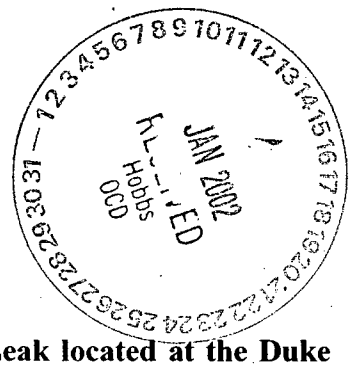
Highlander Environmental Corp.

Midland, Texas

January 10, 2002



Mr. Paul Sheeley
Environmental Bureau
Oil Conservation Division
1625 N. French Drive
P.O. Box 1980
Hobbs, New Mexico 88240

RE: Project 1712, Assessment and Work Plan for the Pipeline Leak located at the Duke NMR Regional Pipeline, San Simon, Section 27, Township 21 South, Range 35 East Lea County, New Mexico.

Dear Mr. Sheeley,

Highlander Environmental Corp. (Highlander) was contacted by Duke Energy Field Services, LP (Duke) to assess a pipeline spill, which occurred at the Duke NMR Regional Pipeline, San Simon, in Lea County, New Mexico. The Site is located in Section 27, Township 21 South, Range 35 East at location 32° 26' 45.1"N, 103° 21' 22.8"W. The Site location is shown in Figure 1. According to published data, there are water wells located northeast and southwest of the Site in Township 21 South, Range 35 East showing groundwater at 150' and 67' below surface, respectively. One well is shown in Section 27, Township 21 South, Range 35 East with a water level of 21' below surface. In addition, the New Mexico State Engineers Office Well Reports indicated a water well located in Section 27, Township 21 South, Range 35 East. This well appears to be a windmill located approximately 1,000 feet northwest of the spill area and showed a total well depth of 31 feet below surface.

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remediation action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based upon on the regional groundwater data, the proposed recommended remedial action level (RRAL) for TPH is 100 mg/kg.

Background

On January 5, 2001, a leak occurred from a gas gathering line and released pipeline liquids into the surrounding soils. The leak released approximately 840 gallons (20 barrels) of petroleum oils and liquids. No liquids were recovered at the Site. Once the leak was discovered, the pipeline leak was immediately repaired. No remediation activity on the soil has been performed at the Site.

Duke 229153
facility - fPAC0608128297
Incident - n PAC0608128524
application - pPAC0608129059

Site Inspection and Assessment

On September 6, 2001, Highlander inspected the leak area. The aerial extent of the impact is shown on Figure 2. The impacted area measured approximately 35' x 45'. Soil samples were collected using a hand auger. A total of five (5) auger holes were installed near the release point to define the extent of the impact. AH-1 was installed in the center of the release point and AH-2, AH-3, AH-4 and AH-5 were installed to define horizontal extent of the impact. Deeper samples could not be collected due to a shallow dense caliche encountered at approximately 2.0 feet below surface. The sample locations are shown in Figure 2. Soil samples were collected from the spill area for evaluation of TPH by method EPA 418.1, BTEX by method SW 846-8021B and chloride by method SW846-9252. Samples were selected for BTEX evaluation based upon the highest TPH levels. The soil samples results are shown in Table 1. The laboratory reports and the chain of custody documentation are attached.

Table 1
(concentration in mg/kg)

Sample ID	Depth (ft)	TPH	B	T	E	X	Total BTEX	Chloride
AH-1	0-1	18,000	0.356	3.49	0.660	13.7	18.2	6,157.74
	1.5-2	-	-	-	-	-	-	5,902.82
	2.0	16,000	<0.010	1.48	5.39	29	35.9	-
AH-2	2.0	<10	<0.010	<0.010	0.026	0.016	0.042	-
AH-3	2-2.5	855	<0.010	0.053	0.017	0.093	0.163	-
AH-4	2.0	<10	-	-	-	-	-	-
AH-5	2-2.5	19,300	4.49	21.4	7.76	54	87.7	-

(-) Not Analyzed

Referring to Table 1, auger hole locations (AH-1, AH-3 and AH-5) exceeded the RRAL for TPH of 100 mg/kg. The soil samples showed a TPH ranging from 855 mg/kg to 18,000 mg/kg. The remaining two auger holes (AH-2 and AH-4) did not show impact above the RRAL for TPH of 100 mg/kg. With the exception of total BTEX in AH-5, the benzene and total BTEX levels did not exceed the RRAL of 10 mg/kg and 50 mg/kg, respectively. The sample from AH-5 showed a total BTEX of 87.7 mg/kg exceeding the RRAL. The chloride levels detected in AH-1 showed a level of 6,157.74 mg/kg (0-1') and 5,902 mg/kg (1.5-2'). The chloride levels appear to be elevated. In addition, the hydrocarbon impact at the release area was not vertically defined and will require additional evaluation.

Conclusion

1. On January 5, 2001, a leak occurred from a gas gathering line and released pipeline liquids into the surrounding soils. The leak released approximately 840 gallons (20 barrels) of petroleum oils and liquids. No liquids were recovered at the Site. Once the leak was discovered, the pipeline leak was immediately repaired. No remediation activity has been performed at the Site. The aerial extent of impact at the release measured approximately 35' x 45'.

2. According to published data, there are water wells located northeast and southwest of the Site in Township 21 South, Range 35 East showing groundwater at 150' and 67' below surface, respectively. One well is shown in Section 27, Township 21 South, Range 35 East with a water level of 21' below surface. In addition, the New Mexico State Engineers Office Well Reports indicated a water well located in Section 27, Township 24 South, Range 32 East, which appears to be a windmill located approximately 1,000 feet northwest of the spill area. The data indicated a well total depth of 31 feet below surface. Based upon published data, the groundwater at the Site appears to be shallow. Highlander will attempt to collect a water level measurement from the windmill, located northwest of the Site, to confirm the groundwater depth at the Site.

3. The New Mexico Oil Conservation Division (NMOCD) Remediation of Leaks, Spills and Releases guidelines require a risk-based evaluation of the site to determine recommended remediation action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based on the regional groundwater data, the proposed recommended remedial action level (RRAL) for TPH is currently 100 mg/kg.

4. The hydrocarbon impact at the release area was not vertically defined and will require additional evaluation. Auger holes (AH-1, AH-3 and AH-5) exceeded the RRAL for TPH of 100 mg/kg. The soil samples showed a TPH level ranging from 855 mg/kg to 18,000 mg/kg. The remaining two auger holes (AH-2 and AH-4) did not show impact above the RRAL for TPH. The benzene and the total BTEX levels in auger holes (AH-1, AH-2 and AH-3) did not exceed the RRAL of 10 mg/kg and 50 mg/kg, respectively. However, AH-5 located on the east fringe of the spill showed a total BTEX of 87.7 mg/kg exceeding, the RRAL. The chloride levels detected in AH-1 showed a level of 6,157.74 mg/kg (0-1') and 5,902 mg/kg (1.5-2'). The chloride levels appear to be elevated and will require additional evaluation.

Recommendation/Work Plan

The preliminary assessment performed at the Site did not define the vertical extent of the impact. Based on the results of AH-1 and AH-2, Duke proposes to further investigate the release area. A total of two to three air rotary-drilled boreholes are proposed in the area of the release for evaluation. Split spoon or core samples will be collected at 5 feet intervals for field screening using a Thermo Environmental Equipment Model 580B, Organic Vapor Meter (OVM). The OVM is calibrated to a 100 parts per million (ppm) isobutylene gas standard and has a detection limit of 0.1 ppm. At least two soil samples from each borehole will be analyzed for chlorides, total petroleum hydrocarbons (TPH) by EPA method 418.1 and benzene, toluene, ethyl-benzene and xylene (BTEX) EPA method 602/8021B. Chloride soil samples will be analyzed by using an EPA standard method. All the samples will be collected in laboratory supplied containers and preserved properly during the transport.

Soil cuttings from drilling will be stockpiled next to the borehole until disposal is arranged. All downhole equipment (i.e., drill rods, drill bits, etc.) will thoroughly decontaminated between each use with a high-pressure hot water wash and rinse.

Upon receipt of analytical data from the laboratory, Highlander will assemble all data in tables for presentation in a report. The report will contain discussions of field sampling techniques and laboratory results. Highlander will compare the laboratory test results for soil samples to applicable New Mexico OCD action levels or cleanup standards. Detailed Site drawings will be presented in the report. The report will also detail the remedial plan for the Site.

If you require any additional information or have any questions or comments concerning the assessment report, please call.

Very truly yours,

Ike Tavarez
Project Manager/Geologist

cc:

FIGURES

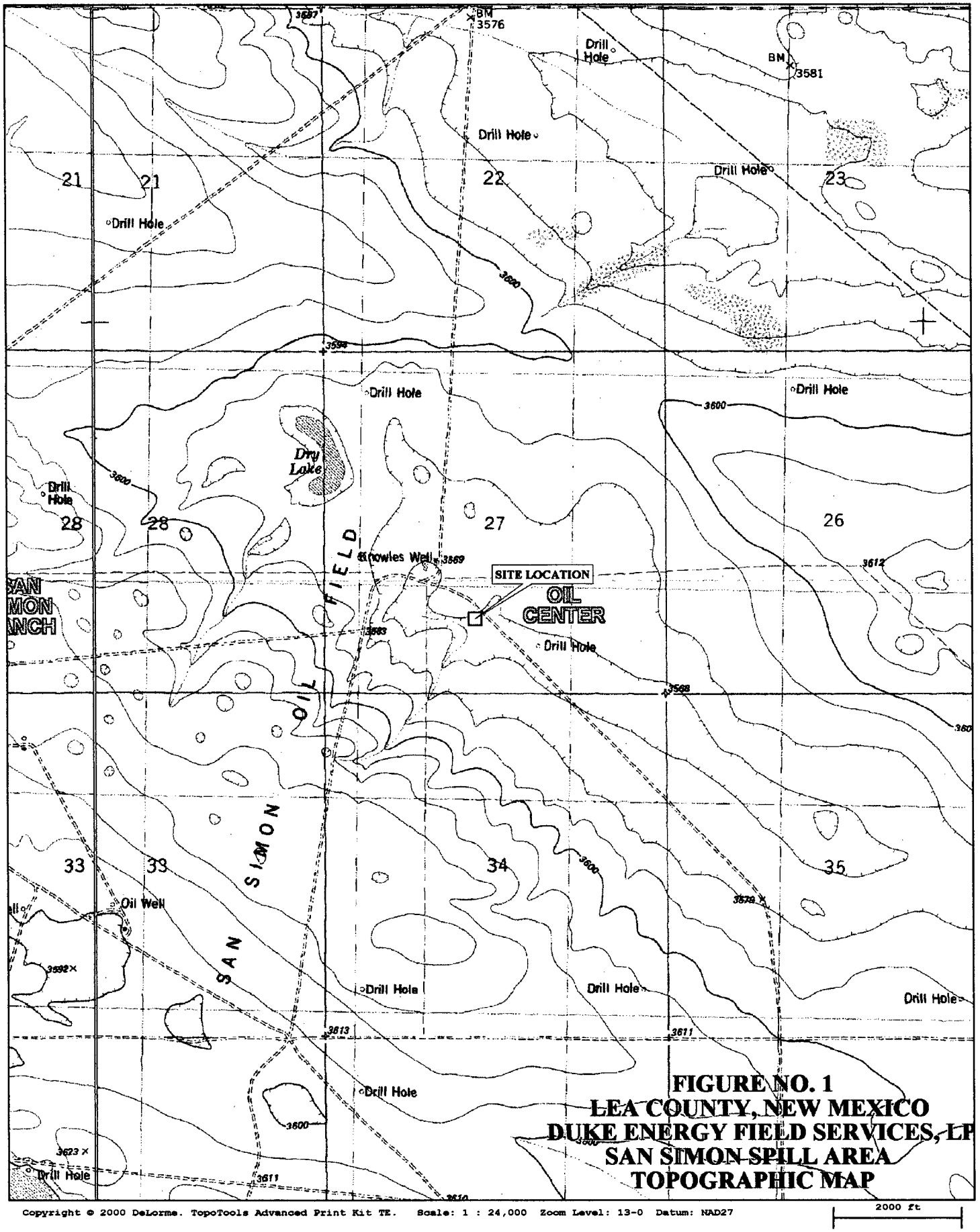
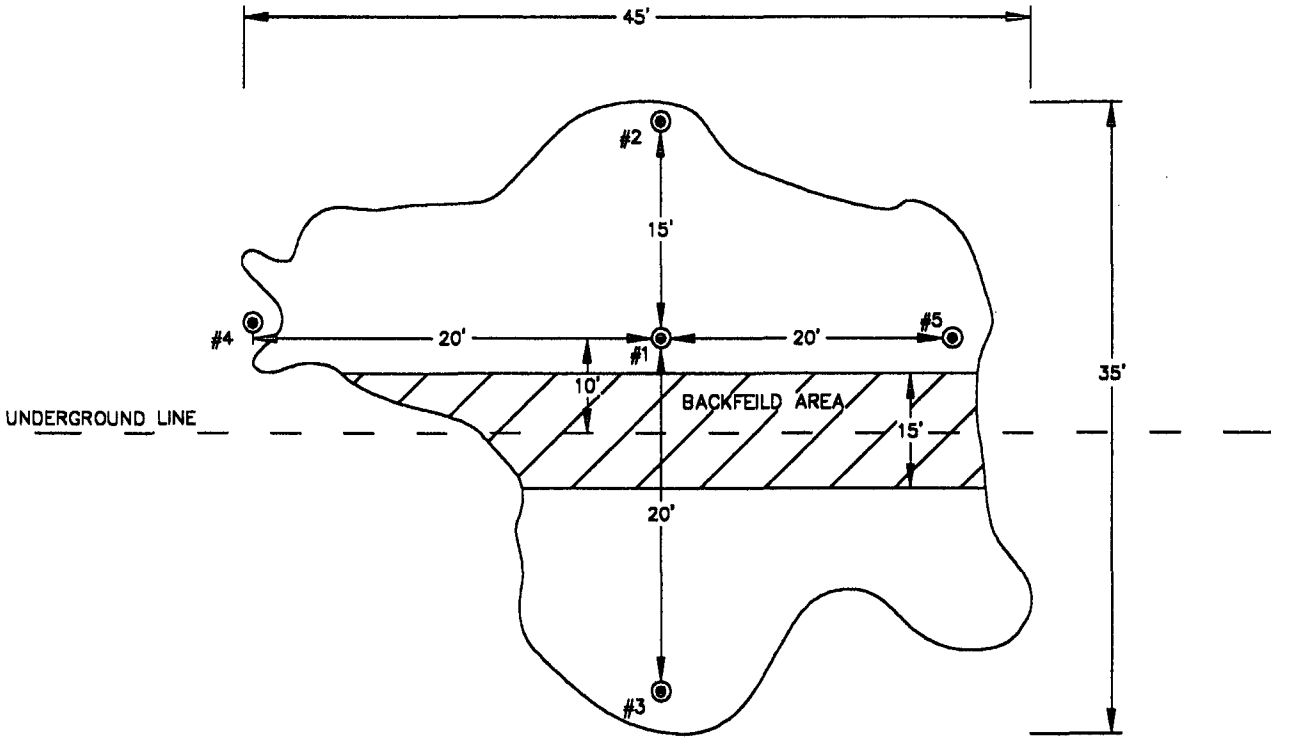


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
DUKE ENERGY FIELD SERVICES, LP
SAN SIMON SPILL AREA
TOPOGRAPHIC MAP

 Scale: 1 : 24,000 Zoom Level: 13-0 Datum: NAD27

2000 ft



LEGEND

◉ AUGERHOLE LOCATION

NOT TO SCALE

FIGURE NO. 2

LEA COUNTY, NEW MEXICO

DUKE ENERGY FIELD SERICES, LP

SAN SIMON SPILL

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

DATE: 9/10/01

DWG. BY: JDA

FILE: G:\DUKE\1715\FIG-2

APPENDIX A

San Simon

Release Notification and Corrective Action

FORM C-141

OPERATOR ☒ Initial Report ☐ Final Report

Name Duke Energy Field Services	**Contact** Vicki Gunter
Address PO Box 50020 Midland, Tx 79710-0020	**Telephone No.** 915-620-4144
Facility Name NMR Regional Unit N/A	**Facility Type**

Surface Owner	**Mineral Owner**	**Lease No**

LOCATION OF RELEASE GW 31'

Unit Letter	Section	Township	Range	Feet from N/S Line	Feet from E/W Line	County
	27	21S	35E			Lea

NATURE OF RELEASE:

Release Type	**Volume Released**	**Volume Recovered**
Pipeline liquids (water, oil & condensate)	840 Gallons 0 Pounds	0 Gallons 0 Pounds
Release Source	**Date/Hour of Occurrence**	**Date/Hour of Discovery**
Pipeline leak	01/05/2001 10:45 PM	01/05/2001 10:45 PM

Immediate Notice Given?	**To Whom?**
● Yes ○ No ○ Not Required	NMOCD, Johnny Robinson
By Whom? Stan Shaver	**When?** 01/05/2001 02:55 PM
Watercourse Reached? ○ Yes ● No	**Impact Volume** 0

If Watercourse was Impacted, Describe Fully

N/A

Cause of Problem and Remedial Action Taken

A hole in the pipline. The line was clamped.

Area Affected and Cleanup Action Taken

A remediation plan will be developed to remove any highly contaminated soil and dispose of in an OCD approved land farm. A composit sample will be taken after soil removal to assure contaminent levels are not exceeded in the remaining soil. Back fil will be with non-contaminated soil from the area.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name:	Approved by District Supervisor:	
Title:	Approval Date:	Expiration Date:
Date: Phone:	Conditions of Approval:	Attached:

New Mexico Office of the State Engineer

Well Reports and Downloads

Township: 21S Range: 35E Sections:

NAD27 X: Y: Zone: Search Radius:

County: LE Basin: Number: Suffix:

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

Domestic All

Well / Surface Data Report | Avg Depth to Water Report | Water Column Report

Clear Form | WATERS Menu | Help

WATER COLUMN REPORT 08/31/2001

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

Well Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Wat Colu
CP 00755	21S	35E	17	4	3	1				200		
CP 00667	21S	35E	20	3	2					85		
CP 00907	21S	35E	24	2	4	1				224		
CP 00908	21S	35E	27	3	2	3				31		
CP 00635	21S	35E	30	3	4					60	40	
CP 00866	21S	35E	30	3	4	2				150	42	1
CP 00898	21S	35E	30	4	3					140		
CP 00868	21S	35E	33	1	4	1				150		
CP 00867	21S	35E	33	1	4	2				200		

Record Count: 9

New Mexico Office of the State Engineer

Point of Diversion Summary

Back

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

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y
CP 00908	21S	35E	27	3	2	3			

Driller Licence: 1332 ROOT, FRED D.
Driller Name: ROOT, FRED D.
Source: Shallow
Drill Start Date: 10/31/2000
Drill Finish Date: 10/31/2000
Log File Date: 11/14/2000
PCW Received Date:
Pump Type: SUBMER
Pipe Discharge Size: 1,25
Casing Size: 5.75
Estimated Yield:
Depth Well: 31
Depth Water:

Water Bearing Stratifications:	Top	Bottom	Description
	28	31	Shallow Alluvium/Basin Fill

Casing Perforations:	Top	Bottom
	11	31

New Mexico Office of the State Engineer

Well Reports and Downloads

Township: 21S Range: 35E Sections:

NAD27 X: Y: Zone: Search Radius:

County: LE Basin: Number: Suffix:

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

Domestic All

Well / Surface Data Report | Avg Depth to Water Report | Water Column Report

Clear Form | WATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 08/31/2001

							(Depth Water in Feet)		
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
CP	21S	35E	30				2	40	42	41

Record Count: 2

New Mexico Office of the State Engineer

Well Reports and Downloads

Township: 21S Range: 35E Sections:

NAD27 X: Y: Zone: Search Radius:

County: LE Basin: Number: Suffix:

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

Domestic All

Well / Surface Data Report | Avg Depth to Water Report | Water Column Report

Clear Form | WATERS Menu | Help

WELL / SURFACE DATA REPORT 08/31/2001

DB File Nbr	Use	(acre ft per annum) Diversion	Owner	Well Number	(qu (qu
CP 00635	PRO	3	MERCHANT LIVESTOCK COMPANY	CP 00635	
CP 00659	PRO		AMOCO PRODUCTION COMPANY	CP 00659 EXP	
CP 00667	PRO	0	POGO PRODUCING CO.	CP 00667	
CP 00755	PRO	0	ULTRAMAR OIL & GAS LIMITED	CP 00755	
CP 00866	PRO	3	MERCHANT LIVESTOCK COMPANY	CP 00866	
CP 00867	PRO	0	RAND PAULSON	CP 00867	
CP 00868	PRO	0	RAND PAULSON	CP 00868	
CP 00870	PRO	0	RAND PAULSON	CP 00866	
CP 00874	PRO		DEL MAR DRILLING	CP 00866	
CP 00898	STK	3	MERCHANT LIVESTOCK CO.	CP 00898	
CP 00907	STK	3	THE MERCHANT LIVESTOCK COMPAN	CP 00907	
CP 00908	STK	3	THE MERCHANT LIVESTOCK COMPAN	CP 00908	

Record Count: 12

APPENDIX B

Summary Report

Ike Tavarez
Highlander Environmental Services
1910 N. Big Spring St.
Midland, TX 79705

Report Date: September 21, 2001

Order ID Number: A01091002

Project Number: 1712
Project Name: Duke/San Simon Spill Area
Project Location: N/A

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
178845	AH-1 (0-1')	Soil	9/6/01	:	9/8/01
178846	AH-1 (1.5-2.0')	Soil	9/6/01	:	9/8/01
178847	AH-1 (2.0')	Soil	9/6/01	:	9/8/01
178849	AH-2 (2-0')	Soil	9/6/01	:	9/8/01
178851	AH-3 (2-2.5')	Soil	9/6/01	:	9/8/01
178853	AH-4 (2.0)	Soil	9/6/01	:	9/8/01
178855	AH-5 (2-2.5')	Soil	9/6/01	:	9/8/01

This report consists of a total of 1 page(s) and is intended only as a summary of results for the sample(s) listed above.

	BTEX					TPH
Sample - Field Code	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	M,P,O-Xylene (ppm)	Total BTEX (ppm)	TRPHC (ppm)
178845 - AH-1 (0-1')	0.356	3.49	0.669	13.7	18.2	18000
178847 - AH-1 (2.0')	<0.010	1.48	5.39	29 [1]	35.9	16700
178849 - AH-2 (2-0')	<0.010	<0.010	0.026	0.016	0.042	<10.0
178851 - AH-3 (2-2.5')	<0.010	0.053	0.017	0.093	0.163	855
178853 - AH-4 (2.0)	-	-	-	-	-	<10.0
178855 - AH-5 (2-2.5')	4.49	21.4 [2]	7.76	54	87.7 [3]	19300

Sample: 178845 - AH-1 (0-1')

Param	Flag	Result	Units
CL		6157.74	mg/Kg

Sample: 178846 - AH-1 (1.5-2.0')

Param	Flag	Result	Units
CL		5902.82	mg/Kg

[1] Estimated concentration value greater than the standard value.
[2] Estimated concentration value greater than the standard range.
[3] Estimated concentration value greater than the standard range.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez
Highlander Environmental Services
1910 N. Big Spring St.
Midland, TX 79705

Report Date: September 21, 2001

Order ID Number: A01091002

Project Number: 1712
Project Name: Duke/San Simon Spill Area
Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
178845	AH-1 (0-1')	Soil	9/6/01	:	9/8/01
178846	AH-1 (1.5-2.0')	Soil	9/6/01	:	9/8/01
178847	AH-1 (2.0')	Soil	9/6/01	:	9/8/01
178849	AH-2 (2-0')	Soil	9/6/01	:	9/8/01
178851	AH-3 (2-2.5')	Soil	9/6/01	:	9/8/01
178853	AH-4 (2.0)	Soil	9/6/01	:	9/8/01
178855	AH-5 (2-2.5')	Soil	9/6/01	:	9/8/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 10 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 178845 - AH-1 (0-1')

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC13904 | Date Analyzed: 9/10/01
Analyst: CG | Preparation Method: E 5035 | Prep Batch: PB11864 | Date Prepared: 9/10/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.356	mg/Kg	10	0.001
Toluene		3.49	mg/Kg	10	0.001
Ethylbenzene		0.669	mg/Kg	10	0.001
M,P,O-Xylene		13.7	mg/Kg	10	0.001
Total BTEX		18.2	mg/Kg	10	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.892	mg/Kg	10	0.10	89	72 - 128
4-BFB	[1]	3.82	mg/Kg	10	0.10	382	72 - 128

Sample: 178845 - AH-1 (0-1')

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC14087 | Date Analyzed: 9/16/01
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB12011 | Date Prepared: 9/13/01

Param	Flag	Result	Units	Dilution	RDL
CL		6157.74	mg/Kg	1000	0.50

Sample: 178845 - AH-1 (0-1')

Analysis: TPH | Analytical Method: E 418.1 | QC Batch: QC14002 | Date Analyzed: 9/17/01
Analyst: JJ | Preparation Method: E 3550B | Prep Batch: PB11952 | Date Prepared: 9/14/01

Param	Flag	Result	Units	Dilution	RDL
TRPHC		18000	mg/Kg	1	10

Sample: 178846 - AH-1 (1.5-2.0')

Analysis: Ion Chromatography (IC) | Analytical Method: E 300.0 | QC Batch: QC14087 | Date Analyzed: 9/16/01
Analyst: JSW | Preparation Method: N/A | Prep Batch: PB12011 | Date Prepared: 9/13/01

Param	Flag	Result	Units	Dilution	RDL
CL		5902.82	mg/Kg	1000	0.50

Sample: 178847 - AH-1 (2.0')

Analysis: BTEX | Analytical Method: S 8021B | QC Batch: QC13904 | Date Analyzed: 9/10/01
Analyst: CG | Preparation Method: E 5035 | Prep Batch: PB11864 | Date Prepared: 9/10/01

[1] High surrogate recovery due to peak interference.

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.010	mg/Kg	10	0.001
Toluene		1.48	mg/Kg	10	0.001
Ethylbenzene		5.39	mg/Kg	10	0.001
M,P,O-Xylene	[2]	29	mg/Kg	10	0.001
Total BTEX		35.9	mg/Kg	10	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.859	mg/Kg	10	0.10	86	72 - 128
4-BFB	[3]	6.85	mg/Kg	10	0.10	685	72 - 128

Sample: 178847 - AH-1 (2.0')

Analysis:	TPH	Analytical Method:	E 418.1	QC Batch:	QC14002	Date Analyzed:	9/17/01
Analyst:	JJ	Preparation Method:	E 3550B	Prep Batch:	PB11952	Date Prepared:	9/14/01

Param	Flag	Result	Units	Dilution	RDL
TRPHC		16700	mg/Kg	1	10

Sample: 178849 - AH-2 (2-0')

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC13904	Date Analyzed:	9/10/01
Analyst:	CG	Preparation Method:	E 5035	Prep Batch:	PB11864	Date Prepared:	9/10/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.010	mg/Kg	10	0.001
Toluene		<0.010	mg/Kg	10	0.001
Ethylbenzene		0.026	mg/Kg	10	0.001
M,P,O-Xylene		0.016	mg/Kg	10	0.001
Total BTEX		0.042	mg/Kg	10	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		1.19	mg/Kg	10	0.10	119	72 - 128
4-BFB		1.02	mg/Kg	10	0.10	102	72 - 128

Sample: 178849 - AH-2 (2-0')

Analysis:	TPH	Analytical Method:	E 418.1	QC Batch:	QC14144	Date Analyzed:	9/20/01
Analyst:	MS	Preparation Method:	E 3550B	Prep Batch:	PB12061	Date Prepared:	9/18/01

Param	Flag	Result	Units	Dilution	RDL
TRPHC		<10.0	mg/Kg	1	10

Sample: 178851 - AH-3 (2-2.5')

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC13904	Date Analyzed:	9/10/01
Analyst:	CG	Preparation Method:	E 5035	Prep Batch:	PB11864	Date Prepared:	9/10/01

[2]Estimated concentration value greater than the standard value.
[3]High surrogate recovery due to peak interference.

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.010	mg/Kg	10	0.001
Toluene		0.053	mg/Kg	10	0.001
Ethylbenzene		0.017	mg/Kg	10	0.001
M,P,O-Xylene		0.093	mg/Kg	10	0.001
Total BTEX		0.163	mg/Kg	10	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		1.15	mg/Kg	10	0.10	115	72 - 128
4-BFB		0.998	mg/Kg	10	0.10	100	72 - 128

Sample: 178851 - AH-3 (2-2.5')

Analysis:	TPH	Analytical Method:	E 418.1	QC Batch:	QC14002	Date Analyzed:	9/17/01
Analyst:	JJ	Preparation Method:	E 3550B	Prep Batch:	PB11952	Date Prepared:	9/14/01

Param	Flag	Result	Units	Dilution	RDL
TRPHC		855	mg/Kg	1	10

Sample: 178853 - AH-4 (2.0)

Analysis:	TPH	Analytical Method:	E 418.1	QC Batch:	QC14002	Date Analyzed:	9/17/01
Analyst:	JJ	Preparation Method:	E 3550B	Prep Batch:	PB11952	Date Prepared:	9/14/01

Param	Flag	Result	Units	Dilution	RDL
TRPHC		<10.0	mg/Kg	1	10

Sample: 178855 - AH-5 (2-2.5')

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC13904	Date Analyzed:	9/10/01
Analyst:	CG	Preparation Method:	E 5035	Prep Batch:	PB11864	Date Prepared:	9/10/01

Param	Flag	Result	Units	Dilution	RDL
Benzene		4.49	mg/Kg	20	0.001
Toluene	[4]	21.4	mg/Kg	20	0.001
Ethylbenzene		7.76	mg/Kg	20	0.001
M,P,O-Xylene		54	mg/Kg	20	0.001
Total BTEX	[5]	87.7	mg/Kg	20	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	[6]	0.912	mg/Kg	20	0.10	45	72 - 128
4-BFB	[7]	5.2	mg/Kg	20	0.10	260	72 - 128

[4]Estimated concentration value greater than the standard range.
[5]Estimated concentration value greater than the standard range.
[6]Low surrogate recovery due to matrix difficulties.
[7]High surrogate recovery due to peak interference.

Sample: 178855 - AH-5 (2-2.5')

Analysis:	TPH	Analytical Method:	E 418.1	QC Batch:	QC14002	Date Analyzed:	9/17/01
Analyst:	JJ	Preparation Method:	E 3550B	Prep Batch:	PB11952	Date Prepared:	9/14/01

Param	Flag	Result	Units	Dilution	RDL
TRPHC		19300	mg/Kg	1	10

Quality Control Report
Method Blank

Method Blank

QCBatch: QC13904

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.010	mg/Kg	0.001
Toluene		<0.010	mg/Kg	0.001
Ethylbenzene		<0.010	mg/Kg	0.001
M,P,O-Xylene		<0.010	mg/Kg	0.001
Total BTEX		<0.010	mg/Kg	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		1.2	mg/Kg	10	0.10	116	72 - 128
4-BFB		0.990	mg/Kg	10	0.10	99	72 - 128

Method Blank

QCBatch: QC14002

Param	Flag	Results	Units	Reporting Limit
TRPHC		<10.0	mg/Kg	10

Method Blank

QCBatch: QC14087

Param	Flag	Results	Units	Reporting Limit
CL		21.91	mg/Kg	0.50

Method Blank

QCBatch: QC14144

Param	Flag	Results	Units	Reporting Limit
TRPHC		<10.0	mg/Kg	10

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC13904

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
MTBE	0.993	1.02	mg/Kg	10	0.10	<0.010	99	2	80 - 120	20

Continued ...

... Continued

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Benzene	1.01	1.05	mg/Kg	10	0.10	<0.010	101	3	80 - 120	20
Toluene	1.02	1.06	mg/Kg	10	0.10	<0.010	102	3	80 - 120	20
Ethylbenzene	1.02	1.06	mg/Kg	10	0.10	<0.010	102	3	80 - 120	20
M,P,O-Xylene	3.1	3.19	mg/Kg	10	0.30	<0.010	106	2	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	1.14	1.16	mg/Kg	10	0.10	114	116	72 - 128
4-BFB	1.05	1.06	mg/Kg	10	0.10	105	106	72 - 128

Laboratory Control Spikes

QCBatch: QC14002

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
TRPHC	210	225	mg/Kg	1	250	<10.0	84	6	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC14087

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
CL	[8] 33.15	33.31	mg/Kg	1	12.50	21.91	265	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC14144

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
TRPHC	249	253	mg/Kg	1	250	<10.0	99	1	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC13904

[8] When soil blank is subtracted, LCS %EA is 90

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Benzene	[9] <0.010	[10] <0.010	mg/Kg	10	0.10	<0.010	0	0	80 - 120	20
Toluene	[11] <0.010	[12] <0.010	mg/Kg	10	0.10	<0.010	0	0	80 - 120	20
Ethylbenzene	[13] <0.010	[14] <0.010	mg/Kg	10	0.10	<0.010	0	0	80 - 120	20
M,P,O-Xylene	[15] <0.010	[16] <0.010	mg/Kg	10	0.30	<0.010	0	0	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
TFT	1.08	1.04	mg/Kg	10	0.10	108	104	72 - 128
4-BFB	0.976	0.941	mg/Kg	10	0.10	97	94	72 - 128

Matrix Spikes

QCBatch: QC14002

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
TRPHC	229	236	mg/Kg	1	250	<10.0	91	3	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC14087

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
CL	[17] 227.2	231.41	mg/Kg	1	625	175.66	8	-278	69 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

QCBatch: QC14144

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
TRPHC	280	287	mg/Kg	1	250	<10.0	112	2	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Quality Control Report
Continuing Calibration Verification Standards

[9]No purgeable in MS/MSD. LCS/LCSD show the method to be in control.
[10]No purgeable in MS/MSD. LCS/LCSD show the method to be in control.
[11]No purgeable in MS/MSD. LCS/LCSD show the method to be in control.
[12]No purgeable in MS/MSD. LCS/LCSD show the method to be in control.
[13]No purgeable in MS/MSD. LCS/LCSD show the method to be in control.
[14]No purgeable in MS/MSD. LCS/LCSD show the method to be in control.
[15]No purgeable in MS/MSD. LCS/LCSD show the method to be in control.
[16]No purgeable in MS/MSD. LCS/LCSD show the method to be in control.
[17]Matrix %EA is 82

CCV (1)

QCBatch: QC13904

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/Kg	0.10	0.092	92	85 - 115	9/10/01
Benzene		mg/Kg	0.10	0.098	98	85 - 115	9/10/01
Toluene		mg/Kg	0.10	0.099	99	85 - 115	9/10/01
Ethylbenzene		mg/Kg	0.10	0.098	98	85 - 115	9/10/01
M,P,O-Xylene		mg/Kg	0.30	0.295	98	85 - 115	9/10/01

CCV (2)

QCBatch: QC13904

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/Kg	0.10	0.091	91	85 - 115	9/10/01
Benzene		mg/Kg	0.10	0.091	91	85 - 115	9/10/01
Toluene		mg/Kg	0.10	0.092	92	85 - 115	9/10/01
Ethylbenzene		mg/Kg	0.10	0.091	91	85 - 115	9/10/01
M,P,O-Xylene		mg/Kg	0.30	0.276	92	85 - 115	9/10/01

ICV (1)

QCBatch: QC13904

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/Kg	0.10	0.100	100	85 - 115	9/10/01
Benzene		mg/Kg	0.10	0.097	97	85 - 115	9/10/01
Toluene		mg/Kg	0.10	0.097	97	85 - 115	9/10/01
Ethylbenzene		mg/Kg	0.10	0.097	97	85 - 115	9/10/01
M,P,O-Xylene		mg/Kg	0.30	0.292	97	85 - 115	9/10/01

CCV (1)

QCBatch: QC14002

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/Kg	100	106	106	75 - 125	9/17/01

CCV (2)

QCBatch: QC14002

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/Kg	100	102	102	75 - 125	9/17/01

ICV (1) QCBatch: QC14002

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/Kg	100	105	105	75 - 125	9/17/01

CCV (1) QCBatch: QC14087

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.48	99	90 - 110	9/16/01
CL		mg/L	12.50	11.81	94	90 - 110	9/16/01
Fluoride		mg/L	2.50	2.33	93	90 - 110	9/16/01
Nitrate-N		mg/L	2.50	2.35	94	90 - 110	9/16/01
Sulfate		mg/L	12.50	11.60	92	90 - 110	9/16/01

ICV (1) QCBatch: QC14087

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.50	100	90 - 110	9/16/01
CL		mg/L	12.50	11.53	92	90 - 110	9/16/01
Fluoride		mg/L	2.50	2.37	94	90 - 110	9/16/01
Nitrate-N		mg/L	2.50	2.31	92	90 - 110	9/16/01
Sulfate		mg/L	12.50	11.78	94	90 - 110	9/16/01

CCV (1) QCBatch: QC14144

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/Kg	100	102	102	75 - 125	9/20/01

ICV (1) QCBatch: QC14144

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/Kg	100	103	103	75 - 125	9/20/01

A [illegible]

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705
(915) 682-4559 Fax (915) 682-3946

PAGE: 1 OF: 2

CLIENT NAME: Duke
SITE MANAGER: IKE Tavarez
PROJECT NO.: 1712
PROJECT NAME: Duke / San Simon Spill Area, Lea County NM.

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride		
178845	9/6/01		S		X	AH-1 (0-1')	1				✓		X		X															X		
46	↓		S		Y	AH-1 (1.5-2.0')	1				✓																			X		
47			S		Y	AH-1 (2.0')-2.5'	1				✓		X		X																	
48			S		Y	AH-2 (0-1')	1				✓																					
49			S		Y	AH-2 (2.0')	1				✓		X		X																	
50			S		Y	AH-3 (0-1')	1				✓																					
51			S		Y	AH-3 (2-2.5')	1				✓		X		X																	
52			S		Y	AH-4 (0-1')	1				✓																					
53			S		Y	AH-4 (2.0)	1				✓		[illegible]		X																	
54	↓		S		Y	AH-5 (0-1')	1				✓																					

RELINQUISHED BY: (Signature) [signature] Date: 9/07/01 Time: 1700
RECEIVED BY: (Signature) Helen Shelton Date: 9/07/01 Time: 1700
SAMPLED BY: (Print & Sign) IKE Tavarez / Ray Taylor Date: Time:

RELINQUISHED BY: (Signature) Helen Shelton Date: 9/07/01 Time: 1845
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS (circled) AIRBILL #
HAND DELIVERED UPS OTHER:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

RECEIVING LABORATORY: Trace Co
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) [signature] Chaffin
DATE: 9/8/01 TIME: 11:00 9°C

HIGHLANDER CONTACT PERSON: IKE Tavarez
Results by: MON Sept. 17
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:
MATRIX: W-Water A-Air SD-Solid S-Soil SL-Sludge O-Other
REMARKS:

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Enviromental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.

9/24

10 [illegible] -HS

AU109002

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 2 OF: 2

CLIENT NAME: Duke.

SITE MANAGER: IKE Tavarez

PROJECT NO.: 1712

PROJECT NAME: Duke / San Simon Spill area. Lea County, NM.

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 8015 MOD. TX1005 (418.1)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
178856	9/6/01		S		X	AH-5 (2-2.5')	1				✓		X		X														

RELINQUISHED BY: (Signature) Date: 9/07/01 Time: 1700
RECEIVED BY: (Signature) Date: 9/07/01 Time: 1700
SAMPLED BY: (Print & Sign) IKE Tavarez Date: Time:

RELINQUISHED BY: (Signature) Date: 9/07/01 Time: 1845
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX HDS UPS HAND DELIVERED AIRBILL # OTHER:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

RECEIVING LABORATORY: Trace Lab.
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Barry Chaffin
DATE: 9/8/-1 TIME: 11:00 9°C

HIGHLANDER CONTACT PERSON: IKE Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: W-Water A-Air SD-Solid (S-Soil) SL-Sludge O-Other

REMARKS:

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Environmental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.

NA Handle - HS