CURA, INC.
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PHASE II ENVIRONMENTAL SITE ASSESSMENT

DUBLIN STATION
LEA COUNTY, NEW MEXICO

CURA PROJECT NO. 15-9256703.3

SHELL PIPE LINE CORPORATION
TWO SHELL PLAZA
P.O. BOX 2099
HOUSTON, TEXAS 77252-2099

March 9, 1993

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1.0 REPORT SUMMARY

1.1 EXECUTIVE SUMMARY

The site, Dublin Station, is located approximately 4000 feet southwest of the community of Bennett and 4 miles south of the city of Jal in Lea County, New Mexico (Appendix A, Figure 1). The site is utilized as a crude oil pipeline pump station.

A review of the analytical results from the Preliminary Site Assessment conducted during December 1992 indicated hydrocarbon-impacted soils (> 100 ppm TPH) at a depth of 1 to 3 feet in boring B-5 (15,000 ppm TPH). Based on these analytical results, the sump, pump, and pipeline clean-out equipment located in the southwest corner of the site were identified as potential sources of the crude oil impacted soils observed on site.

Based on the findings of the Preliminary Site Assessment, three additional soil borings (B-6, B-7, and B-8) were performed on February 4 and February 5, 1993 to further delineate the horizontal and vertical extent of the hydrocarbon-impacted soils previously identified in boring B-5.

Benzene levels measured below method detection limits of 0.001 ppm in all of the sampled intervals of borings B-5, B-7, and B-8, except for the 55 to 57 foot interval of B-8 which recorded 0.028 ppm. The total BTEX levels ranged from below method detection limits of 0.001 ppm to 70.3 ppm. TPH levels ranged from below method detection limits of 10 ppm to 12,000 ppm. The current New Mexico Oil Conservation Division (OCD) recommended remediation levels for crude oil impacted soils are 10 ppm benzene, 50 ppm total BTEX, and either 100 ppm, 1,000 ppm, or 5,000 ppm TPH depending upon the risk assessment ranking for the site.

Based on the data obtained, the northern extent of hydrocarbon-impacted soils near the sump and pump equipment in the southwest corner of the site is limited to an area less than 50 feet wide (east - west) with a maximum depth of 5 feet.

The impacted soils identified by boring B-8 south of the sump extend to a minimum depth of 92 feet (maximum boring depth due to unstable hole conditions). Due to the close proximity of B-8 to the southwest corner of the property boundary (fence line), offsite migration is probable.

Groundwater was not encountered during this subsurface investigation. Based on the analytical data and field observations, the crude oil contamination identified in boring B-8 has migrated downward to a depth of 92 feet (maximum boring depth) and groundwater impact is probable.

1.2 SCOPE OF SERVICES

The following scope of services was conducted for the Phase II - Environmental Site Assessment:

- Met with Shell Pipe Line Corporation to determine additional boring locations in order to further delineate the extent of hydrocarbon-impacted soils discovered during the Preliminary Site Assessment conducted in December 1992.

- Conducted a preliminary literature search of the geology and hydrogeology of the site area.

- Performed soil borings and obtained soil samples to aid in classifying subsurface conditions with respect to petroleum hydrocarbons.

- Constructed a soil hydrocarbon concentration map to help delineate the horizontal and vertical extent of hydrocarbon-affected soils.

- Assembled soil profile columns from soil boring logs and reviewed the soil classification for the site area.

- Summarized findings in the Phase II - Environmental Site Assessment Report.

2.0 INTRODUCTION

During December 1992, CURA was contracted by Shell Pipe Line Corporation to conduct a Preliminary Site Assessment (report dated January 15, 1993) prior to a planned site divestment. Based on the discovery of hydrocarbon-impacted soils in boring B-5, the sump, pump, and pipeline clean-out equipment located in the southwest corner of the site were identified as potential sources.

A Phase II - Environmental Site Assessment (this report) was performed on February 4 and 5, 1993 to further delineate the extent of hydrocarbon-impacted soils near boring B-5 and to provide a more comprehensive assessment of the subsurface soil conditions. The site, Dublin Station, is located approximately 4000 feet southwest of the community of Bennett and 4 miles south of the city of Jal in Lea County, New Mexico (Appendix A, Figure 1).

3.0 SITE DESCRIPTION

Dublin Station is utilized as a crude oil pipeline pumping station in which subsurface crude oil field lines from various oil field leases are manifolded into the main subsurface discharge pipeline currently operated by Shell Pipe Line Corporation. One 64,000 barrel aboveground crude oil storage tank (Tank 396) is located in the center of the north portion of the site (Appendix A, Figure 2) and is surrounded by an earthen dike. Just west of the tank battery is a microwave control building situated on a former aboveground crude oil tank site. A second aboveground crude oil tank was formerly located off site and east of the property boundary. A pumping station, pipeline cleanout, and single-walled steel below-ground sump are located in the southwest quarter of the site.

Dublin Station is surrounded by barbed-wire fencing with a locked gate located near the southwest corner of the facility. The site is located in a rural area within the Monument-Jal Oil Field. No residences, public buildings, surface bodies of water, or water wells were observed within a 1,000 foot radius of the facility.

4.0 SITE HYDROGEOLOGY

The site is located in Lea County, New Mexico, within the Great Plains physiographic province along the southwestern edge of the High Plains Region of New Mexico and Texas.

Water wells in the site area typically produce water from two principal geologic units the Triassic age Dockum Group and overlying Quaternary alluvium. Quaternary Alluvium is the major water-bearing formation in the area with well yields ranging from 70 gpm to 500 gpm. The Quaternary Alluvium consists of eolian and alluvial deposits of Recent to Pleistocene age and is composed of fine grained sand with some silt and clay. The Alluvium was deposited over an irregular erosional surface cut into the Triassic rocks and ranges in thickness from 0 to over 700 feet. The Ogallala formation has been eroded away in the site area but acts as a groundwater source for the alluvium, recharging the aquifer from the north.

The Triassic age Dockum group consists of the Chinle formation and the underlying Santa Rosa sandstone. The Chinle formation is a 0 - 1270 foot thick claystone containing minor fine-grained sandstones and siltstones. Wells completed in the Chinle formation generally yield less than 10 gpm. The Santa Rosa sandstone is a 140 - 300 foot thick fine to coarse-grained sandstone which generally yields small quantities of water, however, some wells yield up to 100 gpm. Produced waters from both the Chinle formation and the Santa Rosa sandstone are high in sulfate content.

According to published data (Nicholson, 1961), there are no registered water wells within a 1,000 foot radius of the site. The closest known water well is located approximately 3,000 feet southeast of the site based on published data (Nicholson, 1961). The current status and construction data on this well is unknown.

According to the U.S.G.S. Jal, New Mexico, topographic quadrangle, the site is approximately 2,950 feet above mean sea level (Figure 4). The general trend of the local topography and surface drainage of the site area is to the southwest.

The soils on site belong to the Wink Series. The Wink Series consist of well-drained fine grained sandy soils formed in strongly calcareous, wind-deposited and water-deposited, sandy sediments in shallow basins. The soils are brown, nonplastic and are slightly calcareous near surface becoming strongly calcareous at a depth of 23 inches. Soft white calcareous sand (caliche) containing scattered, fine weakly cemented lime concretions is present from 23 inches to a depth of 60 inches. The soils described in the soil survey are generally consistent with, but more calcareous than the observed soils on site.

Subsurface conditions were similar across the northern half of the site (B-1 and B-2). The soils consisted of light-brown to buff-white silty sand (SM) underlain by buff-white calcareous sand (caliche) to a depth of approximately 12 feet (maximum depth of B-1 and B-2). Subsurface conditions across the southern half of the site (B-3 through B-8) consisted of a series of fine-grained sands (SM) containing discontinuous zones of silty calcareous sands (caliche) to a depth of 92 feet (maximum boring depth). The soil boring logs included in Appendix B provide a more detailed description of the subsurface conditions.

Currently, the shallow groundwater in the site area is not used as a drinking water source. The drinking water in Jal and Bennett, the nearest municipalities, is supplied from a well field located approximately 4 miles southwest of the site that produce from the Quaternary alluvium at a total depth of approximately 650 feet.

A field survey of the site and surrounding area was conducted to identify potential receptors (residences, public buildings, water supply wells, and surface bodies of water) in the site vicinity. No residences, public buildings, or water supply wells were

identified within a 1,000 radius of the site. Three man-made surface water impoundments are located approximately 1,300 feet northeast of the site, according to the U.S.G.S. Jal, New Mexico, topographic quadrangle.

5.0 HYDROGEOLOGICAL INVESTIGATION AND FINDINGS

5.1 SOIL INVESTIGATION

5.1.1 SOIL BORING LOCATIONS

The locations of borings B-6, B-7, and B-8 were chosen based on the discovery of hydrocarbon-impacted soils in boring B-5 during the Preliminary Site Assessment which indicated the potential source of the crude oil contamination is the sump, pump and pipeline clean-out in the southwest corner of the site.

Boring B-6 was placed approximately 20 feet north of the hydrocarbon-impacted soils identified in boring B-5. Boring B-7 was located approximately 40 feet northeast of the pump equipment and upgradient with respect to the observed local surface drainage to the potential source. Boring B-8 was placed south of B-5 and the sump to delineate the extent of the impacted area in the apparent downgradient direction (southwest) of the observed local surface drainage.

5.1.2 SOIL SAMPLING OPERATIONS

Soil samples were retrieved from the borings to be analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) and total petroleum hydrocarbons (TPH). Samples were obtained at five foot intervals in each boring using a split spoon sampling device. The soil sample obtained from each interval was split into two separate containers. One sample was placed into a glass jar with teflon-lined lids and zero head space and preserved at 4°C in accordance with EPA protocol for shipment to the laboratory. The other soil sample from each interval

was placed in a sample jar and field-screened (head space analysis) with a flame ionization detector (FID) Century 128 Organic Vapor Analyzer (OVA). The OVA detects volatile petroleum and non-petroleum organic compounds in parts per million (ppm) methane equivalent.

5.1.3 SOIL SAMPLE ANALYTICAL RESULTS

OVA readings ranged from <1 ppm in several sampled intervals of borings B-6 and B-7 to >1000 ppm in several intervals of boring B-8. Two to six samples from each boring were submitted for laboratory analyses. The sample with the highest relative OVA reading and the sample at the total depth of each boring unless noted otherwise were submitted to the laboratory for BTEX and TPH analyses using EPA-approved analytical methods (EPA Method 8020 and EPA Method 418.1, respectively). Complete OVA readings and a listing of those samples submitted to the laboratory are presented in Table 1. Hydrocarbon staining and/or odors were observed during sampling operations in the 1 to 3 foot interval of boring B-5 and from the surface to total depth of 92 feet in boring B-8.

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS

Boring	Date Sampled	Sample Interval (feet)	OVA	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH
B-1	12-10-92	1 - 3	1	<0.001	<0.001	<0.001	0.001	0.001	14
		5 - 7	<1						
		10 - 12	<1	<0.001	<0.001	<0.001	0.002	0.002	13
B-2	12-10-92	1 - 3	<1						
		5 - 7	1	<0.001	<0.001	<0.001	<0.001	<0.001	<10
		10 - 12	<1	<0.001	<0.001	<0.001	0.001	0.001	<10
B-3	12-10-92	1 - 3	1	<0.001	0.002	<0.001	<0.001	0.002	75
		5 - 7	<1						
		10 - 12	<1	<0.001	0.002	<0.001	0.004	0.006	13
B-4	12-10-92	1 - 3	2	<0.001	0.003	<0.001	0.002	0.005	<10
		5 - 7	<1						
		10 - 12	<1	<0.001	0.002	<0.001	0.002	0.004	<10
B-5	12-10-92	1 - 3	3	<0.001	<0.001	<0.001	<0.001	<0.001	15,000
		5 - 7	<1						
		10 - 12	<1	<0.001	0.001	<0.001	0.001	0.002	14
B-6	02-04-93	1 - 3	<1	<0.001	<0.001	<0.001	<0.001	<0.001	<10
		5 - 7	<1						
		10 - 12	<1	<0.001	<0.001	<0.001	<0.001	<0.001	10
B-7	02-04-93	1 - 3	1	<0.001	<0.001	<0.001	<0.001	<0.001	<10
		5 - 7	<1	<0.001	<0.001	<0.001	<0.001	<0.001	<10
		10 - 12	<1	<0.001	<0.001	<0.001	<0.001	<0.001	<10

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS

Boring	Date Sampled	Sample Interval (feet)	OVA	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH
B-8	02-04-93	1 - 3	2					0.002	20
		5 - 7	3	<0.001	<0.001	<0.001	<0.001	<0.001	2,500
		10 - 12	20	<0.001	0.011	0.006	0.007	0.024	2,000
		15 - 17	70						
		20 - 22	50	<0.001	<0.001	4.600	1.600	6.224	11,000
		25 - 27	200						
		30 - 32	>1000						
		35 - 37	>1000						
		40 - 42	>1000	<0.001	2.900	17.000	26.000	45.900	12,000
		45 - 47	>1000						
		50 - 52	>1000						
		55 - 57	>1000	0.028	<0.001	5.800	9.300	15.128	1,300
		60 - 62	>1000						
		65 - 67	>1000						
		75 - 77	700						
		90 - 92	950	<0.001	3.300	23.000	44.000	70.300	12,000

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

A review of the analytical results from the Preliminary Site Assessment conducted during December 1992 indicated hydrocarbon-impacted soils (>100 ppm TPH) at a depth of 1 to 3 feet in boring B-5 (15,000 ppm TPH).

Results from this phase of the investigation recorded benzene levels below method detection limits of 0.001 ppm in every sampled interval of Borings B-6, B-7, and B-8 except for the 55 to 57 foot interval of B-8 which recorded 0.028 ppm. The total BTEX (benzene, toluene, ethylbenzene, xylenes) levels ranged from below method detection limits of 0.001 ppm in a majority of the sampled intervals to 70.3 ppm in the 90 to 92 foot interval of boring B-8. TPH (total petroleum hydrocarbons) levels ranged from below method detection limits of 10 ppm in the sampled intervals of several borings to 12,000 ppm in the 40 to 42 foot interval and the 90 to 92 foot interval of boring B-8. Hydrocarbon concentrations are illustrated on the site map (Appendix B, Figure 2) to indicate soil sample depths and the corresponding hydrocarbon concentration levels.

A summary of the analytical results is presented in Table 1. Laboratory reports and the chain-of-custody are included in Appendix C.

5.2 GROUNDWATER ASSESSMENT

Due to unstable hole conditions, boring B-8 was terminated before encountering groundwater at a total depth of 92 feet. Hydrocarbon-impacted soils with TPH levels < 100 ppm were present from near surface to 92 feet in boring B-8 with no apparent decrease in hydrocarbon concentration levels relative to depth. Based on the data obtained, crude oil impacted groundwater is probable in the area adjacent to boring B-8.

6.0 CONCLUSIONS

1. No potential receptors were identified within a 1,000 foot radius of the site.

2. Based on the data obtained, the northern extent of hydrocarbon-impacted soils near the sump and pump equipment in the southwest corner of the site is limited to an area approximately 50 feet wide (east - west) with a maximum depth of 5 feet.

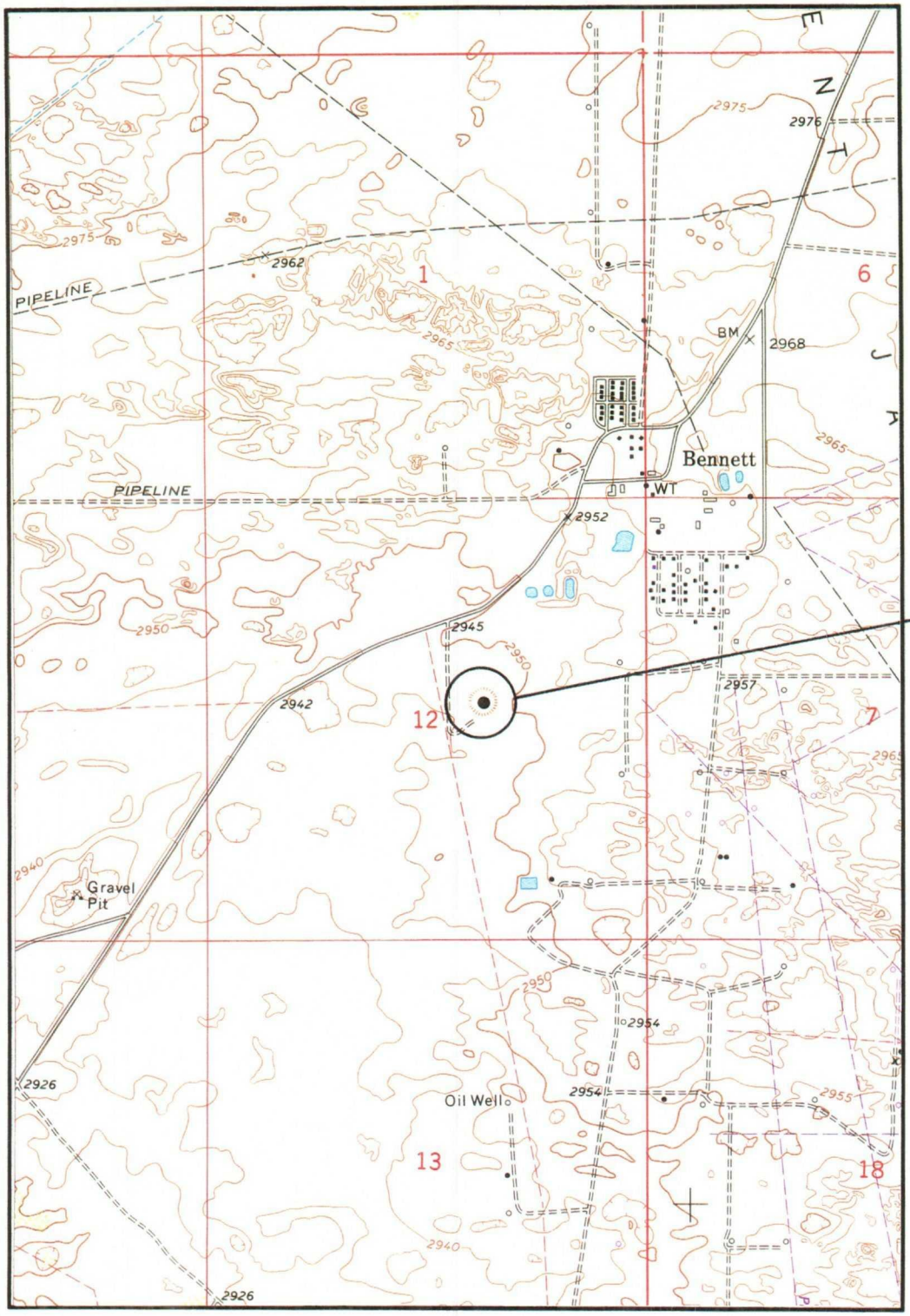
3. The impacted soils identified by boring B-8 south of the sump extend to a minimum depth of 92 feet. Additional horizontal and vertical delineation is needed with borings located east, south and west of boring B-8 to delineate the extent of hydrocarbon-impacted soils. Due to the close proximity of B-8 to the southwest corner of the property boundary (fence line), offsite migration is probable.

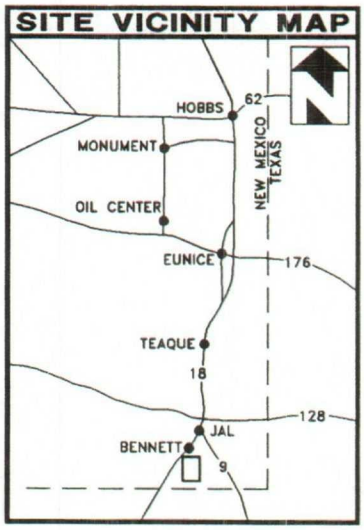
4. Groundwater was not encountered during this subsurface investigation however, based on the analytical data from boring B-8 and field observations, the crude oil contamination identified in boring B-8 has migrated downward to a depth of 92 feet (maximum depth penetrated due to unstable hole conditions) and groundwater impact is probable.

7.0 APPENDICES

APPENDIX A

FIGURES





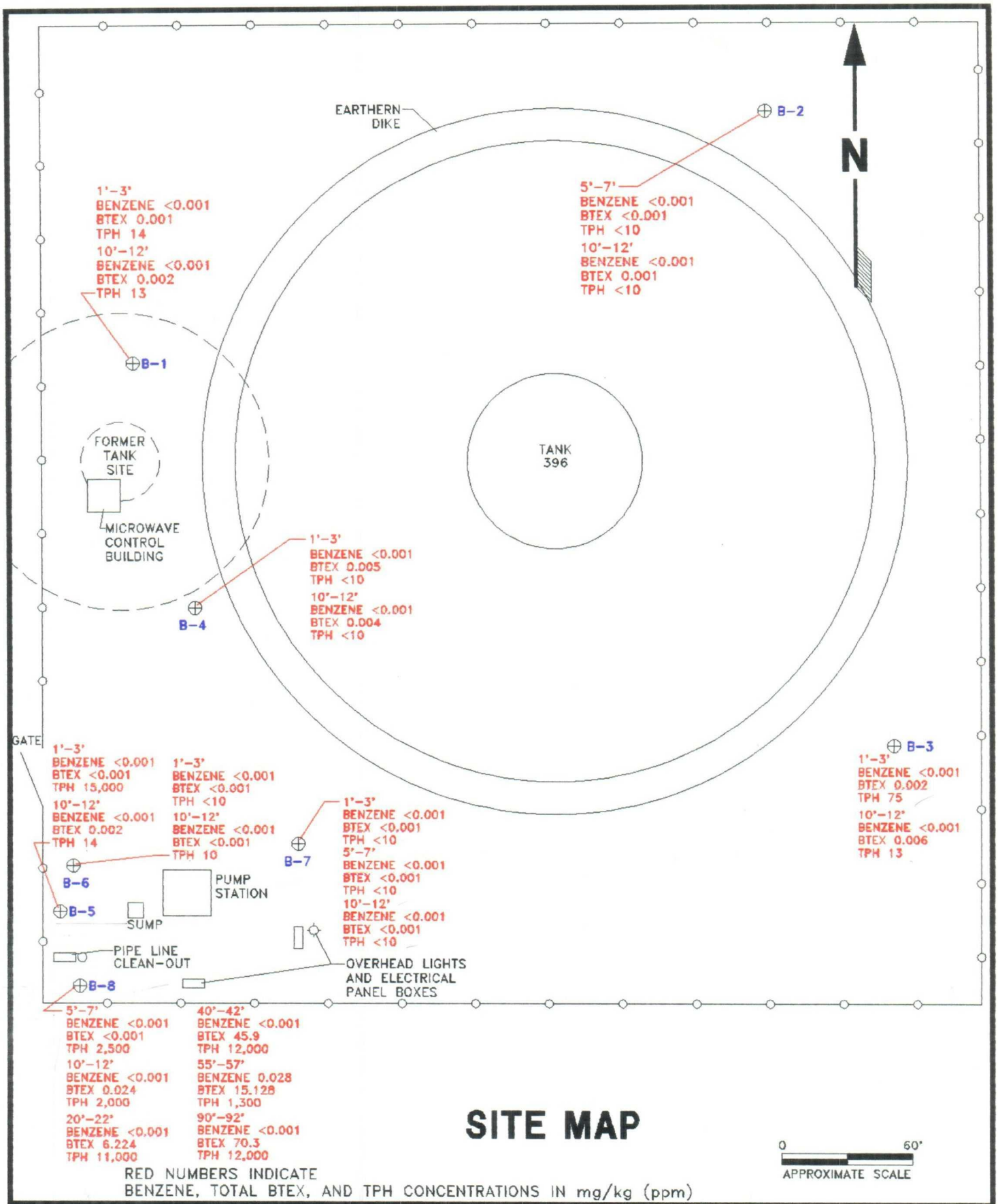
SITE LOCATION MAP

REF: USGS JAL, NEW MEXICO TOPOGRAPHIC QUADRANGLE (1979)
PHOTOREVISED 1977

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

DUBLIN STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
MAR 1993	1"≃ 2000'
PROJECT NO.	FIGURE NO.
15-92567	1



SITE MAP

0 60'
APPROXIMATE SCALE

RED NUMBERS INDICATE
BENZENE, TOTAL BTEX, AND TPH CONCENTRATIONS IN mg/kg (ppm)

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DUBLIN STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
MAR 1993	SEE ABOVE
PROJECT NO.	FIGURE NO.
15-92567	2

APPENDIX B
BORING/WELL LOGS

CURA 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.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-1
Depth of Boring: 12 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 12/10/92
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Grass sand buff					
	Buff-light brown SAND (SM)					
		1	SS	1	■	Benzene <0.001 BTEX=0.001 mg/kg TPH=14 mg/kg
2.5						
5.0		2	SS	<1		
7.5						
10.0	Buff-white calcareous SAND (caliche)					
		3	SS	<1	■	Benzene <0.001 BTEX=0.002 mg/kg TPH=13 mg/kg
12.5	Bottom of boring @ 12.0 feet					
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						

ABBREVIATIONS AND SYMBOLS

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

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.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-2
Depth of Boring: 12 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 12/10/92
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Buff-white silty SAND (SM)					
2.5		1	SS	<1		
5.0	Buff-brown silty SAND (SM)	2	SS	1	■	Benzene <0.001 BTEX=ND TPH=ND
7.5						
10.0	Buff-white calcareous SAND (caliche)	3	SS	<1	■	Benzene <0.001 BTEX=0.001 mg/kg TPH=ND
12.5	Bottom of boring @ 12.0 feet					
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						

SS-Driven Split Spoon
ST-Pressed Shelby Tube
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▼ After Hours
● Water on Rods

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

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620-7117 FAX - 620-8219

RECORD OF SUBSURFACE EXPLORATION

Project No.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-3
Depth of Boring: 12 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 12/10/92
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Buff-brown silty SAND (SM)					
2.5		1	SS	1	■	Benzene <0.001 BTEX=0.002 mg/kg TPH=75 mg/kg
5.0		2	SS	<1		
7.5						
10.0		3	SS	<1	■	Benzene <0.001 BTEX=0.006 mg/kg TPH=13 mg/kg
12.5	Bottom of boring @ 12.0 feet					
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						

SS-Driven Split Spoon
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▼ After Hours
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Bottom Cap
Sand Pack
Bentonite Seal
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Volclay Grout Seal

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BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

RECORD OF SUBSURFACE EXPLORATION

Project No.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-4
Depth of Boring: 12 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 12/10/92
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Buff-brown silty SAND (SM)					
2.5		1	SS	1	■	Benzene <0.001 BTEX=0.005 mg/kg TPH=ND
5.0	Buff-white silty SAND (SM)	2	SS	<1		
7.5						
10.0		3	SS	<1	■	Benzene <0.001 BTEX=0.004 mg/kg TPH=ND
12.5	Bottom of boring @ 12.0 feet					
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						

SS-Driven Split Spoon
ST-Pressed Shelby Tube
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Bottom Cap
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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.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-5
Depth of Boring: 12 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 12/10/92
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Brown silty SAND (SM) hydrocarbon stain					
2.5		1	SS	3	■	Benzene <0.001 BTEX=ND TPH=15,000 mg/kg
5.0		2	SS	<1		
7.5	Gray-yellow silty SAND (SM)					
10.0		3	SS	<1	■	Benzene <0.001 BTEX=0.002 mg/kg TPH=14
12.5	Bottom of boring @ 12.0 feet					
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
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
Voloclay 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.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-6
Depth of Boring: 12 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 02/04/93
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Light-brown fine-grained SAND (SM)					
2.5	Buff-white fine-grained SAND (SM)	1	SS	<1	■	Benzene <0.001 BTEX=<0.001 mg/kg TPH=<10 mg/kg
5.0	Buff-brown fine-grained SAND (SM)	2	SS	<1		
7.5						
10.0		3	SS	<1	■	Benzene <0.001 BTEX=<0.001 mg/kg TPH=10 mg/kg
12.5	Bottom of boring @ 12.0 feet					
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						

ABBREVIATIONS AND SYMBOLS

SS-Driven Split Spoon
ST-Pressed Shelby Tube
CA-Continuous Flight Auger
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CT-5' Continuous Sampler

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
Voloclay 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.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-7
Depth of Boring: 12 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 02/04/93
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Light-brown fine-grained SAND (SM)					
2.5	Reddish brown fine-grain SAND (SM)	1	SS	1	■	Benzene <0.001 BTEX <0.001 mg/kg TPH <10 mg/kg
5.0		2	SS	<1	■	Benzene <0.001 BTEX <0.001 mg/kg TPH <10 mg/kg
7.5						
10.0		3	SS	<1	■	Benzene <0.001 BTEX <0.001 mg/kg TPH <10 mg/kg
12.5	Bottom of boring @ 12.0 feet					
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						

SS-Driven Split Spoon
ST-Pressed Shelby Tube
CA-Continuous Flight Auger
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CT-5' Continuous Sampler

ABBREVIATIONS AND SYMBOLS

HSA-Hollow Stem Augers
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DC-Driving Casing
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WATER LEVEL
▽ At Completion
▼ After Hours
● Water on Rods

■ Sample submitted to lab
Bottom Cap
Factory-Slotted Well Screen
Sand Pack
Well Casing
Bentonite Seal
Voloclay 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.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-8
Depth of Boring: 92 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 02/04/93
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
0	Dark-brown fine-grained SAND (SM)					
2.5		1	SS	2		Hydrocarbon stained
5.0	Brown silty fine-grained SAND (SM)	2	SS	3	■	Benzene <0.001 BTEX <0.001 mg/kg TPH 2,500 mg/kg
10.0		3	SS	20	■	Benzene <0.001 BTEX=0.024 mg/kg TPH=2,000 mg/kg
15.0		4	SS	70		
17.5	Black silty fine-grained SAND (SM) slightly calcareous					Hydrocarbon stained Hydrocarbon odor
20.0	Gray silty calcareous SAND (caliche)	5	SS	50	■	Benzene <0.001 BTEX=6.224 mg/kg TPH=11,000 mg/kg
25.0	Gray silty fine-grained SAND (SM) slightly calcareous	6	SS	200		Hydrocarbon odor
27.5						
30.0						

SS-Driven Split Spoon
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ABBREVIATIONS AND SYMBOLS

HSA-Hollow Stem Augers
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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
Voloclay 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.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-8
Depth of Boring: 92 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 02/04/93
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
30.0	Gray silty fine-grained SAND (SM)	7	SS	>1000		Hydrocarbon odor present to total depth
32.5	Gray and red mottled slightly calcareous SAND (SM)					
35.0		8	SS	>1000		
37.5						
40.0	Red fine grain SAND (SM)	9	SS	>1000	■	Benzene <0.001 BTEX=45.9 mg/kg TPH=12,000 mg/kg
42.5						
45.0	Red silty fine-grained SAND (SM)	10	SS	>1000		
47.5						
50.0	Red silty slightly calcareous clayey SAND (SM)	11	SS	>1000		
52.5						15.128
55.0		12	SS	>1000	■	BENZENE=0.028 mg/kg BTEX=10,128 mg/kg TPH=1,300 mg/kg
57.5						15.128
60.0						

SS-Driven Split Spoon
ST-Pressed Shelby Tube
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WATER LEVEL
▽ At Completion
▼ After Hours
● Water on Rods

■ Sample submitted to lab
Bottom Cap
Factory-Slotted Well Screen
Sand Pack
Well Casing
Bentonite Seal
Voloclay 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.: 15-92567
Project: DUBLIN STATION
LEA COUNTY, NEW MEXICO
-
Drilling Co: HI PLAINS DRILLING
Driller: B.S.
Drilling Method: AIR ROTARY

Well/Boring #: B-8
Depth of Boring: 92 FEET
Depth of Well: -
Length of Screen: -
Length of Casing: -
Logged By: F.W.R.

Date Drilled: 02/04/93
Diameter of Boring: 5 1/8 INCHES
Diameter of Screen: -
Diameter of Casing: -
Slot Size: -
Well Material: GROUT

DEPTH FEET	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	WELL DESIGN	REMARKS
60.0	Red, silty, slightly calcareous, clayey SAND (SM)	13	SS	>1000		Hydrocarbon odor present to total depth
62.5	Red fine-grained SAND (SP) with occasional calcareous streaks					
65.0		14	SS	>1000		
67.5						
70.0						
72.5						
75.0		15	SS	700		
77.5						
80.0						
82.5						
85.0						
87.5						
90.0		16	SS	950	■	Benzene <0.001 BTEX=70.3 mg/kg TPH=12,000 mg/kg
	Bottom of boring @ 92.0 feet					

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CT-5' Continuous Sampler

ABBREVIATIONS AND SYMBOLS

HSA-Hollow Stem Augers
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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
Voloclay Grout Seal

APPENDIX C

ANALYTICAL RESULTS

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 93-02-348

Approved for release by:

M. Scott Sample Date: 2/19/93

S. Sample, Laboratory Director

Ed Fry Date: 2/18/93

Ed Fry, Project Manager

****SUMMARY REPORT*****

02/18/93

Company: Shell Pipe Line Corporation
Site: Lea Co., NM
Project No: 15-92567.033
Project: Dublin Station

ANALYTICAL DATA
NOTE: ND - Not Detected

SPL ID	CLIENT ID	MATRIX	BENZENE	TOLUENE	ETHYLBENZ.	XYLENE	TPH-IR	TPH-GC	LEAD	MTBE
9302348-01	B-6 (1'-3'	SOIL	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDmg/Kg			
9302348-02	B-6 (10'-1	SOIL	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDmg/Kg			
9302348-03	B-6 (10'-1	SOIL	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDµg/Kg	10mg/Kg			
9302348-04	B-7 (1'-3'	SOIL	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDmg/Kg			
9302348-05	B-7 (5'-7'	SOIL	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDmg/Kg			
9302348-06	B-7 (10'-1	SOIL	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDmg/Kg			
9302348-07	B-8 (5'-7'	SOIL	NDµg/Kg	NDµg/Kg	NDµg/Kg	NDµg/Kg	2500mg/Kg			
9302348-08	B-8 (10'-1	SOIL	NDµg/Kg	11µg/Kg	6µg/Kg	7µg/Kg	2000mg/Kg			
9302348-09	B-8 (20'-2	SOIL	NDµg/Kg	NDµg/Kg	4600µg/Kg	1600µg/Kg	11000mg/Kg			
9302348-10	B-8 (40'-4	SOIL	NDµg/Kg	2900µg/Kg	17000µg/Kg	26000µg/Kg	12000mg/Kg			

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

Shari L. Grice

SPL, Inc., - Shari L. Grice

****SUMMARY REPORT*****

02/18/93

Company: Shell Pipe Line Corporation
Site: Lea Co., NM
Project No: 15-92567.033
Project: Dublin Station

ANALYTICAL DATA
NOTE: ND - Not Detected

SPL ID	CLIENT ID	MATRIX	BENZENE	TOLUENE	ETHYLBENZ.	XYLENE	TPH-IR	TPH-GC	LEAD	MTBE
9302348-11	B-8 (55'-5	SOIL	28µg/Kg	NDµg/Kg	5800µg/Kg	9300µg/Kg	1300mg/Kg			
9302348-12	B-8 (90'-9	SOIL	NDµg/Kg	3300µg/Kg	23000µg/Kg	44000µg/Kg	12000mg/Kg			
9302348-13	B-8 (90'-9	SOIL	NDµg/Kg	3600µg/Kg	19000µg/Kg	36000µg/Kg	9000mg/Kg			

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

Shari L. Grice

SPL, Inc. - Shari L. Grice

Certificate of Analysis No. 9302348-01

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-6 (1'-3')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 18:00:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0010 P	mg/Kg
ETHYLBENZENE	ND	0.0010 P	mg/Kg
TOLUENE	ND	0.0010 P	mg/Kg
TOTAL XYLENE	ND	0.0010 P	mg/Kg
TOTAL BTEX	ND		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/15/93			
Petroleum extractables	ND	10	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-02

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-6 (10'-12')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 18:08:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0010 P	mg/Kg
ETHYLBENZENE	ND	0.0010 P	mg/Kg
TOLUENE	ND	0.0010 P	mg/Kg
TOTAL XYLENE	ND	0.0010 P	mg/Kg
TOTAL BTEX	ND		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/15/93			
Petroleum extractables	ND	10	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-03

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-6 (10'-12')-Dup

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 18:08:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0010 P	mg/Kg
ETHYLBENZENE	ND	0.0010 P	mg/Kg
TOLUENE	ND	0.0010 P	mg/Kg
TOTAL XYLENE	ND	0.0010 P	mg/Kg
TOTAL BTEX	ND		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/15/93			
Petroleum extractables	10	10	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-04

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-7 (1'-3')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 18:15:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0050 P	mg/Kg
ETHYLBENZENE	ND	0.0050 P	mg/Kg
TOLUENE	ND	0.0050 P	mg/Kg
TOTAL XYLENE	ND	0.0050 P	mg/Kg
TOTAL BTEX	ND		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/15/93			
Petroleum extractables	ND	10	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-05

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-7 (5'-7')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 18:20:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT		UNITS
BENZENE	ND	0.0010	P	mg/Kg
ETHYLBENZENE	ND	0.0010	P	mg/Kg
TOLUENE	ND	0.0010	P	mg/Kg
TOTAL XYLENE	ND	0.0010	P	mg/Kg
TOTAL BTEX	ND			mg/Kg
METHOD 5030/8020 ***				
Analyzed by: LT				
Date: 02/15/93				
Petroleum extractables	ND	10		mg/Kg
METHOD Mod. 418.1				
Analyzed by: PM				
Date: 02/17/93				

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. 9302348-06

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-7 (10'-12')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 18:25:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0010 P	mg/Kg
ETHYLBENZENE	ND	0.0010 P	mg/Kg
TOLUENE	ND	0.0010 P	mg/Kg
TOTAL XYLENE	ND	0.0010 P	mg/Kg
TOTAL BTEX	ND		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/15/93			
Petroleum extractables	ND	10	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-07

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-8 (5'-7')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 18:40:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0050 P	mg/Kg
ETHYLBENZENE	ND	0.0050 P	mg/Kg
TOLUENE	ND	0.0050 P	mg/Kg
TOTAL XYLENE	ND	0.0050 P	mg/Kg
TOTAL BTEX	ND		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/16/93			
Petroleum extractables	2500	20	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-08

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-8 (10'-12')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 18:45:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0050 P	mg/Kg
ETHYLBENZENE	0.0060	0.0050 P	mg/Kg
TOLUENE	0.011	0.0050 P	mg/Kg
TOTAL XYLENE	0.0070	0.0050 P	mg/Kg
TOTAL BTEX	0.024		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/16/93			
Petroleum extractables	2000	20	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-09

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-8 (20'-22')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/04/93 19:05:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.0050 P	mg/Kg
ETHYLBENZENE	4.6	0.0050 P	mg/Kg
TOLUENE	ND	0.0050 P	mg/Kg
TOTAL XYLENE	1.6	0.0050 P	mg/Kg
TOTAL BTEX	6.2		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/15/93			
Petroleum extractables	11000	100	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-10

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-8 (40'-42')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/05/93 19:20:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.12 P	mg/Kg
ETHYLBENZENE	17	0.12 P	mg/Kg
TOLUENE	2.9	0.12 P	mg/Kg
TOTAL XYLENE	26	0.12 P	mg/Kg
TOTAL BTEX	45.9		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 02/14/93			
Petroleum extractables	12000	100	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-11

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-8 (55'-57')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/05/93 09:55:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	0.028	0.010 P	mg/Kg
ETHYLBENZENE	5.8	0.010 P	mg/Kg
TOLUENE	ND	0.010 P	mg/Kg
TOTAL XYLENE	9.3	0.010 P	mg/Kg
TOTAL BTEX	15.128		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: LT			
Date: 02/15/93			
Petroleum extractables	1300	10	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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

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. 9302348-12

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-8 (90'-92')

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/05/93 11:10:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.050 P	mg/Kg
ETHYLBENZENE	23	0.050 P	mg/Kg
TOLUENE	3.3	0.050 P	mg/Kg
TOTAL XYLENE	44	0.050 P	mg/Kg
TOTAL BTEX	70.3		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 02/16/93			
Petroleum extractables	12000	100	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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. 9302348-13

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

P.O.# PX-16959-RMM
DATE: 02/18/93

PROJECT: Dublin Station
SITE: Lea Co., NM
SAMPLED BY: CURA
SAMPLE ID: B-8 (90'-92')-Dup

PROJECT NO: 15-92567.033
MATRIX: SOIL
DATE SAMPLED: 02/05/93 11:10:00
DATE RECEIVED: 02/15/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	0.050 P	mg/Kg
ETHYLBENZENE	19	0.050 P	mg/Kg
TOLUENE	3.6	0.050 P	mg/Kg
TOTAL XYLENE	36	0.050 P	mg/Kg
TOTAL BTEX	58.6		mg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 02/16/93			
Petroleum extractables	9000	50	mg/Kg
METHOD Mod. 418.1			
Analyzed by: PM			
Date: 02/17/93			

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

QUALITY CONTROL DOCUMENTATION

SPL®

**** SPL Quality Control Report ****
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE
Method 8020/602

SPL Sample ID: 9302233-09B **Reported on:** 02/18/93
Matrix: Soil **Analyzed on:** 02/14/93

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	20	100	39 - 150 %
TOLUENE	ND	20	ND	18	90	46 - 148 %
ETHYL_BENZENE	ND	20	ND	18	90	32 - 160 %
O XYLENE	ND	20	5	15	50	32 - 160 %
M AND P XYLENE	ND	40	ND	33	82	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	21	105	5	20	39 - 150 %
TOLUENE	20	19	95	5	20	46 - 148 %
ETHYL_BENZENE	20	18	90	0	20	32 - 160 %
O XYLENE	20	16	55	10	20	32 - 160 %
M AND P XYLENE	40	34	85	4	20	32 - 160 %

VARD930214160900

Cynthia Schreiner

Cynthia Schreiner, QC Officer

SPL®

**** SPL Quality Control Report ****
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE
Method 8020/602

SPL Sample ID: 9302302-02A **Reported on:** 02/18/93
Matrix: Soil **Analyzed on:** 02/15/93

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	21	105	39 - 150 %
TOLUENE	ND	20	ND	21	105	46 - 148 %
ETHYL_BENZENE	ND	20	ND	21	105	32 - 160 %
O XYLENE	ND	20	ND	23	115	32 - 160 %
M AND P XYLENE	ND	40	ND	51	127	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	21	105	0	20	39 - 150 %
TOLUENE	20	20	100	5	20	46 - 148 %
ETHYL_BENZENE	20	23	115	9	20	32 - 160 %
O XYLENE	20	21	105	9	20	32 - 160 %
M AND P XYLENE	40	46	115	10	20	32 - 160 %

VARE930215082800

Cynthia Schreiner

Cynthia Schreiner, QC Officer

SPL®

** SPL Quality Control Report **
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE
Method 8020/602

SPL Sample ID: 9302311-01A **Reported on:** 02/18/93
Matrix: Soil **Analyzed on:** 02/16/93

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:

---- SPIKE ANALYSIS -----

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	12	60	39 - 150 %
TOLUENE	ND	20	ND	11	55	46 - 148 %
ETHYL_BENZENE	ND	20	ND	13	65	32 - 160 %
O XYLENE	ND	20	ND	13	65	32 - 160 %
M AND P XYLENE	ND	40	ND	25	62	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS -----

Compound	Spike Added µg/Kg	MSD Concentration µg/Kg	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	20	14	70	15	20	39 - 150 %
TOLUENE	20	13	65	17	20	46 - 148 %
ETHYL_BENZENE	20	13	65	0	20	32 - 160 %
O XYLENE	20	13	65	0	20	32 - 160 %
M AND P XYLENE	40	29	72	15	20	32 - 160 %

VARE930216051300

Cynthia Schreiner

Cynthia Schreiner, QC Officer

SPL®

** SPL Quality Control Report **
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE
Method 8020/602

SPL Sample ID: 9302303-01A Reported on: 02/18/93
Matrix: Soil Analyzed on: 02/16/93

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:

---- SPIKE ANALYSIS -----

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	22	110	39 - 150 %
TOLUENE	ND	20	ND	19	95	46 - 148 %
ETHYL_BENZENE	ND	20	ND	27	135	32 - 160 %
O XYLENE	ND	20	ND	18	90	32 - 160 %
M AND P XYLENE	ND	40	ND	25	62	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS -----

Compound	Spike Added µg/Kg	MSD Concentration µg/Kg	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	20	26	130	17	20	39 - 150 %
TOLUENE	20	20	100	5	20	46 - 148 %
ETHYL_BENZENE	20	27	135	0	20	32 - 160 %
O XYLENE	20	21	105	15	20	32 - 160 %
M AND P XYLENE	40	22	55	12	20	32 - 160 %

VARD930216133600

Cynthia Schreiner

Cynthia Schreiner, QC Officer

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

SPL sample Id: 9302347-1B
Matrix: SOIL

Reported on: 02/18/93
Analyzed on: 02/17/93

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
9302347-1B	ND	357	6	313	88

-- SPIKE DUPLICATE ANALYSIS --

Sample Id	Spike Added mg/L	MSD Concentration mg/Kg	MSD % Rec	% RPD
9302347-1B	357	325	91	4

SPL, Incorporated

Cynthia Schreiner, QC Officer

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. 04937

Date: 2-12-93
Page 1 of 1

SHELL PIPE LINE CORP

SITE ADDRESS: DUBLIN STATION
Lea County, New Mexico

WIC #: PROJ# 15-92567.033

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: ICE	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-6 (1-3')	2-4-93	18:00		X		X								X	1	4oz	X					X						
B-6 (10-12')	2-4-93	18:08		X		X								X	2	4oz	X					X						Field Duplicate
B-7 (1-3')	2-4-93	18:15		X		X								X	1	4oz	X					X						
B-7 (5-7')	2-4-93	18:20		X		X								X	1	4oz	X					X						
B-7 (10-12')	2-4-93	18:25		X		X								X	1	4oz	X					X						
B-8 (5-7')	2-4-93	18:40		X		X								X	1	4oz	X					X						
B-8 (10-12')	2-4-93	18:45		X		X								X	1	4oz	X					X						
B-8 (20-22')	2-4-93	19:05		X		X								X	1	4oz	X					X						
B-8 (40-42')	2-5-93	9:20		X		X								X	1	4oz	X					X						
B-8 (55-57')	2-5-93	9:55		X		X								X	1	4oz	X					X						
B-8 (90-92')	2-5-93	11:10		X		X								X	2	4oz	X					X						Field Duplicate

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Frank Wesley Root	2-12-93	12:00			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
				2/15/93	09:00

BILL NO.:
LABORATORY:
SHELL CONTACT: John Hoyle 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: 2/15/93 TIME: 09:00 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#: Fedex		
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: 2/15/93
DELIVERED FOR RESOLUTION: REC'D _____ DATE: _____
RESOLVED: _____ DATE: _____

8.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

8.1 SAMPLING PROCEDURES

A strict Quality Assurance Plan was incorporated throughout all phases of the drilling and sampling operations. The sampling and drilling equipment was decontaminated by a high-pressure steam cleaner before the start of sampling operations and between the borings. The soil samples were collected with decontaminated stainless steel sampling trowels. The sampling equipment was cleaned between sample collections to eliminate the potential of cross-contamination between sampling stations. Groundwater samples were obtained with new disposable bailers after each monitor well was purged.

The soil and water samples were placed in glass jars and sample vials with teflon-lined lids and preserved at 4°C with zero head space in accordance with EPA requirements (EPA 600/4-82-029). A chain-of-custody (COC) that documents sample collection times and delivery times to the laboratory was completed for each set of samples. The COCs are included with the analytical results in the Appendices. Analyses were performed using EPA-recommended analytical methods on all samples.

CURA maintains the highest quality assurance standards with direct supervision of operations (sample handling and storage). Drilling operations were conducted using a licensed water well driller. CURA provides management oversight for laboratory procedures and analytical results and uses laboratories that maintain strict quality control, i.e., equipment calibration and standardization, EPA-recommended analytical methods, preparing spiked samples, and complete chains-of-custody.

9.0 SITE SAFETY PLAN

The sampling operations were performed at level D personal protection. All CURA personnel involved in on-site activities have completed the Hazardous Waste Field Operation training course (OSHA 29 CFR 1910.120). Applicable safety equipment was available on site to CURA personnel.

SITE SAFETY PLAN

Site Name: SPLC - Dublin Station

Site Address: 4 miles south-southwest of Jal in Lea County, New Mexico

Site Owner: Shell Pipe Line Corporation

Contacts: John B. Hite (713) 241-1001

Work Description: Environmental site assessment activities: soil borings, soil sampling, and site mapping.

Proposed Date of Work: February 4, 1993

Work Team: Team Leader - F. Wesley Root (CURA, Inc.)

Site Safety Officer - F. Wesley Root (CURA, Inc.)

Team Member - Leon Moore (Shell Pipe Line Corporation)

Team Member - Barry Simmons (Hi-Plains Drilling Company)

Team Member - Freddy Tovar (Hi-Plains Drilling Company)

Plan prepared by: Greg C. Walterscheid, R.E.M.

Reviewed by: Richard Wilson, Ph.D.

EMERGENCY INFORMATION

Site Name: SPLC - Dublin Station

Site Address: 4 miles south - southwest of Jal in Lea County, New Mexico

Site Owner: Shell Pipe Line Corporation

Telephone Numbers:

Ambulance Service: 911

Hospital: Jal Hospital 505-397-2637

Poison Control Center: 911

Police: 505-395-2501

Fire Department: 505-395-2221

Emergency Contacts

Company Health and Safety Officer: Dr. Richard Wilson
Work: (214) 620-7117
Home: (214) 241-5803

Project Manager: Greg C. Walterscheid

Work: 1-800-486-7117
Mobile Phone: 1-214-202-9320
Pager: 1-214-807-8154
Home: 1-214-317-0518

10.0 REFERENCES

Code of Federal Regulations, Title 40 §§ 280 and 281.

CURA, Inc., January 15, 1993. Preliminary Site Assessment, Dublin Station, Lea County, New Mexico. Midland, Texas.

Dinwiddie, G. A., 1963. Municipal Water Supplies and Uses, Southeastern New Mexico. Technical Report 29A. New Mexico State Engineer, Santa Fe, New Mexico.

Groat, C. G., 1976. Geologic Atlas of Texas (Hobbs Sheet). Bureau of Economic Geology, The University of Texas at Austin. Austin, Texas.

Oil Conservation Division, Memorandum, December 21, 1992. Final Draft OCD Surface Impoundment Closure Guidelines. Energy, Minerals and Resources Department, Santa Fe, New Mexico.

Oil Conservation Division, Environmental Regulations, 1992. Energy, Minerals and Resources Department, Santa Fe, New Mexico.

Nicholson, Alexander, Jr., 1961. Geology and Ground-Water Conditions in Southern Lea County, New Mexico. United States Geological Survey, Ground-Water Report 6. New Mexico Bureau of Mines and Mineral Resources, Campus Station, Socorro, New Mexico.

Turner, M.T., et al., 1974. Soil Survey of Lea County, New Mexico. United States Department of Agriculture Soil Conservation Service, in cooperation with the New Mexico Agricultural Experiment Station. U.S. Publishing Office: Washington, D.C.

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