1R - 356

REPORTS

DATE:

2001

12356

Larson & Associates, Inc.
Environmental Consultants

RECEIVED
FEB 22

February 19, 2001

Mr. Chris Williams
New Mexico Oil Conservation Division
1625 N. French Drive
Hobbs, New Mexico 88240

Re: Pipeline Spill Investigation, Dynegy Midstream Services. L.P., Unit Letter N, Section 29, Township 21 South, Range 37 East, Lea County, New Mexico

Dear Mr. Williams:

On November 29, 2000, Dynegy Midstream Services, L.P. (Dynegy) notified the New Mexico Oil Conservation Division (NMOCD) of a crude oil release from a pipeline drip located in Unit Letter N, Section 29, Township 21 South, Range 37 East, Lea County, New Mexico. Approximately 5 barrels was released, and Dynegy submitted a Release Notification and Corrective Action report (Form C-141) to the NMOCD in accordance with Rule 116. The release appeared to have affected soil in the immediate vicinity of the drip, and flowed along a caliche road for a short distance south of the release. Dynegy immediately removed the drip, and excavated visually stained soil to approximately 10 feet below ground surface (BGS). Soil was scraped from the roadway for about 400 feet south of the release. The soil was piled near the eastside of the roadway. Figure 1 presents a location and topographic map. Figure 2 presents a Site drawing.

Site Setting

The Site is located approximately 1.25-miles west of Eunice, New Mexico, and is situated at approximately 3470 feet above mean sea level (AMSL). The Site is covered by wind blown sand that overlies the Tertiary-age Ogallala formation. The Ogallala formation consists of unconsolidated to well-cemented sand and sandstone, interbedded with clay, silt and gravel. The Ogallala formation overlies the Triassic-age Chinle formation, commonly referred to as "red bed". The red bed consists mudstone, siltstone, sandstone, and occurs at approximately 145 feet below ground surface (BGS), according to published information (Nicholson and Clebsch, 1961).

LA contacted the New Mexico State Engineer in Roswell, New Mexico, to obtain water well information for the area (verbal communication with Mr. Johnny Hernandez, February 8, 2001). Mr. Johnny Hernandez stated that a declaration for water appropriations had been filed in 1965 for approximately 10.7-acre feet of water in the SW/4, SW/4, Section 29, Township 21 South, Range 37 East, and was designated for irrigation and domestic use. Mr. Hernandez said that the State Engineer had no correspondence in its file indicating that a well was present or in use. The State Engineer notified the well owner in 1993, and required a meter to be set at the well, and submittal of annual reports to document water usage. No response was received from the well owner, and no annual reports were submitted.

Published information suggests that groundwater occurs between approximately 105 to 125 feet BGS in the vicinity of the Site (Nicholson and Clebsch, 1961). No surface water bodies were identified within 1,000 feet of the Site based on a review of the U.S.G.S. 7.5-minute series quadrangle map (Eunice, New Mexico).

Current Investigations

On December 5, 2000, personnel of Larson and Associates, Inc. (LA) collected soil samples from the excavation, roadway and pile. Composite soil samples were collected from each side and the bottom of the excavation. Each composite sample consisted of 4 to 5 grab samples. Composite soil samples (Comp. #1 and Comp. #2) were collected along the roadway from the release to about 400 feet south of the Site. Each composite sample consisted of five grab samples collected from 0 to 6 inches BGS for about 200 linear feet of roadway. A composite sample consisting of four grab samples was also collected from the pile. The samples were collected using a stainless steel sample trowel, placed in clean glass sample containers, labeled, placed in an ice chest, chilled, and transferred under chain-of-custody control to Trace Analysis, Inc., located in Lubbock, Texas. The sample trowel was thoroughly washed between sample events using laboratory-grade detergent, and rinsed with distilled water.

A portion of each sample was retained in a sealed plastic sample bag for headspace analysis using a photoionization detector (PID). The PID measures the ionization potential of hydrocarbon vapors in the headspace of the bag, and may be substituted for a laboratory analysis for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) if the PID reading is below 100 parts per million (ppm). The PID was calibrated to isobutylene. The laboratory analyzed all samples for chloride, and total petroleum hydrocarbons (TPH), including gasoline range organics (GRO) and diesel range organics (DRO). Samples from the north, south, west and bottom of the excavation, and pile recorded PID readings above 100 ppm, and were tested for BTEX. Table 1 presents a summary of the PID and laboratory analyses. Appendix A presents the laboratory report.

Referring to Table 1, TPH was not reported above the test method detection limit of 0.55 milligrams per kilogram (mg/kg) in the sample from the east side of the excavation. Samples from the north, west, south, and bottom of the excavation recorded TPH values of 149 mg/kg, 211 mg/kg, 997 mg/kg and 1913 mg/kg, respectively. The highest benzene and total BTEX concentrations were reported in the sample from the bottom of the excavation, and were reported at 0.46 mg/kg and 42.59 mg/kg, respectively. Soil samples from the roadway reported TPH concentrations of 4123.3 mg/kg (Comp. #1) and 444.2 mg/kg (Comp. #2). Chloride values ranged from 16 mg/kg in the sample from the north side of the excavation to 430 mg/kg in the sample from the bottom of the excavation.

Remediation action levels for benzene, total BTEX and TPH were calculated in accordance with NMOCD guidelines ("Guidelines for Rmediation of Leaks, Spills and Releases, August 13, 1993"). Remediation levels for benzene, total BTEX and TPH were calculated using the following risk-based criteria:

Criteria	Result	Ranking Score
Depth-to-Groundwater	50 – 99 Feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0
		Total Score: 10

The NMOCD recommended remediation action levels for benzene, total BTEX and TPH are as follows:

Benzene	**10 mg/kg**
Total BTEX	**50 mg/kg**
TPH	**1000 mg/kg**

Concentrations of benzene and total BTEX in soil samples from the excavation and pile were below the NMOCD recommended remediation action levels of 10 mg/kg and 50 mg/kg, respectively. Concentrations of TPH exceeded the recommended remediation action level of 1,000 mg/kg in soil samples from the bottom of the excavation (1913 mg/kg), roadway (4123 mg/kg) and pile (7343 mg/kg). The NMOCD does not have a published remediation action level for chloride, however, chloride levels reported in the soil samples from the excavation, roadway and pile were generally below the domestic water quality standard of 250 milligrams per liter (mg/L) established by the New Mexico Water Quality Control Commission (NMWQCC). The highest chloride value was reported in the sample from the bottom of the excavation (430 mg/kg).

Dynegy proposes to excavate additional soil from the bottom of the excavation, and scrape soil from the roadway south of the release (corresponding with sample area Comp. #1) to reduce TPH levels below 1,000 mg/kg. The soil will be blended with soil originally removed from the excavation, roadway and pile to achieve 1000 mg/kg TPH. The blended soil will be used to fill the excavation and level the roadway. A composite soil sample will be collected from each area following removal of the additional soil, and analyzed for TPH. The blended soil will also be tested for TPH prior to filling the excavation and leveling the roadway. A final report will be submitted to the NMOCD, and will include laboratory analyses from the soil samples.

Please call Mr. Cal Wrangham at (915) 688-0555 or myself at (915) 687-0901 if you have questions.

Respectfully yours,
Larson & Associates, Inc.

Mark J. Larson, CPG, CGWP
President

Encl.

cc: Mr. Cal Wrangham - Dynegy
Mr. Dave Harris – Dynegy
Mr. Bill Olson – NMOCD – Santa Fe

TABLES

Table 1: Summary of Headspace and Laboratory Analyses of Soil Samples
Dynegy Midstream Services, L.P.
SE/4, SW/4 Section 29, Township 21 South, Range 37 East
Lea County, New Mexico

Site Number	Sample Area	Sample Number	Sample Date	PID (ppm)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	BTEX (mg/kg)	Chloride (mg/kg)
7	Excavation	North	06-Dec-00	173.3	<5	149	149	<0.05	<0.05	<0.05	<0.05	<0.20	16
		South	06-Dec-00	501.2	113	884	997	0.055	1.76	0.477	7.89	10.182	28
		East	06-Dec-00	14.2	<5	<50	<55	--	--	--	--	--	22
		West	06-Dec-00	137.5	<5	211	211	<0.05	<0.05	<0.05	0.61	0.61	17
		Bottom	06-Dec-00	187.4	293	1620	1913	0.46	10.6	1.33	30.2	42.59	430
	Lease Road	Comp. #1	06-Dec-00	38.6	73.3	4050	4123.3	--	--	--	--	--	110
		Comp. #2	06-Dec-00	43.3	20.2	424	444.2	--	--	--	--	--	80
	Pile	Pile	06-Dec-00	470.3	353	6990	7343	0.137	7.42	2.22	32.7	42.477	83

Notes: Analysis performed by Trace Analysis, Inc., Lubbock, Texas

1. PID: Measurement by photoionization detector
2. ppm: Parts per million
3. DRO: Diesel-range petroleum hydrocarbons
4. GRO: Gasoline-range petroleum hydrocarbons
5. TPH: Total petroleum hydrocarbons (Sum of DRO + GRO)
6. mg/kg Milligrams per kilogram
7. --: No data available
8. <: Below method detection limit

FIGURES

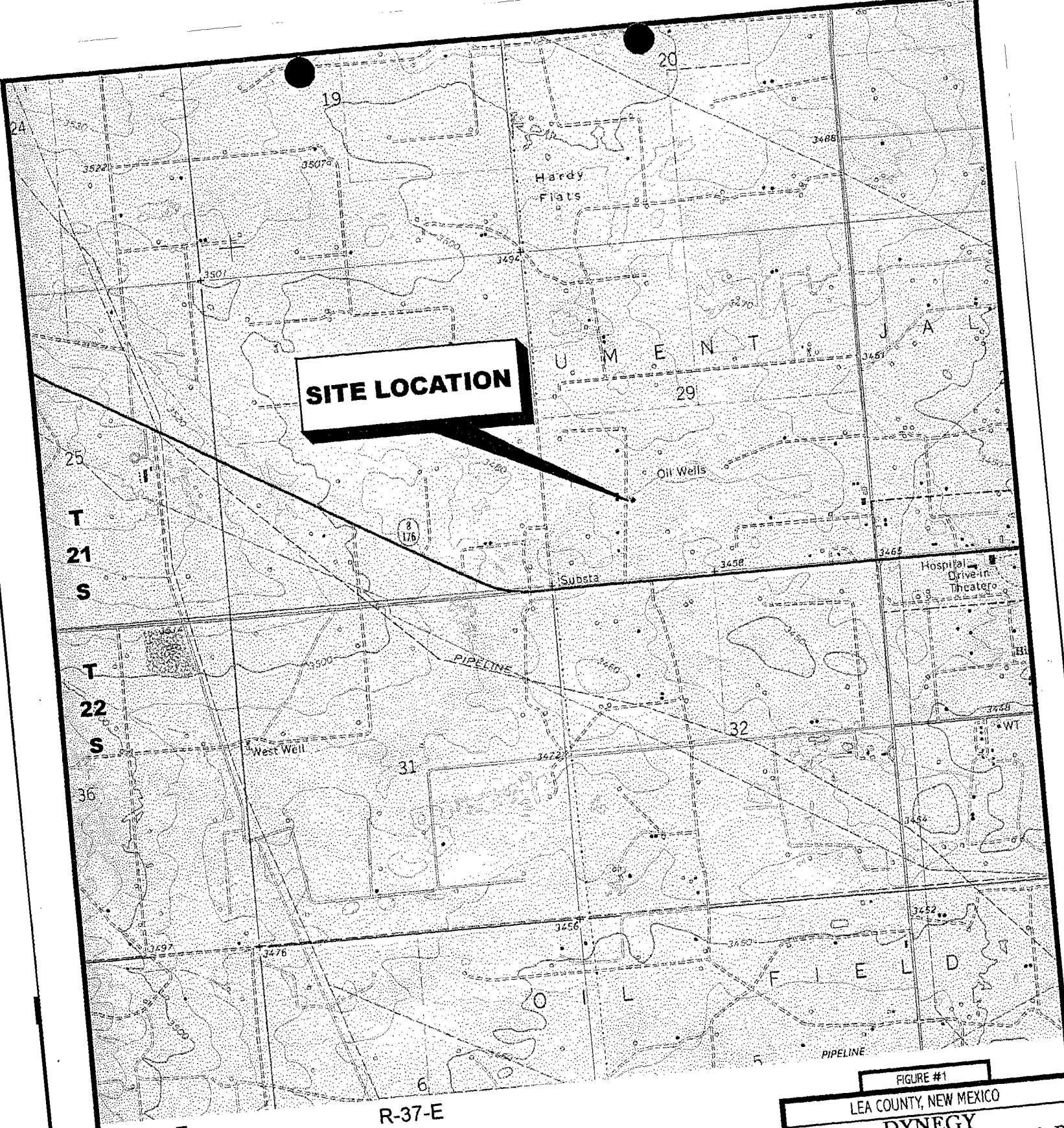


FIGURE #1

LEA COUNTY, NEW MEXICO

DYNEGY
MIDSTREAM SERVICE L.P.

SE/4, SW/4, SEC. 29, T-21-S,R-37-E

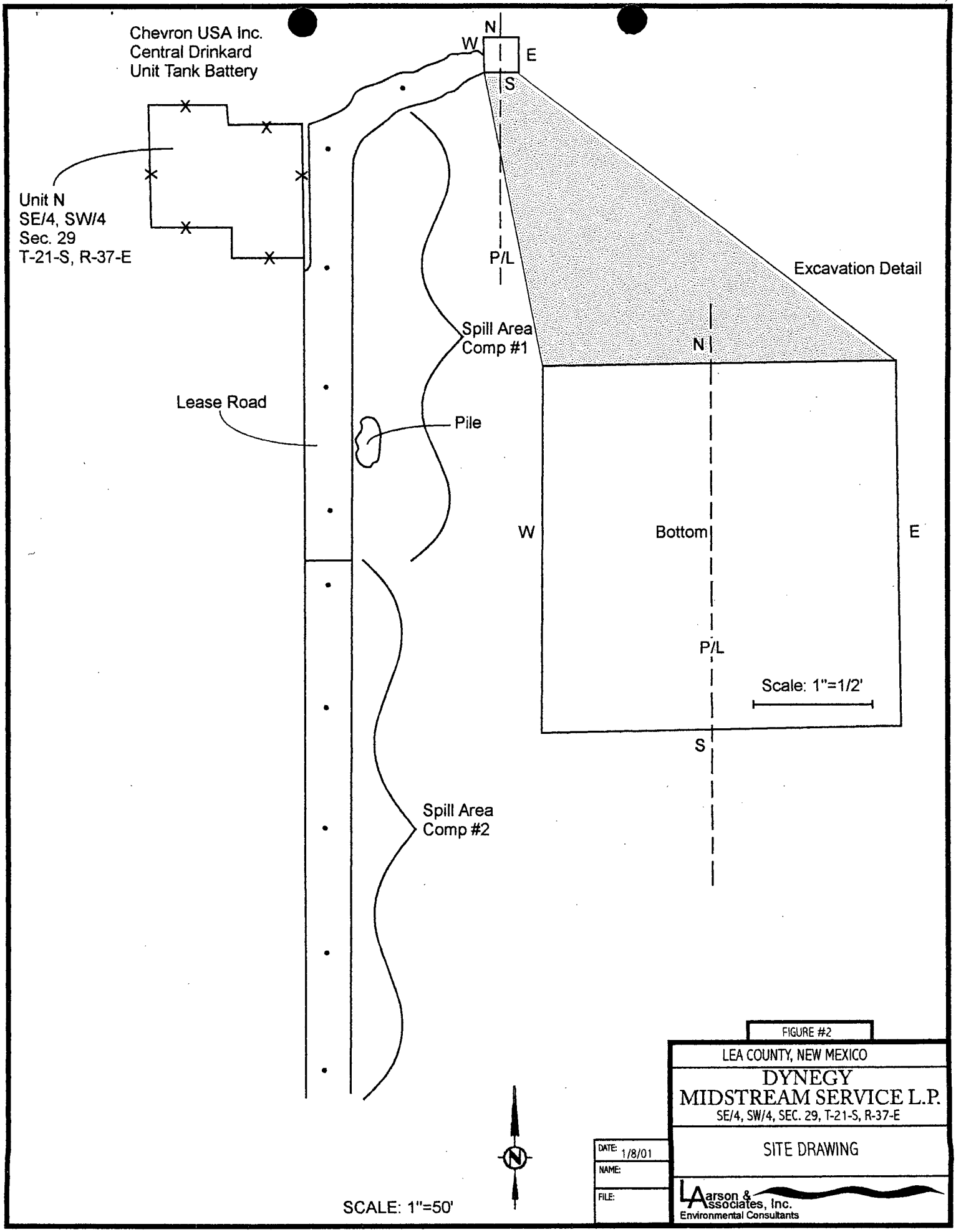
TOPOGRAPHIC MAP

DATE:	1/8/01
NAME:	
FILE:	

Larson & Associates, Inc.
Environmental Consultants

TAKEN FROM U.S.G.S.
7.5' QUADRANGLES
EUNICE, NEW MEXICO
1969

SCALE: 1"=2000'


Chevron USA Inc.
Central Drinkard
Unit Tank Battery
N
W
E
S
Unit N
SE/4, SW/4
Sec. 29
T-21-S, R-37-E
P/L
Excavation Detail
Spill Area
Comp #1
N
Lease Road
Pile
W
Bottom
E
P/L
Scale: 1"=1/2'
S
Spill Area
Comp #2
SCALE: 1"=50'
FIGURE #2
LEA COUNTY, NEW MEXICO
DYNEGY
MIDSTREAM SERVICE L.P.
SE/4, SW/4, SEC. 29, T-21-S, R-37-E
SITE DRAWING
DATE: 1/8/01
NAME:
FILE:
Larson & Associates, Inc.
Environmental Consultants

APPENDIX A

Laboratory Reports

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, Tx. 79710

Report Date: December 18, 2000

Order ID Number: A00120818

Project Number: 00-0120
Project Name: Dynegy Site 7
Project Location: Lea County, NM

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
160327	Comp. #1	Soil	12/6/00	16:20	12/8/00
160328	Comp #2	Soil	12/6/00	16:30	12/8/00
160329	North	Soil	12/6/00	16:40	12/8/00
160330	West	Soil	12/6/00	16:45	12/8/00
160331	East	Soil	12/6/00	16:50	12/8/00
160332	South	Soil	12/6/00	16:55	12/8/00
160333	Bottom	Soil	12/6/00	17:00	12/8/00
160334	Pile	Soil	12/6/00	17:05	12/8/00

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 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical and Quality Control Report

Sample: 160327 - Comp. #1

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC07411 Date Analyzed: 12/13/00
Analyst: JS Preparation Method: N/A Prep Batch: PB06466 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
CL		110	mg/Kg	1	0.50

Sample: 160327 - Comp. #1

Analysis: TPH DRO Analytical Method: Mod. 8015B QC Batch: QC07480 Date Analyzed: 12/17/00
Analyst: BP Preparation Method: 3550 B Prep Batch: PB06534 Date Prepared: 12/17/00

Param	Flag	Result	Units	Dilution	RDL
DRO		4050	mg/Kg	2	50

Sample: 160327 - Comp. #1

Analysis: TPH GRO Analytical Method: 8015B QC Batch: QC07354 Date Analyzed: 12/12/00
Analyst: RC Preparation Method: N/A Prep Batch: PB06409 Date Prepared: 12/12/00

Param	Flag	Result	Units	Dilution	RDL
GRO		73.2	mg/Kg	1	0.10

Sample: 160328 - Comp #2

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC07411 Date Analyzed: 12/13/00
Analyst: JS Preparation Method: N/A Prep Batch: PB06466 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
CL		80	mg/Kg	1	0.50

Sample: 160328 - Comp #2

Analysis: TPH DRO Analytical Method: Mod. 8015B QC Batch: QC07338 Date Analyzed: 12/11/00
Analyst: BP Preparation Method: 3550 B Prep Batch: PB06394 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
DRO		424	mg/Kg	1	50

Sample: 160328 - Comp #2

Analysis: TPH GRO Analytical Method: 8015B QC Batch: QC07354 Date Analyzed: 12/12/00
Analyst: RC Preparation Method: N/A Prep Batch: PB06409 Date Prepared: 12/12/00

Param	Flag	Result	Units	Dilution	RDL
GRO		20.2	mg/Kg	1	0.10

Sample: 160329 - North

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC07353	Date Analyzed:	12/12/00
Analyst:	RC	Preparation Method:	5035	Prep Batch:	PB06408	Date Prepared:	12/12/00

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.05	mg/Kg	50	0.001
Toluene		<0.05	mg/Kg	50	0.001
Ethylbenzene		<0.05	mg/Kg	50	0.001
M,P,O-Xylene		<0.05	mg/Kg	50	0.001
Total BTEX		<0.05	mg/Kg	50	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		4.85	mg/Kg	1	0.10	97	72 - 128
4-BFB		5	mg/Kg	1	0.10	100	72 - 128

Sample: 160329 - North

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC07411	Date Analyzed:	12/13/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB06466	Date Prepared:	12/11/00

Param	Flag	Result	Units	Dilution	RDL
CL		16	mg/Kg	1	0.50

Sample: 160329 - North

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC07338	Date Analyzed:	12/11/00
Analyst:	BP	Preparation Method:	3550 B	Prep Batch:	PB06394	Date Prepared:	12/11/00

Param	Flag	Result	Units	Dilution	RDL
DRO		149	mg/Kg	1	50

Sample: 160329 - North

Analysis:	TPH GRO	Analytical Method:	Mod. 602	QC Batch:	QC07354	Date Analyzed:	12/12/00
Analyst:	RC	Preparation Method:	N/A	Prep Batch:	PB06409	Date Prepared:	12/12/00

Param	Flag	Result	Units	Dilution	RDL
GRO		<5	mg/Kg	1	0.10

Sample: 160330 - West

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC07353	Date Analyzed:	12/12/00
Analyst:	RC	Preparation Method:	5035	Prep Batch:	PB06408	Date Prepared:	12/12/00

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.05	mg/Kg	50	0.001
Toluene		<0.05	mg/Kg	50	0.001
Ethylbenzene		<0.05	mg/Kg	50	0.001
M,P,O-Xylene		0.061	mg/Kg	50	0.001
Total BTEX		0.061	mg/Kg	50	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		4.72	mg/Kg	1	0.10	94	72 - 128
4-BFB		4.32	mg/Kg	1	0.10	86	72 - 128

Sample: 160330 - West

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC07411 Date Analyzed: 12/13/00
Analyst: JS Preparation Method: N/A Prep Batch: PB06466 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
CL		17	mg/Kg	1	0.50

Sample: 160330 - West

Analysis: TPH DRO Analytical Method: Mod. 8015B QC Batch: QC07338 Date Analyzed: 12/11/00
Analyst: BP Preparation Method: 3550 B Prep Batch: PB06394 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
DRO		211	mg/Kg	1	50

Sample: 160330 - West

Analysis: TPH GRO Analytical Method: Mod. 602 QC Batch: QC07354 Date Analyzed: 12/12/00
Analyst: RC Preparation Method: N/A Prep Batch: PB06409 Date Prepared: 12/12/00

Param	Flag	Result	Units	Dilution	RDL
GRO		<5	mg/Kg	1	0.10

Sample: 160331 - East

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC07411 Date Analyzed: 12/13/00
Analyst: JS Preparation Method: N/A Prep Batch: PB06466 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
CL		22	mg/Kg	1	0.50

Sample: 160331 - East

Analysis: TPH DRO Analytical Method: Mod. 8015B QC Batch: QC07338 Date Analyzed: 12/11/00
Analyst: BP Preparation Method: 3550 B Prep Batch: PB06394 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
DRO		<50	mg/Kg	1	50

Sample: 160331 - East

Analysis: TPH GRO Analytical Method: 8015B QC Batch: QC07354 Date Analyzed: 12/12/00
Analyst: RC Preparation Method: N/A Prep Batch: PB06409 Date Prepared: 12/12/00

Continued ...

... *Continued* Sample: 160331 Analysis: TPH GRO

Param	Flag	Result	Units	Dilution	RDL
GRO		<5	mg/Kg	1	0.10

Sample: 160332 - South

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC07353	Date Analyzed:	12/12/00
Analyst:	RC	Preparation Method:	5035	Prep Batch:	PB06408	Date Prepared:	12/12/00

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.055	mg/Kg	50	0.001
Toluene		1.76	mg/Kg	50	0.001
Ethylbenzene		0.477	mg/Kg	50	0.001
M,P,O-Xylene		7.89	mg/Kg	50	0.001
Total BTEX		10.2	mg/Kg	50	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		4.63	mg/Kg	1	0.10	93	72 - 128
4-BFB		5.85	mg/Kg	1	0.10	117	72 - 128

Sample: 160332 - South

Analysis:	Ion Chromatography (IC)	Analytical Method:	E 300.0	QC Batch:	QC07411	Date Analyzed:	12/13/00
Analyst:	JS	Preparation Method:	N/A	Prep Batch:	PB06466	Date Prepared:	12/11/00

Param	Flag	Result	Units	Dilution	RDL
CL		28	mg/Kg	1	0.50

Sample: 160332 - South

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC07338	Date Analyzed:	12/11/00
Analyst:	BP	Preparation Method:	3550 B	Prep Batch:	PB06394	Date Prepared:	12/11/00

Param	Flag	Result	Units	Dilution	RDL
DRO		884	mg/Kg	1	50

Sample: 160332 - South

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC07354	Date Analyzed:	12/12/00
Analyst:	RC	Preparation Method:	N/A	Prep Batch:	PB06409	Date Prepared:	12/12/00

Param	Flag	Result	Units	Dilution	RDL
GRO		113	mg/Kg	1	0.10

Sample: 160333 - Bottom

Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC07353	Date Analyzed:	12/12/00
Analyst:	RC	Preparation Method:	5035	Prep Batch:	PB06408	Date Prepared:	12/12/00

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.46	mg/Kg	50	0.001
Toluene		10.6	mg/Kg	50	0.001
Ethylbenzene		1.33	mg/Kg	50	0.001
M,P,O-Xylene		30.2	mg/Kg	50	0.001
Total BTEX		42.6	mg/Kg	50	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		4.45	mg/Kg	1	0.10	89	72 - 128
4-BFB	[1]	10.3	mg/Kg	1	0.10	103	72 - 128

Sample: 160333 - Bottom

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC07411 Date Analyzed: 12/13/00
Analyst: JS Preparation Method: N/A Prep Batch: PB06466 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
CL		430	mg/Kg	1	0.50

Sample: 160333 - Bottom

Analysis: TPH DRO Analytical Method: Mod. 8015B QC Batch: QC07338 Date Analyzed: 12/11/00
Analyst: BP Preparation Method: 3550 B Prep Batch: PB06394 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
DRO		1620	mg/Kg	1	50

Sample: 160333 - Bottom

Analysis: TPH GRO Analytical Method: 8015B QC Batch: QC07354 Date Analyzed: 12/12/00
Analyst: RC Preparation Method: N/A Prep Batch: PB06409 Date Prepared: 12/12/00

Param	Flag	Result	Units	Dilution	RDL
GRO		293	mg/Kg	1	0.10

Sample: 160334 - Pile

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC07353 Date Analyzed: 12/12/00
Analyst: RC Preparation Method: 5035 Prep Batch: PB06408 Date Prepared: 12/12/00

Param	Flag	Result	Units	Dilution	RDL
Benzene		0.137	mg/Kg	50	0.001
Toluene		7.42	mg/Kg	50	0.001
Ethylbenzene		2.22	mg/Kg	50	0.001
M,P,O-Xylene		32.7	mg/Kg	50	0.001
Total BTEX		42.4	mg/Kg	50	0.001

[1] Sample out of limits due to matrix.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		4.38	mg/Kg	1	0.10	87	72 - 128
4-BFB	[2]	7.11	mg/Kg	1	0.10	142	72 - 128

Sample: 160334 - Pile

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC07411 Date Analyzed: 12/13/00
Analyst: JS Preparation Method: N/A Prep Batch: PB06466 Date Prepared: 12/11/00

Param	Flag	Result	Units	Dilution	RDL
CL		83	mg/Kg	1	0.50

Sample: 160334 - Pile

Analysis: TPH DRO Analytical Method: Mod. 8015B QC Batch: QC07480 Date Analyzed: 12/17/00
Analyst: BP Preparation Method: 3550 B Prep Batch: PB06534 Date Prepared: 12/17/00

Param	Flag	Result	Units	Dilution	RDL
DRO		6990	mg/Kg	5	50

Sample: 160334 - Pile

Analysis: TPH GRO Analytical Method: 8015B QC Batch: QC07354 Date Analyzed: 12/12/00
Analyst: RC Preparation Method: N/A Prep Batch: PB06409 Date Prepared: 12/12/00

Param	Flag	Result	Units	Dilution	RDL
GRO		353	mg/Kg	1	0.10

Quality Control Report
Method Blank

Sample: Method Blank QCBatch: QC07338

Param	Flag	Results	Units	Reporting Limit
DRO		<50	mg/Kg	50

Sample: Method Blank QCBatch: QC07353

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.05	mg/Kg	0.001
Toluene		<0.05	mg/Kg	0.001
Ethylbenzene		<0.05	mg/Kg	0.001

Continued . . .

[2]Sample out of limits due to matrix.

... Continued

Param	Flag	Results	Units	Reporting Limit
M,P,O-Xylene		<0.05	mg/Kg	0.001
Total BTEX		<0.05	mg/Kg	0.001

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
TFT		4.95	mg/Kg	0.10	99	72 - 128
4-BFB		5.02	mg/Kg	0.10	100	72 - 128

Sample: Method Blank QCBatch: QC07354

Param	Flag	Results	Units	Reporting Limit
GRO		<5	mg/Kg	0.10
GRO		<5	mg/Kg	0.10

Sample: Method Blank QCBatch: QC07411

Param	Flag	Results	Units	Reporting Limit
CL		3.65	mg/Kg	0.50

Sample: Method Blank QCBatch: QC07480

Param	Flag	Results	Units	Reporting Limit
DRO		<50	mg/Kg	50

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Sample: LCS QC Batch: QC07338

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
DRO		296.000	mg/Kg	1	250	<50	118		70 - 130	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
n-Octane		235	mg/Kg	1	250	94	70 - 130

Sample: LCSD

QC Batch: QC07338

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
DRO		291.000	mg/Kg	1	250	<50	116	2	70 - 130	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
n-Octane		208	mg/Kg	1	250	83	70 - 130

Sample: LCS

QC Batch: QC07353

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
MTBE		4.88	mg/Kg	50	0.10	<0.05	97		80 - 120	20
Benzene		4.83	mg/Kg	50	0.10	<0.05	96		80 - 120	20
Toluene		5.03	mg/Kg	50	0.10	<0.05	100		80 - 120	20
Ethylbenzene		4.7	mg/Kg	50	0.10	<0.05	94		80 - 120	20
M,P,O-Xylene		13.8	mg/Kg	50	0.30	<0.05	92		80 - 120	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
TFT		5.04	mg/Kg	50	0.10	100	72 - 128
4-BFB		5.04	mg/Kg	50	0.10	100	72 - 128

Sample: LCSD

QC Batch: QC07353

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
MTBE		4.76	mg/Kg	50	0.10	<0.05	95	2	80 - 120	20
Benzene		4.8	mg/Kg	50	0.10	<0.05	96	1	80 - 120	20
Toluene		5	mg/Kg	50	0.10	<0.05	100	0	80 - 120	20
Ethylbenzene		4.72	mg/Kg	50	0.10	<0.05	94	0	80 - 120	20
M,P,O-Xylene		13.9	mg/Kg	50	0.30	<0.05	92	1	80 - 120	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
TFT		4.89	mg/Kg	50	0.10	97	72 - 128
4-BFB		5.05	mg/Kg	50	0.10	101	72 - 128

Sample: LCS

QC Batch: QC07354

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
GRO		0.963	mg/Kg	1	1	<5	96		70 - 130	20
GRO		0.963	mg/Kg	1	1	<5	96		70 - 130	20

Sample: LCSD QC Batch: QC07354

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
GRO		0.884	mg/Kg	1	1	<5	88	8	70 - 130	20
GRO		0.884	mg/Kg	1	1	<5	88	8	70 - 130	20

Sample: LCS QC Batch: QC07411

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL	[3]	15.26	mg/Kg	1	12.50	3.65	122		80 - 120	25

Sample: LCSD QC Batch: QC07411

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL	[4]	15.20	mg/Kg	1	12.50	3.65	121	0	80 - 120	25

Sample: LCS QC Batch: QC07480

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
DRO		242.000	mg/Kg	1	250	<50	96		70 - 130	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
n-Octane		245	mg/Kg	1	250	98	70 - 130

Sample: LCSD QC Batch: QC07480

[3]The matrix blank was not subtracted from the blank spikes. The correct %EA = 93.
[4]The matrix blank was not subtracted from the blank spikes. The correct %EA = 92.

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
DRO		242.000	mg/Kg	1	250	<50	96	0	70 - 130	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
n-Octane		236	mg/Kg	1	250	94	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Sample: MS

QC Batch: QC07338

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
DRO		300.000	mg/Kg	1	250	<50	120		70 - 130	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
n-Octane		237	mg/Kg	1	250	94	70 - 130

Sample: MSD

QC Batch: QC07338

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
DRO		290.000	mg/Kg	1	250	<50	116	3	70 - 130	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
n-Octane		239	mg/Kg	1	250	95	70 - 130

Sample: MS

QC Batch: QC07353

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Benzene		4.97	mg/Kg	50	0.10	<0.05	99	1	80 - 120	20
Toluene		5.17	mg/Kg	50	0.10	<0.05	103	0	80 - 120	20
Ethylbenzene		4.82	mg/Kg	50	0.10	<0.05	96	0	80 - 120	20
M,P,O-Xylene		14.3	mg/Kg	50	0.30	<0.05	95	1	80 - 120	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
TFT		5.02	mg/Kg	50	0.10	100	72 - 128
4-BFB		4.62	mg/Kg	50	0.10	92	72 - 128

Sample: MSD QC Batch: QC07353

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Benzene		4.91	mg/Kg	50	0.10	<0.05	98	1	80 - 120	20
Toluene		5.08	mg/Kg	50	0.10	<0.05	101	2	80 - 120	20
Ethylbenzene		4.85	mg/Kg	50	0.10	<0.05	97	1	80 - 120	20
M,P,O-Xylene		14.4	mg/Kg	50	0.30	<0.05	96	1	80 - 120	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
TFT		4.88	mg/Kg	50	0.10	97	72 - 128
4-BFB		4.72	mg/Kg	50	0.10	94	72 - 128

Sample: MS QC Batch: QC07411

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1025.44	mg/Kg	1	625	430	95		75 - 106	25

Sample: MSD QC Batch: QC07411

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		1026.57	mg/Kg	1	625	430	95	0	75 - 106	25

Quality Control Report
Continuing Calibration Verification Standards

Sample: CCV (1) QC Batch: QC07338

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	284.000	113	75 - 125	12/11/00
n-Octane		mg/Kg	250	243	97	75 - 125	12/11/00

Sample: CCV (2)

QC Batch: QC07338

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	269	107	75 - 125	12/11/00
n-Octane		mg/Kg	250	253	101	75 - 125	12/11/00

Sample: ICV (1)

QC Batch: QC07338

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	282.000	112	75 - 125	12/11/00
n-Octane		mg/Kg	250	227	90	75 - 125	12/11/00

Sample: CCV (1)

QC Batch: QC07353

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/Kg	0.10	0.09	90	80 - 120	12/12/00
Benzene		mg/Kg	0.10	0.097	97	80 - 120	12/12/00
Toluene		mg/Kg	0.10	0.1	100	80 - 120	12/12/00
Ethylbenzene		mg/Kg	0.10	0.093	93	80 - 120	12/12/00
M,P,O-Xylene		mg/Kg	0.30	0.272	90	80 - 120	12/12/00

Sample: CCV (2)

QC Batch: QC07353

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/Kg	0.10	0.09	90	80 - 120	12/12/00
Benzene		mg/Kg	0.10	0.096	96	80 - 120	12/12/00
Toluene		mg/Kg	0.10	0.1	100	80 - 120	12/12/00
Ethylbenzene		mg/Kg	0.10	0.092	92	80 - 120	12/12/00
M,P,O-Xylene		mg/Kg	0.30	0.266	88	80 - 120	12/12/00

Sample: ICV (1)

QC Batch: QC07353

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/Kg	0.10	0.098	98	80 - 120	12/12/00
Benzene		mg/Kg	0.10	0.096	96	80 - 120	12/12/00
Toluene		mg/Kg	0.10	0.101	101	80 - 120	12/12/00
Ethylbenzene		mg/Kg	0.10	0.101	101	80 - 120	12/12/00
M,P,O-Xylene		mg/Kg	0.30	0.29	96	80 - 120	12/12/00

Sample: CCV (1)

QC Batch: QC07354

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1	1.05	105	75 - 125	12/12/00
GRO		mg/Kg	1	1.05	105	75 - 125	12/12/00

Sample: CCV (2)

QC Batch: QC07354

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1	1.07	107	75 - 125	12/12/00
GRO		mg/Kg	1	1.07	107	75 - 125	12/12/00

Sample: ICV (1)

QC Batch: QC07354

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1	0.962	96	75 - 125	12/12/00
GRO		mg/Kg	1	0.962	96	75 - 125	12/12/00

Sample: CCV (1)

QC Batch: QC07411

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.45	98	80 - 120	12/13/00
CL		mg/L	12.50	11.84	94	80 - 120	12/13/00
Fluoride		mg/L	2.50	2.43	97	80 - 120	12/13/00
Nitrate-N		mg/L	2.50	2.41	96	80 - 120	12/13/00
Sulfate		mg/L	12.50	12.07	96	80 - 120	12/13/00

Sample: ICV (1)

QC Batch: QC07411

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.46	98	80 - 120	12/13/00
CL		mg/L	12.50	11.90	95	80 - 120	12/13/00
Fluoride		mg/L	2.50	2.46	98	80 - 120	12/13/00
Nitrate-N		mg/L	2.50	2.41	96	80 - 120	12/13/00
Sulfate		mg/L	12.50	12.05	96	80 - 120	12/13/00

Sample: CCV (1)

QC Batch: QC07480

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	300.000	120	75 - 125	12/17/00
n-Octane		mg/Kg	250	233	93	75 - 125	12/17/00

Sample: ICV (1)

QC Batch: QC07480

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	275.000	110	75 - 125	12/17/00
n-Octane		mg/Kg	250	252	100	75 - 125	12/17/00

6701 Aberdeen Avenue, Ste. 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

TraceAnalysis, Inc.

4725 Ripley Dr., Ste A
El Paso, Texas 79922-1028
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # A0012087B

Company Name: Larson and Associates, Inc. Phone #: (915) 687-0901

Address: (Street, City, Zip) 2501 LeaMont Rd., Midland, TX 79705 Fax #: (915) 687-0456

Contact Person: Mark Larson

Invoice to: (If different from above) P.O. Box 50685, Midland, TX 79710-0685

Project #: 00-0120 Project Name: Dynegy - Site #7

Project Location: Lea County, NM Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	NaHSO4	H2SO4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
160327	Comp. #1	1	250g	✓									✓		12/6/00	1620
28	Comp. #2	1		✓									✓			1630
29	North	1		✓									✓			1640
30	West	1		✓									✓			1645
31	East	1		✓									✓			1650
32	South	1		✓									✓			1655
33	Bottom	1		✓									✓			1700
34	Pile	1		✓									✓			1705

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH ~~418.1/TX1005~~ DRO + GRO (GH)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC-MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Chloride	Turn Around Time if different from standard	Hold
		✓												✓	✓		
		✓												✓	✓		
✓	✓	✓												✓	✓		
✓	✓	✓												✓	✓		
		✓												✓	✓		
✓	✓	✓												✓	✓		
✓	✓	✓												✓	✓		
✓	✓	✓												✓	✓		

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	12/7/00	800	Helen Shelton	12/7/00	0800
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Helen Shelton	12/7/00	1845			
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			Vicki Newell	12-8-00	10:00a

LAB USE ONLY

Intact Y / N

Headspace Y / N

Temp 3 °

Log-in Review

REMARKS:

12/18