NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

February 20, 2003

Mr. Paul Mulkey pdmulkey@duke-energy.com
Duke Field Energy Services
11252 W. Carlsbad Hwy.
Hobbs, NM 88240

Re: Closure Approval: G-28 Line Release Site and Historic Leak @ Site
Site Reference UL-P Sec-30 T-21S R-36E
Spill Date: 9-20-02
Closure Request Dated: 1-31-03

Dear Mr. Mulkey,

The **Closure Proposal** submitted to the New Mexico Oil Conservation (OCD) by Environmental Plus, Inc. for Dule Energy Field Services is **hereby approved.** Based on information provided, no further action is required at this time.

Please be advised that OCD approval does not relieve Duke Field Energy Services of liability should **remaining contaminants pose a future threat** to ground water, surface water, human health or the environment. Additionally, OCD approval does not relieve Duke Field Energy Services of responsibility for compliance with any other federal, state, or local laws and/or regulations.

If you have any questions or need assistance please feel free to call or e-mail me at (505) 393-6161, x111 or email lwjohnson@state.nm.us

Sincerely,

Larry Johnson - Environmental Engineer

Cc: Roger Anderson - Environmental Bureau Chief
Chris Williams - District I Supervisor
Bill Olson - Hydrologist
Paul Sheeley-Environmental Engineer
Pat McCasland – EPI: enviplus1@aol.com

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 Hwy Hobbs, NM 88240**	Telephone No. **505-397-5716**
Facility Name **G-28 Line**	Facility Type **Natural Gas Pipeline**

Surface Owner **DASCO Cattle Co. LLC (Atlee Snyder)**	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from	Feet from	Longitude	Latitude	County:
				South Line	West Line			
P	**30**	**21S**	**36E**	**722**	**4025**	**W103°17'56.44"**	**N32°26'40.33"**	**Lea**

NATURE OF RELEASE

Type of Release **Natural Gas and associated liquid components**	Volume of Release (bbl) **Unknown - Historical**	Volume Recovered (bbl) **0**
Source of Release **Steel Natural Gas Pipeline**	Date and Hour of Occurrence **Unknown**	Date and Hour of Discovery **9/20/02**
Was Immediate Notice Given? ☐ Yes ☐ No ☑ Not Required	If YES, To Whom? **NA**	
By Whom? **NA**	Date and Hour **NA**	
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.*
Corroded pipeline, line removed and replaced w/poly

Describe Area Affected and Cleanup Action Taken.*
~5400-ft^2 X 10-ft deep excavation. Contaminated soils below 10-ft level were left in place and covered with a 2-ft compacted clay barrier.

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: Paul Mulkey	OIL CONSERVATION DIVISION	
Printed Name: **Paul Mulkey**	Approved by District Supervisor:	
Title: **Construction & Maintenance Supervisor**	Approval Date:	Expiration Date:
Date: **1/31/03** Phone: **505-397-5716**	Conditions of Approval:	☐ Attached

Attach Additional Sheets If Necessary

DUKE ENERGY FIELD SERVICES

IRP-65
10/3/05

SITE INVESTIGATION, REMEDIATION, AND FINAL C-141 CLOSURE DOCUMENTATION

G28 092002 RELEASE SITE
DEFS REF: G28 092002
UL-P (SE¼ OF THE SE¼) OF SECTION 30 T21S R36E
~8.2 MILES WEST (271.1°) OF EUNICE
LEA COUNTY, NEW MEXICO
LATITUDE: 32°26'40.33"N LONGITUDE: 103°17'56.44"W

JANUARY 31, 2003

PREPARED BY: JCG

Environmental Plus, Inc.
2100 Avenue O
P.O. Box 1558
Eunice, NM 88231
Phone: (505)394-3481
FAX: (505)394-2601

ENVIRONMENTAL PLUS, INC. Micro-Blaze Micro-Blaze Out™
STATE APPROVED LAND FARM AND ENVIRONMENTAL SERVICES

January 31, 2003

Mr. Larry Johnson
Energy, Minerals, and Natural Resources Department
New Mexico Oil Conservation Division
1625 North French Dr.
Hobbs, New Mexico 88240

Subject: Duke Energy Field Services – G-28 092002 Final C-141 and Closure Documentation

Dear Mr. Johnson:

Environmental Plus, Inc. (EPI), on behalf of Duke Energy Field Services (DEFS) submits for your consideration and approval the Final C-141 and Closure Documentation for the "G-28 092002" remediation site. This report documents the vertical and horizontal extents of hydrocarbon contamination at the site, partial removal of contaminated soils above acceptable CoC levels, disposal of said soils at a NMOCD approved land farm, the placement of a 2-ft compacted clay barrier over the remaining contaminated soils left in place and the generation of an acceptable Risk Assessment Model to substantiate minimal risk of ground water impact. This submittal is consistent with the Initial C-141 and Remediation Plan submitted to NMOCD on October 1, 2002. Therefore, on behalf of Duke Energy Field Services, EPI requests that the NMOCD consider the information provided within this documentation and require "no further action" at this site.

If there are any questions please call Mr. Ben Miller or myself at EPI's offices, or at 505-390-0288 or 505-390-9804 respectively. Mr. Paul Mulkey of Duke Energy Field Services can be contacted at 505-397-5716.

Please address all official correspondence regarding this release to Mr. Paul Mulkey at:

Duke Energy Field Services
11525 West Carlsbad Highway
Hobbs, New Mexico 88240

Sincerely,

John Good, Environmental Consultant

cc: Paul Mulkey, Duke Energy Field Services, Hobbs, w/enclosure
Steve Weathers, Duke Energy Field Services, Denver, w/enclosure
Lynn Ward, Duke Energy Field Services, Midland, w/enclosure
Sherry Miller, President, Environmental Plus, Inc.
Ben Miller, Vice President/General Manager, Environmental Plus, Inc.
Pat McCasland, EPI Technical Manager, Environmental Plus, Inc.
File

ENVIRONMENTAL PLUS, INC.

P.O. BOX 1558 ••• 2100 AVENUE O ••• EUNICE, NEW MEXICO 88231
TELEPHONE 505•394•3481 ••• FAX 505•394•2601

Table of Contents

Executive Summary

Environmental Plus, Inc. (EPI) was notified by Duke Energy Field Services (DEFS) on September 20, 2002 regarding a pipeline release involving DEFS' G-28 natural gas gathering pipeline. The initial NMOCD Form C-141 (October 1, 2002) indicates a natural gas liquid (NGL) release of approximately 15-25 bbl, with no recovered liquids. The leak was a result of internal pipeline corrosion. Repair of the line was accomplished by clamping and ultimate replacement of the pipeline.

Characterization and remedial work at the site was performed by EPI during the period September 20, 2002 through January 6, 2003. The "G-28 092002" site is located ~8-miles west of Eunice, Lea County, NM, in UL-P, Section 30 T21S R36E. The NGL release occurred on property owned by Atlee Snyder, d.b.a. DASCO Cattle Company. The initial visible surface extent of the spill was approximately 2,016-ft^2 *(see Plate 3, Attachments)*. The vertical extent of contamination was ultimately determined to be ~25-ft below ground surface (bgs). Depth to ground water at this site is projected to be 224-ft bgs.

EPI excavated and disposed of 1,836-yd^3 of contaminated soil from the site. Composite bottom hole and sidewall soil samples were collected from the 10-ft bgs level and submitted to Cardinal Laboratories, Hobbs, NM on October 18, 2002. Analyses results of these composite samples indicated that contamination above remedial goals remained in certain areas of the excavation. The site was vertically and horizontally delineated with nine boreholes, and the resultant data confirmed that TPH, BTEX, and Benzene levels remained significantly above remedial goals down to ~25-ft bgs in the area near the Point of Release (POR).

It was decided to excavate the contaminated soils remaining in certain sidewalls and in the bottom of the western portion of the excavation, and place these contaminated soils over the contaminated bottom portion near the POR. A 2-ft compacted and certified clay barrier was then placed over this consolidated contaminate pile, with a 5-ft clean overlap area. The remaining "clean" volume of the excavation was backfilled with clean caliche and topsoil obtained from Mr. Snyder.

A VADSAT Risk Assessment Model (1000-year projection) was generated for the site with, and without, the clay barrier installed. Results of the computer generated risk models indicate that there is no risk presented to the aquifer at this site with the remediation option selected.

All contaminated soil removed from the site was disposed of at the NMOCD approved Environmental Plus, Inc. Land Farm. The excavation was backfilled with clean caliche and topsoil purchased from the landowner. The site was contoured to prevent pooling over the excavation site. The surface damaged area beyond road or pipeline rights-of-way will be evaluated for new vegetative growth in Spring-2003 and reseeded with natural grasses if determined necessary.

1.0 Introduction

This report addresses the site investigation and remediation of the DEFS "G-28 092002" natural gas gathering line remediation site. EPI was notified on September 20, 2002 by DEFS regarding a natural gas and associated NGL release at this site. The initial C-141 Form submitted to NMOCD (October 1, 2002) reports the release volume (NGL) as 15-25 bbl, with no recovery. EPI commenced GPS delineation, photography, characterization and preliminary excavation of the contaminated soil in the immediate area of the reported leak on September 20, 2002. The initial delineated site consisted of a 2,016-ft^2 area in a "V" shaped flow pattern (*see Plate 3*). During remediation of this release site, contaminated soil from a historical release was encountered and the

excavation area was expanded to an area of 5,377-ft^2. Remediation of the site consisted of excavation and disposal of contaminated soil down to the 10-ft bgs level, soil analyses, placement of a 2-ft compacted clay barrier, backfilling and contouring of the excavation. Remediation of the site was completed in early January-2003.

2.0 Background

The site is associated with the DEFS G-28 natural gas gathering pipeline. This release site is located in Unit Letter P, (SE¼ of the SE¼), Section 30, T21S, R36E, (32°26'40.33"N and 103°17'56.44"W), and approximately 8 miles west of Eunice, NM. The property is owned by Atlee Snyder, d.b.a. DASCO Cattle Company. A location map, topographical map of the site and detailed GPS site diagrams are included as Plates 1-4 in the Attachments.

The natural gas and associated NGL release at this site was discovered and reported on September 20, 2002. The leak was the result of internal pipe corrosion. The pipe was initially repaired and ultimately replaced with poly pipe by DEFS personnel.

3.0 Site Description

3.1 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 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.

3.2 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.

3.3 Area Ground Water

The depth to the unconfined ground water aquifer at this site is projected to be 224-ft bgs. The site is located in the Eunice Plains physiographic area approximately 8.2-miles west of Eunice, NM. Water Column Reports obtained from the NM State Engineers Office and New Mexico Tech University indicate a range of water depths of from 147-ft to 247-ft bgs within an ~7-mile radius of the release site. Ground water gradient in this area is generally to the southeast. *Plate 6 [Attachments] is a plot of the wells of record within the area of concern*

with their relative X,Y,Z coordinates utilized to create the Surfer projection contained in Plate 7. The Surfer 8.0 projection (Plate 7) of the water table elevation utilizes the surface elevations and recorded water depths of the water wells within the area represented in Plate 6. Surfer projects the water table elevation at the site to be 3391-ft amsl. Subtracting the projected water table elevation (3391-ft) from the USGS surface elevation (3615-ft) yields the projected water depth of 224-ft bgs at this site.

3.4 Area Water Wells

All recorded or observed water wells are greater than 1000 horizontal feet from the site.

3.5 Area Surface Water Features

No surface water bodies exist within 1000 horizontal feet of the site.

4.0 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 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), i.e., TPH^{8015m}, Benzene, and the mass sum of Benzene, Toluene, Ethyl Benzene, and total Xylenes (BTEX), was determined based on the NMOCD Ranking Criteria as follows:

- *Depth to Ground water, 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 ground water from the lower most contamination, the NMOCD ranking score for the site is 0 points with the soil remedial goals highlighted in the Site Ranking table presented below.

<table>
<tr><th>1. Ground Water</th><th>2. Wellhead Protection Area</th><th>3. Distance to Surface Water</th></tr>
<tr><td>Depth to GW <50 feet: 20 points</td><td rowspan="2">If <1000' from water source, or; <200' from private domestic water source: 20 points</td><td><200 horizontal feet: 20 points</td></tr>
<tr><td>Depth to GW 50 to 99 feet: 10 points</td><td>200-1000 horizontal feet: 10 points</td></tr>
<tr><td>Depth to GW >100 feet: 0 points</td><td>If >1000' from water source, or; >200' from private domestic water source: 0 points</td><td>>1000 horizontal feet: 0 points</td></tr>
<tr><td>Ground Water Score = 0</td><td>Wellhead Protection Score= 0</td><td>Surface Water Score= 0</td></tr>
<tr><td colspan="3">Site Rank (1+2+3) = 0 + 0 + 0 = 0 points (for soil 0-124-ft bgs)</td></tr>
</table>

Total Site Ranking Score and Acceptable Remedial Goal Concentrations			
Parameter	20+ (> 174-ft bgs)	10 (124-174-ft bgs)	**0 (0-124-ft bgs)**
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			

5.0 Subsurface Soil Investigation

The first subsurface soil-sampling event was a composite sampling taken from the bottom of the excavation when the 10-ft bgs level was attained. Lab analyses results of this first sampling event (10-18-02) confirmed the following: *(Note: All soil analyses results are contained in the Attachments in graphical and tabular formats. In addition, photocopies of all laboratory reports and Chains-of-Custody are provided. Excavation Areas A, B, C and D are designated in Plate 4 - Attachments).*

- **Excavation Area A**: The bottom (10-ft) and east sidewall composites of this area displayed TPH and BTEX levels well above the respective remedial goals of 5000 mg/kg and 50 mg/kg. Chloride levels were considerably above the remedial goal of 250 mg/kg in the bottom and north sidewall composites, and slightly above in the west sidewall. Benzene and sulfate contamination proved not to be an issue in this area (A) of the excavation.
- **Excavation Area B**: The bottom (10-ft), west and east sidewall composites of this area displayed TPH levels well above the remedial goal of 5000 mg/kg. BTEX levels were statistically close to the remedial goal of 50 mg/kg in the bottom (48 mg/kg) and in the east sidewall (59 mg/kg). The west sidewall displayed a BTEX level significantly high (93 mg/kg). Benzene, chlorides or sulfates were not an issue in this area (B) of the excavation.
- **Excavation Area C**: Contamination levels for all Constituents of Concern (CoC's) in this area were well below remedial goals at the 10-ft excavation level.
- **Excavation Area D**: The bottom (10-ft) composite of this area displayed a TPH level (8479 mg/kg) statistically above the remedial goal of 5000 mg/kg. BTEX levels were statistically close to the remedial goal of 50 mg/kg in the bottom (40 mg/kg) and in the south sidewall (46 mg/kg). Chloride and sulfate levels (1392 mg/kg and 806 mg/kg respectively) were statistically above the remedial goals of 250 mg/kg and 600 mg/kg in the south sidewall composites, especially the chlorides.

Based on the above composite delineations, the decision was made to delineate the vertical and horizontal contaminant extents of the site with the drilling of 9 boreholes *(see Plate 4)*. The borehole drilling and sampling operation commenced on Nov-1. Due to heavy rains in the area, the operation was not completed until Nov-12. Determination of necessary borehole depth was accomplished with onsite VOC analysis utilizing portable Photo Ionization Detection (PID) equipment. The analytical results of this sampling event indicated the following:

- The horizontal extents of the excavation were adequate. The sidewall boreholes (1,2,4,7,9) show no significant contamination of any CoC down to the 15-ft bgs level.

- **Excavation Area A:** TPH, BTEX and Benzene contamination increased in concentration down to the 17-ft bgs level, and did not decrease to less-than remedial levels until approximately 25-ft bgs. Chloride and sulfate levels were below remedial goals from the 10-ft level down.
- **Excavation Area B:** The high TPH level (8910 mg/kg) displayed at the 10-ft bgs excavation bottom nearly fell below detection limits at the 17-ft bgs level. BTEX and Benzene were below detection limits at this level.
- **Excavation Area D:** The composite TPH concentration of 8479 mg/kg displayed at the 10-ft bgs excavation bottom fell to less than detection limit in the east section of Area D (BH6) and to 2433 mg/kg in the west section of Area D (BH8) at the 17-ft bgs level. BTEX and Benzene concentrations at this level were undetectable or insignificant.

6.0 Ground Water Investigation

Ground water depth is projected to be 224-ft bgs at the site. The site was excavated to a maximum depth of 15-ft (Area D). All contaminated soil left within the excavation *(see Section 7.0 below)* was covered with a 2-ft impermeable layer of compacted clay. The remaining volume of the excavation was backfilled with clean caliche and topsoil. Based on the removal and/or containment of the Constituents of Concern and a remaining depth to ground water of ~ 200-ft, there will be no need for further ground water investigation at this site.

7.0 Remediation

Remediation of the site commenced on September 20, 2002 and continued through January 6, 2003. Remediation of the site consisted of excavation and disposal of 1,836 yd^3 of contaminated soil from the excavation. All contaminated soil removed from the site was disposed of in EPI's NMOCD approved Land Farm, located south of Eunice, NM.

Upon determination that the vertical extent of contamination went to approximately 25-ft bgs in excavation Area A, it was decided not to further excavate and dispose, but rather to isolate the remaining contaminated soils with the placement of a 2-ft compacted clay barrier over the contaminated zone (Areas A and B). To allow a 5-ft overlap for the clay barrier, the west, north and east sidewalls of Areas A and B were excavated an additional 5-ft. This sidewall material had displayed hydrocarbon and inorganic contamination from the 10-18-02 composite sampling, so it was placed on top of the in-place contamination of Area A-B (leaving the 5-ft overlap clear). Approximately 3-ft of the south sidewall of Area D, and an additional 5-ft of the bottom of Area D was excavated, with this contaminated material being placed on top of Area A-B. The clean area of the excavation (including the 5-ft overlap area) was then backfilled with clean caliche up to the elevation of the contaminated pile. At this juncture, the clay barrier was placed over the contaminated soil pile in Area A-B, including the 5-ft overlap area. The clay barrier was placed in two stages, 1-ft thickness in each stage. After each 1-ft layer of clay was placed, it was compacted and tested by Pettigrew and Associates, Hobbs, NM. Both layers tested >95% compaction. *(Compaction test results are included in the Attachments).* After the clay barrier was in place and certified, the remainder of the excavation was backfilled with clean topsoil, smoothed and contoured. *(Plate 5 is a final site feature demarcation incorporating a GPS delineation of the surface damage area).*

8.0 VADSAT Risk Assessment

A very conservative 1000-year Risk Assessment of vertical hydrocarbon migration for this site was generated utilizing the American Petroleum Institute's VADSAT 3.0 software. Although the sampling protocol for this site does not show an inordinately significant presence of Benzene, it was the chemical species utilized to run the assessment because it is the lightest and fastest migrating of the chemical choices VADSAT offers. VADSAT calculates the Mean Infiltration Rate based on annual precipitation minus a runoff coefficient and the evaporation rate. This number must be positive, so VADSAT does not accommodate arid and semi-arid areas such as southeast NM where the evaporation rate exceeds the precipitation rate.

Two assessments were run for this site: one with no clay barrier present and one with a clay barrier present. Other than the presence of the clay barrier, the input parameters for each assessment are identical. The downstream receptors were set at 1-meter, 10-meters and 100-meters (X=1 X=10 X=100). The transverse offset (Y value) was set at 0-meters, and the depth into the aquifer (Z value) was set at 0.

The results of the computer modeling for the site without a clay barrier in place indicate that benzene (if it were present) would reach the top of the aquifer directly under the site in approximately 200-years and reach its peak concentration of 0.0003 mg/L 100-years later. The computer modeling of the site with the clay barrier in place shows a flat-line of 0 values for the 1000-year period modeled, thus the contaminant migration would never reach the aquifer.

The text files generated by the VADSAT program are included in the Attachments (pages 17-19). These files include the parameters of the two models and the data points generated for the 1000-year span. Plate 8 is the graphical representation of both assessment models that were generated.

9.0 Closure Justification

This report documents successful implementation of the Remediation Plan approved by NMOCD for this release site. 1,836-yd3 of soil contaminated above acceptable CoC remedial concentrations was excavated and removed from the location. Disposal of the RCRA Exempt contaminated soils was at the Environmental Plus, Inc. NMOCD approved land farm. A 2-ft compacted and certified clay barrier was placed over all contaminated soil that was allowed to remain in place in the excavation. The VADSAT Risk Assessment model for this site, with a conservative parameter basis, indicates that there is no risk inherent to leaving the contaminants in-place, and that no threat to the existing aquifer beneath the site presents itself. The excavation was backfilled with clean caliche and topsoil and properly contoured to provide adequate drainage. 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.

District I
1625 N. French Dr., Hobbs, NM 88240
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1301 W. Grand Avenue, Artesia, NM 88210
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1000 Rio Brazos Road, Aztec, NM 87410
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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	Contact
Duke Energy Field Services	**Paul Mulkey**
Address	Telephone No.
11525 West Carlsbad Hwy Hobbs, NM 88240	**505-397-5716**
Facility Name	Facility Type
G-28 Line	**Natural Gas Pipeline**

Surface Owner	Mineral Owner	Lease No.
DASCO Cattle Co. LLC (Atlee Snyder)		

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from South Line	Feet from West Line	Longitude	Latitude	County:
P	**30**	**21S**	**36E**	**722**	**4025**	**W103°17'56.44"**	**N32°26'40.33"**	**Lea**

NATURE OF RELEASE

Type of Release	Volume of Release (bbl)	Volume Recovered (bbl)
Natural Gas and associated liquid components	**Unknown - Historical**	**0**
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Steel Natural Gas Pipeline	**Unknown**	**9/20/02**
Was Immediate Notice Given? ☐ Yes ☐ No ☑ Not Required	If YES, To Whom? **NA**	
By Whom? **NA**	Date and Hour **NA**	
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.*
Corroded pipeline, line removed and replaced w/poly

Describe Area Affected and Cleanup Action Taken.*
~5400-ft² X 10-ft deep excavation. Contaminated soils below 10-ft level were left in place and covered with a 2-ft compacted clay barrier.

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: *Paul Mulkey*	OIL CONSERVATION DIVISION	
Printed Name: **Paul Mulkey**	Approved by District Supervisor:	
Title: **Construction & Maintenance Supervisor**	Approval Date:	Expiration Date:
Date: **1/31/03** Phone: **505-397-5716**	Conditions of Approval:	☐ Attached .

Attach Additional Sheets If Necessary

ATTACHMENTS

Plate 1: Site Location Map

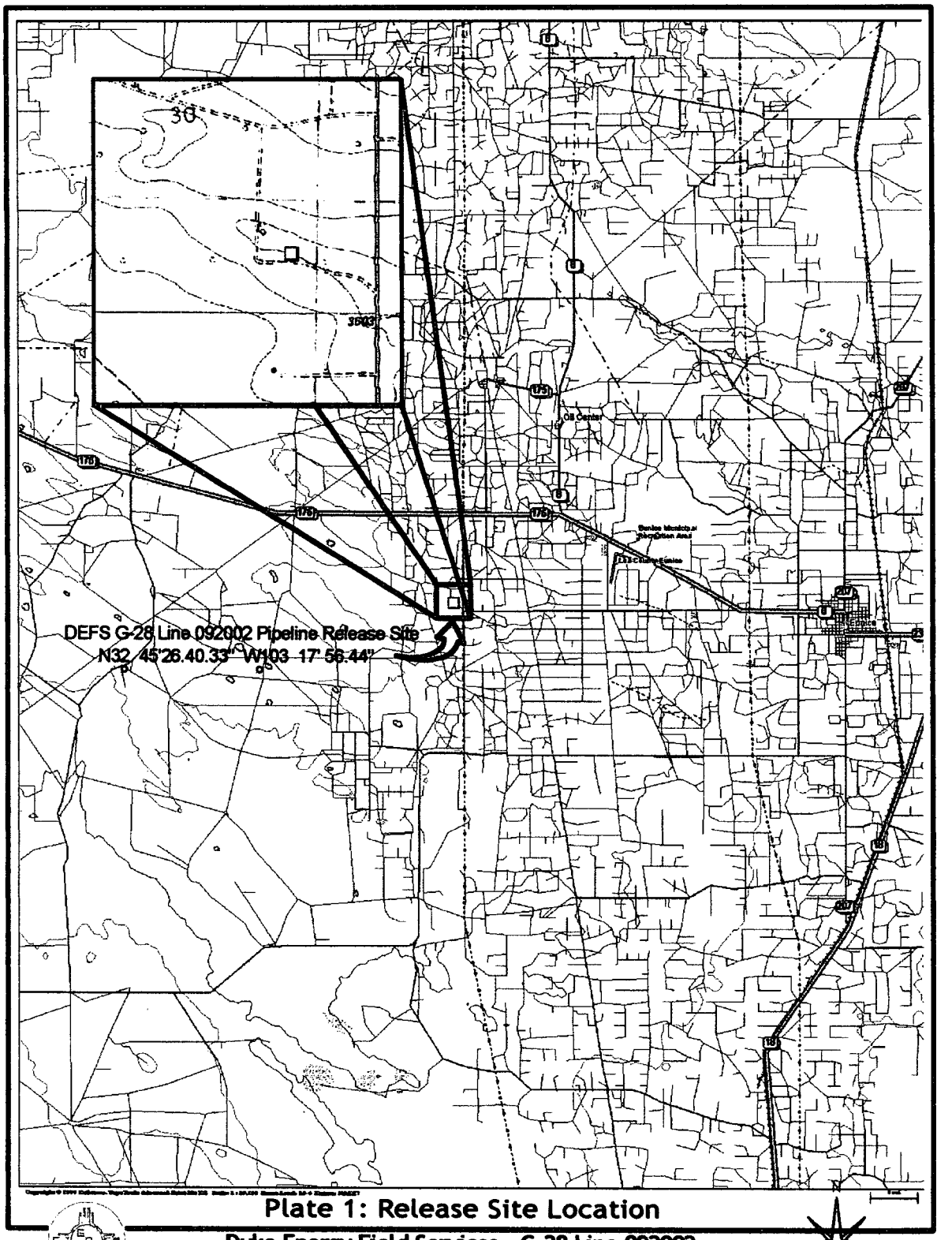


Plate 1: Release Site Location
Duke Energy Field Services - G-28 Line 092002
Lea County, NM; UL-P Section 30 T21S R36E

Plate 2: Site Topography Map

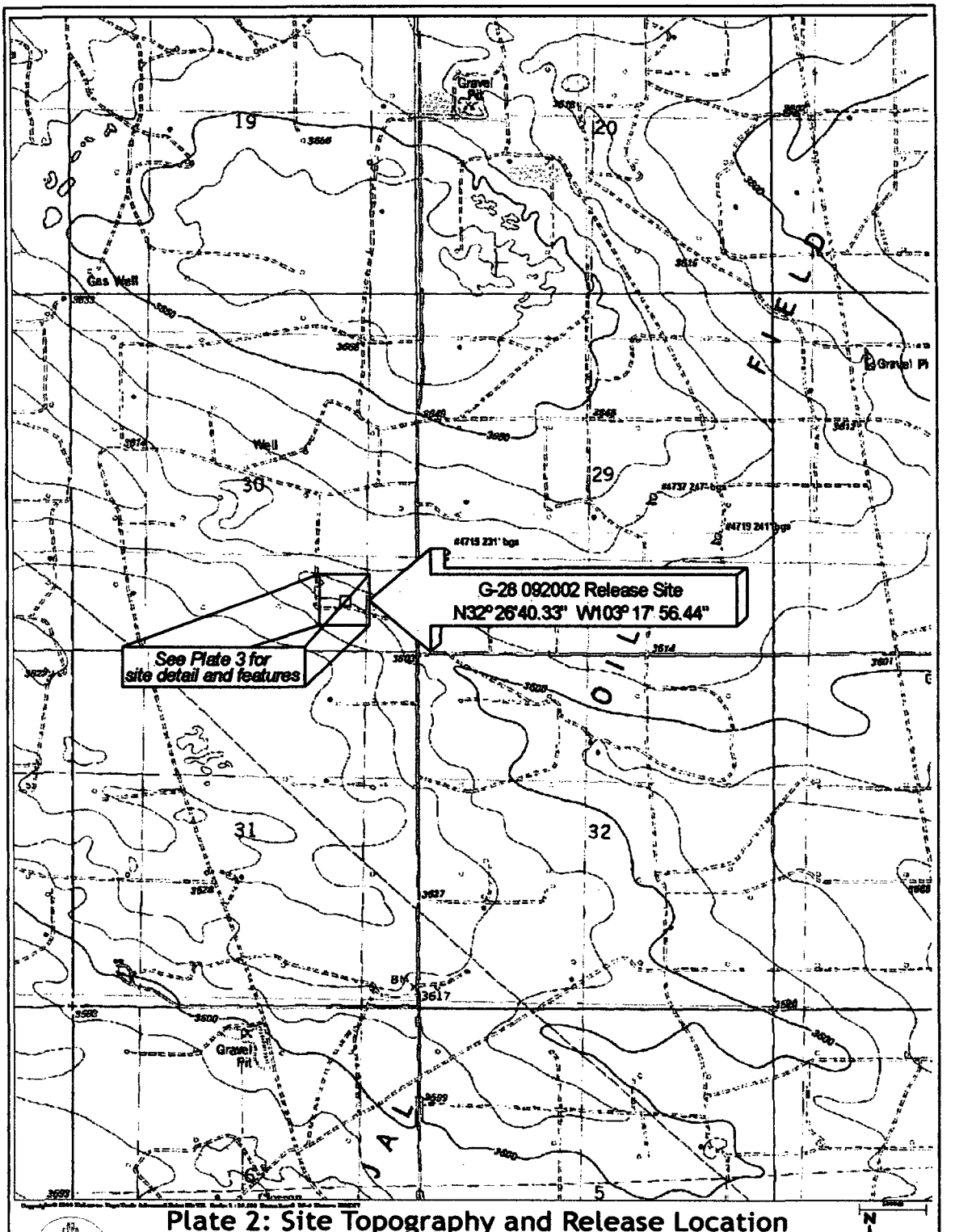


Plate 2: Site Topography and Release Location

Duke Energy Field Services - G28 092002

Lea County, NM; UL-P Section 30 T21S R36E

Plate 3: Initial and Interim GPS Demarcations with Site Features

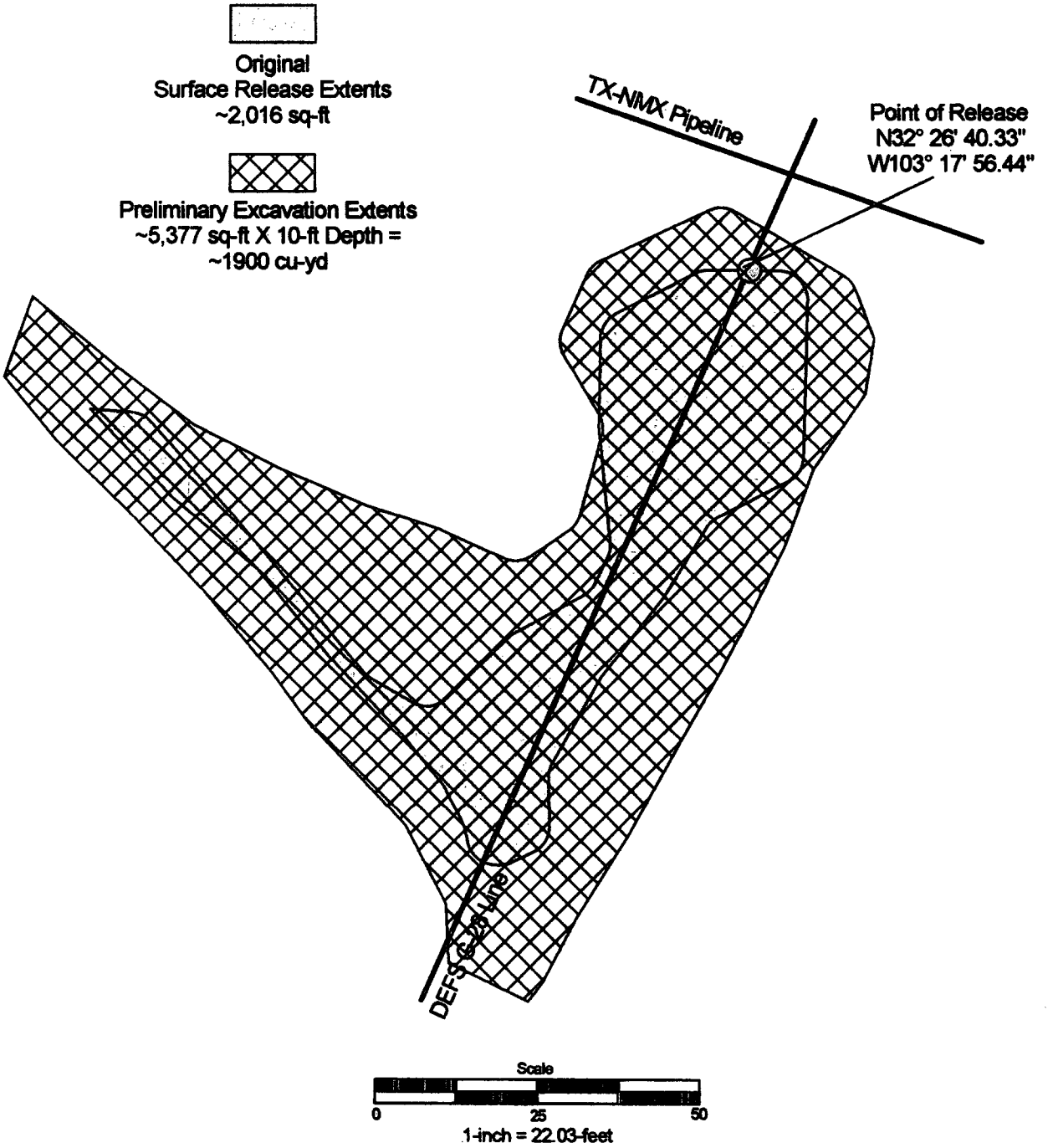


Plate 3: Release Site GPS Demarcation
Duke Energy Field Services - G-28 Line 092002
Lea County, NM; UL-P Section 30 T21S R36E
Drawn By: JCG Date: Oct-02 Revised:

Plate 4 – Composite Sampling Results and Borehole Locations

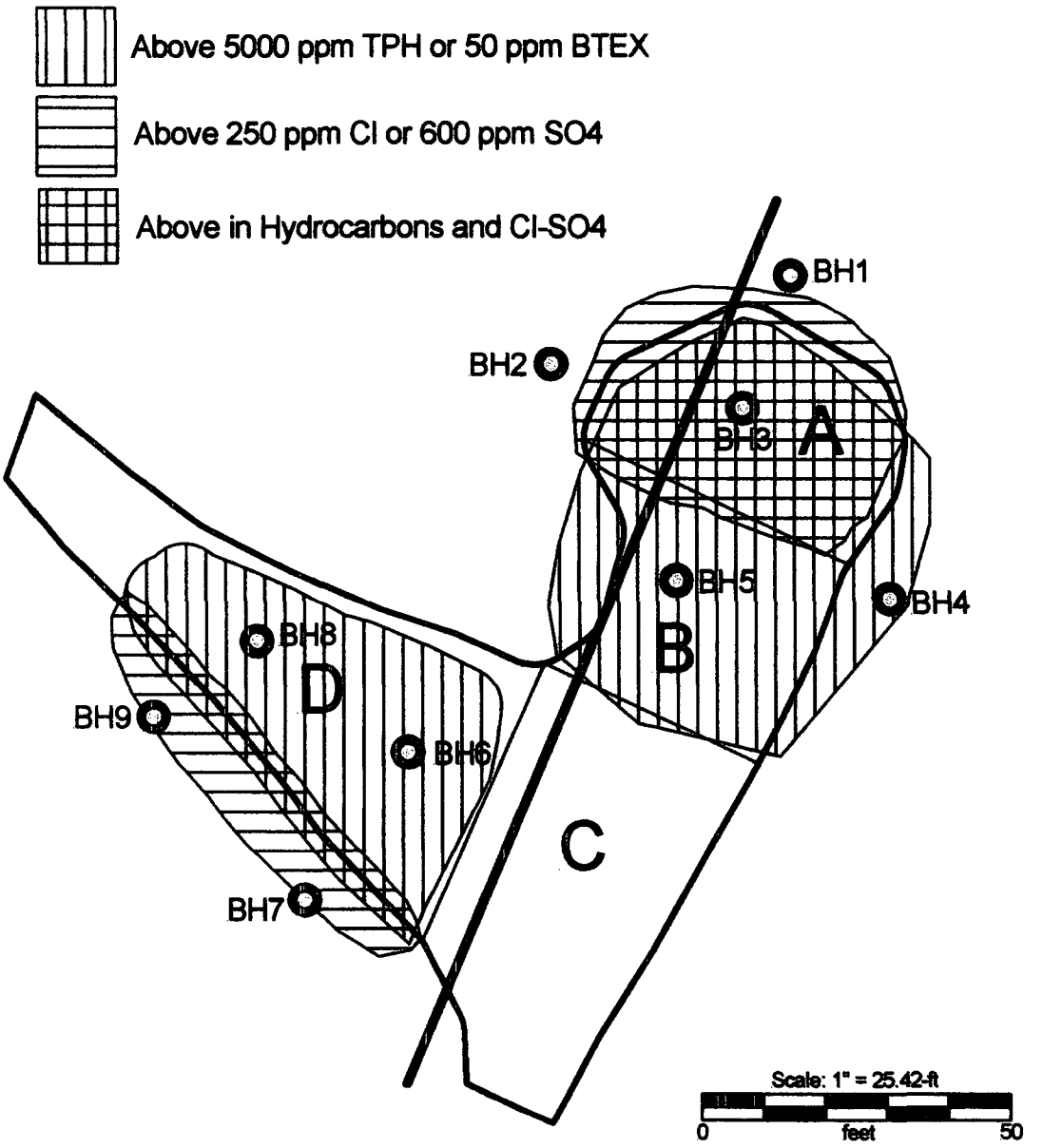


Plate 4: Composite Sampling (10-18-02)Results and Borehole Locations

Duke Energy Field Services - G-28 Line 092002

Lea County, NM; UL-P Section 30 T21S R36E

Drawn By: JCG Date: Oct-02 Revised: Jan-03

Plate 5 – Final Feature GPS Demarcation

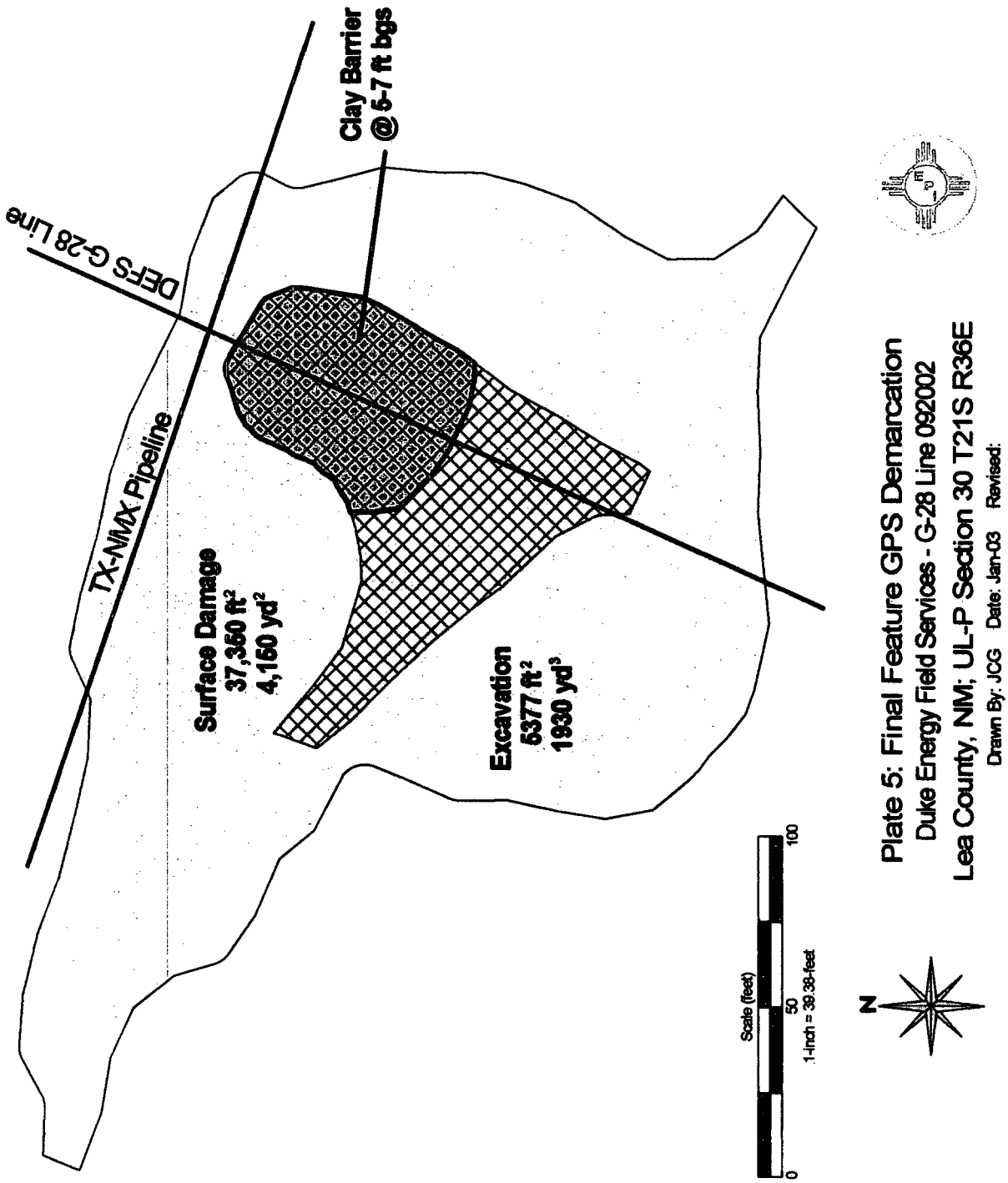


Plate 6: Water Well Locations w/ XYZ Grid Coordinates

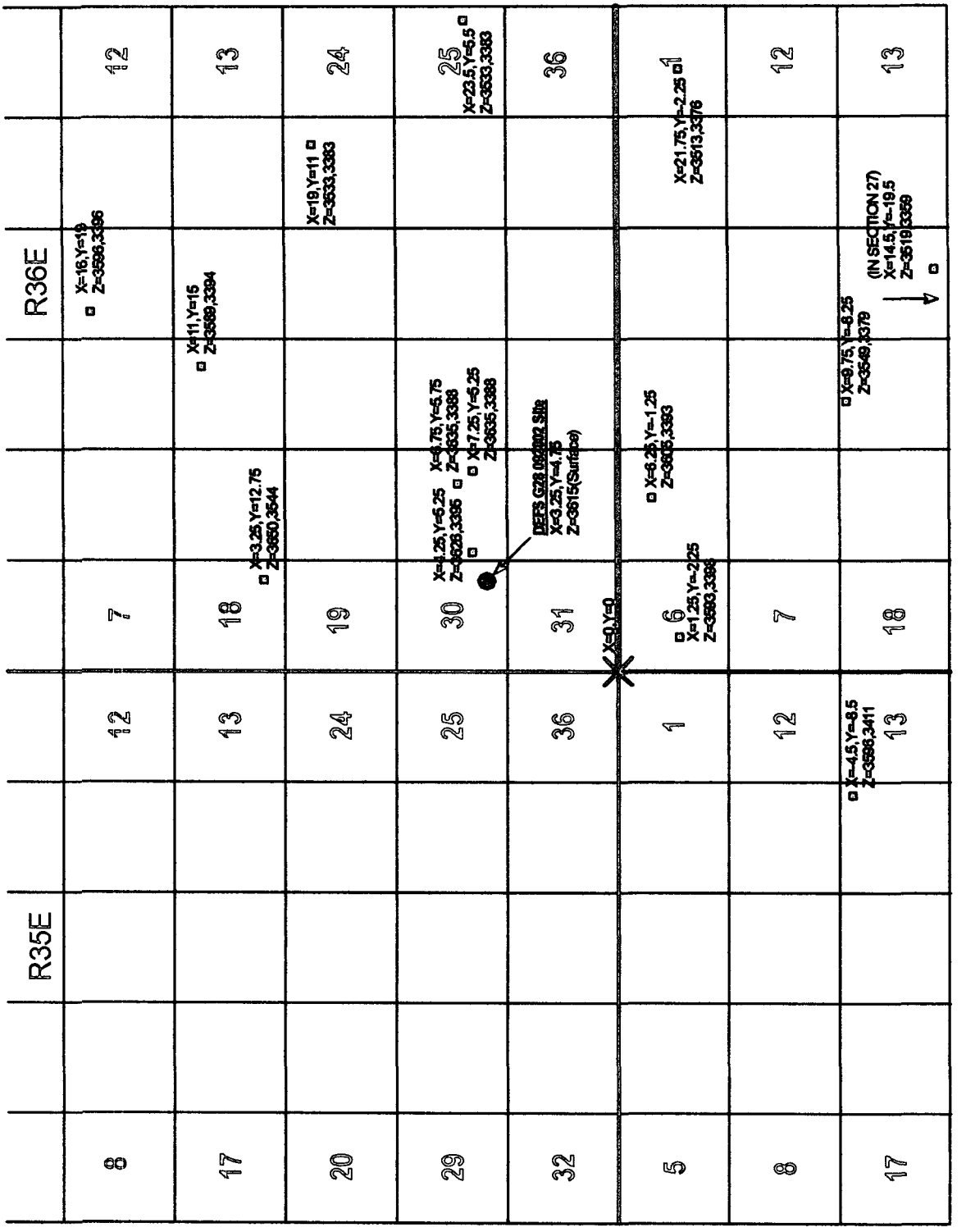


Plate 6 - Water Well Grid Locations (Surfer XYZ Coordinates)

Duke Energy Field Services - G28 092002 Release Site
Projected Water Table Elevations (Surfer 8.0)
7-mile Radius from Release Site

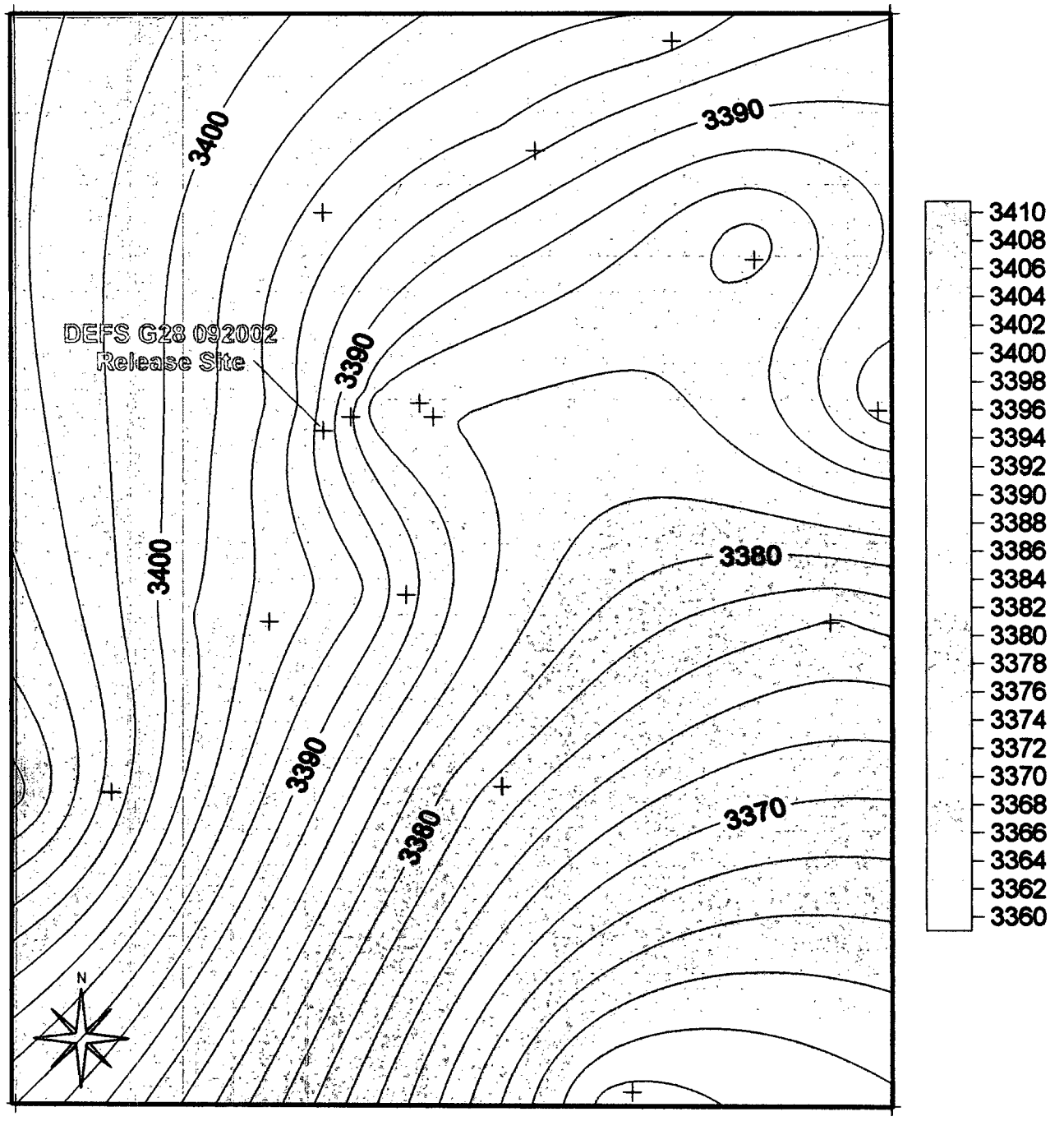
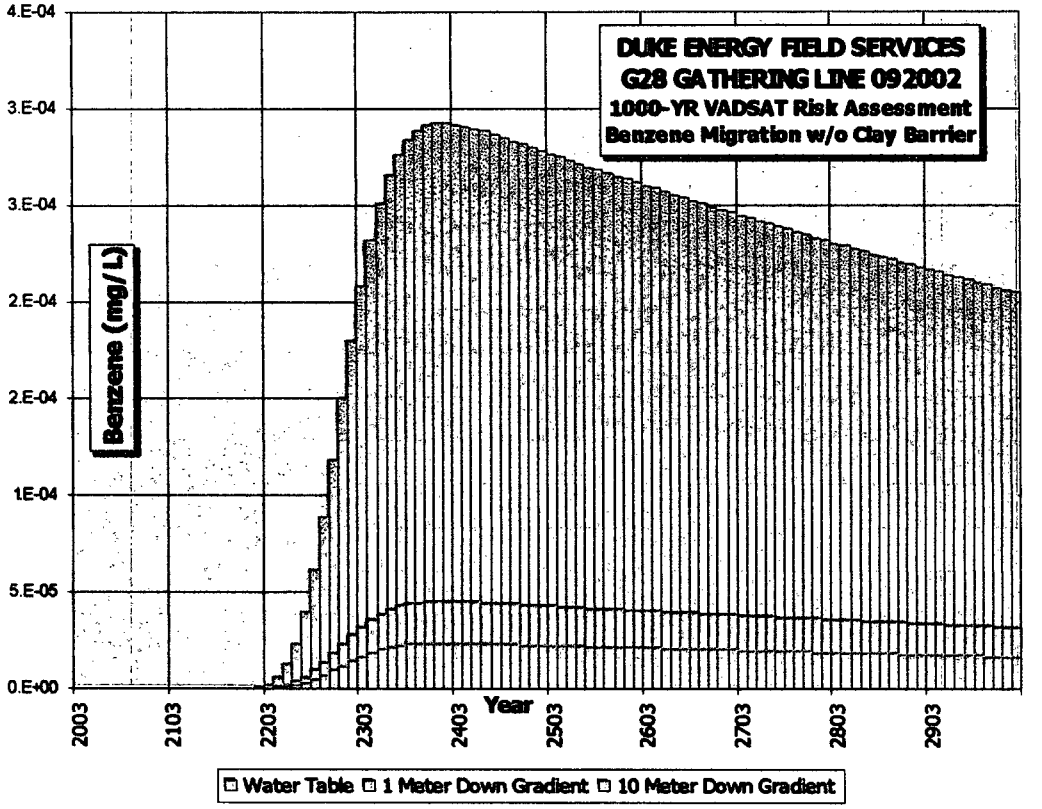


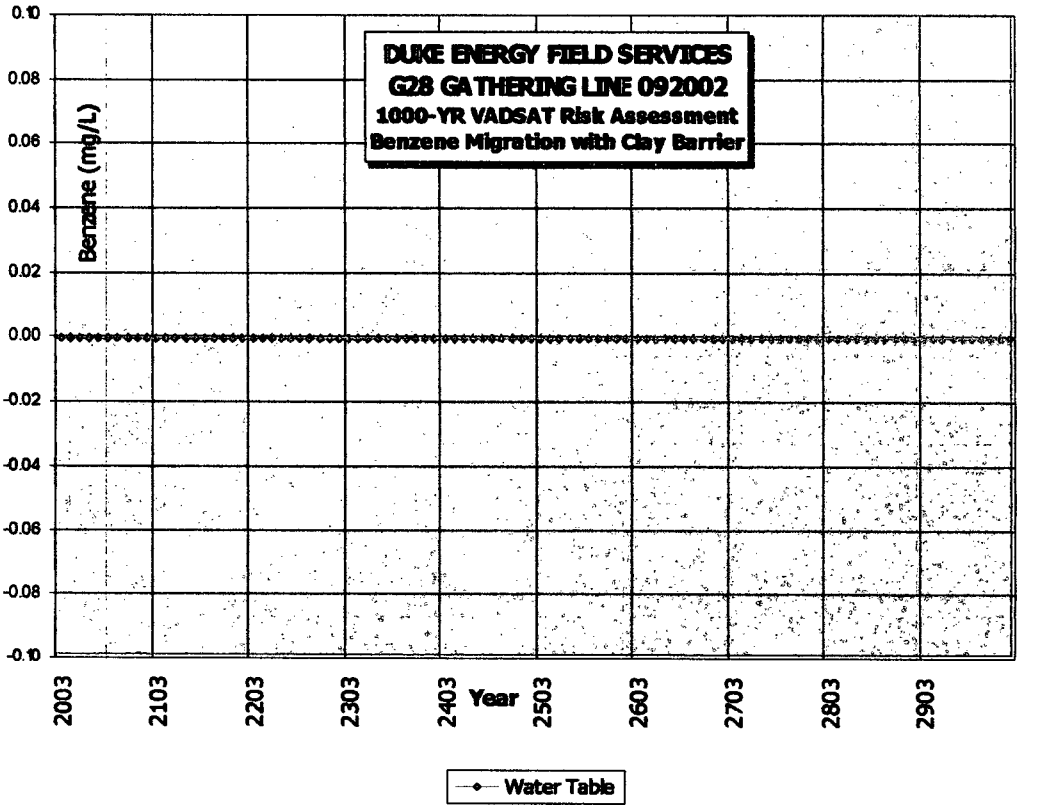
PLATE 7

WATER COLUMN REPORT 01/22/03											
Well Number	Well Locations						Well Depth	Water Depth	Water Column	Surface Elevation	Water Elevation
	Tws	Rng	Sec	Q	Q	Q					
CP00734	21S	36E	10	1			215	200	15	3596	3396
CP00505	21S	36E	16	2			215	195	20	3589	3394
CP00676	21S	36E	18	4	4	1	140	106	34	3650	3544
CP00664	21S	36E	23	2			185	150	35	3533	3383
CP00484	21S	36E	25	4	2		207	148	59	3540	3392
*4715	21S	36E	29	3	1	3		231		3626	3395
*4737	21S	36E	29	4	1	2		247		3635	3388
*4719	21S	36E	29	4	2	3		241		3625	3384
CP00753	22S	35E	14	2	2		215	185	30	3596	3411
CP00763	22S	36E	1	3	2	2	265	137	128	3513	3376
CP00727	22S	36E	5	2	3	1	267	212	55	3605	3393
CP00469	22S	36E	6	3	2	1	220	195	25	3593	3398
CP00070	22S	36E	16	1	2	2	220	170	50	3549	3379
CP00575	22S	36E	27	4	3		198	160	38	3519	3359

(quarters are 1=NW 2=NE 3=SW 4=SE
(quarters are biggest to smallest)
* NM Tech Database

Plate 8: VADSAT 1000-year Risk Assessments





VADSAT Version 3.0
A Monte Carlo Model for Assessing the Effects of Soil Contamination on Groundwater Quality

Developed by:
Environmental Systems and Technologies Inc.
Blacksburg, Virginia
Tel: 703-552-0685, Fax: 703-951-5307

For
The American Petroleum Institute
1995

PROJECT TITLE: **DEFS G28 092002**

SOURCE AND CHEMICAL DATA ****
DEPTHM, MEAN THICKNESS OF WASTE ZONE (m) = 8.22960

DEPSTD, STD.DEV. OF THICKNESS OF WASTE ZONE = 0.00000

AREAM, MEAN WASTE ZONE AREA (m^2) = 185.81000
STDA, STD.DEV. OF WASTE ZONE AREA = 0.00000

RLWM, MEAN L/W RATIO (-) = 1.00000
STDRLW, STD.DEV. OF L/W RATIO = 0.00000

CVRTHM, MEAN VALUE OF COVER THICKNESS (m) = 1.52400
CVRTHS, STD.DEV. OF COVER THICKNESS = 0.00000

KOCM, MEAN ORG. CARBON PARTITION COEF (cm^3/g)= 83.20000
STDKOC, STD.DEV. OF ORG.CARBON PARTITION COEF= 0.00000

FMOLM, MEAN INIT.VOL.FRAC. OF CONTAMINANT(-) = 0.02439
FMOLSTD, STD.DEV. OF VOL.FRAC. OF CONTAMINANT= 0.00000

CMFM, MASS OF CONTAMINANT PER MASS OF WASTE(mg/kg) = 1000.00000
CMFSD, STD.DEV. OF MASS CONTAMINANT PER MASS WASTE = 0.00000

HCCONM, HYDCARBON MASS FRAC. IN WASTE (mg/kg)= 41000.00000
HCCONS, STD OF HYDCARBON MASS FRAC. IN WASTE = 0.00000

CHEMICAL SPECIES benzene

MOLW, MOLECULAR WT. OF CONTAMINANT (g/mole) = 78.10000

AVERMW, AVG. MOL. WT. OF OILY WASTE (g/mole) = 100.00000

RHO, DENSITY OF CONTAMINANT (g/cm^3) = 0.87600

RHOG, AVERAGE DENSITY OF HYDROCARBON (g/cm^3)= 0.90000

SOL, AQUEOUS SOLUB. OF CONTAMINANT (g/m^3) = 1790.00000

HENRYC, HENRY'S CONSTANT (-) = 0.23000

DIFFA, DIFFUSION COEF. IN FREE AIR (m^2/day) = 0.77000

HYDROGEOLOGICAL PROPERTIES

** UNSATURATED ZONE INPUT PARAMETERS **
GAMMAM, MEAN UNSAT ZONE DECAY COEF (1/day) = 0.00010
STDGAM, STD.DEV. OF UNSAT ZONE DECAY COEF = 0.00000

UNFOCM, MEAN UNSAT ZONE ORGANIC CARBON FRACTION (-) = 0.00000
UNFOCS, STD.DEV. OF UNSAT ZONE ORGANIC CARBON FRAC. = 0.00000

FKSW, MEAN SAT. CONDUCTIVITY (m/day) = 0.02900
STDFKS, STD.DEV. OF SAT. CONDUCTIVITY = 0.000

DISTM, MEAN DEPTH TO GROUNDWATER (m) = 60.96000
STDDST, STD.DEV. OF DEPTH TO GROUNDWATER = 0.00000

UNPORM, MEAN VADOSE ZONE POROSITY (-) = 0.38000
SUNPOR, STD.DEV. OF VADOSE ZONE POROSITY = 0.00000

PARNM, MEAN VALUE OF VG PARAMETER N (-) = 1.23000
SDPARN, STD.DEV. OF VG PARAMETER N = 0.00000

RESWCM, MEAN RESIDUAL WATER CONTENT (-) = 0.01110
RESWCS, STD.DEV. OF RESIDUAL WATER CONTENT = 0.00000

ALFINM = 0, UNSAT DISPERSIVITY CALCULATED INTERNALLY
** SATURATED ZONE INPUT PARAMETERS **

LAMBW, MEAN SAT. ZONE DECAY COEFF. (1/day) = 0.00010
SLAMB, STD.DEV. OF SAT. ZONE DECAY COEFF. = 0.00000

PORM, MEAN SAT. ZONE POROSITY (-) = 0.20000
STDPOR, STD.DEV. OF SAT. ZONE POROSITY = 0.00000

FOCM, MEAN SAT. ZONE ORG. CARBON FRAC. (-) = 0.00000
STDFOC, STD.DEV. SAT. ZONE ORG. CARBON FRAC.= 0.00000

ALRLTM, MEAN DISPERS, RATIO LONG/TRANSV. (-) = 3.00000
SALRLT, STD.DEV. OF DISP. RATIO LONG/TRANSV. = 0.00000

ALRTVM, MEAN DISPERS. RATIO TRANSV/VERT. (-) = 87.00000
SALRTV, STD.DEV. OF DISP. RATIO TRANSV/VERT. = 0.00000

CONDS, SAT. HYDRAULIC COND. (m/day) = 1.03000
SCONDS, STD.DEV. OF SAT HYDRAULIC COND. = 0.00000

GRADS, HYDRAULIC GRADIENT (m/m) = 0.02700
SGRADS, STD.DEV. OF HYDRAULIC GRADIENT = 0.00000

HMEAN, MEAN AQUIFER THICKNESS (m) = 23.40000
STDH, STD.DEV. OF AQUIFER THICKNESS = 0.00000

QINM, MEAN INFILTRATION RATE (m/day) = 0.00011
QINSTD, STD.DEV. OF INFILTRATION RATE = 0.00000

LOCATION OF RECEPTORS:

	X (M)	Y (M)	Z (M)
RECEPTOR(1)	1.0	0.0	0.0
RECEPTOR(2)	10.0	0.0	0.0
RECEPTOR(3)	100.0	0.0	0.0

BREAKTHROUGH CURVES

CONCENTRATIONS (MG/L) AT:

WITH NO CLAY BARRIER INSTALLED

TIME (DAYS)	WATER TABLE	RECEPTORS (in order) BELOW THE SOURCE		
3650.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
7300.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
10950.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
14600.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
18250.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
21900.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
25550.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
29200.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
32850.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
36500.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
40150.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
43800.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
47450.0000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
51100.0000	0.4347E-11	0.6528E-12	0.3137E-12	0.5358E-14
54750.0000	0.8420E-10	0.1274E-10	0.6181E-11	0.1145E-12
58400.0000	0.1014E-08	0.1543E-09	0.7546E-10	0.1496E-11
62050.0000	0.8266E-08	0.1265E-08	0.6225E-09	0.1306E-10
65700.0000	0.4872E-07	0.7487E-08	0.3704E-08	0.8156E-10
69350.0000	0.2187E-06	0.3321E-07	0.1677E-07	0.3847E-09
73000.0000	0.7806E-06	0.1189E-06	0.6025E-07	0.1432E-08
76650.0000	0.2291E-05	0.3498E-06	0.1779E-06	0.4357E-08
80300.0000	0.5686E-05	0.8703E-06	0.4437E-06	0.1116E-07
83950.0000	0.1222E-04	0.1874E-05	0.9578E-06	0.2464E-07
87600.0000	0.2320E-04	0.3564E-05	0.1825E-05	0.4790E-07
91250.0000	0.3956E-04	0.6087E-05	0.3123E-05	0.8337E-07
94900.0000	0.6151E-04	0.9476E-05	0.4869E-05	0.1319E-06
98550.0000	0.8829E-04	0.1362E-04	0.7007E-05	0.1923E-06
**********	0.1183E-03	0.1827E-04	0.9410E-05	0.2611E-06
**********	0.1496E-03	0.2311E-04	0.1192E-04	0.3338E-06
**********	0.1799E-03	0.2781E-04	0.1435E-04	0.4054E-06
**********	0.2075E-03	0.3211E-04	0.1658E-04	0.4714E-06
**********	0.2313E-03	0.3580E-04	0.1850E-04	0.5288E-06
**********	0.2506E-03	0.3880E-04	0.2006E-04	0.5760E-06
**********	0.2655E-03	0.4112E-04	0.2126E-04	0.6129E-06
**********	0.2763E-03	0.4281E-04	0.2215E-04	0.6401E-06
**********	0.2838E-03	0.4398E-04	0.2275E-04	0.6590E-06
**********	0.2885E-03	0.4471E-04	0.2314E-04	0.6712E-06
**********	0.2911E-03	0.4513E-04	0.2336E-04	0.6783E-06
**********	0.2923E-03	0.4531E-04	0.2345E-04	0.6816E-06
**********	0.2924E-03	0.4533E-04	0.2346E-04	0.6823E-06
**********	0.2918E-03	0.4525E-04	0.2342E-04	0.6813E-06
**********	0.2908E-03	0.4509E-04	0.2334E-04	0.6790E-06
**********	0.2895E-03	0.4488E-04	0.2323E-04	0.6760E-06
**********	0.2880E-03	0.4465E-04	0.2311E-04	0.6726E-06
**********	0.2864E-03	0.4440E-04	0.2298E-04	0.6689E-06
**********	0.2847E-03	0.4414E-04	0.2285E-04	0.6651E-06
**********	0.2830E-03	0.4388E-04	0.2271E-04	0.6611E-06
**********	0.2813E-03	0.4362E-04	0.2258E-04	0.6572E-06
**********	0.2796E-03	0.4335E-04	0.2244E-04	0.6532E-06
**********	0.2779E-03	0.4309E-04	0.2231E-04	0.6493E-06
**********	0.2763E-03	0.4283E-04	0.2217E-04	0.6453E-06
**********	0.2746E-03	0.4257E-04	0.2203E-04	0.6414E-06
**********	0.2729E-03	0.4231E-04	0.2190E-04	0.6375E-06
**********	0.2712E-03	0.4205E-04	0.2177E-04	0.6336E-06
**********	0.2696E-03	0.4180E-04	0.2163E-04	0.6297E-06
**********	0.2679E-03	0.4154E-04	0.2150E-04	0.6259E-06
**********	0.2663E-03	0.4129E-04	0.2137E-04	0.6221E-06
**********	0.2647E-03	0.4104E-04	0.2124E-04	0.6183E-06
**********	0.2631E-03	0.4079E-04	0.2111E-04	0.6145E-06
**********	0.2615E-03	0.4054E-04	0.2098E-04	0.6108E-06
**********	0.2599E-03	0.4029E-04	0.2086E-04	0.6070E-06
**********	0.2583E-03	0.4004E-04	0.2073E-04	0.6033E-06
**********	0.2567E-03	0.3980E-04	0.2060E-04	0.5997E-06
**********	0.2551E-03	0.3956E-04	0.2048E-04	0.5960E-06
**********	0.2536E-03	0.3932E-04	0.2035E-04	0.5924E-06
**********	0.2520E-03	0.3908E-04	0.2023E-04	0.5888E-06
**********	0.2505E-03	0.3884E-04	0.2010E-04	0.5852E-06
**********	0.2490E-03	0.3860E-04	0.1998E-04	0.5816E-06
**********	0.2475E-03	0.3837E-04	0.1986E-04	0.5781E-06
**********	0.2460E-03	0.3813E-04	0.1974E-04	0.5745E-06
**********	0.2445E-03	0.3790E-04	0.1962E-04	0.5710E-06
**********	0.2430E-03	0.3767E-04	0.1950E-04	0.5676E-06
**********	0.2415E-03	0.3744E-04	0.1938E-04	0.5641E-06
**********	0.2400E-03	0.3721E-04	0.1926E-04	0.5607E-06
**********	0.2385E-03	0.3698E-04	0.1914E-04	0.5572E-06
**********	0.2371E-03	0.3676E-04	0.1903E-04	0.5538E-06
**********	0.2356E-03	0.3653E-04	0.1891E-04	0.5505E-06
**********	0.2342E-03	0.3631E-04	0.1880E-04	0.5471E-06
**********	0.2328E-03	0.3609E-04	0.1868E-04	0.5438E-06
**********	0.2314E-03	0.3587E-04	0.1857E-04	0.5405E-06
**********	0.2300E-03	0.3565E-04	0.1845E-04	0.5372E-06
**********	0.2286E-03	0.3543E-04	0.1834E-04	0.5339E-06
**********	0.2272E-03	0.3522E-04	0.1823E-04	0.5306E-06
**********	0.2258E-03	0.3500E-04	0.1812E-04	0.5274E-06
**********	0.2244E-03	0.3479E-04	0.1801E-04	0.5242E-06
**********	0.2230E-03	0.3458E-04	0.1790E-04	0.5210E-06
**********	0.2217E-03	0.3437E-04	0.1779E-04	0.5178E-06
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**********	0.2190E-03	0.3395E-04	0.1757E-04	0.5115E-06
**********	0.2176E-03	0.3374E-04	0.1747E-04	0.5084E-06
**********	0.2163E-03	0.3354E-04	0.1736E-04	0.5053E-06
**********	0.2150E-03	0.3333E-04	0.1725E-04	0.5022E-06
**********	0.2137E-03	0.3313E-04	0.1715E-04	0.4992E-06
**********	0.2124E-03	0.3293E-04	0.1704E-04	0.4961E-06
**********	0.2111E-03	0.3273E-04	0.1694E-04	0.4931E-06
**********	0.2098E-03	0.3253E-04	0.1684E-04	0.4901E-06
**********	0.2085E-03	0.3233E-04	0.1673E-04	0.4871E-06
**********	0.2072E-03	0.3213E-04	0.1663E-04	0.4841E-06
**********	0.2060E-03	0.3194E-04	0.1653E-04	0.4812E-06

```
********** 0.2047E-03 0.3174E-04 0.1643E-04 0.4782E-06
```

WITH CLAY BARRIER INSTALLED

CONCENTRATIONS (MG/L) AT:

TIME WATER TABLE RECEPTORS (in order)
(DAYS) BELOW THE SOURCE

```
3650.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
7300.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
10950.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
14600.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
18250.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
21900.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
25550.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
29200.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
32850.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
36500.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
40150.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
43800.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
47450.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
51100.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
54750.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
58400.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
62050.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
65700.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
69350.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
73000.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
76650.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
80300.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
83950.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
87600.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
91250.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
94900.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
98550.0000 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
********** 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
********** 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
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********** 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
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Summary Tables – Lab Analytical Data

Duke Energy Field Services - G28 092002 - Excavation Sampling Results

Bold highlighted cells indicate values in excess of the NMOCD remedial action guideline thresholds: TPH = 5000 mg/Kg; Benzene = 10 mg/Kg; BTEX = 50 mg/Kg; Cl = 250 + background

Sample Date	Excavation Sampling Area	Depth (ft - bgs[1])	SAMPLE ID#	GRO[3] mg/Kg	DRO[4] mg/Kg	TPH[5] mg/Kg	BTEX[6] mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethyl Benzene mg/Kg	Total Xylenes mg/Kg	Cl mg/Kg	SO_4 mg/Kg	pH
18-Oct	BottomHole	10-ft	DG28101802ABHC	2040	**9750**	**11790**	**156.783**	0.583	14.500	11.700	**130.000**	**3199**	195.0	7.59
18-Oct	SideWall - North	5-10-ft	DG28101802ANSWC	93	4160	4253	8.082	0.010	0.576	0.406	7.090	**4719**	41.0	7.25
12-Dec	SideWall - North	5-10-ft	SDG289201212ANSWC	10	275	285	0.102	0.005	0.077	0.005	0.015	**528**		
18-Oct	SideWall - East	5-10-ft	DG28101802AESWC	1320	**13200**	**14520**	**122.560**	2.040	22.600	9.620	**88.100**	224	282.0	7.41
12-Dec	SideWall - East	5-10-ft	SDG289201212ABESWC	23	901	924	2.081	0.005	0.064	0.142	1.870			
18-Oct	SideWall - West	5-10-ft	DG28101802AWSWC	87	3020	3107	10.258	0.018	0.933	0.687	8.620	**880**	31.0	7.28
12-Dec	SideWall - West	5-10-ft	SDG289201212ABWSWC	10	19	29	0.030	0.005	0.005	0.005	0.015	80		
18-Oct	BottomHole	10-ft	DG28101802BBHC	1150	**7760**	**8910**	48.028	0.278	5.590	3.560	38.600	112	98.0	7.78
18-Oct	SideWall - East	5-10-ft	DG28101802BESWC	651	**5400**	**6051**	**59.456**	0.206	7.990	4.660	46.600	128	190.0	7.68
12-Dec	SideWall - East	5-10-ft	SDG289201212ABESWC	23	901	924	2.081	0.005	0.064	0.142	1.870			
18-Oct	SideWall - West	5-10-ft	DG28101802BWSWC	916	**10900**	**11816**	**93.214**	0.434	13.500	7.080	**72.200**	112	191.0	7.70
12-Dec	SideWall - West	5-10-ft	SDG289201212ABWSWC	10	19	29	0.030	0.005	0.005	0.005	0.015	80		
18-Oct	BottomHole	10-ft	DG28101802CBHC	36	1930	1966	0.838	0.005	0.093	0.062	0.678	128	185.0	7.81
18-Oct	SideWall - East	5-10-ft	DG28101802CESWC	10	754	764	0.163	0.005	0.025	0.013	0.120	112	85.0	7.85
18-Oct	SideWall - South	5-10-ft	DG28101802CSSWC	10	572	582	0.166	0.005	0.011	0.011	0.139	80	82.0	7.56
18-Oct	BottomHole	10-ft	DG28101802DBHC	949	**7530**	**8479**	37.992	0.042	3.930	1.720	32.300	**268**	28.0	8.12
12-Dec	BottomHole	12-ft	SDG289201212DBHC	10	991	1001								
18-Oct	SideWall - North	5-10-ft	DG28101802DNSWC	10	1920	1930	0.552	0.005	0.043	0.053	0.451	**400**	75.0	7.87
18-Oct	SideWall - South	5-10-ft	DG28101802DSSWC	241	3590	3831	45.910	0.060	5.760	1.790	38.300	**1392**	**806.0**	7.72
18-Oct	Background	Surface	DG28101802BGG									64	110.0	7.72

[1] bgs = below ground surface [3] GRO - Gasoline Range Organics (Detection Limit = 10 mg/Kg) [4] DRO - Diesel Range Organics (Detection Limit = 10 mg/Kg)

[3] GRO - Gasoline Range Organics (Detection Limit = 10 mg/Kg) [4] DRO - Diesel Range Organics (Detection Limit = 10 mg/Kg) [5] TPH - Total Petroleum Hydrocarbon (GRO+DRO)

[6] BTEX = Sum of CoC's (Detection Limits = 0.005 mg/Kg; 0.015 mg/Kg) Note: Reported detection limits are considered "de minimus" values and are included in the TPH and BTEX summations.

Duke Energy Field Services - G28 092002 - Borehole Sampling Results

Bold highlighted cells indicate values in excess of the NMOCD remedial action guideline thresholds: TPH = 5000 mg/Kg; Benzene = 10 mg/Kg; BTEX = 50 mg/Kg; Cl = 250 + background

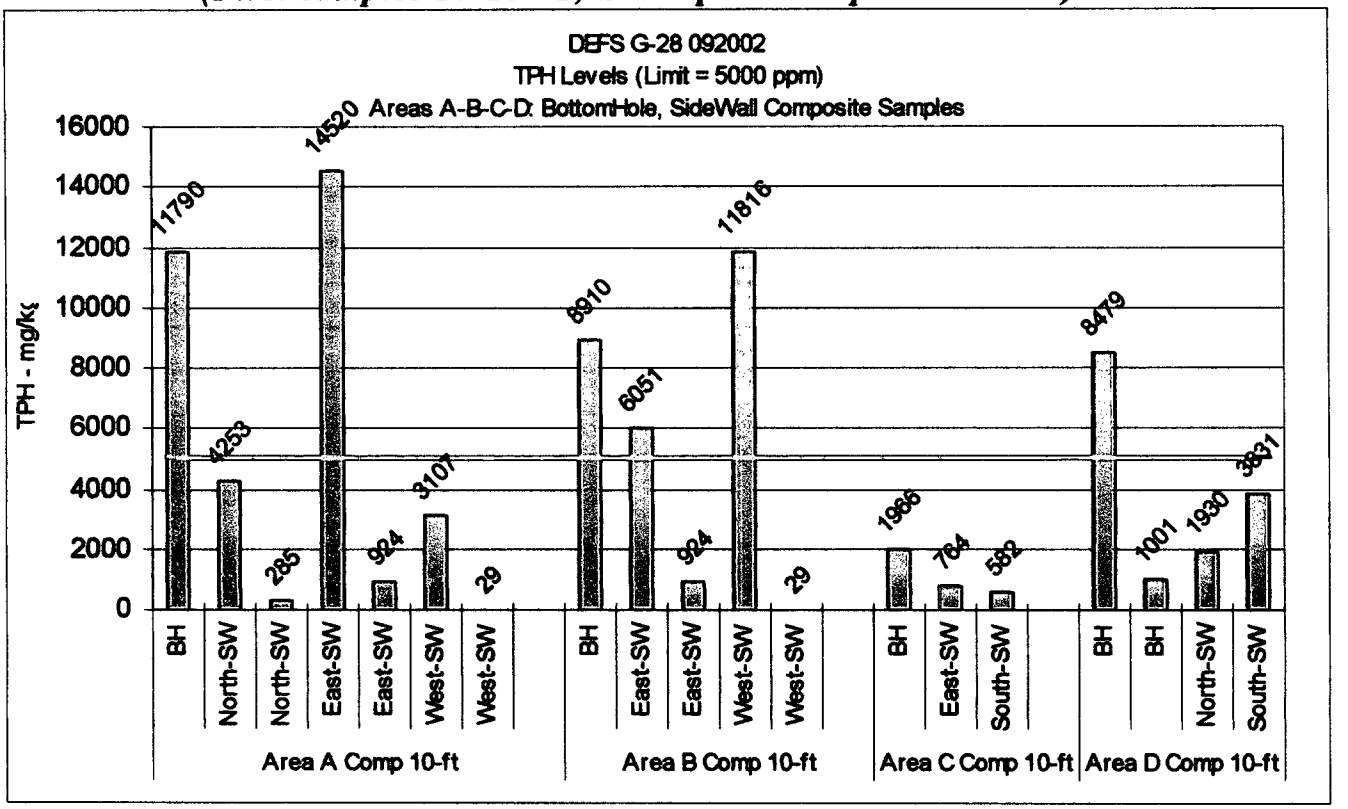
Sample Date	Excavation Sampling Area	Depth (ft - bgs[1])	SAMPLE ID#	GRO[3] mg/Kg	DRO[4] mg/Kg	TPH[5] mg/Kg	BTEX[6] mg/Kg	Benzene mg/Kg	Toluene mg/Kg	Ethyl Benzene mg/Kg	Total Xylenes mg/Kg	Cl⁻ mg/Kg	SO_4 mg/Kg	pH
1-Nov	BH1	5-ft	SDG28110102BH1-5	10	10	20	0.030	0.005	0.005	0.005	0.015	64	180	7.35
1-Nov	BH1	10-ft	SDG28110102BH1-10	10	10	20	0.030	0.005	0.005	0.005	0.015	96	71	7.73
1-Nov	BH1	15-ft	SDG28110102BH1-15	10	10	20	0.030	0.005	0.005	0.005	0.015	112	221	8.22
1-Nov	BH2	5-ft	SDG28110102BH2-5	10	10	20	0.030	0.005	0.005	0.005	0.015	80	65	7.86
1-Nov	BH2	10-ft	SDG28110102BH2-10	10	10	20	0.030	0.005	0.005	0.005	0.015	128	90	8.08
1-Nov	BH2	15-ft	SDG28110102BH2-15	10	10	20	0.030	0.005	0.005	0.005	0.015	112	136	8.21
1-Nov	BH9	5-ft	SDG28110102BH9-5	10	10	20	0.030	0.005	0.005	0.005	0.015	64	7	8.00
1-Nov	BH9	10-ft	SDG28110102BH9-10	10	10	20	0.030	0.005	0.005	0.005	0.015	160	73	8.15
1-Nov	BH9	15-ft	SDG28110102BH9-15	10	10	20	0.030	0.005	0.005	0.005	0.015	128	66	8.80
1-Nov	BH7	5-ft	SDG28110102BH7-5	10	10	20	0.030	0.005	0.005	0.005	0.015	**320**	61	8.10
1-Nov	BH7	10-ft	SDG28110102BH7-10	10	10	20	0.030	0.005	0.005	0.005	0.015	**368**	29	8.08
1-Nov	BH7	15-ft	SDG28110102BH7-15	10	10	20	0.030	0.005	0.005	0.005	0.015	128	38	8.36
1-Nov	BH4	5-ft	SDG28110102BH4-5	10	10	20	0.030	0.005	0.005	0.005	0.015	64	118	8.43
1-Nov	BH4	10-ft	SDG28110102BH4-10	10	10	20	0.030	0.005	0.005	0.005	0.015	96	50	8.27
1-Nov	BH4	15-ft	SDG28110102BH4-15	10	10	20	0.030	0.005	0.005	0.005	0.015	128	108	8.30
12-Nov	BH3	12-ft	SDG28111202BH3-12	**6250**	**13500**	**19750**	**469.490**	7.890	**113.000**	34.600	**314.000**	208	60.5	
12-Nov	BH3	17-ft	SDG28111202BH3-17	**13200**	**28000**	**41200**	**1030.200**	**35.500**	**299.000**	**72.700**	**623.000**	112	57.9	
12-Nov	BH3	22-ft	SDG28111202BH3-22	**8260**	**16200**	**24460**	**1012.200**	**22.800**	**257.000**	**79.400**	**653.000**	96	83.1	
12-Nov	BH3	27-ft	SDG28111202BH3-27	10	332	342	0.564	0.009	0.086	0.049	0.420	96	25.9	
12-Nov	BH3	32-ft	SDG28111202BH3-32	10	89	99	0.043	0.005	0.016	0.005	0.017			
12-Nov	BH5	17-ft	SDG28111202BH5-15	10	15	25	0.030	0.005	0.005	0.005	0.015			
12-Nov	BH5	22-ft	SDG28111202BH5-20	10	10	20	0.030	0.005	0.005	0.005	0.015			
12-Nov	BH6	17-ft	SDG28111202BH6-15	10	10	20	0.030	0.005	0.005	0.005	0.015			
12-Nov	BH6	22-ft	SDG28111202BH6-20	10	10	20	0.030	0.005	0.005	0.005	0.015			
12-Nov	BH8	17-ft	SDG28111202BH8-15	213	2220	2433	3.554	0.005	0.029	0.320	3.200			
12-Nov	BH8	22-ft	SDG28111202BH8-20	10	43	53	0.030	0.005	0.005	0.005	0.015			

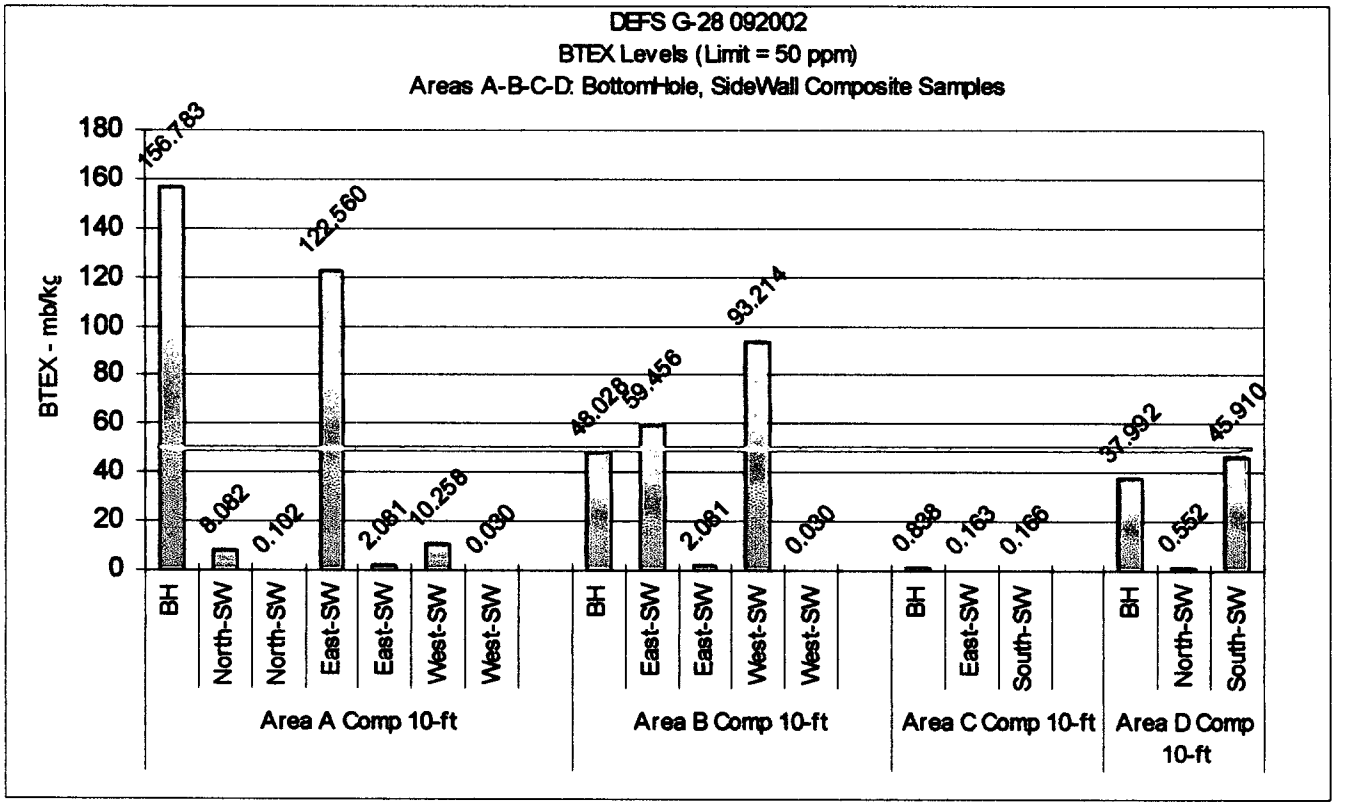
[1] bgs = below ground surface [3] GRO - Gasoline Range Organics (Detection Limit = 10 mg/Kg) [4] DRO - Diesel Range Organics (Detection Limit = 10 mg/Kg)

[3] GRO - Gasoline Range Organics (Detection Limit = 10 mg/Kg) [4] DRO - Diesel Range Organics (Detection Limit = 10 mg/Kg) [5] TPH - Total Petroleum Hydrocarbon (GRO+DRO)

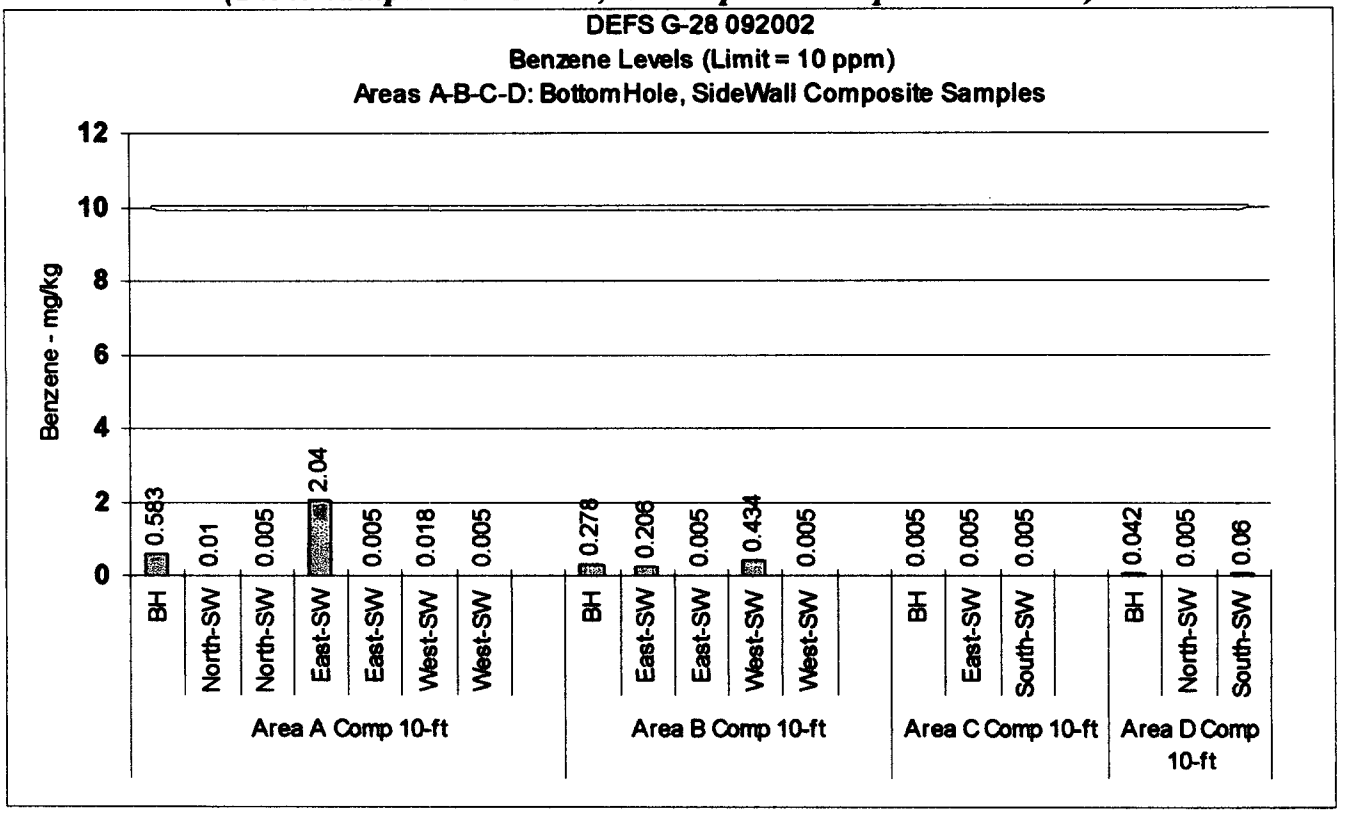
[6] BTEX = Sum of CoC's (Detection Limits = 0.005 mg/Kg; 0.015 mg/Kg) Note: Reported detection limits are considered "de minimus" values and are included in the TPH and BTEX summations.

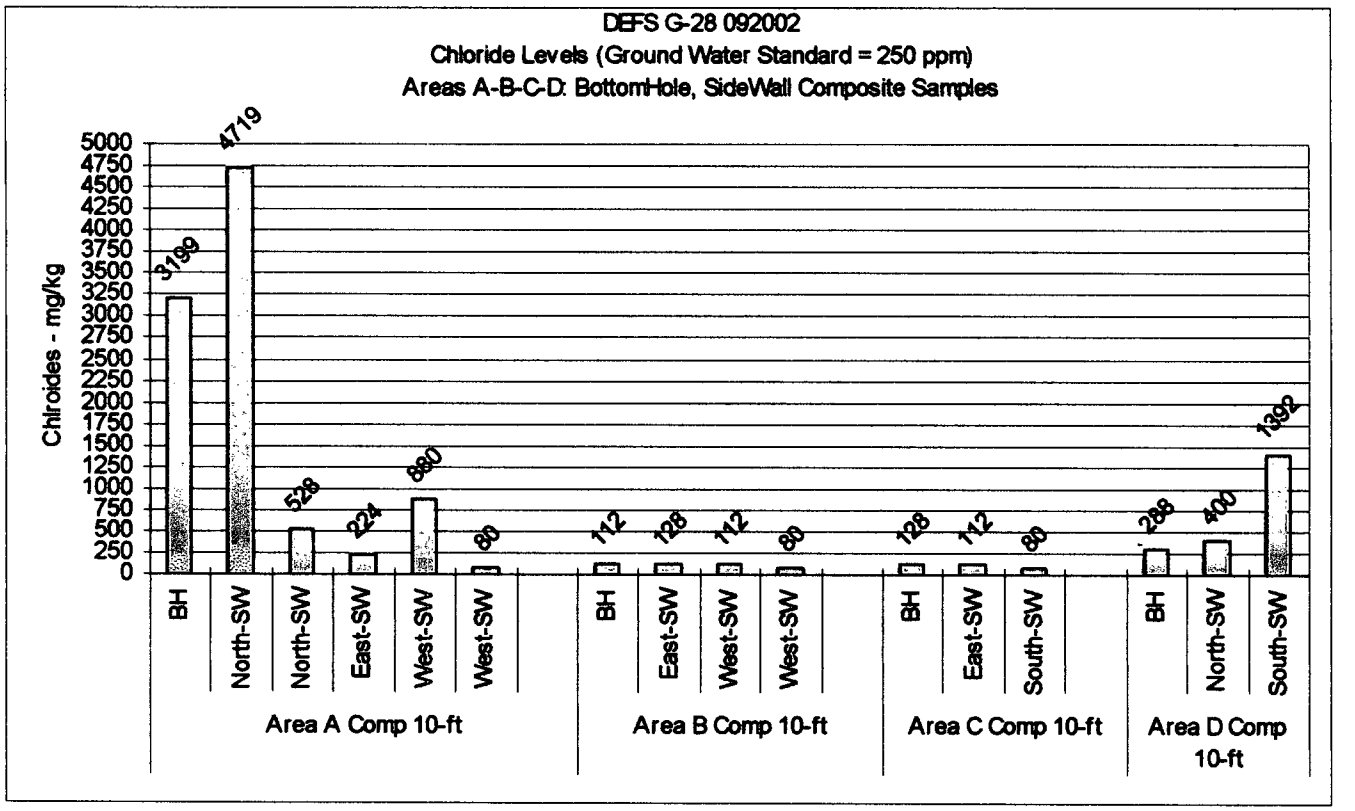
TPH and BTEX - Composite Bottom Hole and Sidewall Samples
(First samples 10-18-02; Subsequent samples 12-12-02)





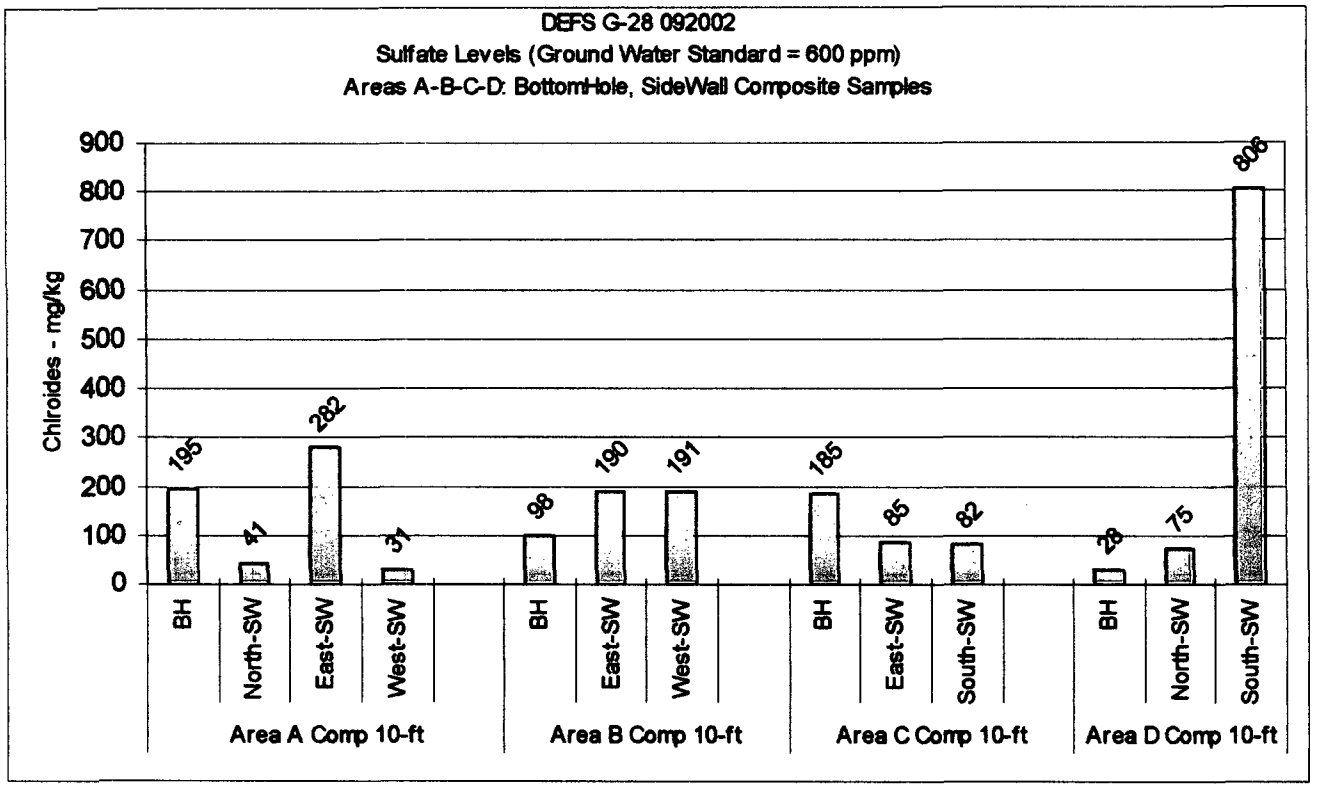
Benzene and Chlorides - Composite Bottom Hole and Sidewall Samples
(First samples 10-18-02; Subsequent samples 12-12-02)



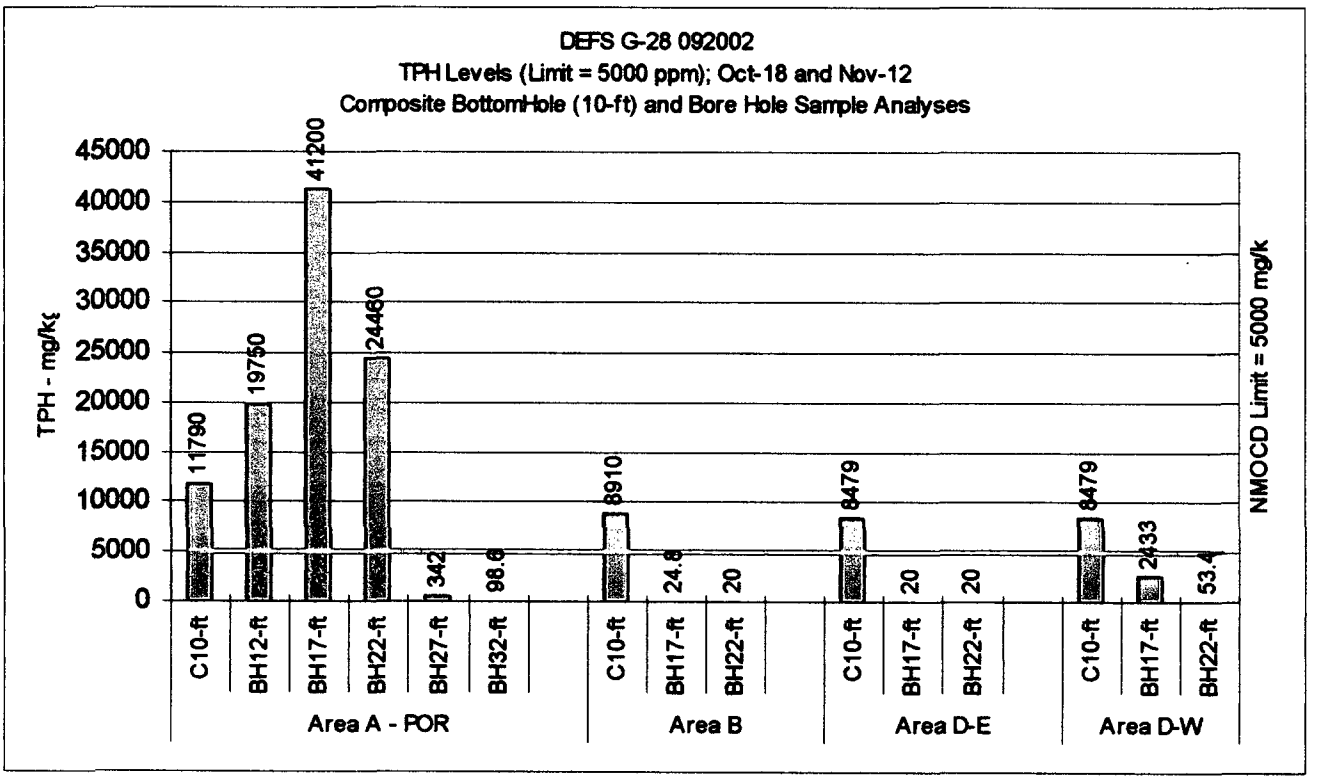


Sulfates - Composite Bottom Hole and Sidewall Samples

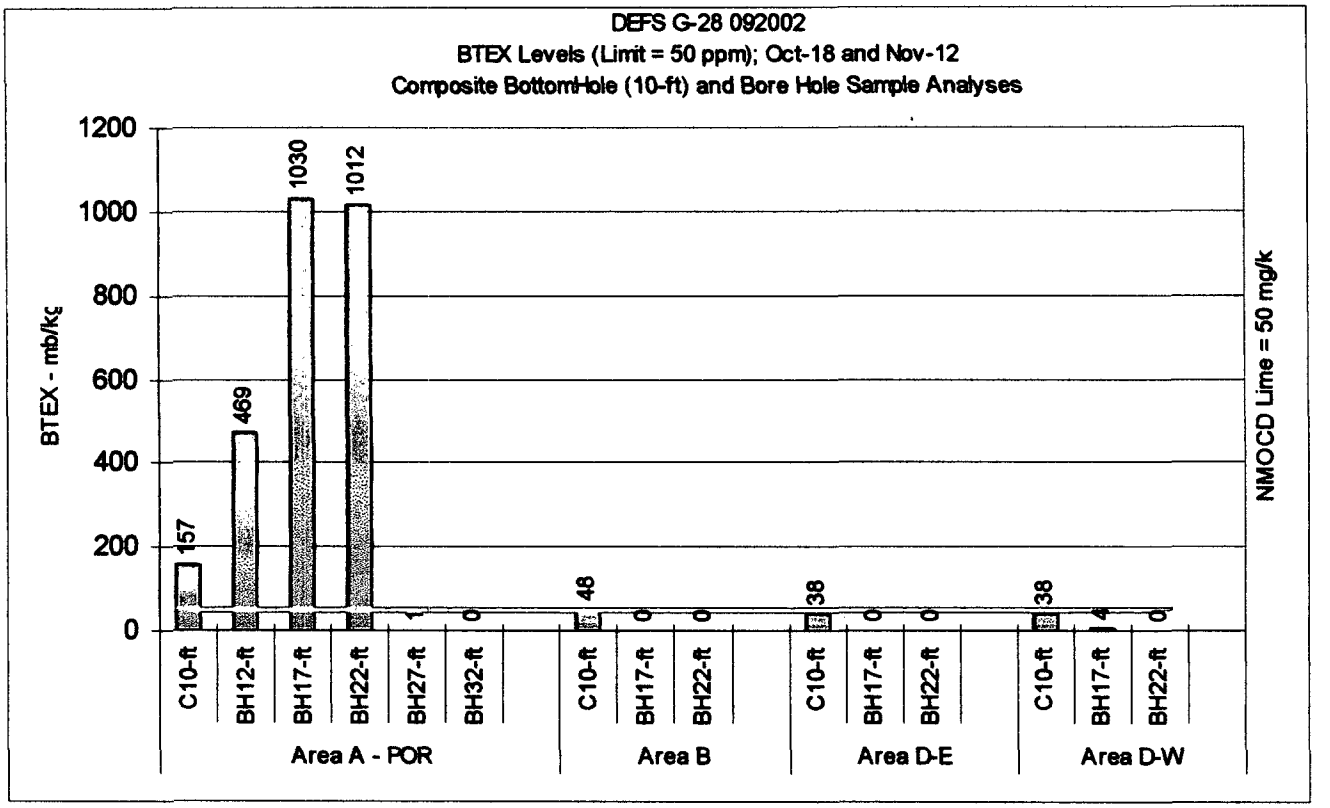
(First samples 10-18-02; Subsequent samples 12-12-02)

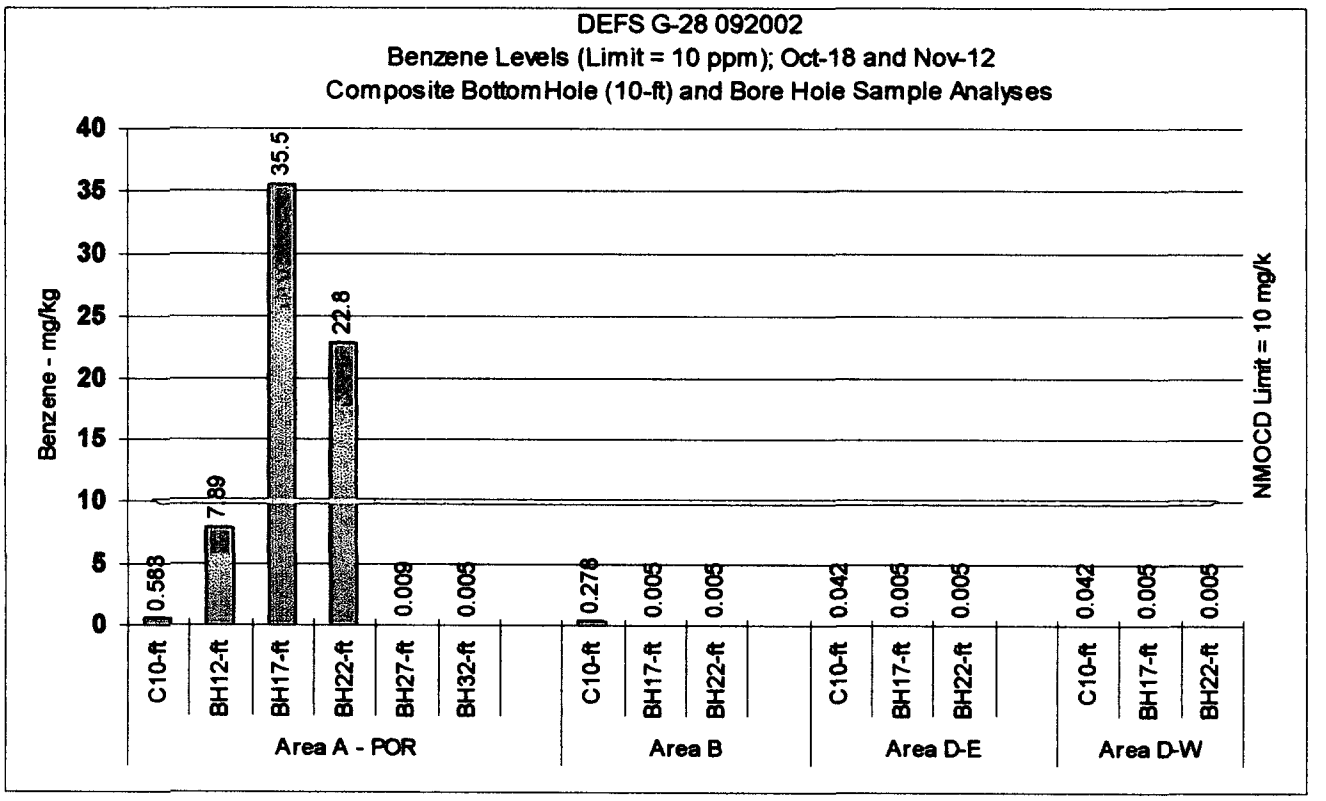


Borehole TPH Delineations



Borehole BTEX and Benzene Delineations





Lab Analyses Reports and Chain-of-Custody Forms

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.
Project Manager	John Good
Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
Phone#/Fax#	505-394-3481 / 505-394-2601
Project #/Owner	Duke Energy Field Services
Project Name	G-28 092002
Project Location	UL-P Section 30 T21S R36E
Sampler Name	

Bill To

ANALYSIS REQUEST

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	MATRIX: WASTEWATER	MATRIX: SOIL	MATRIX: CRUDE OIL	MATRIX: SLUDGE	MATRIX: OTHER:	PRESERV.: ACID/BASE	PRESERV.: ICE/COOL	PRESERV.: OTHER	SAMPLING: DATE	SAMPLING: TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES (SO_4^{-2})	pH
H7144-1	DG28101802ABHC	C	1			X					X		18-Oct		X	X	X	X	X
-2	DG28101802ANSWC	C	1			X					X		18-Oct		X	X	X	X	X
-3	DG28101802AESWC	C	1			X					X		18-Oct		X	X	X	X	X
-4	DG28101802AWSWC	C	1			X					X		18-Oct		X	X	X	X	X
-5	DG28101802BBHC	C	1			X					X		18-Oct		X	X	X	X	X
-6	DG28101802BESWC	C	1			X					X		18-Oct		X	X	X	X	X
-7	DG28101802BWSWC	C	1			X					X		18-Oct		X	X	X	X	X
-8	DG28101802CBHC	C	1			X					X		18-Oct		X	X	X	X	X
-9	DG28101802CESWC	C	1			X					X		18-Oct		X	X	X	X	X
-10	DG28101802CSSWC	C	1			X					X		18-Oct		X	X	X	X	X
-11	DG28101802DBHC	C	1			X					X		18-Oct		X	X	X	X	X
-12	DG28101802DNSWC	C	1			X					X		18-Oct		X	X	X	X	X

Sampler Relinquished:	Date	Received By:	Fax Results To John Good 505-394-2601
	Time		REMARKS:
Relinquished by:	Date 10/18/02	Received By: (lab staff)	
	Time 12:30 PM		
Delivered by:	Sample Cool & Intact: Yes / No	Checked By:	

pg 2

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.
Project Manager	John Good
Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
Phone#/Fax#	505-394-3481 / 505-394-2601
Project #/Owner	Duke Energy Field Services
Project Name	G-28 092002
Project Location	UL-P Section 30 T21S R36E
Sampler Name	

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^{-2})	pH
H7144-13	DG28101802DSSWC	C	1			X					X		18-Oct		X	X	X	X	X
-14	DG28101802BGG	C	1			X					X		18-Oct				X	X	X

Sampler Relinquished: Bradley Blevins	Date	Received By:	Fax Results To John Good 505-394-2601
Relinquished by:	Date 10/18/02 Time 2:30PM	Received By: (lab staff) Buddy Scott	REMARKS:
Delivered by:	Sample Cool & Intact: Yes / No	Checked By:	

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

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

Receiving Date: 10/18/02
Reporting Date: 10/22/02
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G-28 092002
Project Location: UL-P SECTION 30 T21S R36E

Sampling Date: 10/18/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
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:		10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02
H7144-1	DG28101802ABHC	2040*	9750*	0.583	14.5*	11.7*	130*
H7144-2	DG28101802ANSWC	92.6	4160	0.010	0.576	0.406	7.09
H7144-3	DG28101802AESWC	1320*	13200*	2.04*	22.6*	9.82*	88.1*
H7144-4	DG28101802AWSWC	86.7	3020	0.018	0.933	0.687	8.62*
H7144-5	DG28101802BBHC	1150	7760*	0.278	5.59*	3.56*	38.6*
H7144-6	DG28101802BESWC	651	5400*	0.206	7.99*	4.66*	46.6*
H7144-7	DG28101802BWSWC	916	10900*	0.434	13.5*	7.08*	72.2*
H7144-8	DG28101802CBHC	36.2	1930	<0.005	0.093	0.062	0.678
H7144-9	DG28101802CESWC	<10.0	754	<0.005	0.025	0.013	0.120
H7144-10	DG28101802CSSWC	<10.0	572	<0.005	0.011	0.011	0.139
H7144-11	DG28101802DBHC	949	7530*	0.042	3.93*	1.72	32.3*
H7144-12	DG28101802DNSWC	<10.0	1920	<0.005	0.043	0.053	0.451
H7144-13	DG28101802DSSWC	241	3590*	0.060	5.76*	1.79	38.3*
Quality Control		780	797	0.098	0.097	0.105	0.304
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		97.6	99.8	98.4	97.3	105	101
Relative Percent Difference		3.3	7.7	7.0	3.6	5.0	4.7

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

*Result of reanalysis of diluted samples performed on 10/21/02.

Burgess J. A. Cooke. Ph. D.

10/22/02
Date

H7144.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

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

Receiving Date: 10/18/02
Reporting Date: 10/21/02
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G-28 092002
Project Location: UL-P SECTION 30 T21S R36E

Sampling Date: 10/18/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)	SO_4 (mg/Kg)	pH (s.u.)
ANALYSIS DATE		10/21/02	10/21/02	10/21/02
H7144-1	DG28101802ABHC	3199	195	7.59
H7144-2	DG28101802ANSWC	4719	41	7.25
H7144-3	DG28101802AESWC	224	282	7.41
H7144-4	DG28101802AWSWC	880	31	7.28
H7144-5	DG28101802BBHC	112	98	7.78
H7144-6	DG28101802BESWC	128	190	7.66
H7144-7	DG28101802BWSWC	112	191	7.7
H7144-8	DG28101802CBHC	128	185	7.81
H7144-9	DG28101802CESWC	112	85	7.85
H7144-10	DG28101802CSSWC	80	82	7.56
H7144-11	DG28101802DBHC	288	28	8.12
H7144-12	DG28101802DNSWC	400	75	7.87
H7144-13	DG28101802DSSWC	1392	806	7.72
H7144-14	DG28101802BGG	64	110	7.99
Quality Control		1040	49.87	6.96
True Value QC		1000	50.00	7.00
% Recovery		104.0	99.7	99.4
Relative Percent Difference		7.0	1.3	0.3

METHODS:	600/4-79-020	4500-Cl^-B*	375.4	150.1

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

Amy Hill
Chemist

10-21-02
Date

H7144

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

		Bill To
Company Name	Environmental Plus, Inc.	
Project Manager	John Good	
Address	P.O. BOX 1558	
City, State, Zip	Eunice New Mexico 88231	
Phone#/Fax#	505-394-3481 / 505-394-2601	
Project #/Owner	Duke Energy Field Services	
Project Name	G28 092002	
Project Location	UL-P Section 30 T21S R36E	
Sampler Name	Brad Blevins	

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	MATRIX: WASTEWATER	MATRIX: SOIL	MATRIX: CRUDE OIL	MATRIX: SLUDGE	MATRIX: OTHER:	PRESERV.: ACID/BASE	PRESERV.: ICE/COOL	PRESERV.: OTHER	SAMPLING: DATE	SAMPLING: TIME	ANALYSIS REQUEST: BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES (SO_4)	pH							
H7180-1	SDG28110102BH1-5	G	1			X					X		1-Nov	10:40	X	X	X	X								
-2	SDG28110102BH1-10	G	1			X					X		1-Nov	12:35	X	X	X	X								
-3	SDG28110102BH1-15	G	1			X					X		1-Nov	12:55	X	X	X	X								
-4	SDG28110102BH2-5	G	1			X					X		1-Nov	1:15	X	X	X	X								
-5	SDG28110102BH2-10	G	1			X					X		1-Nov	1:30	X	X	X	X								
-6	SDG28110102BH2-15	G	1			X					X		1-Nov	1:40	X	X	X	X								
-7	SDG28110102BH9-5	G	1			X					X		1-Nov	2:35	X	X	X	X								
-8	SDG28110102BH9-10	G	1			X					X		1-Nov	2:50	X	X	X	X								
-9	SDG28110102BH9-15	G	1			X					X		1-Nov	3:05	X	X	X	X								
-10	SDG28110402BH7-5	G	1			X					X		4-Nov	8:05	X	X	X	X								
-11	SDG28110402BH7-10	G	1			X					X		4-Nov	8:35	X	X	X	X								
-12	SDG28110402BH7-15	G	1			X					X		4-Nov	9:05	X	X	X	X								
-13	SDG28110402BH4-5	G	1			X					X		4-Nov	1:05	X	X	X	X								
-14	SDG28110402BH4-10	G	1			X					X		4-Nov	1:35	X	X	X	X								
-15	SDG28110402BH4-15	G	1			X					X		4-Nov	1:50	X	X	X	X								

Sampler Relinquished: Brad Blevins	Date 11-4-02 Time 14:00	Received By: John Good	Fax Results To John Good 505-394-2601 REMARKS:
Relinquished By: John Good	Date 11-5-02 Time 16:20	Received By: (lab staff) [signature]	
Delivered by:	Sample Cool & Intact (Yes) No	Checked By:	

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

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

Receiving Date: 11/05/02
Reporting Date: 11/11/02
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G28 092002
Project Location: UL-P SECTION 30 T21S R36E

Sampling Date: 11/01/02 &11/04/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)	SO_4 (mg/Kg)	pH (s.u.)
ANALYSIS DATE		11/08/02	11/08/02	11/07/02
H7180-1	SDG28110102BH1-5	64	180	7.35
H7180-2	SDG28110102BH1-10	96	71.2	7.73
H7180-3	SDG28110102BH1-15	112	221	8.22
H7180-4	SDG28110102BH2-5	80	64.5	7.86
H7180-5	SDG28110102BH2-10	128	89.8	8.08
H7180-6	SDG28110102BH2-15	112	136	8.21
H7180-7	SDG28110102BH9-5	64	7.29	8.00
H7180-8	SDG28110102BH9-10	160	72.5	8.15
H7180-9	SDG28110102BH9-15	128	65.8	8.80
H7180-10	SDG28110402BH7-5	320	60.5	8.10
H7180-11	SDG28110402BH7-10	368	28.6	8.08
H7180-12	SDG28110402BH7-15	128	37.9	8.36
H7180-13	SDG28110402BH4-5	64	118	8.43
H7180-14	SDG28110402BH4-10	96	49.9	8.27
H7180-15	SDG28110402BH4-15	128	108	8.30
Quality Control		1000	49.87	7.04
True Value QC		1000	50.00	7.00
% Recovery		100.0	99.7	101
Relative Percent Difference		5.0	1.3	0.1
METHODS: 600/4-79-020		4500-ClB*	375.4	150.1

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

Amy Hill
Chemist

11-11-02
Date

H7180

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.
Project Manager	John Good
Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
Phone#/Fax#	505-394-3481 / 505-394-2601
Project #/Owner	Duke Energy Field Services
Project Name	G28 092002
Project Location	UL-P Section 30 T21S R36E
Sampler Name	Brad Blevins

Bill To

ANALYSIS REQUEST

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	MATRIX: WASTEWATER	MATRIX: SOIL	MATRIX: CRUDE OIL	MATRIX: SLUDGE	MATRIX: OTHER:	PRESERV.: ACID/BASE	PRESERV.: ICE/COOL	PRESERV.: OTHER	SAMPLING: DATE	SAMPLING: TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES (SO_4^{-2})	pH
H7208-1	SDG28111202BH3-12	G	1			X					X		12-Nov	7:40	X	X	X	X	
-2	SDG28111202BH3-17	G	1			X					X		12-Nov	8:00	X	X	X	X	
-3	SDG28111202BH3-22	G	1			X					X		12-Nov	8:20	X	X	X	X	
-4	SDG28111202BH3-27	G	1			X					X		12-Nov	8:40	X	X	X	X	
-5	SDG28111202BH3-32	G	1			X					X		12-Nov	9:00	X	X			
-6	SDG28111202BH5-15	G	1			X					X		12-Nov	9:20	X	X			
-7	SDG28111202BH5-20	G	1			X					X		12-Nov	9:40	X	X			
-8	SDG28111202BH6-15	G	1			X					X		12-Nov	10:00	X	X			
-9	SDG28111202BH6-20	G	1			X					X		12-Nov	10:20	X	X			
-10	SDG28111202BH8-15	G	1			X					X		12-Nov	10:40	X	X			
-11	SDG28111202BH8-20	G	1			X					X		12-Nov	11:00	X	X			

Sampler Relinquished: Brad Blevins	Date 11-12 Time 4:15	Received By: John Good	Fax Results To John Good 505-394-2601
Relinquished by: John Good	Date 11-13-02 Time 6:30	Received By: (lab staff) Burgess J. A. Cooke	REMARKS:
Delivered by:	Sample Cool & Intact: Yes (No)	Checked By:	

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

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

Receiving Date: 11/13/02
Reporting Date: 11/15/02
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G28 092002
Project Location: UL-P SECTION 30 T12S R36E

Sampling Date: 11/12/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
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:		11/14/02	11/14/02	11/14/02	11/14/02	11/14/02	11/14/02
H7208-1	SDG28111202BH3-12	6250	13500	7.89	113	34.6	314
H7208-2	SDG28111202BH3-17	13200	28000	35.5	299	72.7	623
H7208-3	SDG28111202BH3-22	8260	16200	22.8	257	79.4	653
H7208-4	SDG28111202BH3-27	<10.0	332	0.009	0.086	0.049	0.420
H7208-5	SDG28111202BH3-32	<10.0	88.6	<0.005	0.016	<0.005	0.017
H7208-6	SDG28111202BH5-15	<10.0	14.8	<0.005	<0.005	<0.005	<0.015
H7208-7	SDG28111202BH5-20	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H7208-8	SDG28111202BH6-15	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H7208-9	SDG28111202BH6-20	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H7208-10	SDG28111202BH8-15	213	2220	<0.005	0.029	0.320	3.20
H7208-11	SDG28111202BH8-20	<10.0	43.4	<0.005	<0.005	<0.005	<0.015
Quality Control		766	764	0.099	0.094	0.095	0.282
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		95.7	95.5	99.1	93.7	95.2	94.0
Relative Percent Difference		2.8	0.2	7.3	1.0	1.6	3.7

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

Burgess J.A. Cooke, Ph. D.

11/15/02
Date

H7208B.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

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

Receiving Date: 11/13/02
Reporting Date: 11/14/02
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G28 092002
Project Location: UL-P SECTION 30 T21S R36E

Sampling Date: 11/12/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)	SO_4 (mg/Kg)
ANALYSIS DATE		11/14/02	11/14/02
H7208-1	SDG28111202BH3-12	208	60.5
H7208-2	SDG28111202BH3-17	112	57.9
H7208-3	SDG28111202BH3-22	96	83.1
H7208-4	SDG28111202BH3-27	96	25.9
Quality Control		990	49.87
True Value QC		1000	50.00
% Recovery		99.0	99.7
Relative Percent Difference		1.0	1.3
METHODS: 600/4-79-020		4500-ClB*	375.4

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

Amy Hill
Chemist

11-14-02
Date

H7208

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.
Project Manager	John Good
Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
Phone#/Fax#	505-394-3481 / 505-394-2601
Project #/Owner	Duke Energy Field Services
Project Name	G28 092002
Project Location	UL-P Section 30 T21S R36E
Sampler Name	John Good

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
H7315-1 1	SDG289201212DBHC	C	1			X					X		12-Dec	1:30		X			
-2 2	SDG289201212ABESWC	C	1			X					X		12-Dec	1:35	X	X			
-3 3	SDG289201212ANSWC	C	1			X					X		12-Dec	1:40	X	X	X		
-4 4	SDG289201212ABWSWC	C	1			X					X		12-Dec	1:45	X	X	X		
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			

Sampler Relinquished: John Good
Date: 12/13 Time: 12:50
Received By:

Relinquished by: Matt Coy
Date: 12-13 Time: 1:30
Received By: (lab staff) Burgess A. Cook

Delivered by:
Sample Cool & Intact: Yes / No
Checked By:

Fax Results To John Good 505-394-2601

REMARKS:

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

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

Receiving Date: 12/13/02
Reporting Date: 12/17/02
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G28 092002
Project Location: UL-P SECTION 30 T21S R36E

Sampling Date: 12/12/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)
ANALYSIS DATE:		12/16/02	12/16/02
H7315-1	SDG289201212 DBHC	<10.0	991
H7315-2	SDG289201212 ABESWC	23.3	901
H7315-3	SDG289201212 ANSWC	<10.0	275
H7315-4	SDG289201212 ABWSWC	<10.0	18.6
Quality Control		791	820
True Value QC		800	800
% Recovery		98.9	102
Relative Percent Difference		6.8	2.6

METHOD: SW-846 8015 M

Chemist

12/17/02
Date

H7215A.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

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

Receiving Date: 12/13/02
Reporting Date: 12/17/02
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G28 092002
Project Location: UL-P SECTION 30 T21S R36E

Sampling Date: 12/12/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NO.	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		12/13/02	12/13/02	12/13/02	12/13/02
H7315-2	SDG289201212 ABESWC	<0.005	0.064	0.142	1.870
H7315-3	SDG289201212 ANSWC	<0.005	0.077	0.074	0.800
H7315-4	SDG289201212 ABWSWC	<0.005	0.005	0.005	<0.015
Quality Control		0.110	0.105	0.105	0.300
True Value QC		0.100	0.100	0.100	0.300
% Recovery		110	105	105	100
Relative Percent Difference		1.4	0.5	2.3	1.5

METHOD: EPA SW-846 8260

Burgess J. Cooke
Chemist

12/17/02
Date

H7315B.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

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

Receiving Date: 12/13/02
Reporting Date: 12/17/02
Project Owner: DUKE ENERGY FIELD SERVICES
Project Name: G28 092002
Project Location: UL-P SECTION 30 T21S R36E

Analysis Date: 12/17/02
Sampling Date: 12/12/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H7315-3	SDG289201212 ANSWC	528
H7315-4	SDG289201212 ABWSWC	80
Quality Control		970
True Value QC		1000
% Recovery		97.0
Relative Percent Difference		1.0

METHOD: Std. Methods	4500-Cl^-B

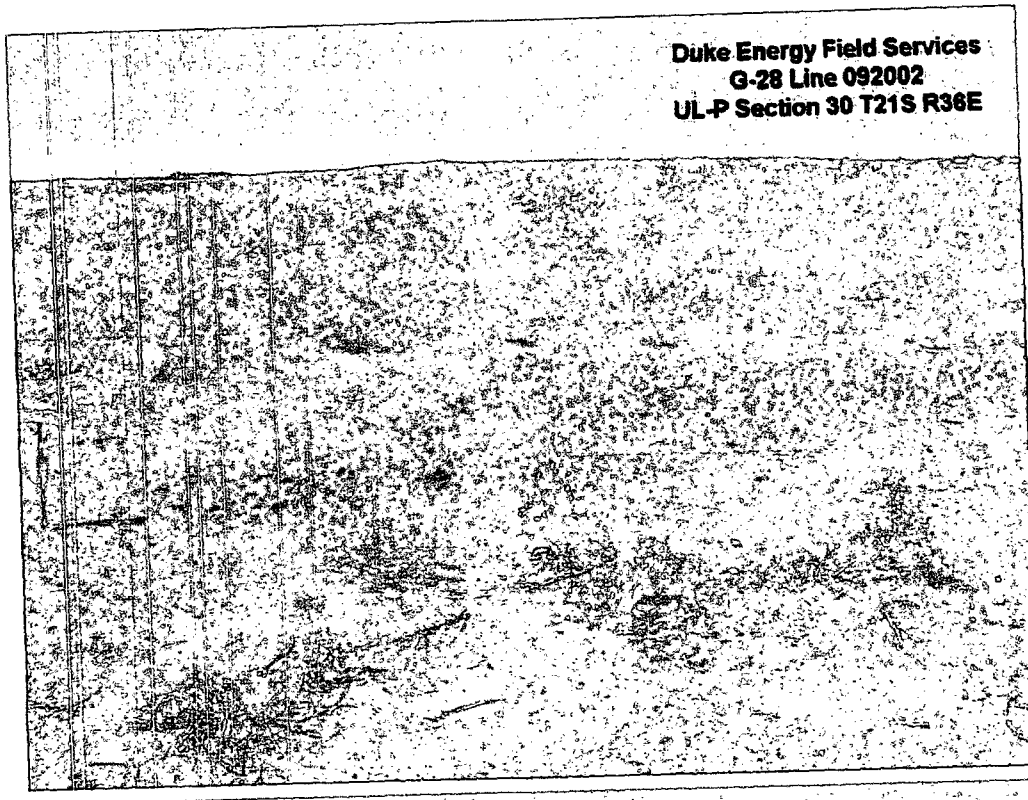
NOTE: Analyses performed on 1:4 w:v aqueous extracts.

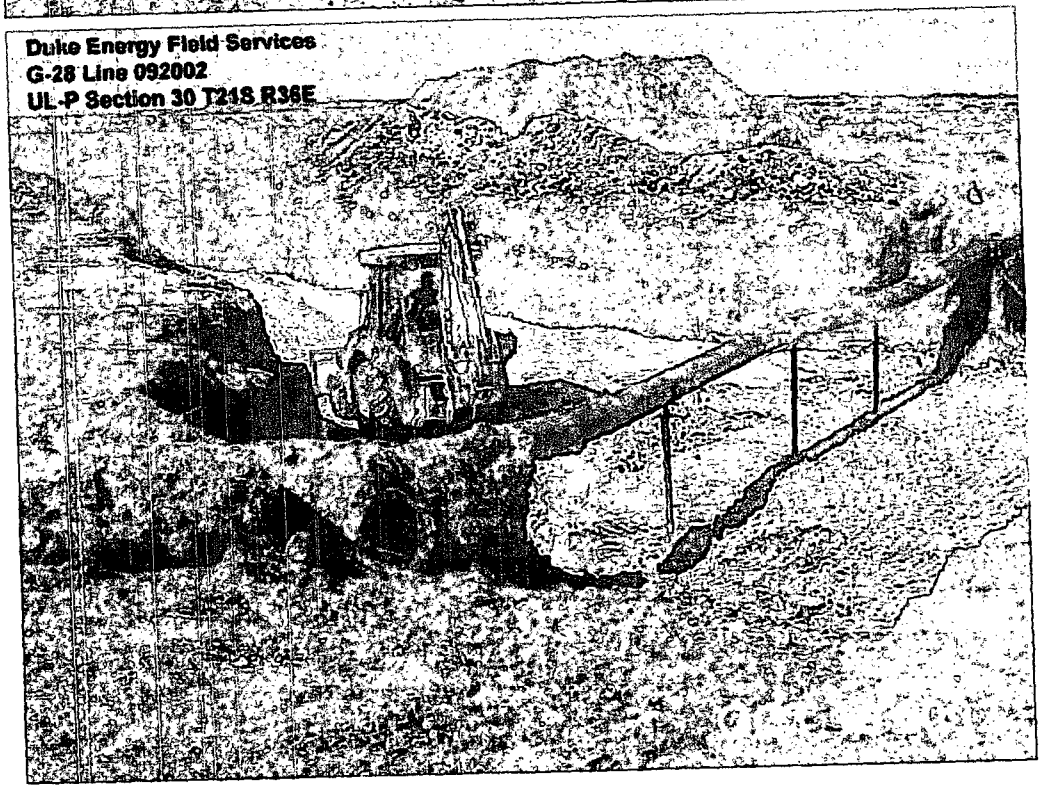
Amy Hill
Chemist

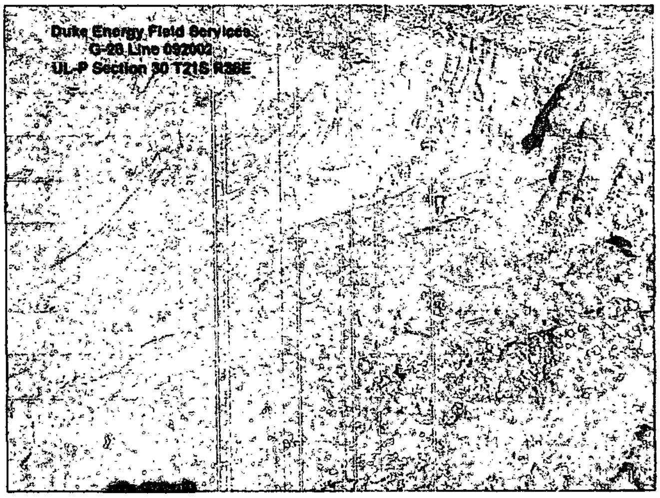
12-17-02
Date

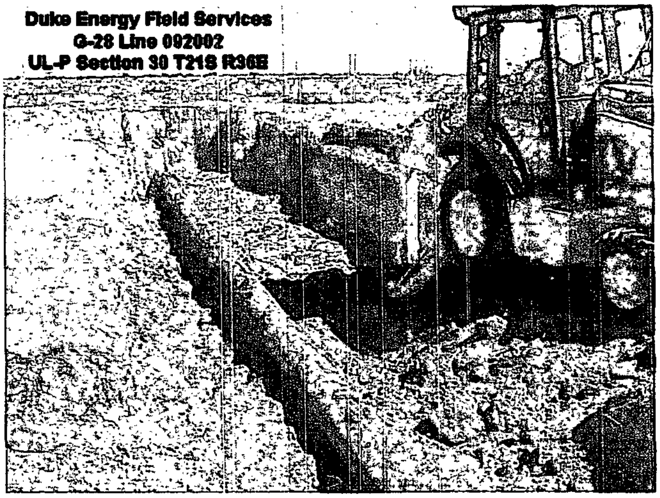
H7315C.XLS

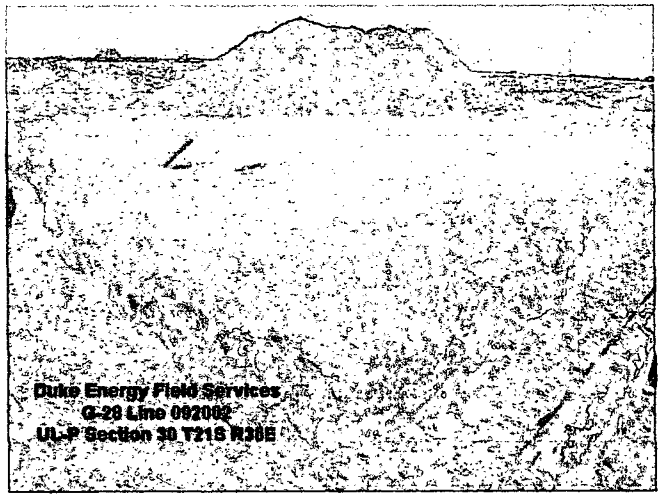
Site Photographs

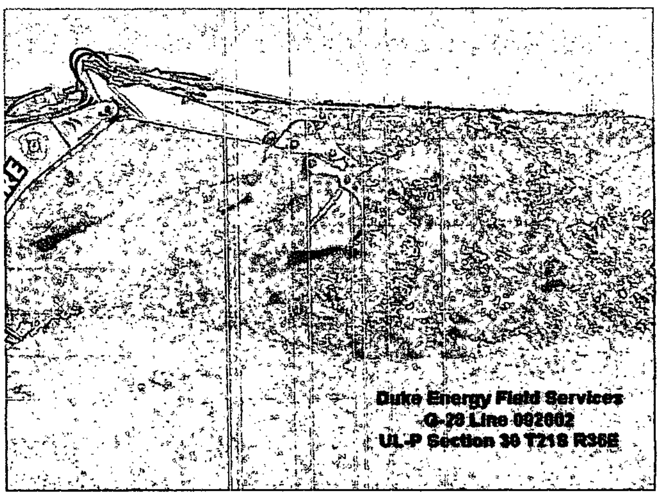




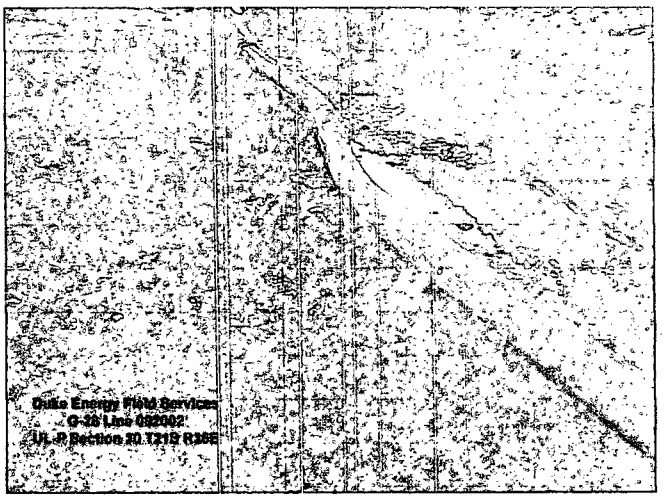








Duke Energy Field Services
G-28 Line 092002
UL-P Section 30 T21S R36E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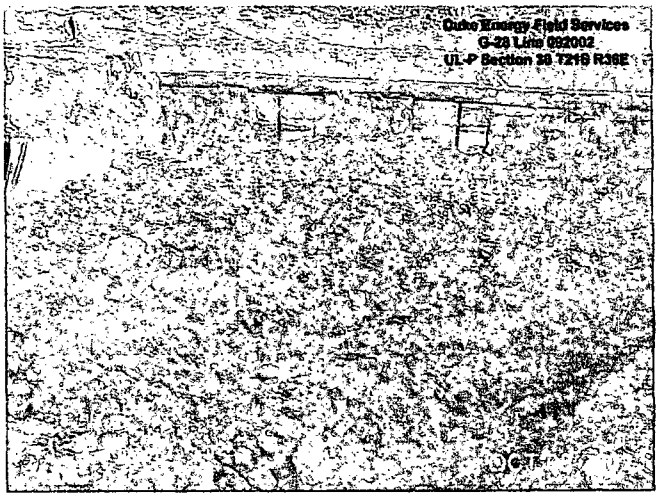
G-28 Line 092002
UL-P Section 30 T21S R36E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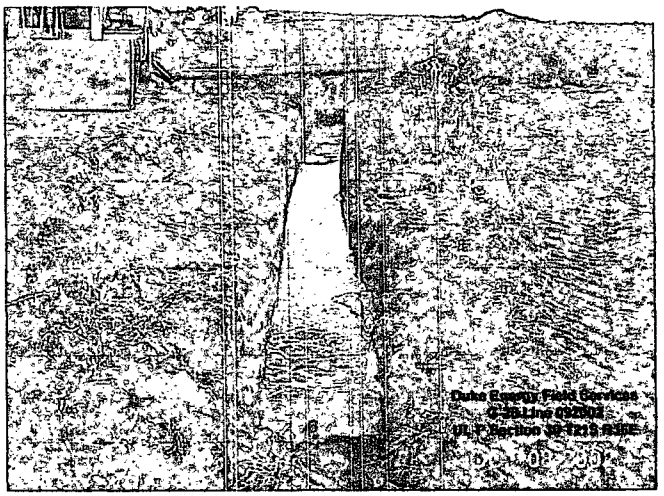
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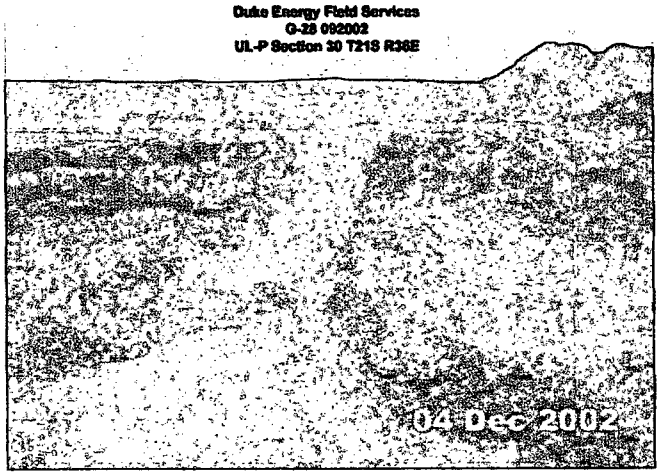
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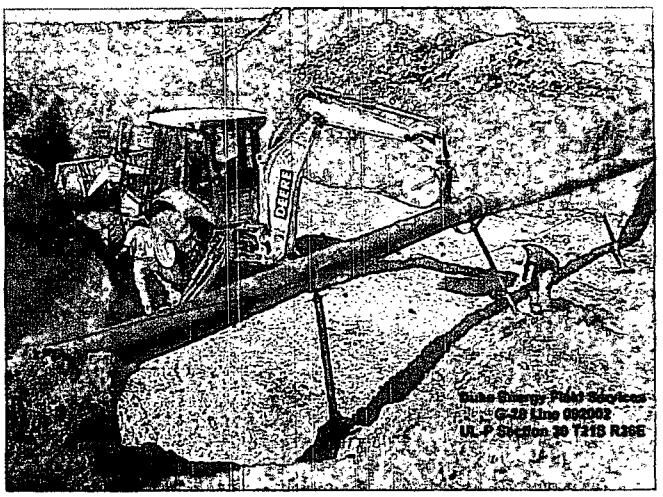
G-28 092002
UL-P Section 30 T21S R36E
04 Dec 2002


Duke Energy Field Services
G-28 Line 092002
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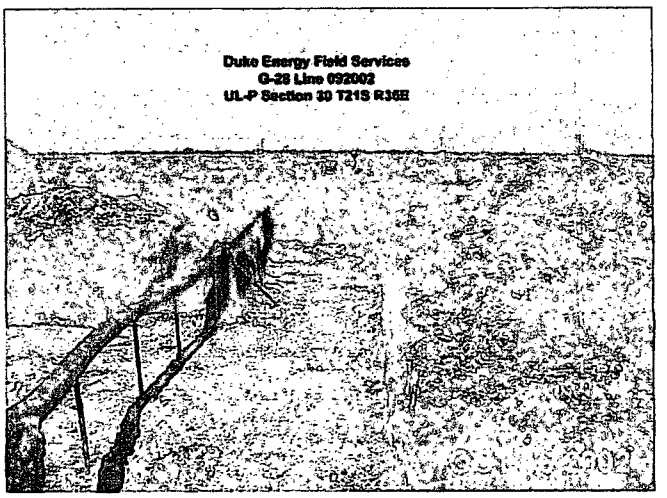
Duke Energy Field Services
G-28 Line 092002
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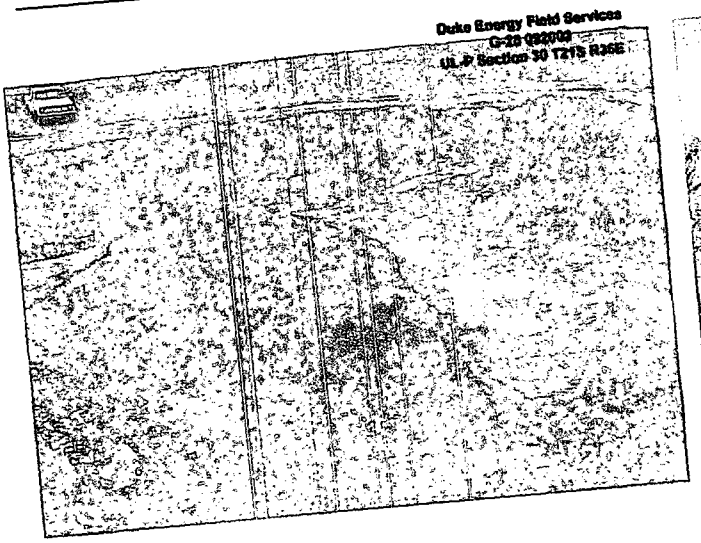
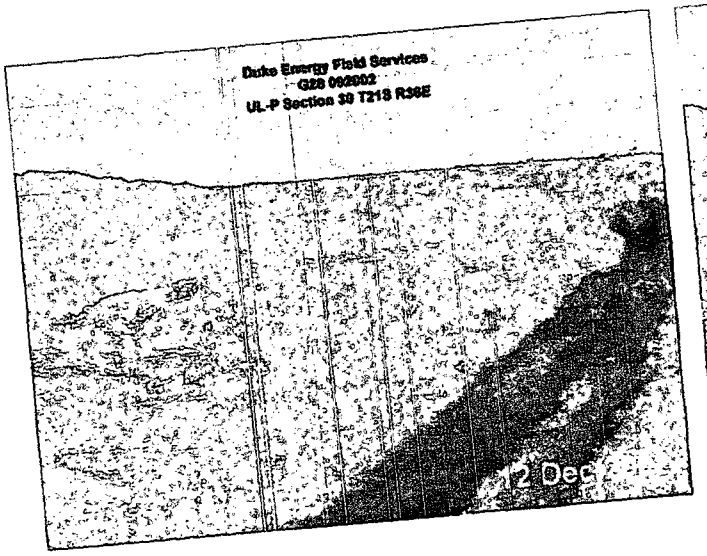
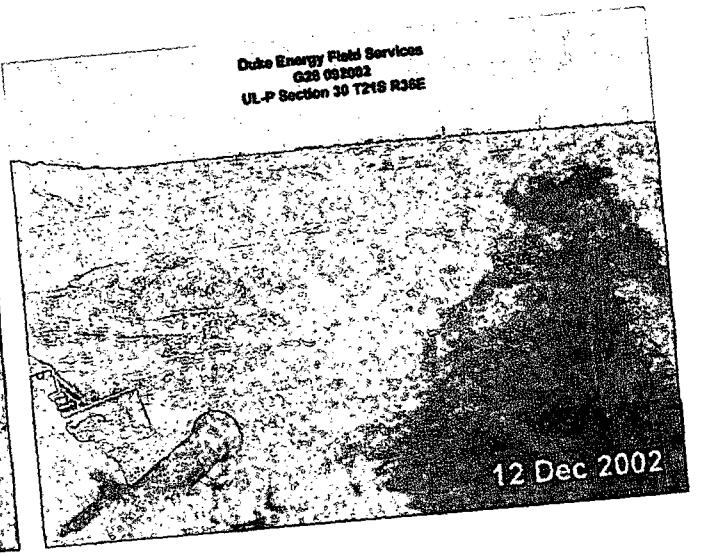
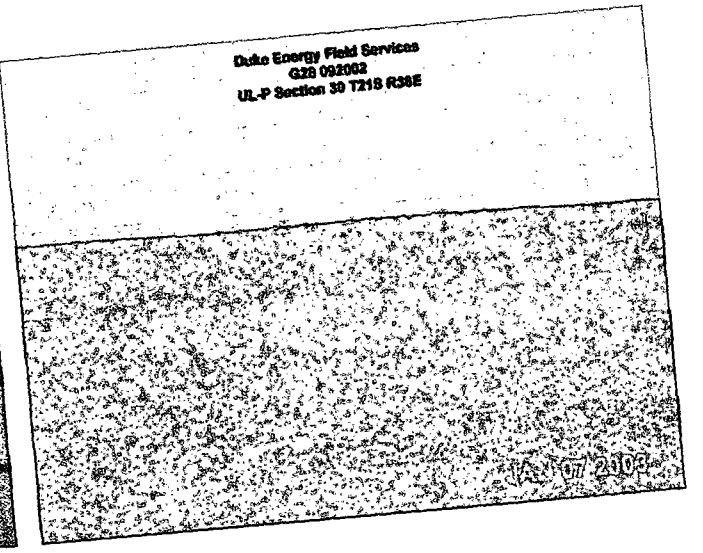

Duke Energy Field Services
G28 092002
UL-P Section 30 T21S R36E


Duke Energy Field Services
G28 092002
UL-P Section 30 T21S R36E
2002


Duke Energy Field Services
G28 092002
UL-P Section 30 T21S R36E
12 Dec


Duke Energy Field Services
G28 092002
UL-P Section 30 T21S R36E
12 Dec 2002


Duke Energy Field Services
G28 092002
UL-P Section 30 T21S R36E
DEC 12 2002


Duke Energy Field Services
G28 092002
UL-P Section 30 T21S R36E

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 Hwy Hobbs, NM 88240**	Telephone No. **505-397-5716**
Facility Name **G-28 Line**	Facility Type **Natural Gas Pipeline**

Surface Owner **DASCO Cattle Co. LLC (Atlee Snyder)**	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from South Line	Feet from West Line	Longitude	Latitude	County:
P	**30**	**21S**	**36E**	**722**	**4025**	**W103°17'56.44"**	**N32°26'40.33"**	**Lea**

NATURE OF RELEASE

Type of Release **Natural Gas and associated liquid components**	Volume of Release (bbl) **Unknown - Historical**	Volume Recovered (bbl) **0**
Source of Release **Steel Natural Gas Pipeline**	Date and Hour of Occurrence **Unknown**	Date and Hour of Discovery **9/20/02**
Was Immediate Notice Given? ☐ Yes ☐ No ☑ Not Required	If YES, To Whom? **NA**	
By Whom? **NA**	Date and Hour **NA**	
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.*
Corroded pipeline, line removed and replaced w/poly

Describe Area Affected and Cleanup Action Taken.*
~5400-ft² X 10-ft deep excavation. Contaminated soils below 10-ft level were left in place and covered with a 2-ft compacted clay barrier.

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: Paul Mulkey	**OIL CONSERVATION DIVISION**	
Printed Name: **Paul Mulkey**	Approved by District Supervisor:	
Title: **Construction & Maintenance Supervisor**	Approval Date:	Expiration Date:
Date: **1/31/03** Phone: **505-397-5716**	Conditions of Approval:	☐ Attached

Attach Additional Sheets If Necessary

Duke Energy Field Services	Incident Date and NMOCD Notified? 9/20/02 10/1/2002 (Initial C141)

SITE: G-28 Line		Assigned Site Reference #:	G-28 Line 092002
Company:	Duke Energy Field Services		
Street Address:	11525 West Carlsbad Hwy		
Mailing Address:	11525 West Carlsbad Hwy		
City, State, Zip:	Hobbs, NM 88240		
Representative:	Paul Mulkey		
Representative Telephone:	505-397-5716		
Telephone:			
Fluid volume released (bbls):	Unknown - Historical >25 bbl	Recovered (bbls):	0
>25 bbls: Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days.			
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:	G-28 Line 092002		
Source of contamination:	Steel Natural Gas Pipeline		
Land Owner, i.e., BLM, ST, Fee, Other:	DASCO Cattle Co. LLC (Atlee Snyder)		
LSP Dimensions:	105-ft linear 10-30-ft wide (southwest), then narrow flow path (100-ft northwest)		
LSP Area:	~5400-ft^2		
Location of Reference Point (RP):			
Location distance and direction from RP:			
Latitude:	N32o26'40.33"		
Longitude:	W103o17'56.44"		
Elevation above mean sea level:	3615-ft amsl		
Feet from South Section Line:	722		
Feet from West Section Line:	4025		
Location - Unit or 1/4 1/4:	UL- P	SE 1/4 of	SE 1/4
Location - Section:	30		
Location - Township:	21S		
Location - Range:	36E		
Surface water body within 1000' radius of Site:	None		
Surface water body within 1000' radius of Site:			
Domestic water wells within 1000' radius of Site:	None		
Domestic water wells within 1000' radius of Site:			
Agricultural water wells within 1000' radius of Site:	None		
Agricultural water wells within 1000' radius of Site:			
Public water supply wells within 1000' radius of Site:	None		
Public water supply wells within 1000' radius of Site:			
Depth (ft) from land surface to ground water (DG):	224		
Depth (ft) of contamination (DC):	27		
Depth (ft) to ground water (DG - DC = DtGW):	197		

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	20+	10	**0 (0-97'bgs)**
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

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State of New Mexico
Energy Minerals and Natural Resources

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

Form C-138
Revised March 17, 1999

Submit Original
Plus 1 Copy
to Appropriate
District Office

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. RCRA Exempt: ☒ Non-Exempt: ☐ Verbal Approval Received: Yes ☒ No ☐	6. Generator Duke Energy Field Services 5. Originating Site G28 092002
2. Management Facility Destination Environmental Plus, Inc. Landfarm #NM-01-0013	6. Transporter Environmental Plus, Inc.
3. Address of Facility Operator 2100 Avenue O, P.O. Box 1558, Eunice, New Mexico 88231	8. State New Mexico
7. Location of Material (Street Address or ULSTR) UL-P Section 30 T21S R36E	

9. Circle One:

A. All requests for approval to accept oilfield exempt wastes will be accompanied by a certification of waste from the Generator; one certificate per job.
B. All requests for approval to accept non-exempt wastes must be accompanied by necessary chemical analysis to PROVE the material is not-hazardous and the Generator's certification of origin. No waste classified hazardous by listing or testing will be approved.
All transporters must certify the wastes delivered are only those consigned for transport.

BRIEF DESCRIPTION OF MATERIAL:

Contaminated Soil – Natural Gas Line leak

Estimated Volume 740 yd^3 Known Volume (to be entered by the operator at the end of the haul) 1836 yd^3

SIGNATURE _____ TITLE: EPI Environmental Consultant DATE: Sept 24, 2002
Waste Management Facility Authorized Agent

TYPE OR PRINT NAME: John Good TELEPHONE NO. 505-394-3481

(This space for State Use)

APPROVED BY: _____ TITLE: _____ DATE: _____

APPROVED BY: _____ TITLE: _____ DATE: _____

ENVIRONMENTAL PLUS, INC.

Environmental Services & Land Farm

PERMIT # NM-01-0013

CERTIFICATE OF WASTE STATUS

"RCRA EXEMPT WASTE"

COMPANY: DUKE ENERGY FIELD SERVICES

ORIGIN: UL OR ¼¼: P SECTION: 30 TOWNSHIP: 21S RANGE: 36E

SOURCE DESCRIPTION (PIPELINE, LEASE, BATTERY, FLOWLINE, ETC.) PIPELINE

20" G28 (092002 SITE) NATURAL GAS PIPELINE

"AS A CONDITION OF ACCEPTANCE FOR DISPOSAL, I HEREBY CERTIFY THAT THIS WASTE IS AN **EXEMPT** WASTE AS DEFINED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA) JULY 1988 REGULATORY DETERMINATION AND TO MY KNOWLEDGE, THIS WASTE HAS BEEN CHARACTERIZED AS "NON-HAZARDOUS" PURSUANT TO THE PROVISIONS OF EPA 40 CFR PART 261 SUBPART C AND HAS NOT BEEN COMINGLED WITH AN EPA 40 CFR PART 261 SUBPART D "LISTED WASTE."

NORM EXPOSURE RATE: <10 µR/HR

I, PAUL MULKEY ,THE UNDERSIGNED AGENT

FOR DUKE ENERGY FIELD SERVICES , HEREBY CERTIFY THAT,

BASED ON PERSONAL KNOWLEDGE, THE ABOVE STATEMENT IS TRUE AND CORRECT.

NAME PAUL MULKEY
TITLE MAINTENANCE & CONSTRUCTION SUPERVISOR
ADDRESS 11525 WEST CARLSBAD HIGHWAY
HOBBS, NEW MEXICO 88240

SIGNATURE Paul T Mulkey
DATE SEPTEMBER 24, 2002

LABORATORY TEST REPORT

PETTIGREW and ASSOCIATES, P.A. Duke Energy Field Services

1110 N. GRIMES
HOBBS, NM 88240
(505) 393-9827

DEBRA P. HICKS, P.E./L.S.I.
WILLIAM M. HICKS, III P.E./P.S.

TO: Environmental Plus
Attn: Roger Boone
P.O. Box 1558
Eunice, NM 88231

MATERIAL: Red Clay

TEST METHOD: ASTM: D 2922

PROJECT: G-28 920

DATE OF TEST: December 31, 2002

DEPTH: Finished Subgrade

TEST NO.	LOCATION	DRY DENSITY % Maximum	% MOISTURE	DEPTH
SG-3	Pit - 10' N. and 15' W. of the SE Corner	103.4	10.6	
SG-4	Pit - 10' S. and 10' W. of the NE Corner	103.4	10.7	

CONTROL DENSITY: 110.0
ASTM: D 698

OPTIMUM MOISTURE: 17.6%

REQUIRED COMPACTION: 95%

LAB NO.: 03 1083-1085

COPIES TO: Environmental Plus

PETTIGREW and ASSOCIATES

BY: Tom Reeves S.E.T.

LABORATORY TEST REPORT

PETTIGREW and ASSOCIATES, P.A. Duke Energy Field Services

1110 N. GRIMES
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WILLIAM M. HICKS, III P.E./P.S.

TO: Environmental Plus
Attn: Roger Boone
P.O. Box 1558
Eunice, NM 88231

MATERIAL: Red Clay

TEST METHOD: ASTM: D 2922

PROJECT: G-28 920

DATE OF TEST: December 27, 2002

DEPTH: 1' Below Finished Subgrade

TEST NO.	LOCATION	DRY DENSITY % Maximum	% MOISTURE	DEPTH
SG-1	Pit - 35' W. and 15' S. of the NE Corner	101.0	12.7	
SG-2	Pit - 50' E. and 25' N. of the SW Corner	100.0	12.4	

CONTROL DENSITY: 110.0
ASTM: D 698

OPTIMUM MOISTURE: 17.6%

REQUIRED COMPACTION: 95%

LAB NO.: 02 5927-5929

COPIES TO: Environmental Plus

PETTIGREW and ASSOCIATES

BY: Don Reese S.E.T.