



August 7, 2003

Mr. Steve Weathers
Duke Energy Field Services, LP
P. O. Box 5493
Denver, Colorado 80217

Re: Removal of Hydrocarbon-Impacted Soils from the C-23-2 (Site #3) site
Township 20 South, Range 36 East, Section 25, Unit B

Dear Mr. Weathers:

Trident Environmental (Trident) was retained by Duke Energy Field Services, LP. (DEFS) to oversee the removal of hydrocarbon-impacted soil from an area along a pipeline right-of-way operated by DEFS near Monument, New Mexico in Lea County. The site, C-23-2 (Site #3), is located in Section 25 (Unit B), Township 20 South, Range 36 East on property owned by Dale Cooper and managed by Clay Cooper. The location of the C-23-2 (Site #3) is shown on the topographic map in Attachment A. The work was conducted in accordance with the work plan submitted to the New Mexico Oil Conservation Division (OCD). Trident personnel periodically collected soil samples to characterize the extent of hydrocarbon impact and to verify when cleanup target levels had been achieved. This letter report describes the methods and results of the excavation, sampling, waste disposition, and backfilling operations for documentation that closure requirements have been satisfied.

Excavation and Sampling Procedures

Walton Construction Company, Inc. (Hobbs, New Mexico) performed the excavation work using one trackhoe, one dozer, one loader, and 12 yd³ dump trucks for earthmoving services. An area adjacent to two pipelines was excavated where Mr. Cooper identified indications of hydrocarbon-impacted soils. The 12" steel pipeline (C-23-2 line) was replaced with 10" poly line prior to (~1991?) excavation activities and remains in service. Indications of hydrocarbon-impacted soil were not observed below this line. Another 12" steel pipeline (F-3 line) located approximately 10 ft south of and parallel to the C-23-2 line was removed sometime prior to excavation activities. Excavation activities concentrated beneath the former F-3 line and adjacent to the south side of the F-3 line in an area where surface staining was observed. During excavation activities a 4-inch riser with external corrosion was found buried beneath where the F-3 pipeline was located. During excavation operations, subsurface soil samples were collected and submitted to an analytical laboratory to characterize the approximate lateral and vertical extent of hydrocarbon-impacted soil in each area. Samples were collected by Trident with stainless steel trowels. Grab samples were collected from the floor and walls (north, south, east, and west), as specified in the site data form in Attachment A. During the course of excavation activities, samples were also collected for headspace analysis using an organic vapor meter (OVM), which was calibrated to assume a benzene response factor. All soil sampling, headspace analysis, and laboratory analysis were performed in accordance with OCD "Guidelines for Remediation of Leaks, Spills, and Releases" (August 13, 1993). Excavation operations were completed when laboratory analysis of collected samples indicated the extent of hydrocarbon-impacted soils remaining in the excavation were below the following concentrations:

- 100 milligrams per kilogram (mg/kg) of total petroleum hydrocarbons (TPH),
- 10 mg/kg benzene,
- 50 mg/kg total benzene, toluene, ethylbenzene, and xylenes (BTEX)

Duke-229153
facility - FPAC0605426546

inspect - ePAC0605426650
incident - nPAC0605426690
application
PAC0605427110

Soil samples were submitted to Environmental Laboratory of Texas (Odessa, Texas) and analyzed for gas and diesel range organics (GRO and DRO) using EPA Method 8015 to determine TPH concentrations. BTEX analyses were conducted only for the soil samples with OVM or GRO concentrations exceeding 100 ppm.

Soil Stockpiling, Waste Disposition, and Backfilling

An effort to segregate clean versus impacted soil during excavation was made. Only hydrocarbon-impacted soil that exceeded 100 mg/kg GRO/DRO, 10 mg/kg benzene, and/or 50 mg/kg total BTEX was transported to the South Monument Landfarm. These target cleanup levels are based on the ranking criteria in the OCD "Guidelines for Remediation of Leaks, Spills, and Releases". A total ranking score of greater than 19 points was assumed since groundwater is less than 50 feet below ground surface based on landowner's claims and well records from the Office of the State Engineer.

Approximately 1,488 cubic yards of hydrocarbon-impacted soils were transported by Walton Construction to cell C-1 at the South Monument Landfarm, which is owned and operated by Ms. Kena Kay Cooper (OCD Rule 711 Permit Approval NM-01-0032). A completed *Release Notification and Corrective Action* (C-141) form is included in Attachment A.

Excavated soils below the remediation action levels and as agreed upon by Mr. Cooper were returned to the excavation after sampling and analysis verification. Also, native soil from adjacent sand dunes in the area was provided by Mr. Cooper and used as additional backfill in the excavation to restore the excavation to a level grade.

Results

At the completion of excavation activities all areas had petroleum hydrocarbon concentrations below the OCD standards listed above. Soil sample locations are depicted on the Site Map in Attachment A. A summary of the analytical results and photo documentation are also provided in Attachment A. Laboratory analytical reports, and chain-of-custody documentation for the samples collected are provided in Attachment B. Copies of the field logbook are in Attachment C.

Sincerely,



Gilbert J. Van Deventer, REM
Project Manager

Attachments

cc: Clay Cooper, landowner – Hobbs, NM



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

September 19, 2003

Duke Energy Field Services (DEFS)
Attn: Stephen Weathers
370 17th Street, Suite 900
Denver, CO 80202

Re: Remediation Closure Approval for Removal of Hydrocarbon-Impacted Soils
C-23-2, (sites: 1, 2, 3)
Site Location: UL-B, Sec 25-T20S-R36E
All Dated: August 7, 2003

Dear Mr. Weathers,

The remediation closures referenced above and submitted to the New Mexico Oil Conservation Division (OCD) by Trident Environmental for DEFS are hereby approved. According to the information provided no further action is required at this time.

Please be advised that OCD approval of this plan does not relieve DEFS of liability should their operations fail to adequately investigate and remediate contaminants that threaten ground water, surface water, human health or the environment. In addition, OCD approval does not relieve DEFS of responsibility for compliance with any other federal, state, or local laws and/or regulations.

If you have any questions or need assistance write or call: (505) 393-6161, ext. 113, or email: psheeley@state.nm.us

Sincerely,

Paul Sheeley-Environmental Engineer
Cc: Roger Anderson - Environmental Bureau Chief
Chris Williams - District I Supervisor
Bill Olson - Hydrologist
Larry Johnson - Environmental Ingr.

ATTACHMENT A

TOPOGRAPHIC MAP

SITE MAP

SITE DATA FORM

C-141 FORM

PHOTODOCUMENTATION



Site Data Form

Trident Technician: GJV Excavation Crew Names: Walton Construction Site ID: C-23-2 (Site #3)
 Site Location: Latitude 32° 33.072' N Longitude 103° 18.357' W County: Lea State: New Mexico
 Township 20 South Range 36 East Section 25 Unit B
 Begin Excavation (Date/Time) 03/04/03 Complete Excavation (Date/Time) 03/19/03

LAND USE: Residential Recreational Farm land
 (Check all that apply) Industrial School/Daycare Range land
 Oil & Gas Rural Other: _____

Depth to Groundwater: > 100 feet 50 - 99 < 50 feet
 Wellhead Protection Area: > 1,000 feet from a water source < 200 feet from private domestic water source
 Distance to Nearest Surface Water Body: > 1,000 feet 200 - 1,000 feet < 200 feet

SURFACE SOILS: Sand Gravel Silt
 Caliche Clay Other Silty clay at depth

EXCAVATION DIMENSIONS Length 60 - 120 feet Width 50 - 75 feet Average Depth 3 - 25 feet Maximum Depth 25 feet

VOLUME EXCAVATED: ~2,000 yd³ **VOLUME HAULED TO LANDFARM:** 1,488 yd³

SUMMARY OF ANALYTICAL RESULTS

Sample ID (Depth)	Sample Location	OVM (ppm)	GRO (mg/kg)	DRO (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)
A (10')	Floor	108	565	3610	<0.025	0.037	0.084	0.432
A (20')	Floor	8.4	< 10	< 10	NA	NA	NA	NA
B (5')	Below Riser	6	<100	4220	NA	NA	NA	NA
C (10')	West Wall	77	38.1	684	NA	NA	NA	NA
D (10')	North Wall	42	140	2950	NA	NA	NA	NA
E (10')	South Wall	114	810	6990	<0.025	0.028	0.092	0.501
F (10')	East Wall	5	< 10	< 10	NA	NA	NA	NA
G (8')	Below Riser	2.0	< 10	< 10	NA	NA	NA	NA
H (12')	North Wall	0.7	< 10	< 10	NA	NA	NA	NA
I (12')	South Wall	2.1	< 10	< 10	NA	NA	NA	NA
J (12')	West Wall	2.6	< 10	< 10	NA	NA	NA	NA
Backfill		0.2	< 10	< 10	NA	NA	NA	NA
Exc. Soil		53	622	5970	NA	NA	NA	NA

Comments: The areas beyond samples A (10'), B (5'), C (10'), D (10'), and E (10') were excavated further until concentrations were below OCD guidelines (<100 mg/kg) as confirmed by subsequent samples A (20'), G (8'), J (12'), H (12'), and I (12'), respectively.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-141
Revised March 17, 1999

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

Initial Report Final Report

Name of Company Duke Energy Field Services Inc.	Contact Mr. Steve Weathers
Address P. O. Box 5493, Denver, Colorado 80217	Telephone No. (303) 605-1718
Facility Name Site Name: C-23-2 (Site #3)	Facility Type Natural Gas Pipeline
Surface Owner Dale Cooper	Mineral Owner Unknown
Lease No.	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the North/South Line	Feet from the East/West Line	County
B	25	20S	36E	32° 33.077' N	103° 18.357' W	Lea

NATURE OF RELEASE

Type of Release Condensate	Volume of Release Unknown	Volume Recovered 1,488 yd ³ soil removed
Source of Release Pipeline	Date and Hour of Occurrence Unknown	Date and Hour of Discovery Unknown
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? Larry Johnson, NMOCD District 1	
By Whom? Steve Weathers	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully:

N/A

Describe Cause of Problem and Remedial Action Taken:

Historical condensate release caused by subsurface external corrosion. The 12" steel pipeline (C-23-2 line) was replaced with 10" poly line prior (~1991?) to excavation activities and remains in service. Another 12" steel pipeline (F-3 line) located approximately 10 ft south of and parallel to the C-23-2 line was removed sometime prior to excavation activities. During excavation activities a 4-inch riser with external corrosion was found buried beneath where the F-3 pipeline was located. Removal of impacted soil was requested by landowner (Clay Cooper).

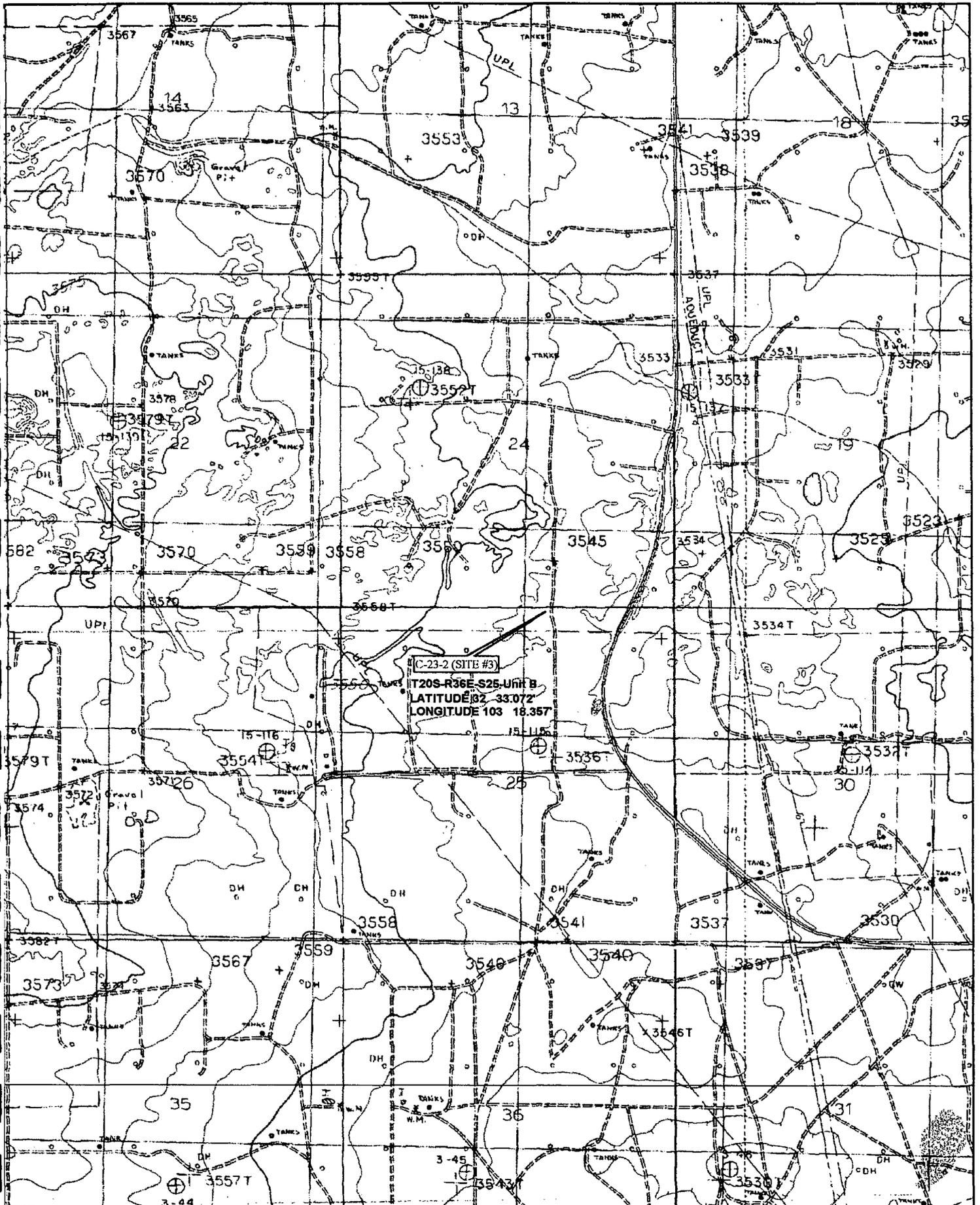
Describe Area Affected and Cleanup Action Taken:

On 03/04/03 over-excavation was initiated. Excavation activities concentrated beneath the former F-3 line and adjacent to the south side of the F-3 line in an area where surface staining was observed. An area approx. 3 ft to 6 ft deep and 75 ft wide by 120 ft long was excavated. Within this area, a deeper excavation measured approx. 25 ft deep and 50 ft wide by 60 ft long. Excavation continued until 03/19/03. Approximately 1,488 cu yds of soil was transported to cell C-1 at the South Monument Land Farm. Backfilling of excavation was completed by 03/28/03. Closure report, analytical results, photographs, and site map are attached.

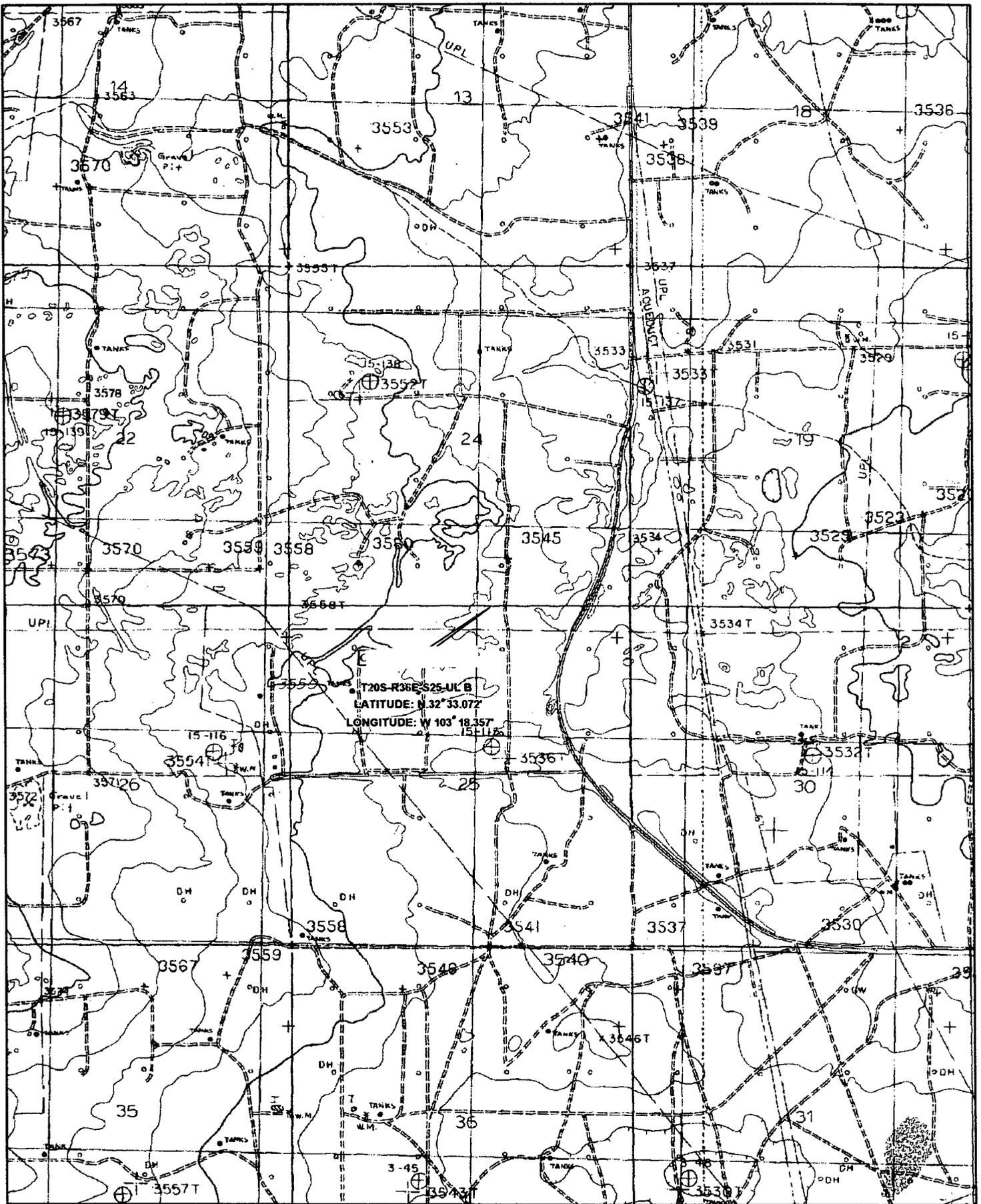
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger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

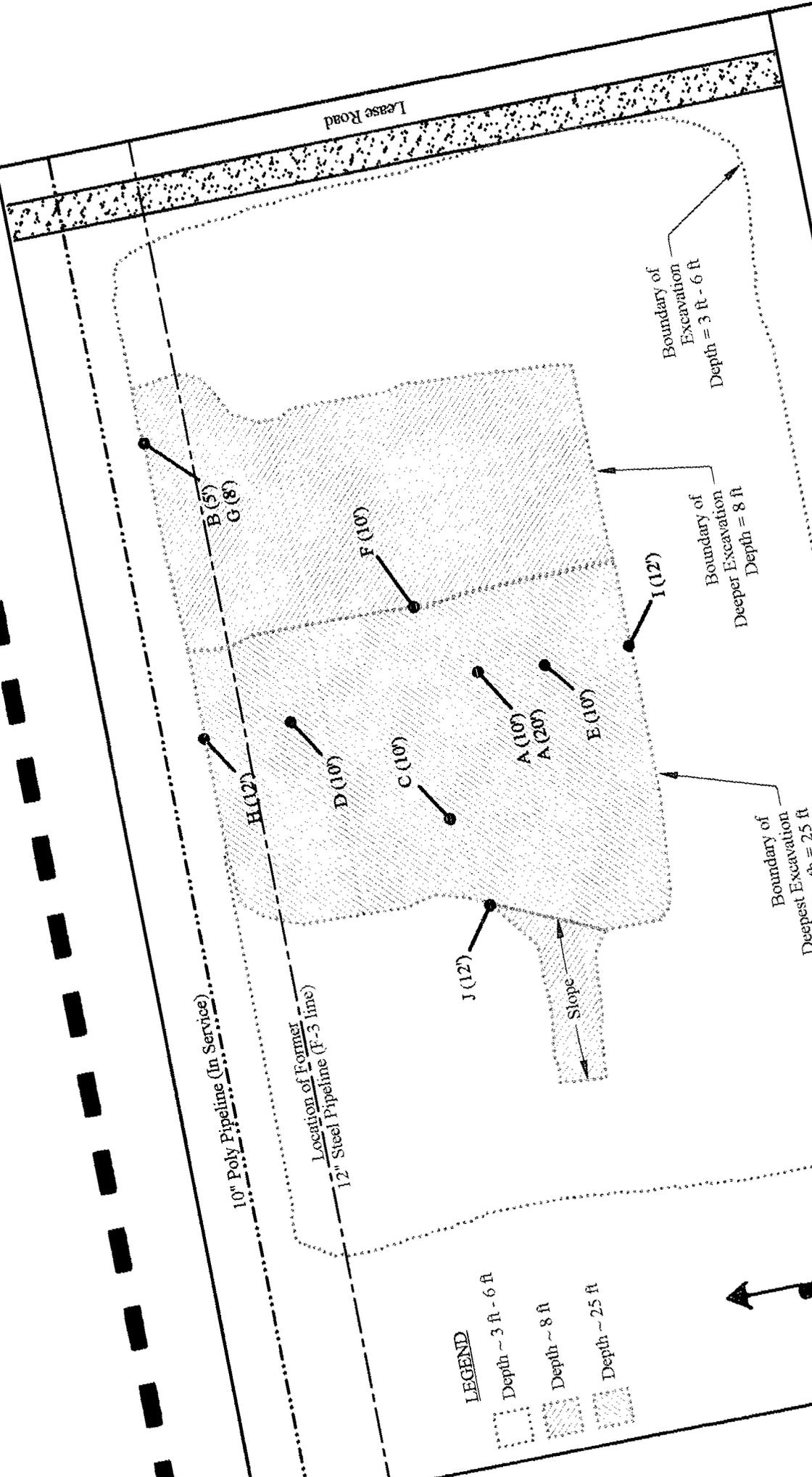
OIL CONSERVATION DIVISION

Signature:	Approved by District Supervisor:		
Printed Name: Stephen Weathers			
Title: Environmental Specialist	Approval Date:	Expiration Date:	
Date:	Phone: (303) 605-1718	Conditions of Approval:	Attached <input type="checkbox"/>



C-23-2 (SITE #3)
 T20S-R36E-S25-UNIT B
 LATITUDE 32 33.072
 LONGITUDE 103 18.357



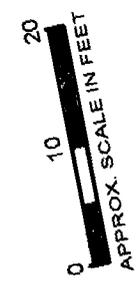


SITE MAP

C-23-2 (Site #3)

LEGEND

- Depth ~ 3 ft - 6 ft
- ▨ Depth ~ 8 ft
- ▩ Depth ~ 25 ft



CLIENT NAME: DUKE ENERGY FIELD SERVICES LP

REVISION NO.: 1

FILENAME: SITE3.TCW

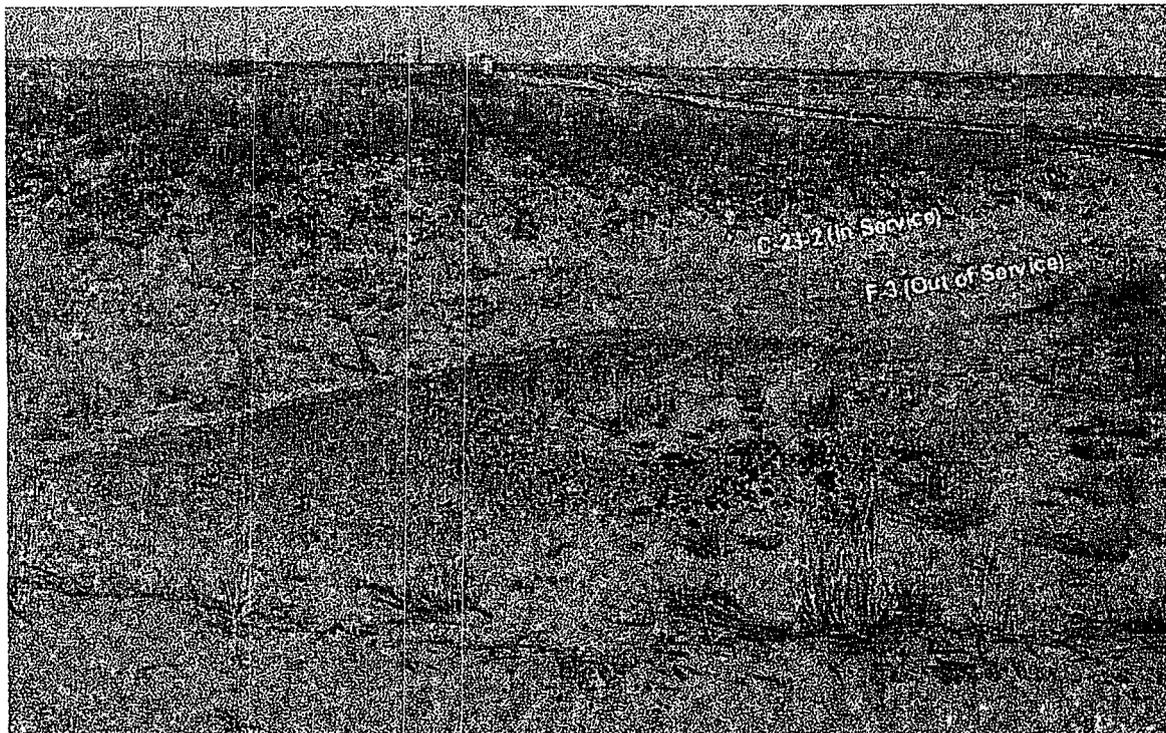
DATE: 03/19/03

DRAWN BY: GJV

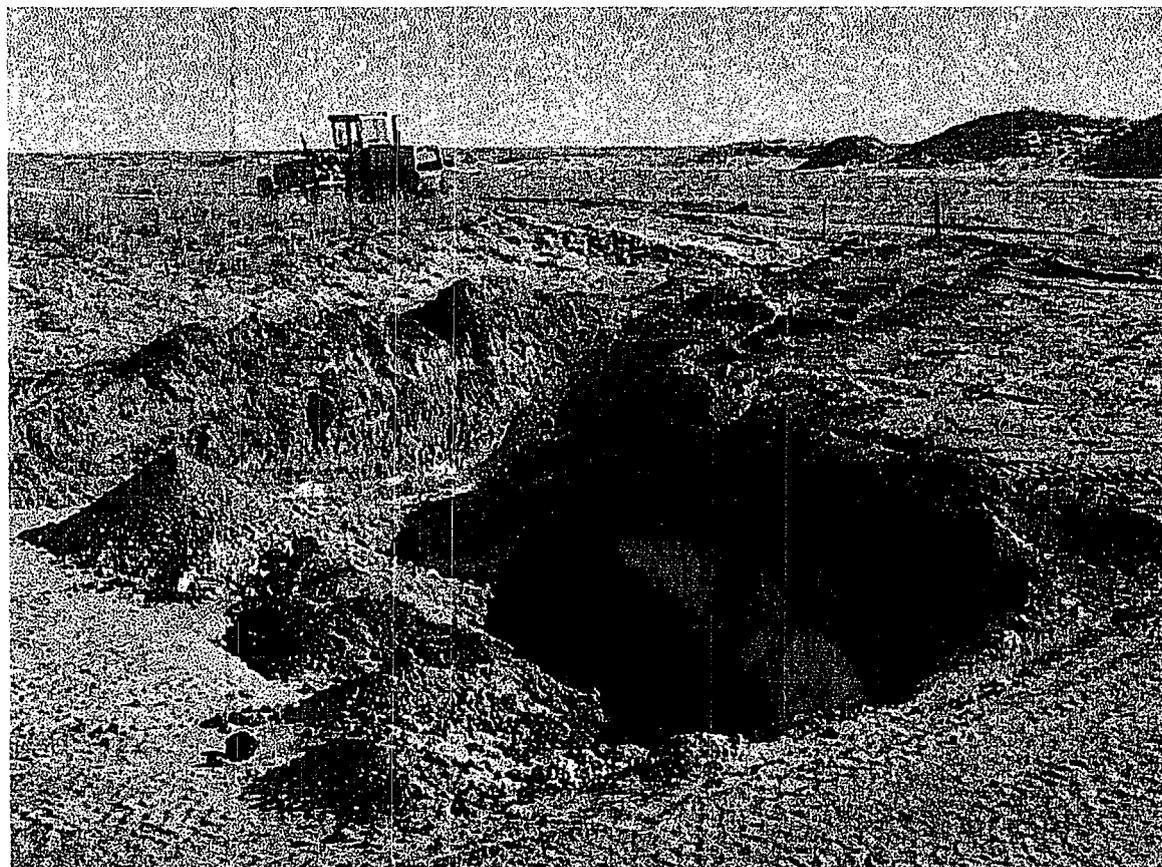
CHECKED BY: DIL

SCALE: 1 INCH = 16 FT

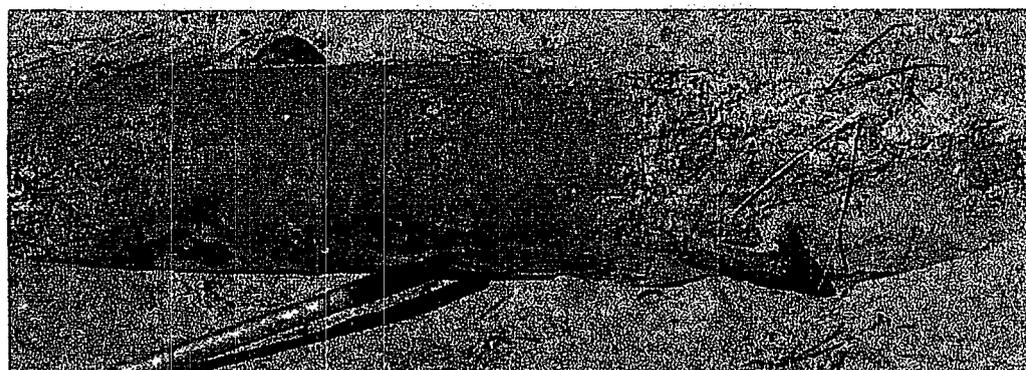




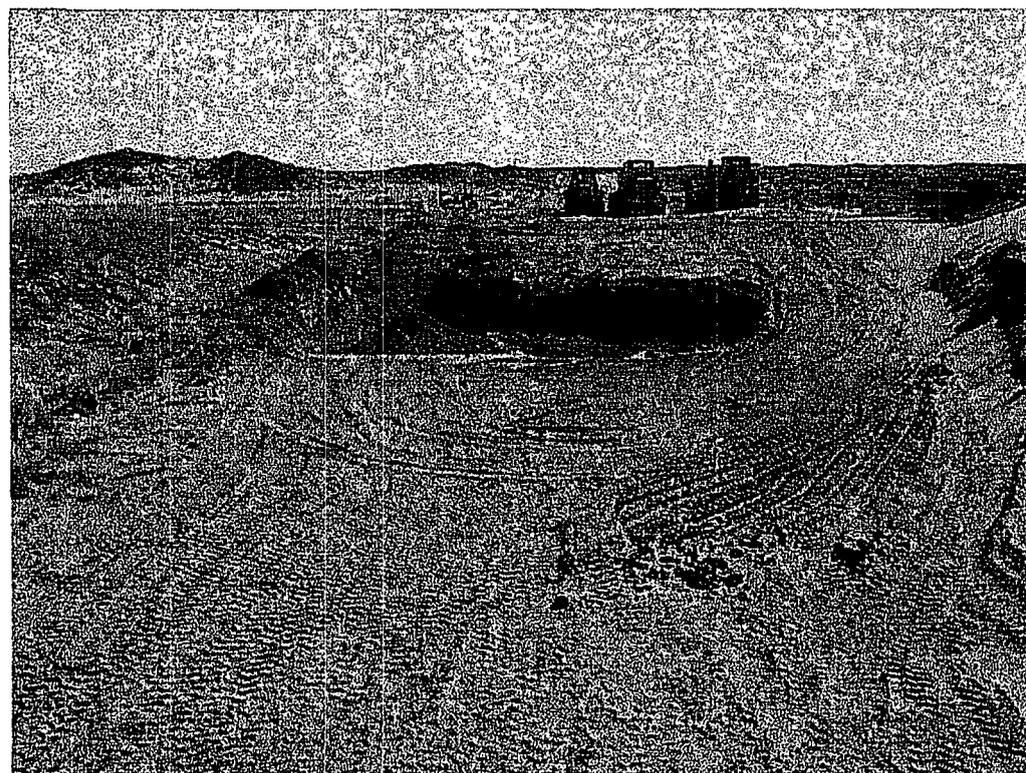
1 View facing northeast showing hydrocarbon-stained soil (foreground) and C-23-2 (in service) and F-3 (out of service) pipeline ROW prior to excavation.



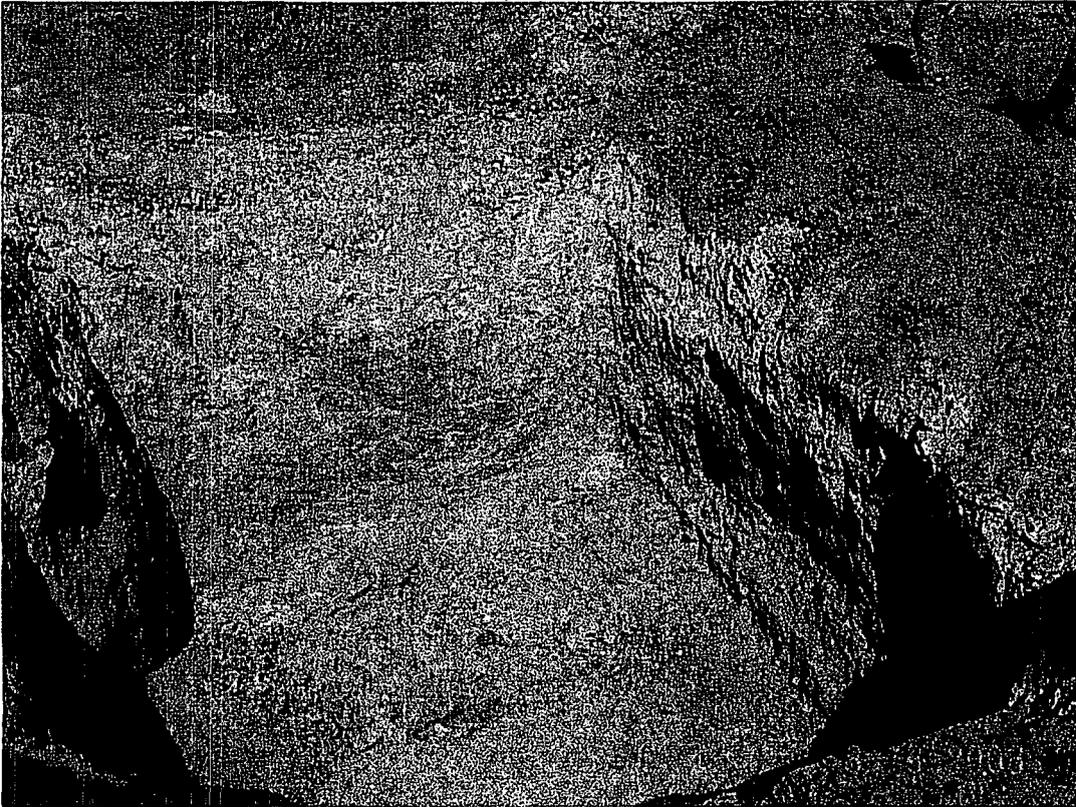
2 View facing northeast showing floor of excavation at 10 ft below surface. Sample A (10') was taken from floor (bottom of photo) and indicated a GRO = 565 mg/kg and DRO = 3,610 mg/kg.



3 Views showing external corrosion around 4" riser, which was found in the excavation already removed from the 10" F-3 pipeline. Shovel handle points to 1/4" hole in 10" pipeline (03-06-03).



4 View facing east parallel to pipeline ROW showing status of excavation on 03-06-03. Left side of main excavation is adjacent to the C-23-2 pipeline, which is currently in service. The former F-3 line located 10 feet south of the C-23-2 pipeline has been removed.



5 View facing northeast showing floor (20 ft below surface) and the north and east walls at completion of excavation activities.



6 View facing southwest showing floor (20 ft below surface) and the south and west walls at completion of excavation activities.

ATTACHMENT B

LABORATORY ANALYTICAL REPORTS

AND

CHAIN-OF-CUSTODY DOCUMENTATION

ANALYTICAL REPORT

Prepared for:

GILBERT VAN DEVENTER
TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Project: C-23 (Site #3)

PO#: V-106

Order#: G0305895

Report Date: 03/10/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708
682-0727

Order#: G0305895
Project: V-106
Project Name: C-23 (Site #3)
Location: C-23 (Site #3)

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0305895-01	A (10')	SOIL	3/6/03 9:00	3/6/03 14:10	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M 8021B/5030 BTEX	Rejected: No		Temp: 8.0 C		
0305895-02	B (5')	SOIL	3/6/03 9:05	3/6/03 14:10	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 8.0 C		
0305895-03	Backfill	SOIL	3/6/03 9:10	3/6/03 14:10	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 8.0 C		
0305895-04	Exc. Soil-1	SOIL	3/6/03 9:15	3/6/03 14:10	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 8.0 C		

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
 TRIDENT ENVIRONMENTAL
 P.O. BOX 7624
 MIDLAND, TX 79708

Order#: G0305895
 Project: V-106
 Project Name: C-23 (Site #3)
 Location: C-23 (Site #3)

Lab ID: 0305895-01
 Sample ID: A (10')

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8015M
		3/7/03	1	5		

Parameter	Result mg/kg	RL
GRO, C6-C12	565	50.0
DRO, >C12-C35	3610	50.0
TOTAL, C6-C35	4175	50.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	24%	70	130
1-Chlorooctadecane	21%	70	130

8021B/5030 BTEX

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8021B
0004866-02		3/8/03 15:54	1	25		

Parameter	Result mg/kg	RL
Benzene	<0.025	0.025
Toluene	0.037	0.025
Ethylbenzene	0.084	0.025
p/m-Xylene	0.355	0.025
o-Xylene	0.077	0.025

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	83%	80	120
Bromofluorobenzene	103%	80	120

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
 TRIDENT ENVIRONMENTAL
 P.O. BOX 7624
 MIDLAND, TX 79708

Order#: G0305895
 Project: V-106
 Project Name: C-23 (Site #3)
 Location: C-23 (Site #3)

Lab ID: 0305895-02
 Sample ID: B (5')

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8015M
		3/7/03	1	10		

Parameter	Result mg/kg	RL
GRO, C6-C12	<100	100
DRO, >C12-C35	4220	100
TOTAL, C6-C35	4220	100

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	9%	70	130
1-Chlorooctadecane	10%	70	130

Lab ID: 0305895-03
 Sample ID: Backfill

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8015M
		3/7/03	1	1		

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	<10.0	10.0
TOTAL, C6-C35	<10.0	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	90%	70	130
1-Chlorooctadecane	84%	70	130

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
 TRIDENT ENVIRONMENTAL
 P.O. BOX 7624
 MIDLAND, TX 79708

Order#: G0305895
 Project: V-106
 Project Name: C-23 (Site #3)
 Location: C-23 (Site #3)

Lab ID: 0305895-04
 Sample ID: Exc. Soil-1

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8015M
		3/7/03	1	10		

Parameter	Result mg/kg	RL
GRO, C6-C12	622	100
DRO, >C12-C35	5970	100
TOTAL, C6-C35	6592	100

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	10%	70	130
1-Chlorooctadecane	9%	70	130

Approval: *Raland K Tuttle 3-11-03*
 Raland K. Tuttle, Lab Director, QA Officer Date
 Celey D. Keene, Org. Tech. Director
 Jeanne McMurrey, Inorg. Tech. Director
 Sandra Biezugbe, Lab Tech.
 Sara Molina, Lab Tech.

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0305895

BLANK		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	SOIL	0004879-02			<10.0		
CONTROL		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	SOIL	0004879-03		952	927	97.4%	
CONTROL DUP		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	SOIL	0004879-04		952	919	96.5%	0.9%
SRM		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	SOIL	0004879-05		1000	805	80.5%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0305895

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0004866-02			<0.025		
Toluene-mg/kg		0004866-02			<0.025		
Ethylbenzene-mg/kg		0004866-02			<0.025		
p/m-Xylene-mg/kg		0004866-02			<0.025		
o-Xylene-mg/kg		0004866-02			<0.025		
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0305915-05	0	2.5	2.67	106.8%	
Toluene-mg/kg		0305915-05	0.028	2.5	2.68	106.1%	
Ethylbenzene-mg/kg		0305915-05	0.042	2.5	2.82	111.1%	
p/m-Xylene-mg/kg		0305915-05	0.179	5	5.82	112.8%	
o-Xylene-mg/kg		0305915-05	0	2.5	2.90	116.%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0305915-05	0	2.5	2.74	109.6%	2.6%
Toluene-mg/kg		0305915-05	0.028	2.5	2.76	109.3%	2.9%
Ethylbenzene-mg/kg		0305915-05	0.042	2.5	2.72	107.1%	3.6%
p/m-Xylene-mg/kg		0305915-05	0.179	5	5.87	113.8%	0.9%
o-Xylene-mg/kg		0305915-05	0	2.5	2.88	115.2%	0.7%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0004866-05		0.1	0.106	106.%	
Toluene-mg/kg		0004866-05		0.1	0.113	113.%	
Ethylbenzene-mg/kg		0004866-05		0.1	0.113	113.%	
p/m-Xylene-mg/kg		0004866-05		0.2	0.224	112.%	
o-Xylene-mg/kg		0004866-05		0.1	0.108	108.%	

CASE NARRATIVE

ENVIRONMENTAL LAB OF TEXAS

Prepared for:

TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Order#: G0305895

Project: C-23 (Site #3)

The following samples were received as indicated below and on the attached Chain of Custody record. All analyses were performed within the holding time and with acceptable quality control results unless otherwise noted.

SAMPLE ID	LAB ID	MATRIX	Date Collected	Date Received
A (10')	0305895-01	SOIL	03/06/2003	03/06/2003
B (5')	0305895-02	SOIL	03/06/2003	03/06/2003
Backfill	0305895-03	SOIL	03/06/2003	03/06/2003
Exc. Soil-1	0305895-04	SOIL	03/06/2003	03/06/2003

**Surrogate recoveries on the 8015M are outside the control limits because they were diluted out.
(0305895-01,02,04)**

The enclosed results of analyses are representative of the samples as received by the laboratory. Environmental Lab of Texas makes no representations or certifications as to the methods of sample collection, sample identification, or transportation handling procedures used prior to our receipt of samples. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved By:

Raland K. Juel
Environmental Lab of Texas I, Ltd.

Date:

3-11-03

ANALYTICAL REPORT

Prepared for:

GILBERT VAN DEVENTER
TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Project: C-23 (#3)
PO#:
Order#: G0305973
Report Date: 03/17/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708
682-0727

Order#: G0305973
Project: V106
Project Name: C-23 (#3)
Location: DEFS

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0305973-01	A (20')	SOIL	3/13/03 14:05	3/13/03 17:40	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 3.0 C		
0305973-02	C (10')	SOIL	3/13/03 14:15	3/13/03 17:40	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 3.0 C		
0305973-03	D (10')	SOIL	3/13/03 14:20	3/13/03 17:40	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 3.0 C		
0305973-04	E (10')	SOIL	3/13/03 14:25	3/13/03 17:40	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M 8021B/5030 BTEX	Rejected: No		Temp: 3.0 C		
0305973-05	F (10')	SOIL	3/13/03 14:30	3/13/03 17:40	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 3.0 C		

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Order#: G0305973
Project: V106
Project Name: C-23 (#3)
Location: DEFS

Lab ID: 0305973-01
Sample ID: A (20')

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
<u>Blank</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Amount</u>	<u>Factor</u>		
		3/14/03	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	<10.0	10.0
TOTAL, C6-C35	<10.0	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	94%	70	130
1-Chlorooctadecane	84%	70	130

Lab ID: 0305973-02
Sample ID: C (10')

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
<u>Blank</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Amount</u>	<u>Factor</u>		
		3/14/03	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	38.1	10.0
DRO, >C12-C35	684	10.0
TOTAL, C6-C35	722	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	94%	70	130
1-Chlorooctadecane	91%	70	130

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
 TRIDENT ENVIRONMENTAL
 P.O. BOX 7624
 MIDLAND, TX 79708

Order#: G0305973
 Project: V106
 Project Name: C-23 (#3)
 Location: DEFS

Lab ID: 0305973-03
 Sample ID: D (10')

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8015M
		3/14/03	1	1		

Parameter	Result mg/kg	RL
GRO, C6-C12	140	10.0
DRO, >C12-C35	2,950	10.0
TOTAL, C6-C35	3,090	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	101%	70	130
1-Chlorooctadecane	110%	70	130

Lab ID: 0305973-04
 Sample ID: E (10')

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8015M
		3/14/03	1	1		

Parameter	Result mg/kg	RL
GRO, C6-C12	810	10.0
DRO, >C12-C35	6,990	10.0
TOTAL, C6-C35	7,800	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	97%	70	130
1-Chlorooctadecane	103%	70	130

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

Page 2 of 3

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Order#: G0305973
Project: V106
Project Name: C-23 (#3)
Location: DEFS

Lab ID: 0305973-04

Sample ID: E (10')

8021B/5030 BTEX

Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u>	Sample <u>Amount</u>	Dilution <u>Factor</u>	<u>Analyst</u>	<u>Method</u>
0004962-02		3/17/03 11:00	1	25	CK	8021B

Parameter	Result mg/kg	RL
Benzene	<0.025	0.025
Toluene	0.028	0.025
Ethylbenzene	0.092	0.025
p/m-Xylene	0.343	0.025
o-Xylene	0.158	0.025

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	88%	80	120
Bromofluorobenzene	120%	80	120

Lab ID: 0305973-05

Sample ID: F (10')

8015M

Method <u>Blank</u>	Date <u>Prepared</u>	Date <u>Analyzed</u>	Sample <u>Amount</u>	Dilution <u>Factor</u>	<u>Analyst</u>	<u>Method</u>
		3/14/03	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	<10.0	10.0
TOTAL, C6-C35	<10.0	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	100%	70	130
1-Chlorooctadecane	103%	70	130

Approval: *Raland K Tuttle* 3-17-03
Raland K. Tuttle, Lab Director, QA Officer Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

Page 3 of 3

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0305973

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0004948-02			<10.0		
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0305973-05	0	952	931	97.8%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0305973-05	0	952	891	93.6%	4.4%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0004948-05		1000	881	88.1%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0305973

BLANK		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
SOIL							
	Benzene-mg/kg	0004962-02			<0.025		
	Toluene-mg/kg	0004962-02			<0.025		
	Ethylbenzene-mg/kg	0004962-02			<0.025		
	p/m-Xylene-mg/kg	0004962-02			<0.025		
	o-Xylene-mg/kg	0004962-02			<0.025		
CONTROL		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
SOIL							
	Benzene-mg/kg	0004962-03		0.1	0.099	99.%	
	Toluene-mg/kg	0004962-03		0.1	0.103	103.%	
	Ethylbenzene-mg/kg	0004962-03		0.1	0.106	106.%	
	p/m-Xylene-mg/kg	0004962-03		0.2	0.222	111.%	
	o-Xylene-mg/kg	0004962-03		0.1	0.113	113.%	
CONTROL DUP		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
SOIL							
	Benzene-mg/kg	0004962-04		0.1	0.094	94.%	5.2%
	Toluene-mg/kg	0004962-04		0.1	0.097	97.%	6.%
	Ethylbenzene-mg/kg	0004962-04		0.1	0.099	99.%	6.8%
	p/m-Xylene-mg/kg	0004962-04		0.2	0.206	103.%	7.5%
	o-Xylene-mg/kg	0004962-04		0.1	0.106	106.%	6.4%
SRM		LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
SOIL							
	Benzene-mg/kg	0004962-05		0.1	0.103	103.%	
	Toluene-mg/kg	0004962-05		0.1	0.108	108.%	
	Ethylbenzene-mg/kg	0004962-05		0.1	0.108	108.%	
	p/m-Xylene-mg/kg	0004962-05		0.2	0.223	111.5%	
	o-Xylene-mg/kg	0004962-05		0.1	0.110	110.%	

ANALYTICAL REPORT

Prepared for:

GILBERT VAN DEVENTER
TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708

Project: C-23 (Site #3)

PO#: V-106

Order#: G0306023

Report Date: 03/21/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

TRIDENT ENVIRONMENTAL
P.O. BOX 7624
MIDLAND, TX 79708
682-0727

Order#: G0306023
Project: V-106
Project Name: C-23 (Site #3)
Location: C-23 (Site #3)

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u> <u>Collected</u>	<u>Date / Time</u> <u>Received</u>	<u>Container</u>	<u>Preservative</u>
0306023-01	G (8')	SOIL	3/19/03 9:40	3/19/03 15:15	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 2.5 C		
0306023-02	H (12')	SOIL	3/19/03 9:45	3/19/03 15:15	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 2.5 C		
0306023-03	I (12')	SOIL	3/19/03 9:50	3/19/03 15:15	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 2.5 C		
0306023-04	J (12')	SOIL	3/19/03 9:55	3/19/03 15:15	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M	Rejected: No		Temp: 2.5 C		

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

GILBERT VAN DEVENTER
 TRIDENT ENVIRONMENTAL
 P.O. BOX 7624
 MIDLAND, TX 79708

Order#: G0306023
 Project: V-106
 Project Name: C-23 (Site #3)
 Location: C-23 (Site #3)

Lab ID: 0306023-01
 Sample ID: G (8')

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8015M
		3/21/03	1	1		

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	<10.0	10.0
TOTAL, C6-C35	<10.0	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	86%	70	130
1-Chlorooctadecane	84%	70	130

Lab ID: 0306023-02
 Sample ID: H (12')

8015M

<u>Method</u>	<u>Date</u>	<u>Date</u>	<u>Sample</u>	<u>Dilution</u>	<u>Analyst</u>	<u>Method</u>
Blank	Prepared	Analyzed	Amount	Factor	CK	8015M
		3/21/03	1	1		

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	<10.0	10.0
TOTAL, C6-C35	<10.0	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	84%	70	130
1-Chlorooctadecane	77%	70	130

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0306023

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0005007-02			<10.0		
CONTROL	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0005007-03		952	924	97.1%	
CONTROL DUP	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0005007-04		952	914	96.0%	1.1%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0005007-05		1000	885	88.5%	

ATTACHMENT C

FIELD BOOK NOTES

3-6-05 C-23(H3)

0700-0830 Drive Midland to site (100 mi.)

Objective: Collect samples from current excavation at C-23 (H3) site. Map & take photos.

Equipment: Sampling equip, PPE, camera, OVM Personnel: Gil Van Derentor (Trident)

Walter Const. crew not on site. Roy called Es-saii he couldn't make it while I was on my way to the site (Andrews). He had to take his father to hospital for surgery. Roy said there was a rise in the old pipeline with a hole beneath it.

onsite at 0830

OVM Calibration 96 ppm before sampling
" " 101 ppm after sampling

Sample ID	Time	OVM
A (10')	0700	108 ppm
B (5')	0705	6 ppm
Backfill	0710	0.2 ppm
Exc. Soil	0715	53 ppm

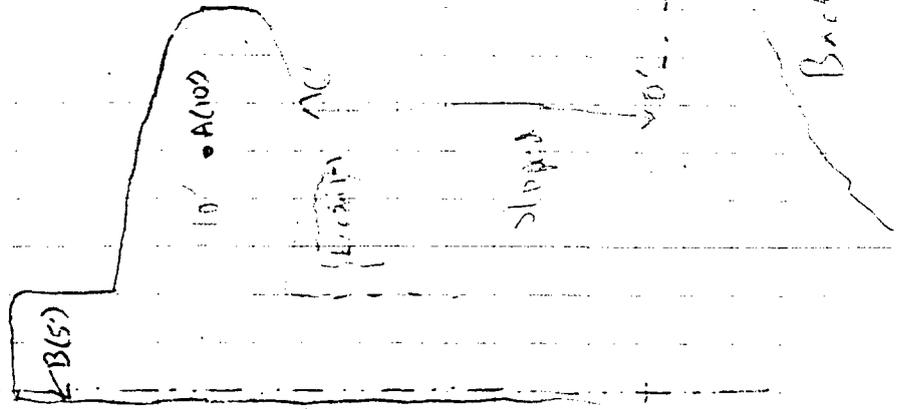
Left site at 1000 hrs

3-6-03 C-23(H3)

← N ←

Caltech Lease Road

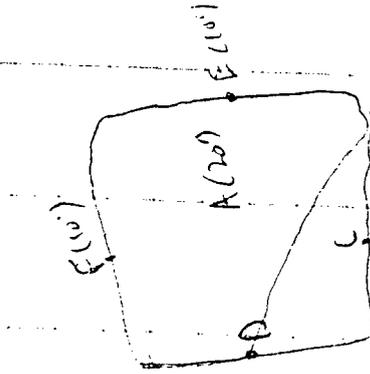
19' Scale



3-13-03

Sample (depth)/Description	Time	OVN
A (20') S. floor	1405	8.4
D (20') N. floor	1410	2
C (10') W. wall	1415	77
E (10') N. wall	1420	42
F (10') S. wall	1425	114
B (10') E. wall	1430	5

OVN (wh) = 97 ppm (before sampling) & 95 ppm (after sampling)



3-17-03

Per Boy

- Moisture ~ 3-6% on the west wall
- ~ 5% on very SW corner
- Nothing done on north wall
- ~ 5% on south wall

Found a drip pot w/ 2" rise in between the two lines.

One end of drip with collar has a 2 1/2" hole in there.

Results (vertical) from lab:

Sample 10 (depth) OVM	GR0	DR0
A(20') S. floor	8.4	210
C(10') W. wall	77	684 381
D(10') N. wall	42	140
E(10') S. wall	114	2950
F(10') E. wall	5	810
		210

BTEX	OVN	B	T	E	X _{OVN}
E(10') S. wall	114	0.0025	0.028	0.042	0.343
					0.152

3-19-03 C-23 (#3)

0700-0705 Drive to site

Objective: Collect more samples at excavating beyond previous sample locations with GPO, DRD > 100 mg/kg

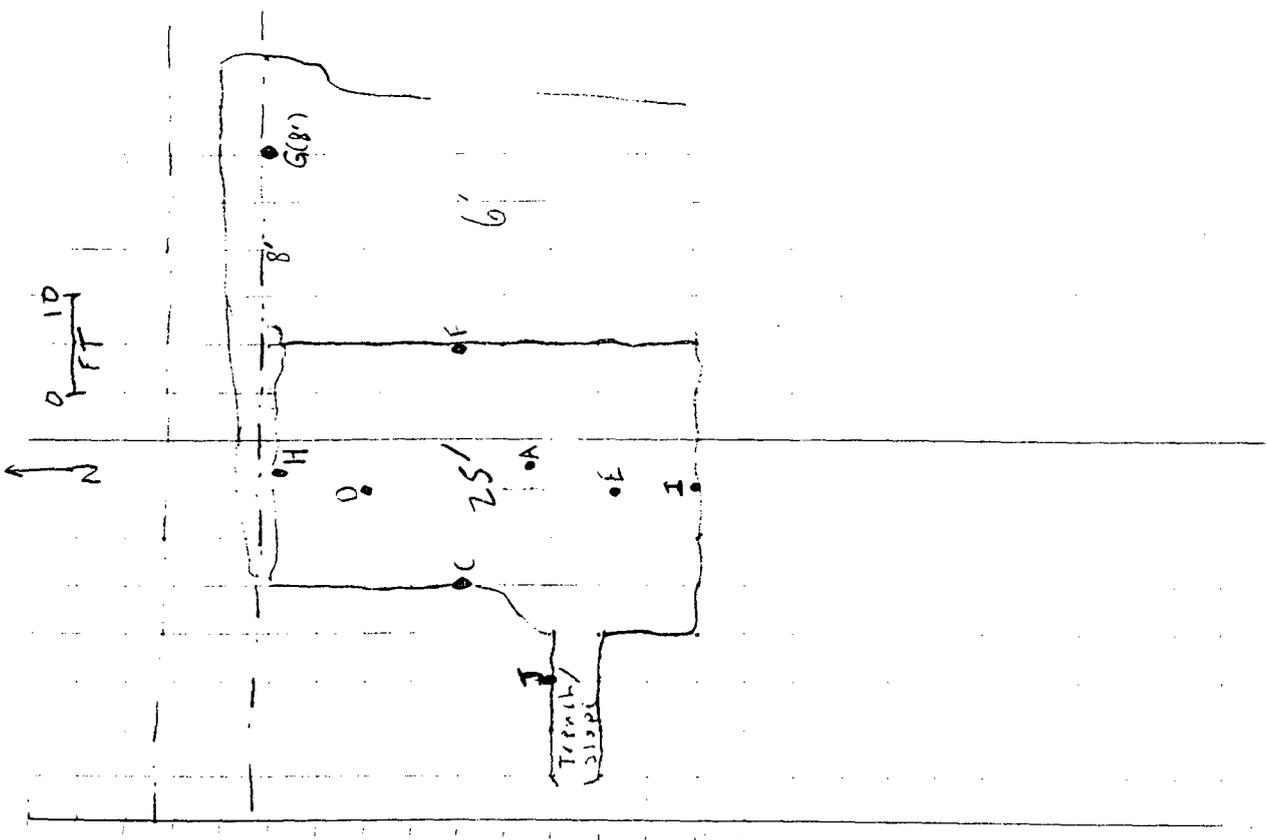
0900 Inside

DVM Calibration:

98 ppm before sampling
96 ppm after sampling

Collected samples as follows

ID (depth)	Location	Time	DVM
G(8')	Directly beneath trip pot	0940	2.0 ppm
H(12')	N. Wall	0945	0.7 ppm
I(12')	S. Wall	0950	2.1 ppm
J(12')	W. Wall	0955	2.6 ppm



4-22-03

Roy w/ Walton called

Ready for ~~car~~ next site

4" line

Daniel Vialdos DEFS line finder

C-23 (#3)

1488 yds hauled to Cell C-1

Damages 135' x 85'

Repaired line with poly