1R - 236

REPORTS

DATE:

1993

CURA INC.
Environmental Consultants, Engineers & Scientists
3001 North Big Spring, Suite 101 • Midland, Texas 79705 • 915/570-8408 • FAX 570-8409

October 25, 1993

Mr. John Hite
Shell Pipe Line Company
Two Shell Plaza
P.O. Box 2099
Houston, Texas 77252-2099

RE: PHASE III SUBSURFACE INVESTIGATION
EUNICE STATION
LEA COUNTY, NEW MEXICO

CURA PROJECT NO. 15-93673.3

Mr. Hite:

CURA, Inc. has completed the Phase III Subsurface Investigation at the above-referenced facility. As outlined in Shell Pipe Line Corporations's Scope of Work dated August 10, 1993, the field investigation included the drilling and sampling of one soil boring to a maximum depth of 100 feet and subsequent conversion to a monitor well if groundwater were encountered. The boring was completed to determine depth to groundwater (if less than 100 feet) and to determine if groundwater was impacted by hydrocarbons.

Hydrocarbon-impacted soils (greater than 100 parts per million; ppm total petroleum hydrocarbons [TPH]) were previously identified in borings B-1, B-4, B-6, and B-8. Results indicate a shallow depth of impact (less than 7 feet) in two general areas. The additional boring/monitor well was installed to determine depth to groundwater and determine if hydrocarbon impact to groundwater has occurred.

BORING OPERATIONS AND ANALYTICAL RESULTS

On September 24, 1993, one soil boring (B-9) was drilled to a depth of 102 feet utilizing an air rotary drilling rig. Boring B-9 was placed in the southeast corner of the site in the apparent downgradient direction (based on surface topography) from the probable source areas (piping and pipeline clean-outs) (Appendix A, Figure 1).

The soils encountered during the boring operations consisted of 2 feet to 7 feet of brown to gray silty sand (SM) underlain by a series of white to brown calcareous sands (caliche) to a depth of 102 feet (maximum boring depth).

Groundwater was not encountered to a depth of 102 feet and drilling was terminated. The boring logs are included in Appendix B and provide a more detailed description of the subsurface conditions encountered at the site.

Soil samples were collected intermittently using a split spoon sampling device. The samples were field screened with a Century 128 organic vapor analyzer (OVA). The soil samples which registered the highest OVA reading, had the greatest hydrocarbon odors or staining, and the samples from the greatest depth above groundwater were submitted to the laboratory to be analyzed for total petroleum hydrocarbon (TPH) and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

A preliminary evaluation of clean-up guidelines as recommended by the New Mexico Oil Conservation (OCD) indicates site specific levels of 10 ppm benzene, 50 ppm BTEX, and 1,000 ppm TPH.

Field observations during the soil sampling operations indicated no significant hydrocarbon-impacted soils in boring B-9 based on visual observations and OVA readings. A complete listing of the OVA readings and the soil sample analytical results is provided in Table 1 (Appendix C). Hydrocarbon concentrations of the subsurface soils are illustrated on the site map (Appendix A, Figure 1). The laboratory reports and chain-of-custodies are included in Appendix D.

CONCLUSIONS

- Field observations, OVA readings and soil sample analytical results indicate the majority of hydrocarbon-impacted soils exceeding the OCD guidelines are confined to a depth of less than 7 feet and are located in the center of the eastern half of the site.

- Groundwater was not encountered during drilling operations which were discontinued at a depth of 102 feet.

RECOMMENDATIONS

A formal evaluation of site specific cleanup requirements should be conducted followed by excavation of the hydrocarbon impacted soils and on-site landfarming utilizing bioremediation.

CURA will present a workplan for additional activities as requested. CURA appreciates the opportunity to provide you with our professional consulting services. If you have any questions, please do not hesitate to contact us.

Respectively,
CURA, Inc.

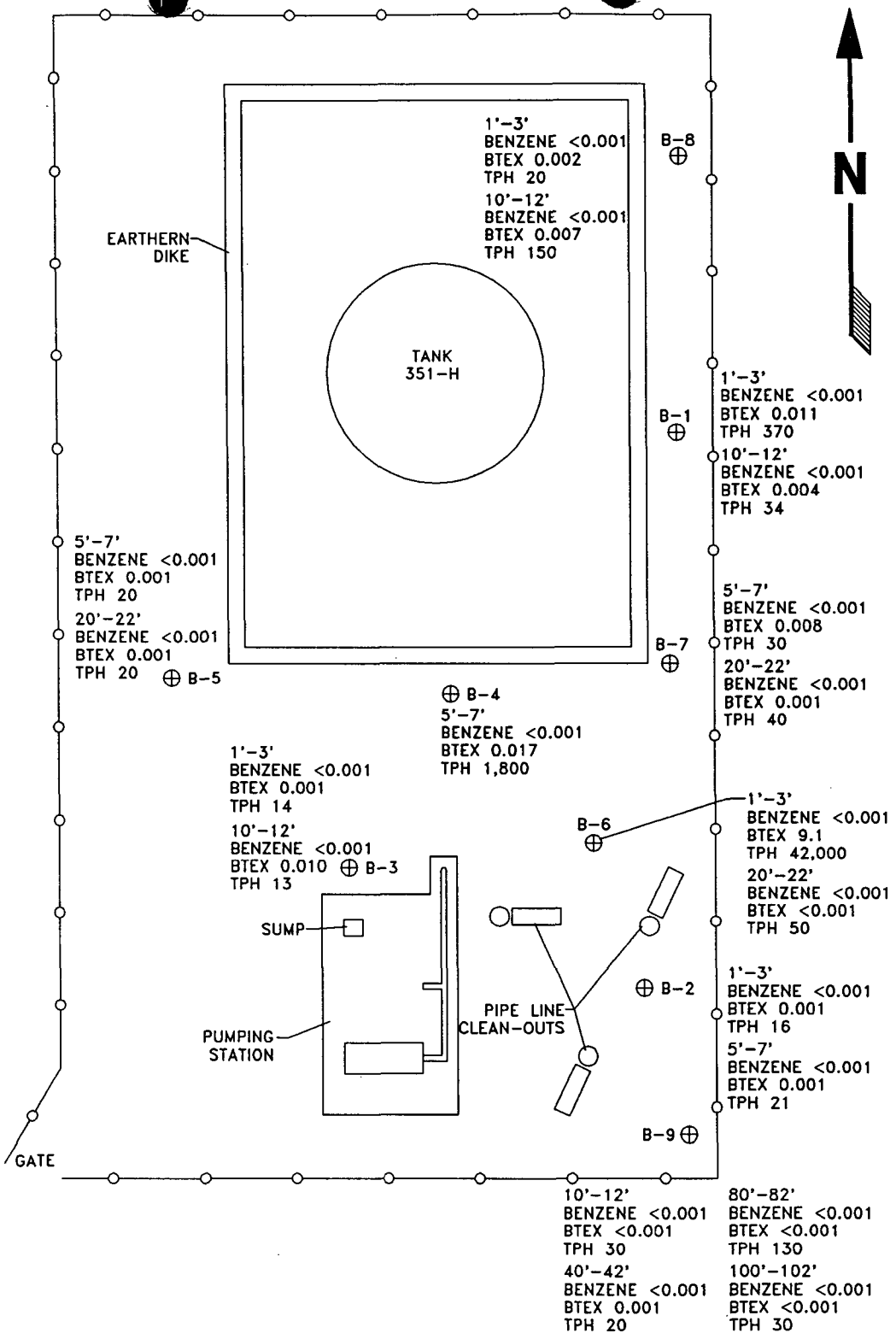
F. Wesley Root
Environmental Geologist

Greg C. Walterscheid, R.E.M., C.P.G.
Branch Manager - Midland

GCW/chs

APPENDIX A

FIGURES



SOIL HYDROCARBON CONCENTRATION MAP

BENZENE, TOTAL BTEX, AND TPH CONCENTRATIONS LISTED IN mg/kg (ppm)

0 60'
APPROXIMATE SCALE

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

EUNICE STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
OCT 1993	SEE ABOVE
PROJECT NO.	FIGURE NO.
15-93673	1

APPENDIX B

SOIL BORING LOGS

CRA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

RECORD OF SUBSURFACE EXPLORATION

Project No.: 15-93673	Well/Boring #: B-9	Date Drilled: 09/24/93
Project: EUNICE STATION LEA COUNTY, NEW MEXICO -	Depth of Boring: 102 FEET	Diameter of Boring: 5 1/4 INCHES
	Depth of Well: -	Diameter of Screen: -
Drilling Co: HI PLAINS DRILLING	Length of Screen: -	Diameter of Casing: -
Driller: B.S.	Length of Casing: -	Slot Size: -
Drilling Method: AIR ROTARY	Logged By: F.W.R.	Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Brown silty fine-grained SAND (SM)					
2.5	Buff-white calcareous SAND (caliche)					
5.0		1	SS	<1		
7.5						
10.0		2	SS	<1	■	Benzene <0.001 mg/kg BTEX <0.001 mg/kg TPH <10 mg/kg
12.5	Brown and white mottled calcareous SAND (caliche)					
15.0		3	SS	<1		
17.5						
20.0		4	SS	<1		
22.5						
25.0						
27.5	Tan fine-grained calcareous SAND (caliche)					
30.0						

SS-Driven Split Spoon
ST-Pressed Shelby Tube
CA-Continuous Flight Auger
RC-Rock Core
THD-Texas Highway Department Cone
CT-5' Continuous Sampler

ABBREVIATIONS AND SYMBOLS

HSA-Hollow Stem Augers
CFA-Continuous Flight Augers
DC-Driving Casing
MD-Mud Drilling

WATER LEVEL
▽ At Completion
▼ After Hours
● Water on Rods

■ Sample submitted to lab
Bottom Cap
Sand Pack
Bentonite Seal
Factory-Slotted Well Screen
Well Casing
Volclay Grout Seal

CRA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

RECORD OF SUBSURFACE EXPLORATION

Project No.: 15-93673	Well/Boring #: B-9	Date Drilled: 09/24/93
Project: EUNICE STATION LEA COUNTY, NEW MEXICO -	Depth of Boring: 102 FEET	Diameter of Boring: 5 1/4 INCHES
	Depth of Well: -	Diameter of Screen: -
Drilling Co: HI PLAINS DRILLING	Length of Screen: -	Diameter of Casing: -
Driller: B.S.	Length of Casing: -	Slot Size: -
Drilling Method: AIR ROTARY	Logged By: F.W.R.	Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
30.0	Tan fine-grained calcareous SAND (caliche)	5	SS	<1		
32.5						
35.0						
37.5						
40.0		6	SS	<1	■	Benzene <0.001 mg/kg BTEX=0.001 mg/kg TPH=20 mg/kg
42.5						
45.0						
47.5						
50.0		7	SS	<1		
52.5						
55.0	Light-brown silty medium-grained calcareous SAND (caliche)					
57.5						
60.0						

SS-Driven Split Spoon
ST-Pressed Shelby Tube
CA-Continuous Flight Auger
RC-Rock Core
THD-Texas Highway Department Cone
CT-5' Continuous Sampler

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CRA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

RECORD OF SUBSURFACE EXPLORATION

Project No.: 15-93673	Well/Boring #: B-9	Date Drilled: 09/24/93
Project: EUNICE STATION LEA COUNTY, NEW MEXICO -	Depth of Boring: 102 FEET	Diameter of Boring: 5 1/4 INCHES
	Depth of Well: -	Diameter of Screen: -
Drilling Co: HI PLAINS DRILLING	Length of Screen: -	Diameter of Casing: -
Driller: B.S.	Length of Casing: -	Slot Size: -
Drilling Method: AIR ROTARY	Logged By: F.W.R.	Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
60.0	Light-brown silty medium-grained calcareous SAND (caliche)	8	SS	<1		
62.5						
65.0						
67.5						
70.0						
72.5						
75.0	Red-brown fine to medium-grained calcareous SAND (caliche)					
77.5						
80.0		9	SS	<1	■	Benzene <0.001 mg/kg BTEX <0.001 mg/kg TPH=130 mg/kg
82.5						
85.0						
87.5						
90.0						

SS-Driven Split Spoon
ST-Pressed Shelby Tube
CA-Continuous Flight Auger
RC-Rock Core
THD-Texas Highway Department Cone
CT-5' Continuous Sampler

ABBREVIATIONS AND SYMBOLS

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CRA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
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RECORD OF SUBSURFACE EXPLORATION

Project No.: 15-93673	Well/Boring #: B-9	Date Drilled: 09/24/93
Project: EUNICE STATION LEA COUNTY, NEW MEXICO -	Depth of Boring: 102 FEET	Diameter of Boring: 5 1/4 INCHES
	Depth of Well: -	Diameter of Screen: -
Drilling Co: HI PLAINS DRILLING	Length of Screen: -	Diameter of Casing: -
Driller: B.S.	Length of Casing: -	Slot Size: -
Drilling Method: AIR ROTARY	Logged By: F.W.R.	Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
90.0	Red-brown fine to medium-grained calcareous SAND (caliche)					
92.5						
95.0						No water was observed within the bore hole during drilling operations
97.5						
100.0		10	SS	<1	■	Benzene <0.001 mg/kg BTEX <0.001 mg/kg TPH=30 mg/kg
102.5	Bottom of boring @ 102.0 feet					
105.0						
107.5						
110.0						
112.5						
115.0						
117.5						
120.0						

SS-Driven Split Spoon
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● Water on Rods

■ Sample submitted to lab
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Factory-Slotted Well Screen
Sand Pack
Well Casing
Bentonite Seal
Volclay Grout Seal

APPENDIX C

TABLES

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS

Boring	Date Sampled	Sample Interval (feet)	OVA	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH
B-1	12-09-92	1 - 3	4	<0.001	0.010	<0.001	<0.001	0.011	370
		5 - 7	<1						
		10 - 12	<1	<0.001	0.001	<0.001	0.003	0.004	34
B-2	12-07-92	1 - 3	<1	<0.001	<0.001	<0.001	<0.001	0.001	16
		5 - 7	<1	<0.001	0.001	<0.001	<0.001	0.001	21
B-3	12-09-92	1 - 3	2	<0.001	0.004	0.001	0.004	0.009	15
		5 - 7	<1						
		10 - 12	<1	<0.001	0.005	<0.001	0.005	0.010	13
B-4	12-09-93	1 - 3	2						
		5 - 7	<1	<0.001	0.012	<0.001	0.005	0.017	1,800
B-5	02-04-93	1 - 3	<1						
		5 - 7	<1	<0.001	<0.001	<0.001	0.001	0.001	20
		10 - 12	<1						
		15 - 17	<1						
		20 - 22	<1	<0.001	<0.001	<0.001	0.001	0.001	20
B-6	02-04-93	1 - 3	250	<0.001	<0.001	7.000	2.100	9.100	42,000
		5 - 7	<1						
		10 - 12	<1						
		15 - 17	<1						
		20 - 22	<1	<0.001	<0.001	<0.001	<0.001	<0.001	50
B-7	02-04-93	1 - 3	40						
		5 - 7	1	<0.001	<0.001	<0.001	0.007	0.008	30
		10 - 12	<1						
		15 - 17	<1						
		20 - 22	<1	<0.001	<0.001	<0.001	0.001	0.001	40
B-8	02-04-93	1 - 3	1	<0.001	<0.001	<0.001	0.002	0.002	20
		5 - 7	<1						
		10 - 12	<1	<0.001	<0.001	0.002	0.005	0.007	150

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS

Boring	Date Sampled	Sample Interval (feet)	OVA	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH
B-9	09-24-93	5 - 7	<1						
		10 - 12	<1	<0.001	<0.001	<0.001	<0.001	<0.001	<10
		15 - 17	<1						
		20 - 22	<1						
		30 - 32	<1						
		40 - 42	<1	<0.001	0.001	<0.001	<0.001	0.001	20
		50 - 52	<1						
		60 - 62	<1						
		80 - 82	<1	<0.001	<0.001	<0.001	<0.001	<0.001	130
		100 - 102	<1	<0.001	<0.001	<0.001	<0.001	<0.001	30

OVA results listed in parts per million (ppm) equivalent methane.
BTEX results in mg/kg (parts per million; ppm) with method detection limits listed in Appendix C.
TPH results in mg/kg (parts per million; ppm) with method detection limits listed in Appendix C.
Analyses were conducted using EPA Method 8020 (BTEX) and EPA Method 418.1 (TPH) by SPL Environmental Laboratories.

APPENDIX D

ANALYTICAL RESULTS

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 93-10-075

Approved for release by:

M. Scott Sample Date: 10/7/93

S. Sample, Laboratory Director

Ed Fry Date: 10/7/93

Ed Fry, Project Manager

****SUMMARY REPORT*****

10/06/93

Company: Shell Pipe Line Corporation
Site: Lea County, New Mexico
Project No: 15-93673.3
Project: Eunice Station

ANALYTICAL DATA
NOTE: ND - Not Detected

SPL ID MATRIX	CLIENT ID DATE SAMPLED	BENZENE PQL	TOLUENE PQL	ETHYLBENZ. PQL	XYLENE PQL	TPH-IR	TPH-GC	LEAD	MTBE
9310075-01 SOIL	B-9 (10-12) 09/24/93 11:15:00	ND 0.0010mg/Kg	ND 0.0010mg/Kg	ND 0.0010mg/Kg	ND 0.0010mg/Kg	ND 10mg/Kg			
9310075-02 SOIL	B-9 (40-42) 09/24/93 11:44:00	ND 0.0010mg/Kg	0.0010 0.0010mg/Kg	ND 0.0010mg/Kg	ND 0.0010mg/Kg	20 10mg/Kg			
9310075-03 SOIL	B-9 (80-82) 09/24/93 12:26:00	ND 0.0010mg/Kg	ND 0.0010mg/Kg	ND 0.0010mg/Kg	ND 0.0010mg/Kg	130 10mg/Kg			
9310075-04 SOIL	B-9 (100-102) 09/24/93 12:40:00	ND 0.0010mg/Kg	ND 0.0010mg/Kg	ND 0.0010mg/Kg	ND 0.0010mg/Kg	30 10mg/Kg			

BTEX - METHOD 5030/8020 ***
TPH-IR - METHOD Mod. 418.1*

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9310075-01

Shell Pipe Line Corporation
P.O. Box 2099
Houston, TX 77252-2099
ATTN: John Hite

P.O.# PX-9103-JBH
DATE: 10/07/93

PROJECT: Eunice Station
SITE: Lea County, New Mexico
SAMPLED BY: CURA Consultants
SAMPLE ID: B-9 (10-12)

PROJECT NO: 15-93673.3
MATRIX: SOIL
DATE SAMPLED: 09/24/93 11:15:00
DATE RECEIVED: 10/02/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0010 P	mg/kg
TOLUENE	ND	0.0010 P	mg/kg
ETHYLBENZENE	ND	0.0010 P	mg/kg
TOTAL XYLENE	ND	0.0010 P	mg/kg
TOTAL BTEX	ND		mg/kg
METHOD 5030/8020 ***			
Analyzed by: DAO			
Date: 10/04/93			
Petroleum Extractables	ND	10	mg/Kg
METHOD Mod. 418.1*			
Analyzed by: AR			
Date: 10/05/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9310075-02

Shell Pipe Line Corporation
P.O. Box 2099
Houston, TX 77252-2099
ATTN: John Hite

P.O.# PX-9103-JBH
DATE: 10/06/93

PROJECT: Eunice Station
SITE: Lea County, New Mexico
SAMPLED BY: CURA Consultants
SAMPLE ID: B-9 (40-42)

PROJECT NO: 15-93673.3
MATRIX: SOIL
DATE SAMPLED: 09/24/93 11:44:00
DATE RECEIVED: 10/02/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT		UNITS
BENZENE	ND	0.0010	P	mg/kg
TOLUENE	0.0010	0.0010	P	mg/kg
ETHYLBENZENE	ND	0.0010	P	mg/kg
TOTAL XYLENE	ND	0.0010	P	mg/kg
TOTAL BTEX	0.001			mg/kg
METHOD 5030/8020 ***				
Analyzed by: DAO				
Date: 10/04/93				
Petroleum Extractables	20	10		mg/Kg
METHOD Mod. 418.1*				
Analyzed by: AR				
Date: 10/05/93				

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9310075-03

Shell Pipe Line Corporation
P.O. Box 2099
Houston, TX 77252-2099
ATTN: John Hite

P.O.# PX-9103-JBH
DATE: 10/06/93

PROJECT: Eunice Station
SITE: Lea County, New Mexico
SAMPLED BY: CURA Consultants
SAMPLE ID: B-9 (80-82)

PROJECT NO: 15-93673.3
MATRIX: SOIL
DATE SAMPLED: 09/24/93 12:26:00
DATE RECEIVED: 10/02/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0010 P	mg/kg
TOLUENE	ND	0.0010 P	mg/kg
ETHYLBENZENE	ND	0.0010 P	mg/kg
TOTAL XYLENE	ND	0.0010 P	mg/kg
TOTAL BTEX	ND		mg/kg
METHOD 5030/8020 ***			
Analyzed by: DAO			
Date: 10/04/93			
Petroleum Extractables	130	10	mg/Kg
METHOD Mod. 418.1*			
Analyzed by: AR			
Date: 10/05/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9310075-04

Shell Pipe Line Corporation
P.O. Box 2099
Houston, TX 77252-2099
ATTN: John Hite

P.O.# PX-9103-JBH
DATE: 10/06/93

PROJECT: Eunice Station
SITE: Lea County, New Mexico
SAMPLED BY: CURA Consultants
SAMPLE ID: B-9 (100-102)

PROJECT NO: 15-93673.3
MATRIX: SOIL
DATE SAMPLED: 09/24/93 12:40:00
DATE RECEIVED: 10/02/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0010 P	mg/kg
TOLUENE	ND	0.0010 P	mg/kg
ETHYLBENZENE	ND	0.0010 P	mg/kg
TOTAL XYLENE	ND	0.0010 P	mg/kg
TOTAL BTEX	ND		mg/kg
METHOD 5030/8020 ***			
Analyzed by: DAO			
Date: 10/04/93			
Petroleum Extractables	30	10	mg/Kg
METHOD Mod. 418.1*			
Analyzed by: AR			
Date: 10/05/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

** SPL Quality Control Report **
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE
Method 8020

SPL Sample ID: 9309513-01A **Reported on:** 10/06/93
Matrix: Soil **Analyzed on:** 10/04/93

This sample was randomly selected for use in the SPL quality control program. One in twenty samples is fortified, in duplicate, with a known concentration of the substance being analyzed.
The results are as follows:

---- **S P I K E A N A L Y S I S** -----

Compound	Blank Value	Spike Added µg/Kg	Original Sample Concentration µg/Kg	MS Concentration µg/Kg	MS % Rec#	QC Limits Range
BENZENE	ND	20	ND	24	120	39 - 150 %
TOLUENE	ND	20	ND	20	100	46 - 148 %
ETHYL_BENZENE	ND	20	ND	20	100	32 - 160 %
O XYLENE	ND	20	ND	22	110	32 - 160 %
M AND P XYLENE	ND	40	1	45	110	32 - 160 %

---- **S P I K E D U P L I C A T E A N A L Y S I S** -----

Compound	Spike Added µg/Kg	MSD Concentration µg/Kg	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	20	24	120	0	20	39 - 150 %
TOLUENE	20	21	105	5	20	46 - 148 %
ETHYL_BENZENE	20	19	95	5	20	32 - 160 %
O XYLENE	20	20	100	10	20	32 - 160 %
M AND P XYLENE	40	42	102	8	20	32 - 160 %

VARD931004150700

Idelis Williams, QC Officer

** SPL QUALITY CONTROL REPORT **
TOTAL PETROLEUM HYDROCARBONS [TPH]

SPL sample Id: 9310106-1B **Reported on:** 10/07/93
Matrix: SOIL **Analyzed on:** 10/05/93

This sample was randomly selected for use in the SPL quality control program. One in ten samples is fortified with a known concentration of the substance being analyzed and one in ten samples is analyzed in duplicate. The result are as follows:

-- **SPIKE ANALYSIS** --

Sample Id	Blank Value	Spike Added mg/L	Original Sample Concentration mg/Kg	MS Concentration mg/Kg	MS % Rec
9310106-1B	ND	384	6	330	85

-- **SPIKE DUPLICATE ANALYSIS** --

Sample Id	Spike Added mg/L	MSD Concentration mg/Kg	MSD % Rec	% RPD
9310106-1B	384	327	84	1

SPL, Incorporated

for D. J. Williams
Cynthia Schreiner, QC Officer

9310075

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 10273

Date: 9-25-93
Page 1 of 1

Shell Pipe Line Corp

SITE ADDRESS: Eunice Station
Lea County, New Mexico

WIC #: Proj # 15-93673.3

CONSULTANT NAME & ADDRESS: CURA Inc.
3001 N. Big Spring, Ste 101, Midland, TX, 79705

CONSULTANT CONTACT: F. Wesley Root

PHONE: 915-570-8408 FAX: 915-570-8409

SAMPLED BY: F. Wesley Root

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING ☐ 5461
- SITE INVESTIGATION ☒ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER _____ ☐

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER	NO. OF CONTAINERS	CONTAINER SIZE	BTEX 602 ☐ 8020 ☒ WITH MTBE ☐	BTEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE	VOL 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐	PNA/PAH 8310 ☐ 8100 ☐ 610 ☐	SEMI-VOL 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐	TPH/IR 418.1 ☒ SM503 ☐ ☐ ☐	TPH/GC 8015 Mod. GAS ☐ 8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐ SEMI-VOL ☐ PEST ☐ HERB ☐	EP TOX METALS ☐ PESTICIDES ☐ HERBICIDES ☐	REACTIVITY ☐ CORROSIVITY ☐ IGNITABILITY ☐	OTHER	REMARKS
B-9 (10-12)	9-24-93	11:15		V		V								ICE	2	4oz	V					V						Field Duplicate
B-9 (40-42)	9-24-93	11:44		V		V								ICE	1	4oz	V					V						
B-9 (80-82)	9-24-93	12:26		V		V								ICE	1	4oz	V					V						
B-9 (100-102)	9-24-93	12:40		V		V								ICE	1	4oz	V					V						

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
F. Wesley Root	10-1-93	16:30			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
				10/5/93	0930

BILL NO.: _____
LABORATORY: _____
SHELL CONTACT: John Hite PHONE: 713-241-1001 FAX: _____

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ (NORMAL) 14 DAYS ☐
48 HOURS ☐ 4° OTHER ☐ per shell contract

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

SPL HOUSTON ENVIRONMENTAL LABORATORY

SAMPLE LOGIN CHECKLIST

DATE: 10/2/93 TIME: 09:30 CLIENT NO. _____
LOT NO. _____ CONTRACT NO. _____

CLIENT SAMPLE NOS. _____

SPL SAMPLE NOS.: _____

		YES	NO
1.	Is a Chain-of-Custody form present?	✓	
2.	Is the COC properly completed?	✓	
	If no, describe what is incomplete:		
	If no, has the client been contacted about it?		
	(Attach subsequent documentation from client about the situation)		
3.	Is airbill/packing list/bill of lading with shipment?	✓	
	If yes, ID#: FRXO		
4.	Is a USEPA Traffic Report present?		✓
5.	Is a USEPA SAS Packing List present?		✓
6.	Are custody seals present on the package?	✓	
	If yes, were they intact upon receipt?	✓	
7.	Are all samples tagged or labeled?	✓	
	Do the sample tags/labels match the COC?	✓	
	If no, has the client been contacted about it?		
	(Attach subsequent documentation from client about the situation)		
8.	Do all shipping documents agree?		
	If no, describe what is in nonconformity:		

9. Condition/temperature of shipping container: INTACT - 4°C
10. Condition/temperature of sample bottles: GOOD - 4°C
11. Sample Disposal?: SPL disposal ____ Return to client ____

NOTES (reference item number if applicable): _____

ATTEST: _____ DATE: 10/2/93
DELIVERED FOR RESOLUTION: REC'D _____ DATE: _____
RESOLVED: _____ DATE: _____

APPENDIX E

PHOTO-DOCUMENTATION

Photograph 1: View of Eunice Station (borings B-1, B-7, and B-8) from the location of boring B-9 in the southeast corner of the site.

Photograph 2: View of drilling operations at boring B-7 with the location of boring B-9 in the background.