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Project Summary

Site Specific:

- **Company Name**: Duke Energy Field Services
- Facility Name: G-28 Loop-2 Natural Gas Gathering Pipeline
- Project Reference G-28 Loop-2 112002
- Company Contact: Paul Mulkey
- Site Location: WGS84: N32° 23' 00.03"; W103° 15' 58.84"
- Legal Description: Unit Letter B, (NW1/4 of the NE1/4), Section 21, T22S, R36E
- General Description: approximately 7.3-miles west-southwest (239.2°) of Eunice, NM
- Elevation: 3537-ft amsl Depth to Ground Water: ~165-ft
- Land Ownership: Millard Deck Estate Lessee: Larry Strain
- EPI Personnel: Technical Manager Pat McCasland

Project Consultant – John Good

Site Foreman – Morris Burkett

Release Specific:

- Product Released: Natural Gas & NGL
- Volume Released: ~250 bbl
 Volume Recovered: 200 bbl
- Time of Occurrence: Unknown Time of Discovery: 11:00 AM; 20-Nov-02
- **Release Source**: 20" steel NG pipeline; integrity lost due to internal corrosion; repaired by clamping with ultimate replacement of section.
- Initial Surface Area Affected: 4,837-ft²

Remediation Specific:

- Final Vertical extent of contamination: 20-ft bgs; Remaining depth to ground water: 145-ft
- Water wells within 1000-ft: 0
 Surface water bodies within 1000-ft: 0
- NMOCD Site Ranking Index: 0 points (>100-ft to top of water table)
- Remedial goals for Soil < 65-ft bgs: TPH 5000 ppm; BTEX 50 ppm; Benzene – 10 ppm; Chlorides – 250 ppm
- RCRA Waste Classification: Exempt
- Remediation Option Selected: a) Excavation and disposal of contaminated soil above NMOCD remedial goals; b) analytical confirmation of bottom-hole and sidewall contaminant levels; c) backfill with clean caliche and final 3-ft layer of clean topsoil.
- Disposal Facility: Environmental Plus, Inc. Volume disposed of: 1960-yd³
- Project Completion Date: February 19, 2003
- Additional Commentary: None

1.0 Introduction & Background

This report addresses the site investigation and remediation of the Duke Energy Field Services (DEFS) "G-28 Loop-2 112002" natural gas gathering line remediation site. On November 20, 2002, Environmental Plus, Inc. (EPI) was notified by DEFS regarding a newly discovered natural gas and associated natural gas liquid (NGL) release at this site. The initial C-141 Form submitted to the New Mexico Oil Conservation Division (NMOCD) on November 22, 2002 reports the release volume (NGL) as 250-bbl with 200-bbl recovered. EPI responded the day of the notification and commenced GPS delineation, photography, flow path containment and characterization of the site. The site consisted of a ~4,837 –ft² area with pooled NGL at the Point of Release (POR) and flowing along a dirt road extending east from the POR (*Plate 3, Attachments*). Remediation of this release site consisted of excavation and disposal of 1,960-yd³ of contaminated soil at EPI's approved surface waste facility, soil analyses, backfilling and contouring of the excavation. Remediation of the site was completed on February 19, 2003.

The site is associated with the DEFS G-28 Loop-2 natural gas gathering pipeline. This release site is located in Unit Letter B, (NW¹/₄ of the NE¹/₄), Section 21, T22S, R36E, N32°49'59.66" and W103°19'05.79". It is approximately 7.3-miles west-southwest (239.2°) of Eunice, NM. The property is owned by the Millard Deck Estate. A site location map, site topographical map and a detailed GPS site diagram are included in the Attachments as *Plates 1, 2 and 3*.

The natural gas and associated NGL release at this site was discovered and reported on November 20, 2002. The Initial NMOCD C-141 Form was submitted on November 22, 2002. The leak was the result of internal pipe corrosion. The pipeline was clamped and eventually replaced by DEFS personnel.

2.0 Site Description

2.1 Geological Description

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

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

2.2 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.

2.3 Area Ground Water

The unconfined ground water aquifer at this site is projected to be ~ 165 -ft bgs based on water depth data obtained from the NM State Engineers Office data base. Ground water gradient in this area is generally to the east-southeast.

Wate	r Colum	n Repo	ort - NN	4 State	Engine	er Dat	abase, I	11-21-0	2
Well							Well	Water	Water
Number	Tws	Rng	Sec	Q	Q	Q	Depth	Depth	Column
763	22S	36E	1	3	2	2	265	137	128
727	22S	36E	5	2	3	1	267	212	55
469	22S	36E	6	3	2	1	220	195	25
70	22S	36E	16	1	2	2	220	170	50
575	22S	36E	27	4	3		198	160	38
Quart	ers are	: 1=NV	V, 2=N	IE, 3=5	5W, 4=	SE - bi	ggest to	smalles	st)

2.4 Area Water Wells

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

2.5 Area Surface Water Features

No surface water bodies exist within 1000 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 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.

1. Grou	nd Water	2. Wellhea	d Protection Area	3.	Distance to Surface Water
•	W <50 feet: points		n water source, or; vate domestic water	<200	horizontal feet: 20 points
	50 to 99 feet: points		e: 20 points	20	00-1000 horizontal feet: <i>10 points</i>
÷	W >100 feet: oints	>200' from priv	n water source, or; vate domestic water ce: <i>0 points</i>	>100	0 horizontal feet: <i>0 points</i>
Ground Wa	ter Score = 0	Wellhead Pr	otection Score= 0	S	urface Water Score= 0
er 100 - 62 lännin alle antiprine vita av seg gar. Mattalak i Sakhol värst förder and som	Site Ran	k (1+2+3) = 0 + 0	+0 = 0 points (for	soil 0-6	5'bgs)
onnennennen och mednan alle at omränden en en som ander at omrände ander ander ander ander ander ander at other	Total Site Rank	ing Score and A	cceptable Remedial G	Goal Co	ncentrations
Parameter	20		10	anne ann ann ann ann ann ann ann ann ann	онически станали и полно и полн Полно и полно и
Benzene ¹	10	opm	10 ppm		10 ppm
BTEX	50	opm	50 ppm	angeus un sendre son sei su destructure.	50 ppm
TPH	100	ppm	1000 ppm	in an California California ann an Anna	5000 ppm

4.0 Subsurface Soil Investigation

During the initial excavation phase of the project the eastward extending flow path was excavated to a depth of 3-ft within the lateral confines of the sunken roadway, and the area near the POR was excavated to a depth of 12-ft bgs. Composite bottom and sidewall samples of both areas were taken on 12/10/02. Results of this sampling indicated that the flow path was adequately clear of contamination to justify closure (maximum TPH concentration of 651 mg/kg in the eastern portion). The 12-ft bottom of the POR excavation displayed a TPH concentration of 3,800 mg/kg. Although this level of contamination was below the 5,000 mg/kg remedial goal, all indications were that the release(s) at this site were historical in nature, and the possibility existed that the TPH contamination level could increase, rather than decrease, below the 12-ft level.

Based on the above assumption, one borehole was drilled in the bottom of the excavation near the POR. The borehole was extended to 30-ft bgs and sampled at the 15, 20, 25 and 30-ft intervals. As seen clearly in *Plate 6*, the TPH concentration did increase to 7,500 mg/kg at the 15-ft depth interval and then dropped down to 148 mg/kg at the 20-ft depth interval.

Based on the borehole sampling results, the POR excavation was extended to a depth of 20-ft and then composite sampled on 1/9/03. Results of this sampling indicated adequate contaminant removal to justify site closure.

5.0 Ground Water Investigation

The projected depth to ground water at this site is 165-ft bgs. Excavation of the site was to a maximum depth of 20-ft. Final CoC levels of the bottom-hole of the excavation were confirmed to be below detection levels for Benzene and BTEX. The TPH concentrations in the 20-ft bottom-hole and in the north, south and east sidewalls were all <100 ppm. The west sidewall retained a TPH

concentration of 275 ppm, still considerably less than the 5000 ppm remedial goal (*Plates 5 and 6*, *Attachments*). Chlorides and sulfates were below the respective 250 mg/kg and 600 mg/kg ground water standards throughout the site.

The excavation was backfilled with clean caliche and topsoil obtained from the property owner. Based on the removal the Constituents of Concern and adequate depth to ground water, there will be no need for further ground water investigation at this site.

6.0 Remediation Process

Remediation of the site commenced on November 20, 2002 and continued through February 19, 2002. Remedial activities at the site consisted of excavation and disposal of 1,960-yd³ of NGL contaminated soil from the site. All contaminated soil removed from the site was disposed of in the NMOCD approved EPI land farm located south of Eunice, NM. The main POR excavation was backfilled up to 3-feet below surface level with clean caliche purchased from the property owner. The top 3-ft of the excavation was backfilled with clean topsoil obtained on-site to provide an adequate root zone.

The excavations (POR and/or Flow Path) were composite sampled (bottom-hole and sidewalls) on December 10, 2002 and January 9, 2003. Results of the analyses (*Plates 5 and 6, Attachments*) indicate that remedial goals have been achieved in all areas of the excavation.

The surface damaged area encompasses $38,350-\text{ft}^2$ (*Plate 3 – Attachments*). This area will be evaluated periodically for the necessity of re-seeding or erosion control.

7.0 Closure Justification

This report documents successful implementation of the Remediation Plan approved by NMOCD for this release site. Soil contaminated above acceptable CoC remedial concentrations was excavated and removed from the location. Disposal of RCRA exempt contaminated soils was at the Environmental Plus, Inc. approved land farm. 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.

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Duke Energy Field Services

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DEFS G-28 Loop 2 112002



Duke Energy Field Services

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		Duke	Duke Energy Field Services	1	3-28 Loc	20-2 11	2002 - E	G-28 Loop-2 112002 - Excavation Sampling Results	on Sam	pling R	esults			
Bold	Figure highlighted cells indicate values in excess of the N	values in (excess of the NMOCD remedial action guideline thresholds: TPH = ,5000 mg/Kg; Benzene = 10 mg/Kg; BTEX = 50 mg/Kg;	ial action gu	uideline threa	sholds: TPH	= ,5000 mg	/Kg; Benzen	e = 10 mg/K	g; BTEX = 5	i0 mg/Kg; Cl	= 250 ppm;	SO4 = 600 ppm	ppm
Sample Date	Excavation Sampling Area	Depth	SAMPLE ID#	GRO ³	DRO⁴	трн ⁵	втех ⁶	Benzene	Toluene	Ethyl Benzene	Total Xylenes	מ	SO4	Hd
		(ft - bas ¹)	_	mg/Kg	/ɓɯ	mg/Kg	mg/Kg	δŭ	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
12/10/02	BottomHole Comp	12-ft	SDG28L2121002BHC-12	1910	1911	3821	76.529	0.489	8.640	11.300	56.100	160	111.0	6.68
12/10/02	South SideWall Comp	10-12-ft	SDG28L2121002SSWC-12	10	62	72	0.277	0.005	0.081	0.037	0.154			
12/10/02	North SideWall Comp	10-12-ft	SDG28L2121002NSWC-12	10	10	20	0.103	0.005	0.014	0.014	0.070			
12/10/02	East SideWall Comp	10-12-ft	SDG28L2121002ESWC-12	10	60	20	0:030	0.005	0.005	0.005	0.015			
12/10/02	West SideWall Comp	10-12-ft	SDG28L2121002WSWC-12	10	51	61	0:030	0.005	0.005	0.005	0.015			
12/10/02	West FP Bottom Hole	3-ft	SDG28L2121002FPWBHC	10	397	407	0.462	0.005	0.036	0.064	0.357	144	148.0	6.70
12/10/02	West FP South Sidewall	3-ft	SDG28L2121002FPWSSW	10	53	63	0:030	0.005	0.005	0.005	0.015			
12/10/02	West FP North Sidewall	3-ft	SDG28L2121002FPWNSW	10	40	50	0.034	0.005	0.005	0.005	0.019			
12/10/02	Middle FP Bottom Hole	з-Н	SDG28L2121002FPMBHC	10	146	156	0:030	0.005	0.005	0.005	0.015	192	34.5	6.97
12/10/02	Middle FP South Sidewall	3-ft	SDG28L2121002FPMSSW	10	18	28	0:030	0.005	0.005	0.005	0.015			
12/10/02	Middle FP North Sidewall	3-ft	SDG28L2121002FPMNSW	10	12	22	0.053	0.005	0.005	0.008	0.035			
12/10/02	East FP BottomHole	з-Ħ	SDG28L2121002FPEBHC	11	640	651	0:030	0.005	0.005	0.005	0.015	192	29.2	7.00
12/10/02	East FP South Sidewall	a-ft	SDG28L2121002FPESSW	10	573	583	0:030	0.005	0.005	0.005	0.015			
12/10/02	East FP North Sidewall	a-ft	SDG28L2121002FPENSW	10	125	135	0:030	0.005	0.005	0.005	0.015			
12/19/02	BottomHole Comp	15-ft	SDG28L2121902BHC-15	1900	5600	12,7500	146.219	0.819	24,200	23.000	- 96,200			
1/3/03	BoreHole (Center Hole)	20-ft	SDG28L21302CBH-20	10	138	148	0:030	0.005	0.005	0.005	0.015	112	408.0	
1/3/03	BoreHole (Center Hole)	25-ft	SDG28L21302CBH-25	10	10	20	0:030	0.005	0.005	0.005	0.015	80	73.1	
1/3/03	BoreHole (Center Hole)	30-ft	SDG28L2121902BHC-30	10	22	32	0:030	0.005	0.005	0.005	0.015	96	91.4	
1/9/03	BottomHole Comp	20-ft	SDG28L2010903BHC-20	10	22	32	0:030	0.005	0.005	0.005	0.015	128	9.77	
1/9/03	South SideWall Comp	15-20-ft	SDG28L2010903SSWC	10	88	86	0:030	0.005	0.005	0.005	0.015	96	24.4	
1/9/03	East SideWall Comp	15-20-ft	SDG28L2010903NSWC	10	32	42	0:030	0.005	0.005	0.005	0.015	112	246.0	
1/9/03	North SideWall Comp	15-20-ft	SDG28L2010903ESWC	10	86	48	0:030	0.005	0.005	0.005	0.015	128	49.4	
1/9/03	West SideWall Comp	15-20-ft	SDG28L2010903WSWC	10	265	275	0:030	0.005	0.005	0.005	0.015	112	122.0	
¹ bgs = belc	bgs = below ground surface ³ GRO) - Gasoline	³ GRO - Gasoline Range Organics (Detection Limit = 10 mg/Kg)	t = 10 mg/Kg	_	D - Diesel Rar	nge Organics	⁴ DRO - Diesel Range Organics (Detection Limit = 10 mg/Kg)	nit = 10 mg/k	(6)				
⁵ TPH - Tot	al Petroleum Hydrocarbon (I	GRO+DRO)	TPH - Total Petroleum Hydrocarbon (GRO+DRO) ⁶ BTEX = Sum of CoC's (Detection Limits = 0.005 mg/kg; 0.015 mg/kg)	sction Limits	= 0.005 mg/K	(g; 0.015 mg/	Kg)							
Note: Rep	orted detection limits are col	nsidered "de	Note: Reported detection limits are considered "de minimus" values and are included in the TPH and BTEX summations.	ted in the TP	H and BTEX	summations.								

Plate 4: Soil Analytical Data Table

DEFS G-28 Loop 2 112002



Plate 5: Soil Analytical Data Bar Charts





Laboratory Analytical Data



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: 12/10/02 Reporting Date: 12/13/02 Project Owner: DUKE ENERGY FIELD SERVICES Project Name: G28 LOOP2 112002 Project Location: UL-B SECTION 21 T22S R38E

Sampling Date: 12/10/02 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		12/11/02	12/11/02	12/11/02	12/11/02	12/11/02	12/11/02

ANALYSIS DATE:	12/11/02	12/11/02	12/11/02	12/11/02	12/11/02	12/11/02
SDG28L2121002BHC-12	1910	6400	0.489	8.64	11.3	56.1
SDG28L2121002SSWC-12	<10.0	61.9	<0.005	0.081	0.037	0.154
SDG28L2121002NSWC-12	<10.0	<10.0	<0.005	0.014	0.014	0.070
SDG28L2121002ESWC-12	<10.0	59.5	<0.005		<0.005	1
SDG28L2121002WSWC-12	<10.0	51.2				
SDG28L2121002FPWBHC		397	<0.005		0.064	
H7300-7 SDG28L2121002FPWSSW		52.6	<0.005	<0.005	< 0.005	<0.015
H7300-8 SDG28L2121002FPWNSW	<10.0	39.7	<0.005	<0.005	<0.005	0.019
H7300-9 SDG28L2121002FPMBHC	<10.0	148	<0.005	< 0.005	< 0.005	<0.015
H7300-10 SDG28L2121002FPMSSW	<10.0	17.5	<0.005	< 0.005	<0.005	<0.015
H7300-11 SDG28L2121002FPMNSW	<10.0	11.7	< 0.005	<0.005	0.008	0.035
H7300-12 SDG28L2121002FPEBHC	11.4	640	< 0.005	<0.005	<0.005	<0.015
H7300-13 SDG28L2121002FPESSW	<10.0	573	<0.005	<0.005	< 0.005	
H7300-14 SDG28L2121002FPENSW	<10.0	125	< 0.005	1	· · · · · · · · · · · · · · · · · · ·	
		1				1
Quality Control	802	857	0.098	0.094	0.091	0.267
True Value QC	800	800	0.100		0.100	
% Recovery	100.0	107	97.5		90.6	88.9
Relative Percent Difference	10.2	•••••••••••••••••••••••••••••••••••••••			0.2	0.8

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

Ph. D.

Date

H7300A.XLS

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

Receiving Date: 12/10/02 Reporting Date: 12/16/02 Project Owner: DUKE ENERGY FIELD SERVICES Project Name: G28 LOOP2 112002 Project Location: UL-B SECTION 21 T22S R36E Sampling Date: 12/10/02 Sample Type: SOIL Sample Condition: COOL & INTACT Sample Received By: BC Analyzed By: AH

		СГ	SO₄	pН
LAB NUMBE	R SAMPLE ID	(mg/Kg)	(mg/Kg)	(s.u.)
ANALYSIS [DATE	12/13/02	12/13/02	12/13/02
H7300-1	SDG28L2121002BHC-12	160	111	6.68
H7300-6	SDG28L2121002FPWBHC	144	148	6.70
H7300-9	SDG28L2121002FPMBHC		34.5	6.97
H7300-12	SDG28L2121002FPEBHC		29.2	7.00
Quality Cont	rol	970	50.20	6.75
True Value (QC	10(50.00	7.00
% Recovery		*******	100	96.4
Relative Per	cent Difference		0.7	0.1
METIODO.	00014 70-000		076.4	450 4
NETRODS:	600/4-79-020	4500-CI B*	375.4	150.1

*Standard Methods

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

emist

d-16-02

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	Hobbs NM 8824 ax 505-393-2476						01							e TX 796 873-7020													
Company Name	in the second	ental Plus,	Inc				911 27.							0/3-/020		1		11.45	AM	ATS	GI	S RE	501	FS		F E 4	Part.
Project Manager	John God					· · ·			and the second								1401.78	a cini		T	T	T	T.	T.	9-97). 1	<u></u>	~
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Sampler Name	John Goo											, '								<u> </u>							
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LAB I.D.	SAMPLE I.	D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUND WATER	WASTEWATER	sou	CRUDE OIL	SLUDGE	OTHER:	ACIDIBASE	CERCOOL	OTHER	DATE	TIME	BTEX 8021B	TPH 6015M	CHLORADES (CT)	SULFATES (SQ,)	H		· · · · · ·				And	6.
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DEFS G-28 Loop 2 112002



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: 12/20/02 Reporting Date: 12/26/02 Project Owner: DUKE ENERGY FIELD SERVICES Project Name: G28 LOOP2 112002 Project Location: UL-B SECTION 21 T22S R36E Sampling Date: 12/19/02 Sample Type: SOIL Sample Condition: COOL & INTACT Sample Received By: BC Analyzed By: BC

	GRO	DRO			ETHYL.	TOTAL
LAB NO. SAMPLE ID	(C ₆ -C ₁₀)	(>C ₁₀ -C ₂₈)	BENZENE	TOLUENE	BENZENE	XYLENES
	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)

ANALYSIS DATE:	12/23/02	12/23/02	12/23/02	12/23/02	12/23/02	12/23/02
H7348-1 SDG28L2121902BHC-15	1900	5600	0.819	24.2	23.0	98.2
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Quality Control	762	847	0.108	0.100	0.104	0.306
	800	800	0.100	0.100	0.100	0.300
	95.2	106	108	100	104	102.0
	12.5	2.7	6.1	1.9	5.5	5.7

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

A look Burgess J.

H7348.XLS

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Company Name	Environmental Plus	i, Inc .				بر بندی	31				Bill	To						AN	ALY	sis r	EQ	JES	ľ	
Project Manager	John Good														Г	Τ								
Address	P.O. BOX 1558																							
City, State, Zip	Eunice New Mexico	882	31]		_	1		:	Ш												
Phone#/Fax#	505-394-3481 / 50	5-394	-26	01] ~		-	i dina 1917															
Project #/Owner	Duke Energy Field	Servi	C8 8] `				3		المراجع												
Project Name	G28 Loop2 112002					1			4		Ę				1									
Project Location	UL-B Section 21 T2	28 F	236 E	:		1									İ.	:							1	
Sampler Name	John Good	1				1											1							
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LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP		GROUND WATER	WASTEWATER		CRUDE OIL	SLUDGE	OTHER:	ACIDIBASE	ICERCOOF	OTHER	DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (CI)	SULFATES (SQ,)	PH					
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Duke Energy Field Services



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 1658 EUNICE, NM 88231 FAX TO: (505) 394-2601

Receiving Date: 01/03/03 Reporting Date: 01/07/03 Project Number: DUKE ENERGY FIELD SERVICES Project Name: G-28 LOOP 2 Project Location: NOT GIVEN Sampling Date: 01/03/03 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)
ANALYSI	S DATE:	01/06/03	01/06/03	01/06/03	01/06/03	01/08/03	01/06/03
H7376-1	SDG28L21302CBH-20'	<10.0	138	< 0.005	<0.005	< 0.005	<0.015
H7376-2	SDG28L21302CBH-25'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H7376-3	SDG28L21302CBH-30	<10.0	22.0	<0.005	<0.005	<0.005	<0.015
				·			<u> </u>
		- 1,4-4					1
		·					
Quality Co	ontrol	769	799	0.089	0.094	0.097	0.284
True Valu	e QC	800	800	0.100	0.100	0.100	
% Recove	ny ing	96.1	99.9	88.9	94.2	97.1	
Relative P	ercent Difference	0.5	1.0	3.9	3.7	10.6	+

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

, Coohy Burgess J. AJ Cooks

11/03 Date

H73768T.XLS

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

Receiving Date: 01/03/03 Reporting Date: 01/06/03 Project Owner: DUKE ENERGY FIELD SERVICES Project Name: G-28 LOOP 2 Project Location: NOT GIVEN

Sampling Date: 01/03/03 Sample Type: SOIL Sample Condition: COOL & INTACT Sample Received By: BC Analyzed By: AH

		CL	SO4
LAB NUMB	ER SAMPLE ID	(mg/Kg)	(mg/Kg)
ANALYSIS	DATE	01/06/03	01/06/03
H7376-1	SDG28L21302CBH-20'	112	408*
H7376-2	SDG28L21302CBH-25'	80	73.1
H7376-3	SDG28L21302CBH-30'	96	91.4
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	1		-
Quality Con	trol	980	50.20
True Value	QC	1000	50.00
% Recovery		98.0	100
Relative Pe	rcent Difference	2.0	0.7

METHODS: 600/4-79-020 *Standard Methods

Note: Analyses performed on 1:4 wiv aqueous extracts.

* Matrix interferenece (color) observed.

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1 Cardinal cannot accept verbal changes. Please fax written changes to 505-



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

Receiving Date: 01/09/03 Reporting Date: 01/11/03 Project Owner: DUKE ENERGY FIELD SERVICES Project Name: G-28 LOOP 2 112002 Project Location: UL-B SEC21 T22S R36E

Sampling Date: 01/09/03 Sample Type: SOIL Sample Condition: COOL & INTACT Sample Received By: BC Analyzed By: BC ETHYL TOTAL

	GRO	DRO			ETHYL	TOTAL
LAB NO. SAMPLE ID	(Ce-C10)	(>C10-C28)	BENZENE	TOLUENE	BENZENE	XYLENES
	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
ANALYSIS DATE:	01/10/03	01/10/03	01/09/03	01/09/03	01/09/03	01/09/03
H7389-1 SDG28L2010903BHC-20	<10.0	21.7	<0.005	<0.005	< 0.005	<0.015
H7389-2 SDG28L2010903SSWC		87.6	<0.005	< 0.005	< 0.005	<0.015
H7389-3 SDG28L2010903ESWC	1	32.0	<0.005	< 0.005	<0.005	<0.015
H7389-4 SDG28L2010903NSWC		38.4	<0.005	<0.005	<0.005	<0.015
H7389-5 SDG28L2010903WSWC	I	265	< 0.005	<0.005	< 0.005	<0.015
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Quality Control	773	813	0.109	0.100	0.101	0.296
True Value QC	800	800	0.100	0.100	0.100	0.300
	96.6	102	109	99.8	101	98.5
	7.5	1.7	11.0	2.2	1.3	1.2

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

Buy espe Coohe

11/07 Date

H73898T.XL6

H/SOSO LAGO PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for an All claims, including those for negligance and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the app service. In no event shall Cardinal be liable for incidential or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profile incurred by client, its subsi stillates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise



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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: 01/09/03 Reporting Date: 01/10/03 Project Owner: DUKE ENERGY FIELD SERVICES Project Name: G-28 LOOP 2 112002 Project Location: UL-B SEC21 T22S R36E Sampling Date: 01/09/03 Sample Type: SOIL Sample Condition: COOL & INTACT Sample Received By: BC Analyzed By: AH

	ÇĽ	SO4
LAB NUMBER SAMPLE ID	(mg/Kg)	(mg/Kg)
ANALYSIS DATE	01/10/03	01/10/03
H7389-1 SDG28L2010903BHC-20	128	77.9
H7389-2 SDG28L2010903SSWC	96	24.4
H7389-3 SDG28L2010903ESWC	112	246
H7389-4 SDG28L2010903NSWC	128	49.4
H7389-5 SDG28L2010903WSWC	112	122
Quality Control	980	50.20
True Value QC	1000	50.00
% Recovery	98.0	100
Relative Percent Difference	2.0	0.7

METHODS: 600/4-79-020	4500-CIB* 375.4	
*Standard Methods		

Note: Analyses performed on 1.4 w v aqueous extracts.

1-10-03

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101 East Marlan	d, Hobbs, NM 88240 Fax 505-393-2476										F	ax 9)15-(e, TX 79 673-7020										_		
Company Name	Environm	ental Plus,	Inc							i i i i		Bill	l To		3			د د د د د د د	AN	ALY	/SIS	3 RE	QU	EST	-	
Project Manager	John Goo	d														l I										
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Project #/Owner	Duke Ene	rgy Field S	ervi	ices																						
Project Name	G-28 Loo	p 2 112002					9 전 Mac M 2 1 11 																			
Project Location	UL-B Sec	tion 21 T22	S F	2361											r ĝ										Ì	
Sampler Name	John Goo	d																								
			٩.				MA	TRIX		-	PR	E8E	RV.	<u>SAM</u>	PLING							1				
LAB I.D.	SAMPLE I.	D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE	ICE/COOF	OTHER	DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (CI)		Ha						
H7389- 1	SDG28L2010903BH	IC-20	С	1			X					X	ς	9-Jan	10:30	X	X	X								
-2 2	SDG28L201090385	WC 🚽	C	1			X					X		9-Jan	10:45	X	X	X	X		L	L			┛	
-3 3	SDG28L2010903ES	WC	С	1			X					X		9-Jan	11:00	X	X	X	X							
-44	SDG28L2010903NS	WC 📰	С	1			X					X		9-Jan	11:15	X	X	_	X							
<u> </u>	SDG28L2010903W5	BWC	C	1			X					X		9-Jan	11:30	X	X	X	X						╉	+
8 Sampler Relinquiahed:			Peop	ived (- 201 T. 	2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2																			
Carry Respired and the former of the former	ford	1-9-05 1000 4/10			3y: (le	ib stat		AU	1	ki			ise F Arks		s To John (7	Good	d A8	AP -	505	-3 9 4-	-260	1				
Delivered by:	-	Sample			7	-7		ch	Bolead	By:																

Condinal Laboratorias Inc

Duke Energy Field Services

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

Form C-141

Revised June 10, 2003

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

	O	PERATOR					🗇 Initial Report	Final Report				
Name of Company	DUKE ENE	RGY FIELI	D SERVI	CES	Contact	Paul Mulkey						
Address	11525 W. Ca	rlsbad Hwy.	Hobbs	, NM 88240	Telephone No.	505-397-5716						
Facility Name	G-28 Loop-2 1	12002			Facility Type	Natural Gas Ga	thering Pipeline					
Surface Owner	Millard Deck	Estate			NA		Lease No.	NA				
			1	LOCATION O	F RELEASE							
Unit Letter	Section	Township	Range	Feet from	Feet from	Longitude	Latitude	County:				
В	21	228	36E	South Line 4900	West Line 3650	W103:15:58.84	N32:23:00.03	Lea				
				NATURE OF	PF RELEASE							
Type of Release					Volume of Relea	ase	Volume Recovered					
Natural Gas rel	ease and assoc	iated NGL's	S		250	bbl	200	bbl				
Source of Release					Date and Hour of	of Occurrence	Date and Hour of I	Discovery				
G-28 Loop-2 20	'' Steel Pipelin	e			Unknown		11/20/02-11:00 AM	4				
Was Immediate No	tice Given?				If YES, To Who	om?	•					
	☑ _{Yes}	D No		Required	Larry Johnso	on; NMOCD-Hol	obs					
By Whom?	Stan Shaver	- DEFS			Date and Hour 11/20/02-11:30 AM							
Was a Watercourse	Reached?				If YES, Volume Impacting the Watercourse.							
		□ _{Yes}	☑ _{No}		NA							
If a Watercourse wa	as Impacted, Desc	cribe Fully.*			A							
NA												
Describe Cause of I	Problem and Rem	edial Action T	aken.*									
Corroded pipeline	, initially repaire	ed with clamp	then sectio	n replaced								
Describe Area Affe	cted and Cleanup	Action Taken	*									
~4837-ft ² surface a contaminated soil	nrea affected (63 was excavated a	2-ft East from nd disposed of	1 POR). ~2: f by EPI. M	50-bbl of NGL re laximum excava	eleased; 200-bbl tion depth was 2	recovered. 1,960-yd 0-ft bgs. Excavated	l ³ of RCRA Exemp soil was replaced w	t Non-hazardous vith clean backfill.				
required to report and/ report by the NMOCD	or file certain release marked as "Final Re water, surface wate	e notifications and eport" does not re er, human health	d perform cor elieve the ope or the enviror	rective actions for re rator of liability shou	leases which may er ald their operations l	that pursuant to NMOG adanger public health or nave failed to adequately of a C-141 report does	the environment. The a investigate and remedia not relieve the operator	acceptance of a C-141 ate contamination that of responsibility for				
Signature:	177	Julk	~			<u>OIL CONSERV</u>	ATION DIVISION	<u>N</u>				
Printed Name:	· · · ·	Paul Mulke	ey /		Approved by Di	strict Supervisor:						
Title:	Constructio	n/Maintena	nce Super	intendent	Approval Date:	Expiration Date:						
E-mail Address:	pdmulkey@	duke-energy	y.com		Conditions of Approval:							
Date:	9/17/03	Phone:	505	-397-5716								

Duke	Energy Services	Incident Da	ate and NA	AOCD Notifie	d?				
Field	Services	11/20/02-1	11:00 AM	11/20/02- 1	1:30 AM				
SITE: G-28 Loop-				Assigned Site	Reference	# 112002			
Company:	DUKE ENE	RGY FIELD	SERVICE	S					
Street Address:	5805 East	Highway 80							
Mailing Address:		Carlsbad Hv							
City, State, Zip:	Hobbs, NM								
Representative:	Paul Mulke	y							
Representative Teleph									
Telephone:									
Fluid volume released	(bbls): 250	Recovere	ed (bbls):	200					
	>25 bbls: Noti	fy NMOCD ver	bally within 24	hrs and submit fo	rm C-141 withir	15 days.			
	5-25 bbls: Submit form C-	141 within 15 d	ays (Also appl	ies to unauthorized	d releases of 50	-500 mcf Natural Gas)			
Leak, Spill, or Pit (LSP		# 112002							
Source of contamination	on:	G-28 Loop-	2 20" Stee	Pipeline					
Land Owner, i.e., BLM					arbone, Inc.,	3903 Belair Blvd, Houston, TX 77025			
LSP Dimensions:		~600-ft eas	t flowpath	(GPS Site Dia					
LSP Area:		4,837	-ft ²						
Location of Reference	Point (RP):								
Location distance and									
Latitude:		N32:23:00.	03						
Longitude:		W103:15:5	8.84						
Elevation above mean	sea level:	3537	-ft amsl						
Feet from South Section	on Line:	4900							
Feet from West Sectio	n Line:	3650							
Location - Unit and 1/4	1/4: UL-	В	NE	1/4 of NE	E 1/4				
Location - Section:		21							
Location - Township:		22S							
Location - Range:		36E							
Surface water body wit	hin 1000' radius of Site	e:	0						
Surface water body wit	hin 1000' radius of Site	e:	0						
Domestic water wells v	vithin 1000' radius of S	ite:	0						
Domestic water wells w	vithin 1000' radius of S	ite:	0						
Agricultural water wells	s within 1000' radius of	Site:	0	_					
Agricultural water wells	s within 1000' radius of	Site:	0						
Public water supply we	Ils within 1000' radius	of Site:	0						
Public water supply we	Ils within 1000' radius	of Site:	0						
Depth (ft) from land su	rface to ground water	(DG):	165	-					
Depth (ft) of contamina	ation (DC):		20						
Depth (ft) to ground wa	ater (DG - DC = DtGW):	145						
1. Groun	d Water			ection Area	3.	Distance to Surface Water Body			
If Depth to GW <50 fe	et: 20 points	lf <1000' fr			<200 horiz	ontal feet: 20 points			
If Depth to GW 50 to 9	9 feet: 10 points		•	mestic water					
		source: 20 If >1000' fr		ource or	200-1001	norizontal feet: 10 points			
f Depth to GW >100 f	eet: <i>0 points</i>		private do	mestic water	>1000 hori	rizontal feet: 0 points			
Ground water Score:	0	Wellhead F		Area Scor 0	Surface W	ater Score: 0			
Site Rank (1+2+3) =	0				- -	······································			
	Total Si	te Ranking	Score an	d Acceptable	Concentra	tions			
Parameter	20 or >			10		0			
Benzene ¹	10 ppm			10 ppm	10 ppm				
BTEX ¹	50 ppm			50 ppm		50 ppm			
ГРН	100 ppm			1000 ppm		5000 ppm			
100 ppm field VOC he	eadspace measuremer	nt may be si	ubstituted f		s				

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District 1		Stat	e of New Mexico	Form C-138
1625 N. French Dr., Ho	bbs, NM 88240	Energy Miner	als and Natural Resour	Ces Revised March 17, 1999
District II		0 /		
1301 W. Grand Avenue	, Artesia, NM 88210	0.1.0		
District III	Anton NM 97410		onservation Division	Submit 2 Copies to appropriate
1000 Rio Brazos Road, District IV	Aztec, NM 87410		South St. Francis Dr.	District Office in accordance with Rule 116 on back
District IV 1220 S. St. Francis Dr.,	Santa Fe NM 87505	San	nta Fe, NM 87505	side of form
1220 S. St. Truncis D1.,	Sana re, nu 67505			
	REOUE	ST FOR APPROV	AL TO ACCEPT SO	I ID WASTE
				4. Generator:
1. RCRA Exempt:	X Non-Exer	npt:	[
				5. Originating Site Designation:
Verbal Approva	Received?: Ye	es X No	Ē	G-28 Loop-2 112002 # 112002
2. Management Fa	acility Designation:			6. Transporter:
, united and the second		ntal Plus, Inc. Land Fa		Environmental Plus, Inc.
3. Address of Faci	Ity Operator:			7. State
	2100 Avenu	e O, P.O. Box 1558, E	Eunice, NM 88231	New Mexico
4	erial (Street Address o			
UL-	B Section 2	1 <u>T 22S</u>	<u>R 36E</u>	
9. Circle One:				
	All requests for appro Generator; one certif		npt wastes will be accompani	ed by a certification of waste status from the
В.				ed by the necessary chemical analysis to
			Generator's certification of or	igin. No waste classified as "HAZARDOUS" by
	listing or testing shall	be approved.		
	All transporters mu	st certify the wastes del	ivered are only those consi	igned for transport.
BRIEF DESCRIPT	TION OF MATERIAL:			
		oil(s): hydrocarbon re		
	Natural Ga	is release and associ	iated NGL's	
	1500 wa ³ w	noun volume (to be entered b		
Estimated Volume:	<u>1500</u> yd ³ . Ki	nown volume (to be entered b	y the operator at the end of the h	aul: (yd ³) <u>1960</u> yd ³
	(hl.			
SIGNATURE		- Hand	TITLE: EPI Environme	antal Consultant DATE: 11/22/02
	Wasto Managem	ent Facility Authorized Agent		
	V			
TYPE OR PRIN		John Good	TELEPHONE NO .:	505-394-3481 FAX: 505-394-2601
(This space for Stat	e (Jso)			
APPROVED BY		Т	1TLE:	DATE:
APPROVED BY		Ţ	1TLE:	DATE:

.

:

. . .



"As a condition of acceptance for disposal, I hereby certify that this waste is an <u>exempt</u> waste as defined by the Environmental Protection Agency (EPA) July 1988 Regulatory Determination and to my knowledge, this waste 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: < 50 µR/Hour	
	Ι,_	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		Construction/Maintenance Superintendent	
Address		11525 W. Carlsbad Hwy.	
		Hobbs, NM 88240	
Signature	_	Paul Mulkey	
Date	_	Friday, November 22, 2002	



Initial Response: flow path, east to west angle



Initial Response: east extent of flow path, W to E



Initial Response: flow path, west to east angle

Initial Response: Clamping POR



Initial Response: Clamping POR

