ **Disposal Facility:** South Monument Landfarm
- ◆ **Volume disposed of:** 182-yd³
- ◆ **Project Completion Date:** 23 August 2004
- ◆ **Additional Commentary:** None

1.0 Introduction & Background

This report addresses the site investigation and remediation of the Duke Energy Field Services (DEFS) J-4-2-7-4 six-inch natural gas pipeline remediation site. On June 21, 2004, Environmental Plus, Inc. (EPI) was notified by DEFS regarding a recently discovered natural gas and associated natural gas liquid (NGL) release along the J-4-2-7-4 pipeline. This site is located approximately 20 miles west-southwest of Hobbs, Lea County, New Mexico (*reference Figure 1*). The initial C-141 Form submitted to the New Mexico Oil Conservation Division (NMOCD) on June 30, 2004, reports the release volume as approximately 8-barrels with none recovered. EPI performed GPS surveying, photography and characterization of the site on June 21, 2004. The initial site consisted of an approximate 2,780 square feet (ft²) visibly affected surface area (*reference Figure 3*).

Initial activities at the site consisted of delineating the extent of contamination via test trenches. One trench was excavated in the north/south direction and two in the east/west direction. Samples were collected from the trenches and 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. In addition, samples were submitted for laboratory confirmation to ensure the extents of contamination had been delineated.

Once the extents of contamination had been delineated, remediation activities commenced. Remediation of this site consisted of the excavation of approximately 1,700 cubic yards (yds³) of contaminated soil from what was ultimately a 3,600-ft² excavation, to a maximum depth of 22-feet below ground surface (bgs). Approximately 182 yds³ of contaminated soil was transported to the South Monument landfarm for treatment. The remaining contaminated soil was blended on site with clean soil purchased from Snyder Ranches and obtained from the pipeline right-of-way. The excavation bottom(s) and sidewalls were sampled on July 15-16, 2004 and 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 and chlorides using LaMotte Chloride Reactant #2. Once field results indicated remedial goals had been achieved, samples were submitted for laboratory quantification of total petroleum hydrocarbons (TPH), benzenes, toluene, ethylbenzene and total xylenes (BTEX constituents), chlorides and sulfates. Analytical results indicated total petroleum hydrocarbon (TPH) concentrations in sample SDEJ427471604NSBH12 obtained from the North Side Bottomhole were above the NMOCD remedial threshold of 100 parts per million (ppm). Excavation activities resumed and another sample (SDEJ427472204NBH13) was collected from approximately one-foot below the impacted sample. Analytical results for this sample indicated all hydrocarbon concentrations were less than the NMOCD remedial thresholds. Chloride concentrations were still in excess of 250 mg/Kg. Excavation resumed until field analyses indicated that chloride concentrations were below 250 mg/Kg. On August 9, 2004, confirmatory composite samples were collected from the excavation bottom and sidewalls and submitted for laboratory analyses. Reported BTEX, TPH, Chloride and Sulfate concentrations were below remedial goals. The excavation phase of the site remediation commenced on July 14, 2004 and was completed with backfilling and contouring on August 23, 2004.

This release site is located in Unit Letter M, (SW¼ of the SW¼), Section 8, T19S, R35E, N32° 40' 8.09" and W103° 29' 6.38". The site is approximately 20-miles west-southwest of Hobbs, New Mexico. The property is owned by Snyder Ranches (*reference Figures 1 through 3*).

2.0 Site Description

2.1 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 High Plains physiographic subdivision, described by Nicholson & Clebsch as an area "uniformly flat; shallow depressions and small sand dunes are the only significant relief features".

2.2 Ecological Description

The area is typical of the southwestern High Plains consisting primarily of semi-desert grasslands interspersed with Honey Mesquite (*Prosopis glandulosa*) and, annual and perennial forbs. Mammals represented, include Orrd's and Merriam's Kangaroo Rats, 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 Ground Water

The unconfined groundwater aquifer at this site is projected to be <45-ft bgs based on limited water depth data obtained from the New Mexico State Engineers Office data base. Ground water 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 NMOCD Site Ranking

Contaminant delineation and remedial work done at this site indicate that the chemical parameters of the soil and the physical parameters of the groundwater 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 (CoC), i.e., TPH^{8015m}, benzene, and the mass sum of benzene, toluene, ethylbenzene, and total xylenes (BTEX), were determined based on the NMOCD Ranking Criteria as follows:

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

Based on the proximity of the site to protectable area water wells, surface water bodies, and depth to groundwater from the lower most contamination, the NMOCD ranking score for the site is 20 points with the soil remedial goals highlighted in the Site Ranking table presented below.

1. Ground Water		2. Wellhead Protection Area	3. Distance to Surface Water
Depth to GW <50 feet: 20 points		If <1,000' 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			200-1,000 horizontal feet: 10 points
Depth to GW >100 feet: 0 points		If >1,000' from water source, or; >200' from private domestic water source: 0 points	>1,000 horizontal feet: 0 points
Ground Water Score = 20		Wellhead Protection Score= 0	Surface Water Score= 0
Site Rank (1+2+3) = 20 + 0 + 0 = 20 points			
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

¹ A field soil vapor headspace measurement of 100 ppm may be substituted for a laboratory analysis of the benzene and BTEX concentration limits.

4.0 Subsurface Soil Investigation

The vertical extent of hydrocarbon contamination at the site was determined with test excavations of the release area associated with the point of release (POR) to depths ranging from 5 to 14-ft bgs on July 14 and 15, 2004. The lateral extent of contamination was determined with measurements of organic vapor concentrations as the excavation progressed outwardly from the POR. Organic vapor concentrations were measured in the field utilizing an UltraRae PID equipped with a 9.8 eV lamp.

Upon delineating the extents of impacted soil, soil samples were collected from the blending cell, and base and sidewalls of the excavation and analyzed in the field to verify remedial limits had been achieved. Organic vapor concentrations ranged from 15.7 to 82.9 ppm with an average concentration of 50.3 ppm (*reference Table 1*). In addition, samples were collected and submitted to an independent laboratory for quantification of TPH, BTEX, chlorides and sulfates. Analytical results indicated hydrocarbon concentrations were below NMOCD remedial thresholds for all samples. Chloride concentrations ranged from 384 to 640 mg/Kg, in excess of remedial goals of 250 mg/Kg. Sulfate concentrations ranged from 489 to 691 mg/kg, two samples (SDEJ427472004NBC1-4 and NWW 15) exceeded remedial goals 650 mg/Kg. After further excavation, a grab sample from the excavation bottom and five-point composite samples from the

sidewalls and blending cells were collected and submitted for laboratory analyses. Analytical results indicated that chloride and sulfate concentrations in all samples were below remedial goals (reference Table 1).

5.0 Ground Water Investigation

The projected depth to ground water at this site is <50-ft bgs. Excavation of the site was to a maximum depth of 22-feet. Final field analyses for soil samples collected from the base of the excavation indicated organic vapor concentrations of <300 ppm (reference Table 1). In addition, analytical results for samples collected from the sidewalls and base of the excavation indicated that hydrocarbon, chloride and sulfate concentrations were below NMOCD remedial thresholds (reference Table 1).

The excavation was backfilled with the excavated material after it had been blended to below NMOCD remedial thresholds with clean soil obtained from the right-of-way. Based on the treatment of impacted soil to below remedial goal concentrations and adequate depth to ground water, there is no need for further groundwater investigation at this site.

6.0 Remediation Process

Remediation of the site commenced on July 14, 2004 and continued through August 23, 2004. Remedial activities at the site consisted of excavation of approximately 1,700 yd³ of NGL contaminated soil from the site. Approximately 182 yd³ of NGL impacted soil was transported to the South Monument landfarm for treatment. The remaining contaminated soil was blended with clean soil obtained from the right-of-way. Laboratory analysis of the blending cell five-point composite sample (BC COMP) indicated analytes were below NMOCD remedial thresholds (reference Table 1 and Appendix I). After laboratory analyses of soil samples collected from the sidewalls and base of the excavation indicated remedial goals had been achieved, the excavation was backfilled with the blended soil. The backfilling and contouring of the site was completed on August 23, 2004.

7.0 Closure Justification

This report documents successful treatment of impacted soil above the remedial thresholds discussed in Section 3 above and confirmed via laboratory analyses for this release site. The NGL impacted soil was excavated with a portion transported to the South Monument landfarm for treatment. The remaining NGL impacted soil was blended with clean soil obtained from the right-of-way and returned to the excavation. Based on the data presented in this report, Environmental Plus, Inc., on behalf of Duke Energy Field Services, requests that the NMOCD require "no further action" at this site and issue a *Site Closure Letter*.

FIGURES

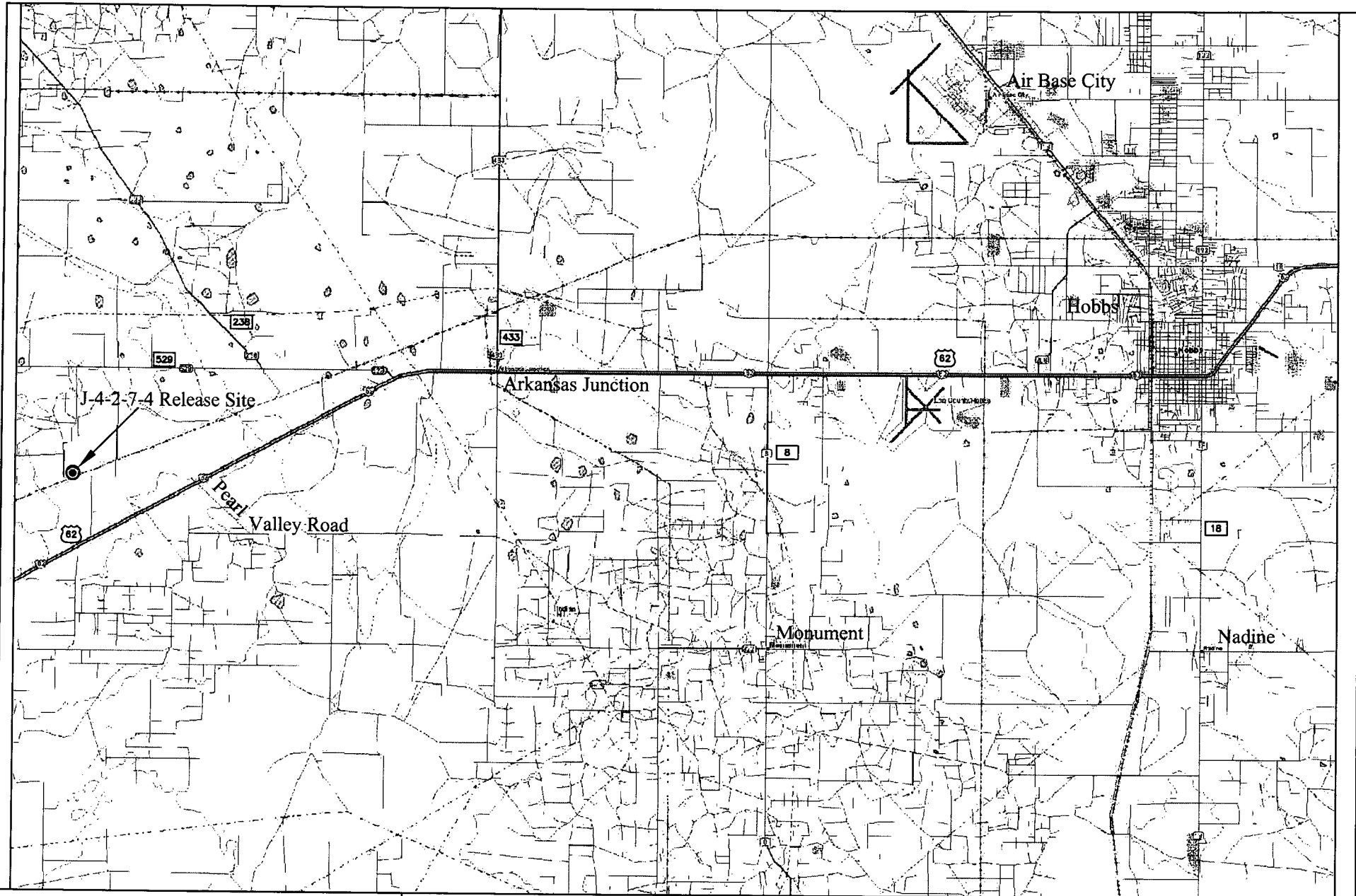
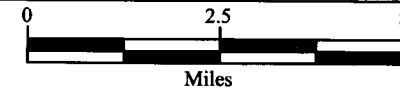


Figure 1
Area Map
Duke Energy Field Services
J-4-2-7-4

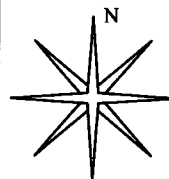
Lea County, New Mexico
 SW 1/4 of the SW 1/4, Sec. 8, T19S, R35E
 N 32° 40' 8.10" W 103° 29' 6.38"
 Elevation: 3,838 feet amsl

DWG By: Iain Olness
June 2004

REVISED:
JCS, June 2005



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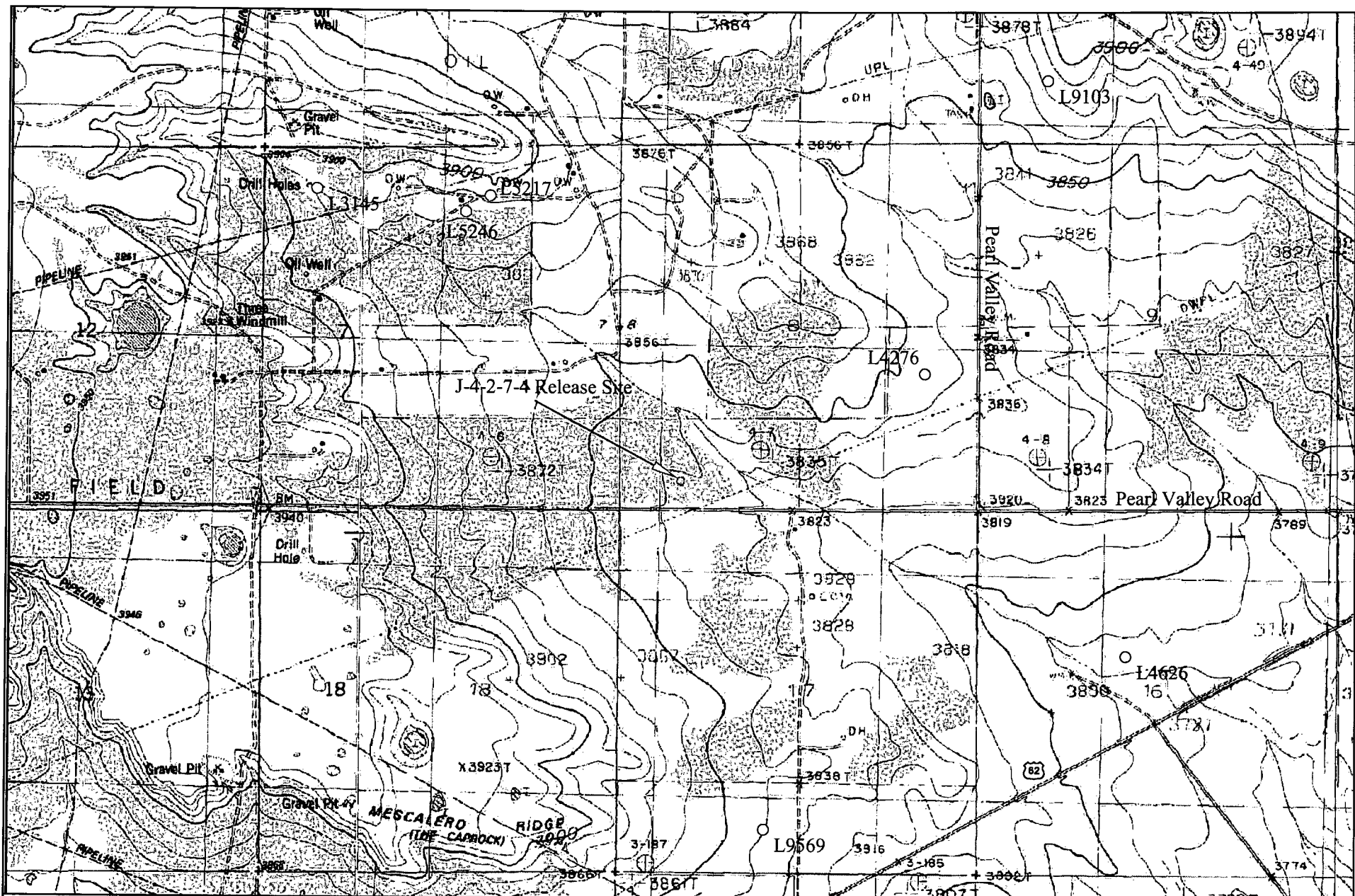
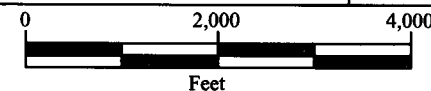


Figure 2
Area and Water Well Location Map
Duke Energy Field Services
J-4-2-7-4

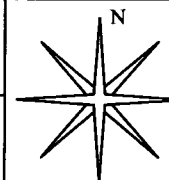
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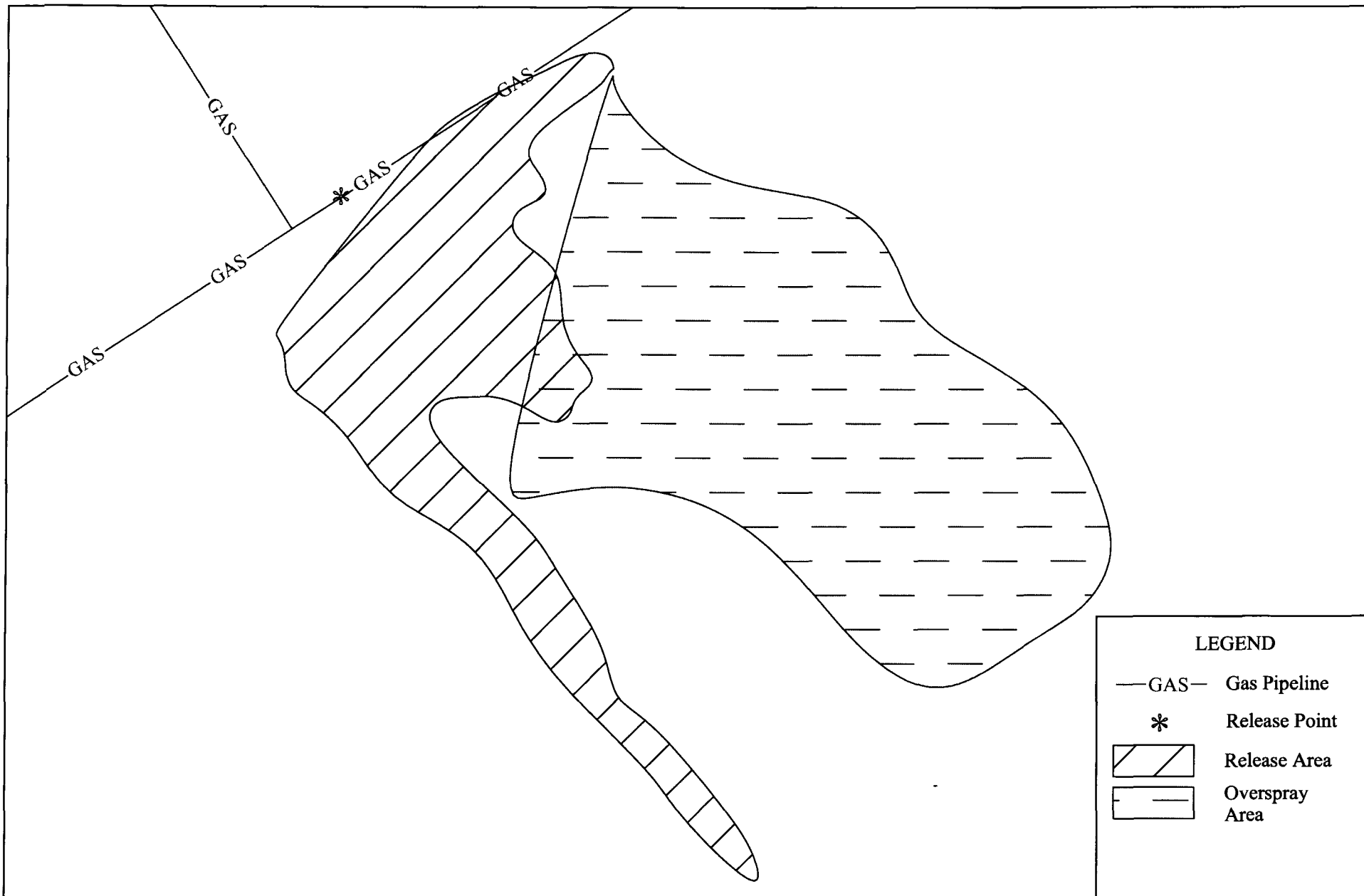
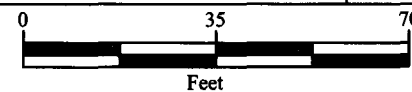


Figure 3
Site Map
Duke Energy Field Services
J-4-2-7-4

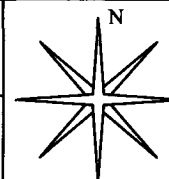
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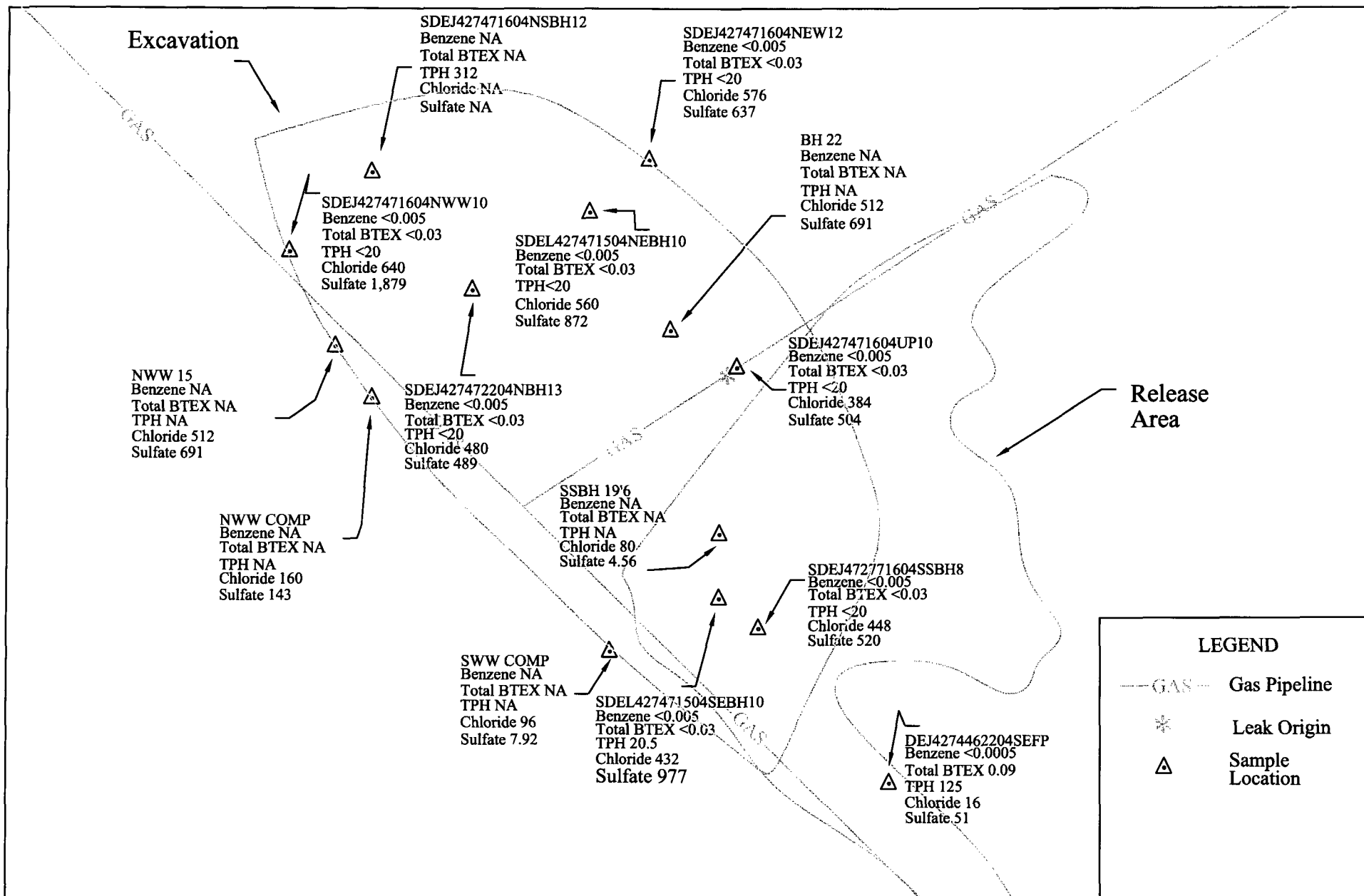
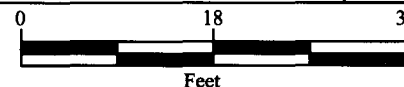


Figure 4
Sample Location Map
Duke Energy Field Services
J-4-2-7-4

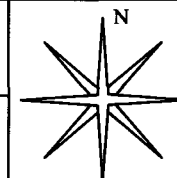
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June 2004

REVISED:
April 2005



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1 of 1



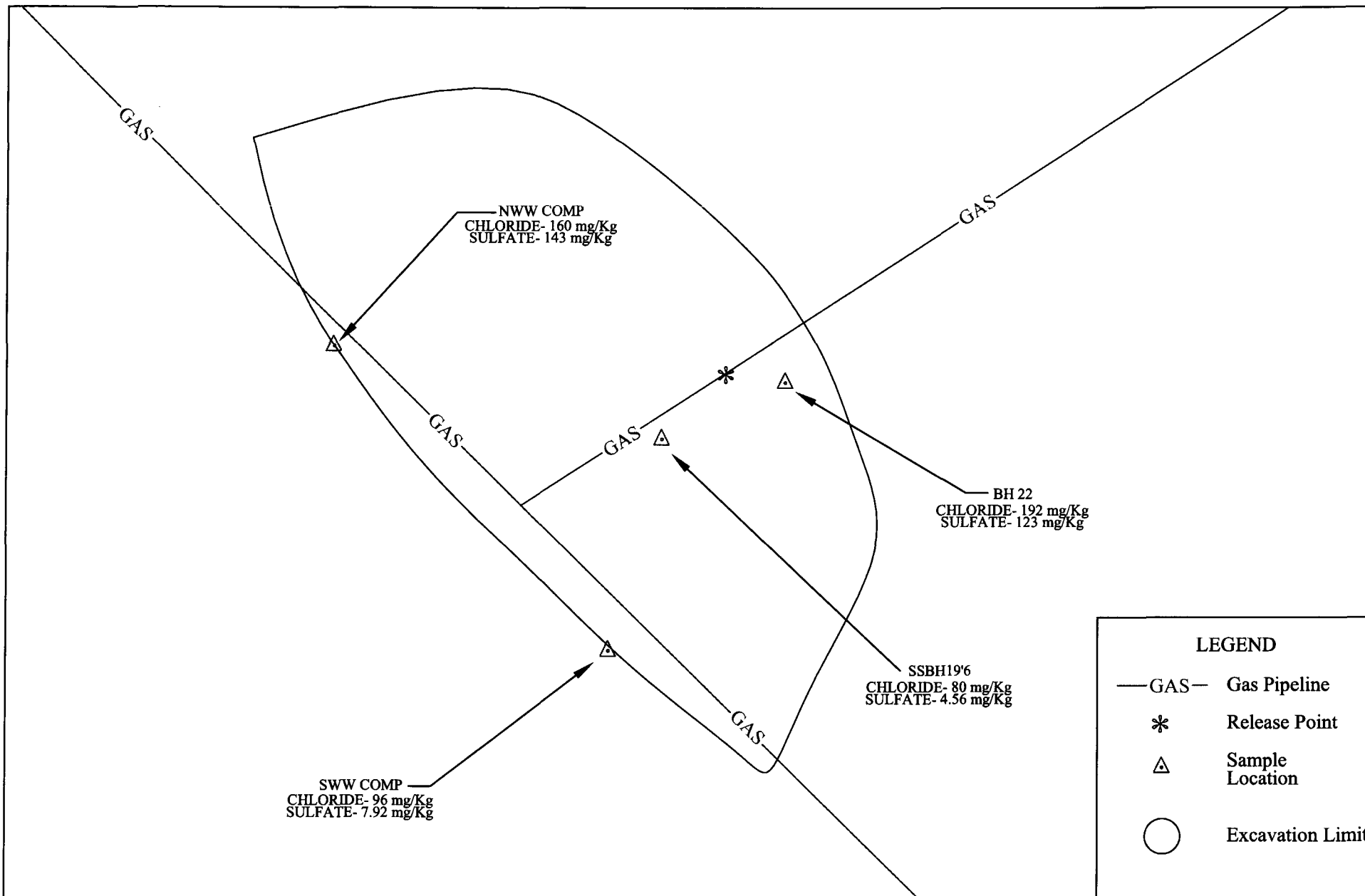
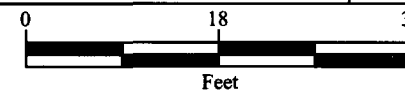


Figure 5
Final Sample Location Map
 Duke Energy Field Services
 J-4-2-7-4

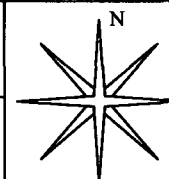
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DWG By: Iain Olness
 June 2004

REVISED:
 JCS, June 2005



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 1 of 1



TABLES

TABLE 1
Summary of Excavation Analytical Results
J-4-2-7-4 - Ref #130004

Sample ID	Sample Date	Sample Location	Field Analysis (ppm)	Chloride Field Analysis (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	GRO (C6-C10) (mg/Kg)	DRO (>C10-C28) (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)	Sulfate (mg/Kg)
DEJ4274462204SEFP	22-Jun-04	Southeast Flow Path	33	NA	<0.005	<0.005	0.016	0.074	0.09	<10.0	125	125	16	51
DEJ4274462204SFP	22-Jun-04	South Flow Path	5.5	NA	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	64	<1
SDEL427471404NT5	14-Jul-04	North Trench - 5'	82.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEL427471404NT6	14-Jul-04	North Trench - 6'	361	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEL427471404ST5	14-Jul-04	South Trench - 5'	173	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEL427471404ST7	14-Jul-04	South Trench - 7'	81.9	NA	<0.005	<0.005	0.023	0.069	0.092	<10.0	46.9	46.9	192	188
SDEL42747140414ST7	14-Jul-04	South Trench - 14'	41.7	NA	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	32	120
SDEL427471404NT8	14-Jul-04	North Trench - 8'	114	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEL427471404NT12	14-Jul-04	North Trench - 12'	54.3	NA	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	980	1,683
SDEL427471404NT7	14-Jul-04	North Trench - 7'	34.8	NA	<0.005	<0.005	<0.005	0.031	0.031	<10.0	<10.0	<20.0	277	1,106
SDEL427471404NET5	14-Jul-04	Northeast Trench - 5'	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEL427471504E13	15-Jul-04	East Trench - 13'	92.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEL42747150412E9	15-Jul-04	East Trench - 9'	655	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEL427471504SEBH10	15-Jul-04	Southeast Bottomhole - 10'	29.9	NA	<0.005	<0.005	<0.005	<0.005	<0.030	<10.0	20.5	20.5	432	977
SDEL427471504NEBH10	15-Jul-04	Northeast Bottomhole - 10'	73	NA	<0.005	<0.005	<0.005	<0.005	<0.030	<10.0	<10.0	<20.0	560	872
SDEJ427471604NWW10	16-Jul-04	Northwest Sidewall - 10'	28.4	NA	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	640	1,879
SDEJ427471604NSBH12	16-Jul-04	North Side Bottomhole - 12'	82.9	NA	NA	NA	NA	NA	NA	<10.0	312	312	NA	NA
SDEJ427471604NEW12	16-Jul-04	Northeast Sidewall - 12'	26.2	NA	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	576	637
SDEJ427471604UP10	16-Jul-04	Under Point of Release - 10'	44.5	NA	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	384	504
SDEJ427471604SSBH8	16-Jul-04	South Side Bottomhole - 8'	54.2	NA	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	448	520
SDEJ427472004NBC1-4	20-Jul-04	North Blending Cell	26.6	NA	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	412	412	368	691
SDEJ427472004NBC2	20-Jul-04	North Blending Cell	71.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEJ427472004SBC3	20-Jul-04	South Blending Cell	58.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEJ427472004SBC4	20-Jul-04	South Blending Cell	42.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDEJ427472204NBH13	22-Jul-04	North Bottomhole - 13'	15.7	460	<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	480	489
Pasture	22-Jul-04	Pasture		400	NA	NA	NA	NA	NA	NA	NA	NA	32	NA

BTEX = Benzene, Toluene, Ethylbenzene, Total Xylenes

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

TPH = Total Petroleum Hydrocarbons

ppm = parts per million, which is equivalent to milligrams per kilogram (mg/Kg)

mg/Kg = milligrams per kilogram, which is equivalent to parts per million (ppm)

NA = Not Analyzed

Red, bold values are in excess of NMOCD remedial thresholds

TABLE 1
Summary of Excavation Analytical Results
J-4-2-7-4 - Ref #130004

Sample ID	Sample Date	Sample Location	Field Analysis (ppm)	Chloride Field Analysis (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	GRO (C6-C10) (mg/Kg)	DRO (>C10-C28) (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)	Sulfate (mg/Kg)
NWW 15	23-Jul-04	Northwest Sidewall - 15'		600	NA	NA	NA	NA	NA	NA	NA	NA	512	691
BH 22	23-Jul-04	Bottomhole - 22'		160	NA	NA	NA	NA	NA	NA	NA	NA	192	123
NWW COMP	9-Aug-04	Northwest Sidewall Composite		160	NA	NA	NA	NA	NA	NA	NA	NA	160	143
SSBH 19'6	9-Aug-04	South Side Bottomhole - 19.5'		160	NA	NA	NA	NA	NA	NA	NA	NA	80	4.56
SWW COMP	9-Aug-04	Southwest Sidewall Composite		160	NA	NA	NA	NA	NA	NA	NA	NA	96	7.92
BC COMP	10-Aug-04	Blending Cell Composite			<0.005	<0.005	<0.005	<0.015	<0.030	<10.0	<10.0	<20.0	160	200
NMOCD Remedial Thresholds					10				50			100	250**	650**

**** Chloride and Sulfate residuals may not be capable of impacting local groundwater abover the New Mexico Water Quality Control Commission standards of 250 mg/L and 650 mg/L, respectively.**

BTEX = Benzene, Toluene, Ethylbenzene, Total Xylenes

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

TPH = Total Petroleum Hydrocarbons

ppm = parts per million, which is equivalent to milligrams per kilogram (mg/Kg)

mg/Kg = milligrams per kilogram, which is equivalent to parts per million (ppm)

NA = Not Analyzed

Red, bold values are in excess of NMOCD remedial thresholds

TABLE 2
DEFS J-4-2-7-4 Ref. # 130004
WELL / SURFACE DATA REPORT 06/22/04

DB	File Nbr	Use	Diversion (acre ft per annum)	Owner	Well	Number	Source	Tws	Rng	Sec	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are biggest to smallest)			UTM are in Meters			Start Date	Finish Date	Depth Well	Depth to Water
											q	q	q	UTM Zone	Easting	Northing				
L	2359	DOM	3	JEWEL A. SMITH	L	2359	Shallow	19S	35E	1	1	3	3	13	648328	3617867	9/28/1953	9/28/1953	60	28
					L	5434 S	Shallow	19S	35E	1	2	1	4	13	649328	3618271				
L	3945	PRO	3	RALPH LOWE	L	3945	Shallow	19S	35E	1	2	2	3	13	649532	3618274	7/29/1958	7/29/1958	125	70
					L	3945 APPRO	Shallow	19S	35E	1	2	2	3	13	649532	3618274	7/29/1958	7/29/1958	125	70
L	3945 (1)	PRO	0	T AND T INC.	L	3945 (1)		19S	35E	1	2	2	3	13	649532	3618274				
L	3945 (2)	PRO	0	T AND T INCORPORATION	L	3945 (2)		19S	35E	1	2	2	3	13	649532	3618274				
L	5434	COM	39.8	KEY ENERGY SERVICES D/B/A PION	L	5434	Shallow	19S	35E	1	2	2	3	13	649532	3618274				
L	5339	STK	0	CACTUS DRILLING CO.	L	5339	Shallow	19S	35E	1				13	649044	3617770	1/27/1964	2/1/1964	128	83
L	9222	DOM	0	FAYE KLINE	L	9222 (EXP)		19S	35E	2	1	1		13	646809	3618348				
L	5339 (7)	STK	0	SUPERIOR OIL CO.	L	5344 (7) EXP		19S	35E	4	4	1	3	13	644301	3617420				
					L	5339 EXP		19S	35E	4	4	3		13	644409	3617119				
L	5339 (1)	STK	0	JEWEL A. SMITH	L	5339 (1) EXP		19S	35E	4	4	3		13	644409	3617119				
L	5339 (2)	STK	0	EXXON OIL COMPANY	L	5340 (2) EXP		19S	35E	4	4	3	1	13	644308	3617218				
L	5339 (3)	STK	0	EXXON CORP.	L	5341 (3) EXP		19S	35E	4	4	3	1	13	644308	3617218				
L	5339 (4)	STK	0	EXXON CORP.	L	5342 (4) EXP		19S	35E	4	4	3	1	13	644308	3617218				
L	5339 (6)	STK	0	MESA PETROLEUM	L	5343 (6) EXP		19S	35E	4	4	3	1	13	644308	3617218				
L	5339 (8)	PRO	0	DUAL DRILLING	L	5345 (8) EXP		19S	35E	4	4	3	1	13	644308	3617218				
L	5339 (9)	STK	0	HONDO DRILLING	L	5346 (9) EXP		19S	35E	4	4	3	1	13	644308	3617218				
L	9077 (1)	STK	0	SUPERIOR OIL COMPANY	L	9077 (1) EXP		19S	35E	4	4	3	2	13	644508	3617218				
L	9077 (2)	STK	0	MESA PETROLEUM CO.	L	9077 (2) EXP		19S	35E	4	4	3	2	13	644508	3617218				
L	9077 (3)	STK	0	DUAL DRILLING CO.	L	9077 (3) EXP		19S	35E	4	4	3	2	13	644508	3617218				
L	9078 (4)	STK	0	FRED POOL OPER.	L	9077 (4) EXP		19S	35E	4	4	3	2	13	644508	3617218				
L	9079 (5)	STK	0	MCVAY DRILLING CO.	L	9077 (5) EXP		19S	35E	4	4	3	2	13	644508	3617218				
L	9080 (6)	PRO	0	POE PROPERTIES INC.	L	9077 (6) EXP		19S	35E	4	4	3	2	13	644508	3617218				
L	9081 (7)	PRO	0	SOUTHLAND ROYALTY	L	9077 (7) EXP		19S	35E	4	4	3	2	13	644508	3617218				
L	9103	STK	3	SUPERIOR OIL COMPANY	L	9103	Shallow	19S	35E	4	4	3		13	644409	3617119	2/22/1983	2/22/1983	140	70
L	9103 (1)	STK	0	SOUTHLAND ROYALTY	L	9103 (1) EXP		19S	35E	4	4	3		13	644409	3617119				
L	9103 (2)	STK	0	AMOCO PRODUCTION	L	9103 (2) EXP		19S	35E	4	4	3		13	644409	3617119				
L	9294	STK	3	GETTY OIL COMPANY	L	9294	Shallow	19S	35E	4	4	4	1	13	644712	3617223	8/4/1983	8/4/1983	150	
L	9294 (1)	PRO	0	GETTY OIL	L	9294 (1) EXP		19S	35E	4	4	4	1	13	644712	3617223				
L	9294 (2)	PRO	0	ELK OIL	L	9294 (2) EXP		19S	35E	4	4	4	1	13	644712	3617223				
L	9428	STK	0	ARCO OIL AND GAS COMPANY	L	9428	Shallow	19S	35E	5	1	4	3	13	642276	3617802	2/18/1984	2/18/1984	130	
					L	9428 EXP		19S	35E	5	1	4	3	13	642276	3617802				
L	8869	PRO	0	JOSEPH O'NEIL	L	8869 EXP		19S	35E	5	3	2		13	642384	3617500				
L	8869 (2)	PRO	0	JOSEPH O'NEIL	L	8869 (2) EXP		19S	35E	5	3	2		13	642384	3617500				
L	8869 (3)	PRO	0	JOSEPH O'NEIL PROP. LTD	L	8869 (3) EXP		19S	35E	5	3	2		13	642384	3617500				
L	3887	DOM	3	JEWEL A. SMITH	L	3887	Shallow	19S	35E	5	4	2	2	13	643290	3617607	6/10/1958	6/10/1958	90	55
					L	3887 APPRO	Shallow	19S	35E	5	4	2	2	13	643290	3617607	6/10/1958	6/10/1958	90	55
L	4400	DOM	3	JEWELL A. SMITH	L	4400		19S	35E	5	4	2	2	13	643290	3617607				
					L	4400 APPRO EXP		19S	35E	5	4	2	2	13	643290	3617607				
L	9347	DOM	0	JEWELL SMITH	L	9347 EXP		19S	35E	5	4	2	2	13	643290	3617607				
L	9347 (1)	DOM	3	FOREST OIL COMPANY	L	9347 (1)	Shallow	19S	35E	5	4	2	2	13	643290	3617607	10/3/1983	10/4/1983	94	55
L	10613	STK	3	E P CAUDILL INC	L	10613		19S	35E	5	4	2		13	643191	3617508				
L	11281	DOM	3	LONNIE R. DICKERSON	L	11281	Shallow	19S	35E	5	4	2	4	13	643290	3617407	12/18/2001	12/18/2001	102	
L	5178	DOM	0	DALMONT RANCH JOINT VENTURE	L	5178	Shallow	19S	35E	5				13	642590	3617695	6/17/1963	6/18/1963	142	85
L	4211	DOM	3	GENE DALMONT	L	4211	Shallow	19S	35E	6	3	1		13	640375	3617481	7/25/1959	7/26/1959	130	60
					L	4211 APPRO	Shallow	19S	35E	6	3	1		13	640375	3617481	7/25/1959	7/26/1959	130	60
L	5220 (1)	PRO	0	TXO PRODUCING CORP.	L	5220 (1) EXP		19S	35E	6	4	1		13	641172	3617488				
L	5220	PRO	0	DALMONT RANCH JOINT VENTURE	L	5220	Shallow	19S	35E	6				13	640983	3617681	8/1/1963	8/1/1963	100	55
L	3145	PRO	3	PETE LOMAX DRILLING CO.	L	3145	Shallow	19S	35E	7	1	1		13	640385	3616674	3/12/1956	3/12/1956	97	45

APPENDIX I

LABORATORY ANALYTICAL REPORTS

AND

CHAIN-OF-CUSTODY FORMS



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: 07/01/04

Reporting Date: 07/06/04

Project Number: 130004

Project Name: DUKE ENERGY FIELD SERVICES/J-4-2-7-4

Project Location: NOT GIVEN

Sampling Date: 06/22/04

Sample Type: SOIL

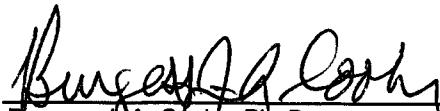
Sample Condition: COOL & INTACT

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:		07/02/04	07/02/04	07/02/04	07/02/04	07/02/04	07/02/04
H8873-1	DEJ427462204SEFP	<10.0	125	<0.005	<0.005	0.016	0.074
H8873-2	DEJ427462204SFP	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control		784	831	0.100	0.094	0.087	0.261
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		98.0	104	100	94.4	87.4	87.1
Relative Percent Difference		5.6	2.0	4.4	5.2	4.9	2.1

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


Burgess J.A. Cooke, Ph. D.

7/6/04
Date

H8873A.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: 07/01/04

Reporting Date: 07/06/04

Project Number: 130004

Project Name: DUKE ENERGY FIELD SERVICES/J-4-2-7-4

Project Location: NOT GIVEN

Sampling Date: 06/22/04

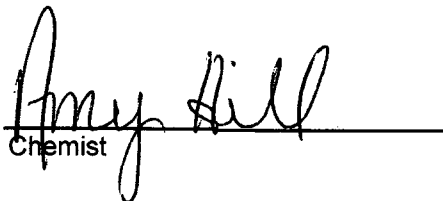
Sample Type: SOIL

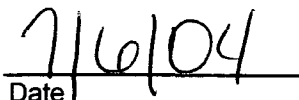
Sample Condition: COOL & INTACT

Sample Received By: AH

Analyzed By: HM

LAB NUMBER	SAMPLE ID	Sulfate (mg/Kg)	Cl (mg/Kg)
ANALYSIS DATE:		07/02/04	07/02/04
H8873-1	DEJ427462204SEFP	51.4	16
H8873-2	DEJ427462204SFP	<1	64
Quality Control		48.21	1000
True Value QC		50.00	1000
% Recovery		96.4	100
Relative Percent Difference		6.2	2.0
METHODS: EPA 600/4-79-02		375.4	325.3


Chemist


Date

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[illegible]



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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: 07/14/04

Reporting Date: 07/16/04

Project Number: 130004

Project Name: DUKE ENERGY FIELD SERVICES

Project Location: L-4274

Sampling Date: 07/14/04

Sample Type: SOIL

Sample Condition: COOL & INTACT

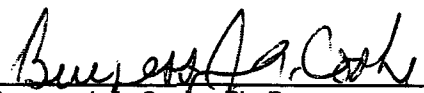
Sample Received By: AH

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:	07/14/04	07/14/04	07/16/04	07/16/04	07/16/04	07/16/04
H8910-1 SDEL427471404ST7	<10.0	46.9	<0.005	<0.005	0.023	0.069
H8910-2 SDEL42747140414ST7	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H8910-3 SDEL427471404NT12	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H8910-4 SDEL42747140416NT7	<10.0	<10.0	<0.005	<0.005	<0.005	0.031
Quality Control	787	738	0.093	0.095	0.095	0.290
True Value QC	800	800	0.100	0.100	0.100	0.300
% Recovery	98.4	92.2	92.8	94.9	95.0	96.7
Relative Percent Difference	6.6	3.3	1.7	3.7	8.5	9.0

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


Burgess J. A. Cooke, Ph. D.

7/16/04
Date

H8910.XLS

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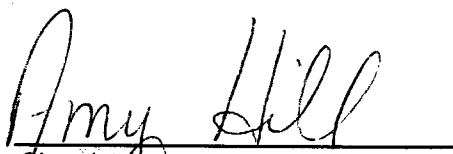
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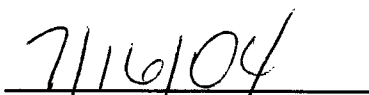
ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: IAIN OLNESS
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 07/14/04
Reporting Date: 07/16/04
Project Number: 130004
Project Name: DUKE ENERGY FIELD SERVICES
Project Location: L-4274

Sampling Date: 07/14/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Sulfate (mg/Kg)	Cl (mg/Kg)
ANALYSIS DATE:		07/16/04	07/16/04
H8910-1	SDEL427471404ST7	188	192
H8910-2	SDEL42747140414ST7	120	32
H8910-3	SDEL427471404NT12	1683	980
H8910-4	SDEL42747140416NT7	1106	277
Quality Control		48.21	990
True Value QC		50.00	1000
% Recovery		96.4	99.0
Relative Percent Difference		6.2	1.0
METHODS: EPA 600/4-79-02		375.4	SM 4500-Cl ⁻ B


Chemist


Date

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page _____ of _____

† Cardinal cannot accept verbal changes. Please fax written changes to (915) 673-7020.



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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

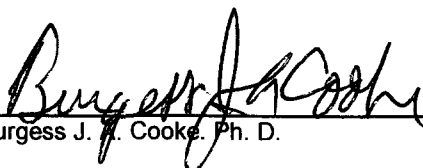
Receiving Date: 07/16/04
Reporting Date: 07/21/04
Project Number: 130004
Project Name: J-4-2-7-4 (DUKE ENERGY FIELD SERVICES)
Project Location: NOT GIVEN

Sampling Date: 07/15 & 07/16/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: HM
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:		07/20/04	07/20/04	07/20/04	07/20/04	07/20/04	07/20/04
H8923-1	SDEJ427471504SEBH10	<10.0	20.5	<0.005	<0.005	<0.005	<0.015
H8923-2	SDEJ427471504NEBH10	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H8923-3	SDEJ427471604NSBH12	<10.0	312	*	*	*	*
H8923-4	SDEJ427471604NWW10	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H8923-5	SDEJ427471604UP10	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H8923-6	SDEJ427471604SSBH8	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H8923-7	SDEJ427471604NEW12	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control		744	768	0.090	0.091	0.090	0.268
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		93.1	96.1	89.7	91.4	90.1	89.5
Relative Percent Difference		5.1	0.4	5.7	3.7	5.4	8.1

*BTEX analysis not performed since TPH >100 mg/Kg.

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


Burgess J. Cooke, Ph. D.

7/21/04
Date

H8923A.XLS

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ANALYTICAL RESULTS FOR
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ATTN: IAIN OLNESS
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FAX TO: (505) 394-2601

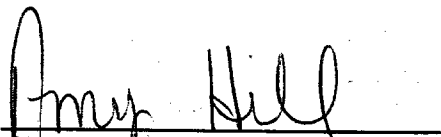
Receiving Date: 07/16/04
Reporting Date: 07/22/04
Project Number: 130004
Project Name: J-4-2-7-4 DEFS
Project Location: NOT GIVEN


Sampling Date: 07/15-07/16/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Sulfate (mg/Kg)	Cl (mg/Kg)
ANALYSIS DATE:		07/20/04	07/19/04
H8923-1	SDEJ427471504SEBH10	977	432
H8923-2	SDEJ427471504NEBH10	872	560
H8923-4	SDEJ427471604NWW10	1879	640
H8923-5	SDEJ427471604UP10	504	384
H8923-6	SDEJ427471604SSBH8	520	448
H8923-7	SDEJ427471604NEW12	637	576
Quality Control		48.21	990
True Value QC		50.00	1000
% Recovery		96.4	99.0
Relative Percent Difference		6.2	1.0

METHODS: EPA 600/4-79-02	375.4	SM 4500-Cl ⁻ B
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Note: Analyses performed on 1:4 w:v aqueous extracts.


Chemist


Date

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[illegible]



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FAX TO: (505) 394-2601

Receiving Date: 07/23/04

Reporting Date: 07/27/04

Project Number: NOT GIVEN

Project Name: J 4274 (DUKE ENERGY)

Project Location: NOT GIVEN

Sampling Date: 07/20/04

Sample Type: SOIL

Sample Condition: COOL & INTACT

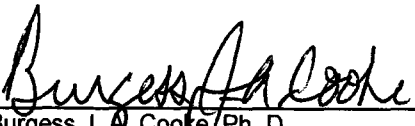
Sample Received By: GP

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)
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ANALYSIS DATE:	07/26/04	07/26/04	07/25/04	07/25/04	07/25/04	07/25/04
H8950-1 SDEJ427472004NBC1-4	<10.0	412	<0.005	<0.005	<0.005	<0.015
Quality Control	738	849	0.095	0.098	0.095	0.287
True Value QC	800	800	0.100	0.100	0.100	0.300
% Recovery	92.3	106	95.4	98.3	94.6	95.6
Relative Percent Difference	3.8	1.2	2.9	4.7	3.8	4.8

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


Burgess J. Cooke, Ph. D.

7/27/04
Date

H8950A.XLS

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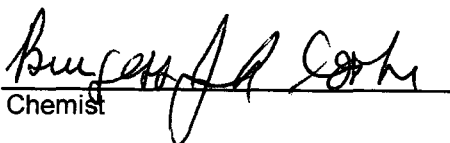
Receiving Date: 07/23/04
Reporting Date: 07/26/04
Project Number: NOT GIVEN
Project Name: J 4274 (DUKE ENERGY)
Project Location: NOT GIVEN

Sampling Date: 07/20/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: HM

LAB NUMBER	SAMPLE ID	SO ₄ (mg/Kg)	Cl (mg/Kg)
ANALYSIS DATE:		07/23/04	07/23/04
H8950-1	SDEJ427472004NBC1-4	691	368
Quality Control		50.98	990
True Value QC		50.00	1000
% Recovery		102	99.0
Relative Percent Difference		1.2	1.0
METHODS: EPA 600/4-79-020		375.4	4500-Cl'B*

NOTE: Analyses performed on a 1:4 w:v aqueous extract.

*Std. Methods


Chemist


Date

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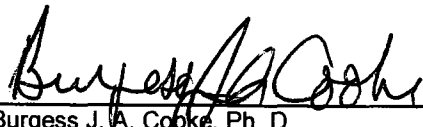
Receiving Date: 07/22/04
Reporting Date: 07/23/04
Project Number: NOT GIVEN
Project Name: NOT GIVEN
Project Location: J4274

Sampling Date: 07/22/04
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)
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ANALYSIS DATE:	07/23/04	07/23/04	07/23/04	07/23/04	07/23/04	07/23/04
H8946-1 SDEJ427472204NBH13	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control	744	768	0.093	0.094	0.091	0.273
True Value QC	800	800	0.100	0.100	0.100	0.300
% Recovery	93.1	96.1	92.6	93.7	91.0	91.0
Relative Percent Difference	5.1	0.4	2.8	0.6	1.3	0.6

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


Burgess J. A. Cooke, Ph. D.

7/23/04
Date

H8946A.XLS

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Receiving Date: 07/22/04

Reporting Date: 07/23/04

Project Number: NOT GIVEN

Project Name: NOT GIVEN

Project Location: J4274

Sampling Date: 07/22/04

Sample Type: SOIL

Sample Condition: COOL & INTACT

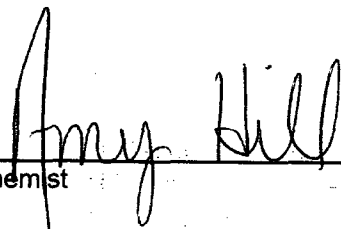
Sample Received By: AH

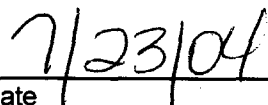
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Sulfate (mg/Kg)	Cl (mg/Kg)
ANALYSIS DATE:		07/23/04	07/23/04
H8946-1	SDEJ427472204NBH13	489	480
H8946-2	PASTURE	-	32
Quality Control		48.21	990
True Value QC		50.00	1000
% Recovery		96.4	99.0
Relative Percent Difference		6.2	1.0

METHODS: EPA 600/4-79-02	375.4	SM 4500-Cl B
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Note: Analyses performed on 1:4 w:v aqueous extracts.


Chemist


Date

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FAX TO: (505) 394-2601

Receiving Date: 07/23/04
Reporting Date: 07/26/04
Project Number: 130004
Project Name: J 4274 (DUKE ENERGY)
Project Location: NOT GIVEN

Sampling Date: 07/23/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: HM

LAB NUMBER	SAMPLE ID	SO ₄ (mg/Kg)	Cl (mg/Kg)
ANALYSIS DATE:		07/23/04	07/23/04
H8947-1	NWW 15	691	512
H8947-2	BH 22	123	192
Quality Control		50.98	990
True Value QC		50.00	1000
% Recovery		102	99.0
Relative Percent Difference		1.2	1.0
METHODS: EPA 600/4-79-020		375.4	4500-Cl'B*

NOTE: Analyses performed on 1:4 w:v aqueous extracts.

*Std. Methods

Chemist

7/26/04
Date

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FAX TO: (505) 394-2601

Receiving Date: 08/09/04

Reporting Date: 08/10/04

Project Number: 130004

Project Name: DUKE ENERGY FIELD SERVICES

Project Location: J4274

Sampling Date: 08/09/04

Sample Type: SOIL

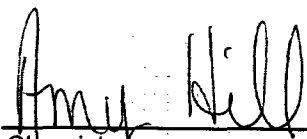
Sample Condition: COOL & INTACT


Sample Received By: BC

Analyzed By: AH

LAB NUMBER	SAMPLE ID	Sulfate (mg/Kg)	Cl (mg/Kg)
ANALYSIS DATE:		08/10/04	08/10/04
H8992-1	NWW COMP	143	160
H8992-2	SSBH 19'6	4.56	80
H8992-3	SWW COMP	7.92	96
Quality Control		48.21	1040
True Value QC		50.00	1000
% Recovery		96.4	104
Relative Percent Difference		6.2	4.0
METHODS: EPA 600/4-79-02		375.4	SM 4500-Cl ⁻ B

Note: Analyses performed on 1:4 w:v aqueous extracts.


Chemist


Date



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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Sampler Relinquished: <i>Eddie J. Hays</i>		Date: 8-9-04	Received By: 	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No
Relinquished By:		Date: 8/9/04	Received By: (Lab Staff): <i>Bryan J. Ash</i>	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Time: 3:08	Time: 	REMARKS:
		Sample Condition Temp. °C	Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Checked By: (Initials)

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FAX TO: (505) 394-2601

Receiving Date: 08/10/04

Reporting Date: 08/12/04

Project Number: J4274

Project Name: DUKE ENERGY FIELD SERVICES

Project Location: NOT GIVEN

Sampling Date: 08/10/04

Sample Type: SOIL

Sample Condition: COOL & INTACT


Sample Received By: AH

Analyzed By: BC

LAB NUMBER	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)
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ANALYSIS DATE:	08/11/04	08/11/04	08/11/04	08/11/04	08/11/04	08/11/04
H8995-1 BC COMP	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control	777	785	0.098	0.097	0.090	0.281
True Value QC	800	800	0.100	0.100	0.100	0.300
% Recovery	97.1	98.2	97.6	96.5	89.8	93.8
Relative Percent Difference	3.4	2.3	0.3	2.9	3.0	2.1

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


Burgess J. A. Cooke, Ph. D.

8/12/04
Date

H8995.XLS

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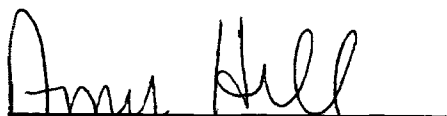
Receiving Date: 08/10/04
Reporting Date: 08/11/04
Project Number: J4274
Project Name: DUKE ENERGY FIELD SERVICES
Project Location: NOT GIVEN


Sampling Date: 08/10/04
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Sulfate (mg/Kg)	Cl (mg/Kg)
ANALYSIS DATE:		08/11/04	08/11/04
H8995-1	BC COMP	200	160
Quality Control		48.21	1040
True Value QC		50.00	1000
% Recovery		96.4	104
Relative Percent Difference		6.2	4.0

METHODS: EPA 600/4-79-02	375.4	SM 4500-Cl ⁻ B
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Note: Analyses performed on a 1:4 w:v aqueous extract.


Chemist


Date

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ____ of ____

Company Name: <u>Duke</u>		Project Manager: <u>Paul Murphy</u>		Address: <u>Hobbs</u> State: <u>N.M.</u> Zip: <u></u>		Phone #: <u></u> Fax #: <u></u>		Project #: <u>54274</u> Project Owner: <u></u>		Project Name: <u></u>		Project Location: <u>Eddie Joe</u>		ANALYSIS REQUEST																											
BILL TO		PO #:		Company: <u>EPI</u>		Attn: <u>DAVE</u>		Address: <u></u>		City: <u>El Paso</u>		State: <u>N.M.</u> Zip: <u></u>		Phone #: <u>394-3481</u>		Fax #: <u></u>																									
FOR LAB USE ONLY		LAB I.D.		Sample I.D.		(GRAB OR (C)OMP.		# CONTAINERS		MATRIX		PRES.		SAMPLING																											
										GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:		ACID:		ICE / COOL		OTHER:		DATE		TIME											
		H8995-1		BC Comp.		G																										<div style="display: flex; flex-direction: column; align-items: center;"> <div>Chlorides</div> <div>Sulfate</div> <div>B-Tex</div> <div>TPH</div> </div>									

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Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished: <u>Eddie Joe</u>		Date: <u>8-10-04</u>		Received By: <u></u>		Phone Result <input type="checkbox"/> Yes <input type="checkbox"/> No		Additional Fax #: <u></u>	
Relinquished By: <u></u>		Time: <u>1:10</u>		Date: <u>8/10/04</u>		Received By: (Lab Staff) <u>Amey Bell</u>		Fax Result <input type="checkbox"/> Yes <input type="checkbox"/> No	
Delivered By: (Circle One)		Time: <u>2:20</u>		Sample Condition		CHECKED BY: (Initials)		REMARKS:	
Sampler - UPS - Bus - Other: <u>UPS</u>				Cool <input type="checkbox"/> Intact <input type="checkbox"/>					
				Yes <input type="checkbox"/> No <input type="checkbox"/>					

† Cardinal cannot accept verbal changes. Please fax written changes to 915-673-7020.

APPENDIX II

PROJECT PHOTOGRAPHS



Photo #1: Release area, looking easterly along the pipeline.
Dark soil indicates contamination.



Photo #2: Looking down on north test trench.



Photo #3: Excavation activities, looking easterly.

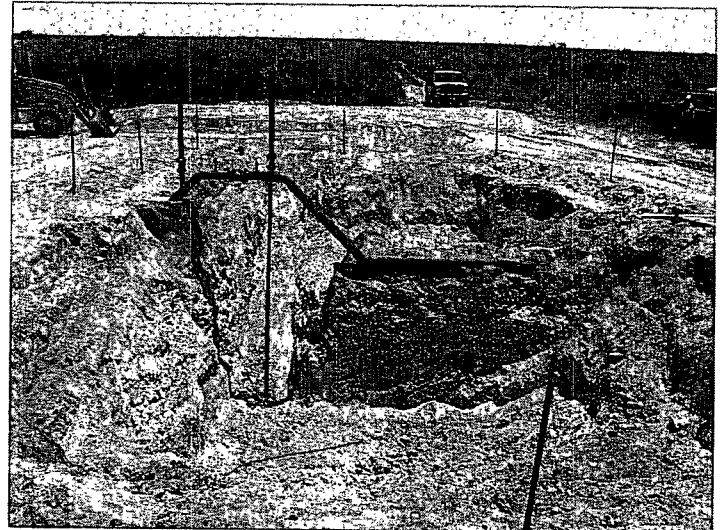


Photo #4: Excavation, looking southerly.

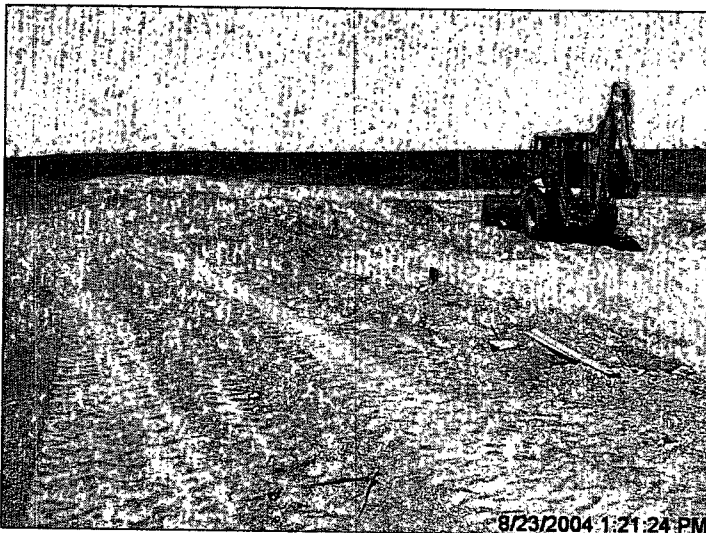


Photo #5: Final grading and contouring, looking northerly.



Photo #6: Site graded and contoured, looking northerly.

APPENDIX III

SITE INFORMATION AND METRICS FORM

AND

FINAL NMOCD C-141 FORM

Duke Energy Field Services Site Information and Metrics		Incident Date: June 21, 2004 @ 1300	NMOCD Notified: June 21, 2004 @ 1700
Site: J-4-2-7-4		Assigned Site Reference #: 130004	
Company: Duke Energy Field Services			
Street Address:			
Mailing Address: 1625 West Marland			
City, State, Zip: Hobbs, New Mexico 88240			
Representative: Mark R. Owens			
Representative Telephone: (505) 397-5541			
Telephone:			
Fluid volume released (bbls): ~ 8 barrels		Recovered (bbls): 0 barrels	
>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: J-4-2-7-4			
Source of contamination: 6" Polyethylene Pipeline			
Land Owner, i.e., BLM, ST, Fee, Other: Snyder Ranches			
LSP Dimensions: 80 feet by 35 feet			
LSP Area: ~2,780 ft ²			
Location of Reference Point (RP):			
Location distance and direction from RP:			
Latitude: N 32° 40' 8.09754"			
Longitude: W 103° 29' 6.3812"			
Elevation above mean sea level: 3,838			
Feet from South Section Line:			
Feet from West Section Line:			
Location- Unit or ¼: SW¼ of the SW¼		Unit Letter: M	
Location- Section: 8			
Location- Township: T19S			
Location- Range: R35E			
Surface water body within 1000' radius of site: none			
Domestic 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			
Depth from land surface to ground water (DG): ~ 45' below ground surface			
Depth of contamination (DC): Unknown			
Depth to ground water (DG - DC = DtGW): < 50'			
1. Ground Water		2. Wellhead Protection Area	
If Depth to GW <50 feet: 20 points		If <1000' from water source, or; <200' from private domestic water source: 20 points	
If Depth to GW 50 to 99 feet: 10 points		If >1000' from water source, or; >200' from private domestic water source: 0 points	
If Depth to GW >100 feet: 0 points			
Ground water Score = 0		Wellhead Protection Area Score = 0	
Site Rank (1+2+3) = 0		Surface Water Score = 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

¹100 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 Mark R. Owens
Address 1625 West Marland, Hobbs, New Mexico 88240	Telephone No. 505-397-5541
Facility Name J-4-2-7-4	Facility Type 6" Polyethylene Pipeline

Surface Owner Snyder Ranches	Mineral Owner	Lease No.
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LOCATION OF RELEASE

Unit Letter M	Section 8	Township T19S	Range R35E	Feet from the North/South Line	Feet from the East/West Line	County: Lea Lat. N 32° 40' 8.09754" Lon. W 103° 29' 6.3812"
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NATURE OF RELEASE

Type of Release Natural Gas Pipeline Fluids	Volume of Release 8 barrels	Volume Recovered 0 barrels
Source of Release 6" polyethylene pipeline operating at 25 lbs with a normal daily flow rate of 30 MCF	Date and Hour of Occurrence June 21, 2004 @ 1100	Date and Hour of Discovery June 21, 2004 @ 1600
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? Larry Johnson	
By Whom? Iain Olness of EPI	Date and Hour June 23, 2004 @ 1120	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.*
NA

Describe Cause of Problem and Remedial Action Taken.*
Polyethylene line began leaking. Clamp Installed.

Describe Area Affected and Cleanup Action Taken.*
Approximately 182 yd³ of soil contaminated above the NMOCD Remedial Guidelines was disposed of at an approved facility. Remaining soil was remediated on site via blending to achieve the following Remedial Goals: TPH = 100 mg/Kg, benzene = 10 mg/Kg, and BTEX = 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: <i>Mark Owens</i>	OIL CONSERVATION DIVISION	
Printed Name: Mark R. Owens		
E-mail Address: mrowens@Duke-Energy.com		
Title: Construction Maintenance Supervisor	Approved by District Supervisor:	
Date: 7-1-05 Phone: 505-397-5541	Approval Date:	Expiration Date:
Conditions of Approval:		Attached <input type="checkbox"/>

* Attach Additional Sheets If Necessary