RECEIVED JUN 0 4 2010

TETRA TECH

May 12, 2010

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
1301 West Grand Avenue
Artesia, NM 88210

Re: Assessment and Closure Report – for the COG Operating, LLC, Polaris Federal 1-3 Tank Battery, Located in Unit Letter F, Section 17, Township 17 South, Range 30 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. was contacted by COG Operating, LLC to investigate a spill that occurred at the Polaris Federal 1-3 Tank Battery. The tank battery is located in Unit Letter F, Section 17, Township 17 South, Range 30 East, Eddy County, New Mexico. The site coordinates are N 32.83503°, W 103.99581°. The Site is shown on Figures 1 and 2.

Background

On February 15, 2010, the header connection from the flow line to the heater was defective and failed releasing 25 barrels of produced water. COG recovered 15 barrels using a vacuum truck. The release occurred was outside the facility firewall and majority of the release was overspray, west of the facility. The spill location is shown on Figure 3. The C-141 (initial) is included in Appendix A.

Groundwater and Regulatory

No water wells were found within Township 17 South and Range 37 East. However, according to the NMOCD *Eddy County Depth to Groundwater Water Well Facility Map*, the approximate depth to groundwater in the region is approximately 350 feet below ground surface (bgs). Copies of the groundwater depth information for this site are included in Appendix B.

Tetra Tech
1910 North Big Spring, Midland,TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

TETRA TECH

As requested by the BLM, a Class III Culture Resources Inventory Report (Archeological Study) was performed by Southern New Mexico Archaeological Services, Inc. The location was cleared and found no archaeological sites. The NMCRIS Investigation Abstract Form is shown in Appendix B.

A risk-based evaluation was performed for the Site in accordance with the NMOCD Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based on the regional groundwater data, the proposed RRAL for TPH is 5,000 mg/kg.

Assessment and Corrective Action

On March 9, 2010, Tetra Tech personnel inspected the facility. A total of six (6) auger holes were installed using a stainless steel hand auger. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chlorides by EPA method 300.0. The laboratory reports are shown in Appendix C. The results are summarized in Table 1.

Referring to Table 1, none of the samples in AH-1 through AH-6 exceed the RRAL for TPH and BTEX. In addition, a chloride concentrations of 2,680 mg/kg was detected in the area of AH-2 at 0-1' and decline to <200 at 1.0' below surface. The remaining auger holes did not show a chloride impact to the soils.

On May, 6, 2010, Tetra Tech supervised the removal of 1.0' of the impacted soil surrounding AH-2. The excavated material was hauled to CRI to disposal. The excavated area is shown in Figure 4. Once completed, the area was backfilled with clean soil.

Closure Request

Based upon the results of the investigation and remediation performed at this site, COG Operating LLC requests closure of this site. The C-141 (Final) is included in Appendix A. If you have any question or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.

Respectfully submitted,
Tetra Tech Inc.

Ike Tavarez P.G.
Senior Project Manager

cc: Pat Ellis - COG

FIGURES

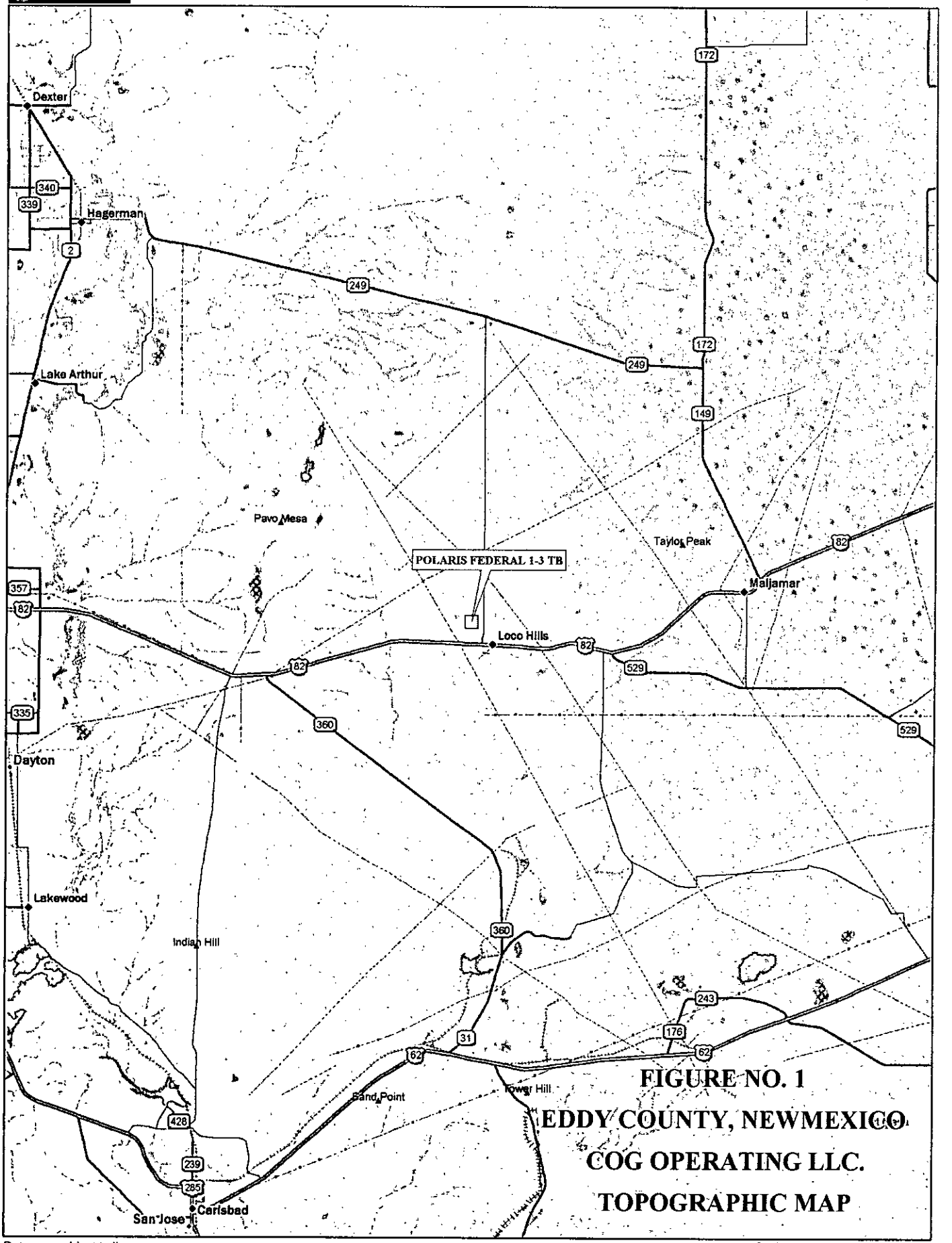


FIGURE NO. 1

EDDY COUNTY, NEWMEXICO

COG OPERATING LLC.

TOPOGRAPHIC MAP

TN

MN (8.0°E)

Scale 1 : 400,000

1" = 6.31 mi

Data Zoom 9-0

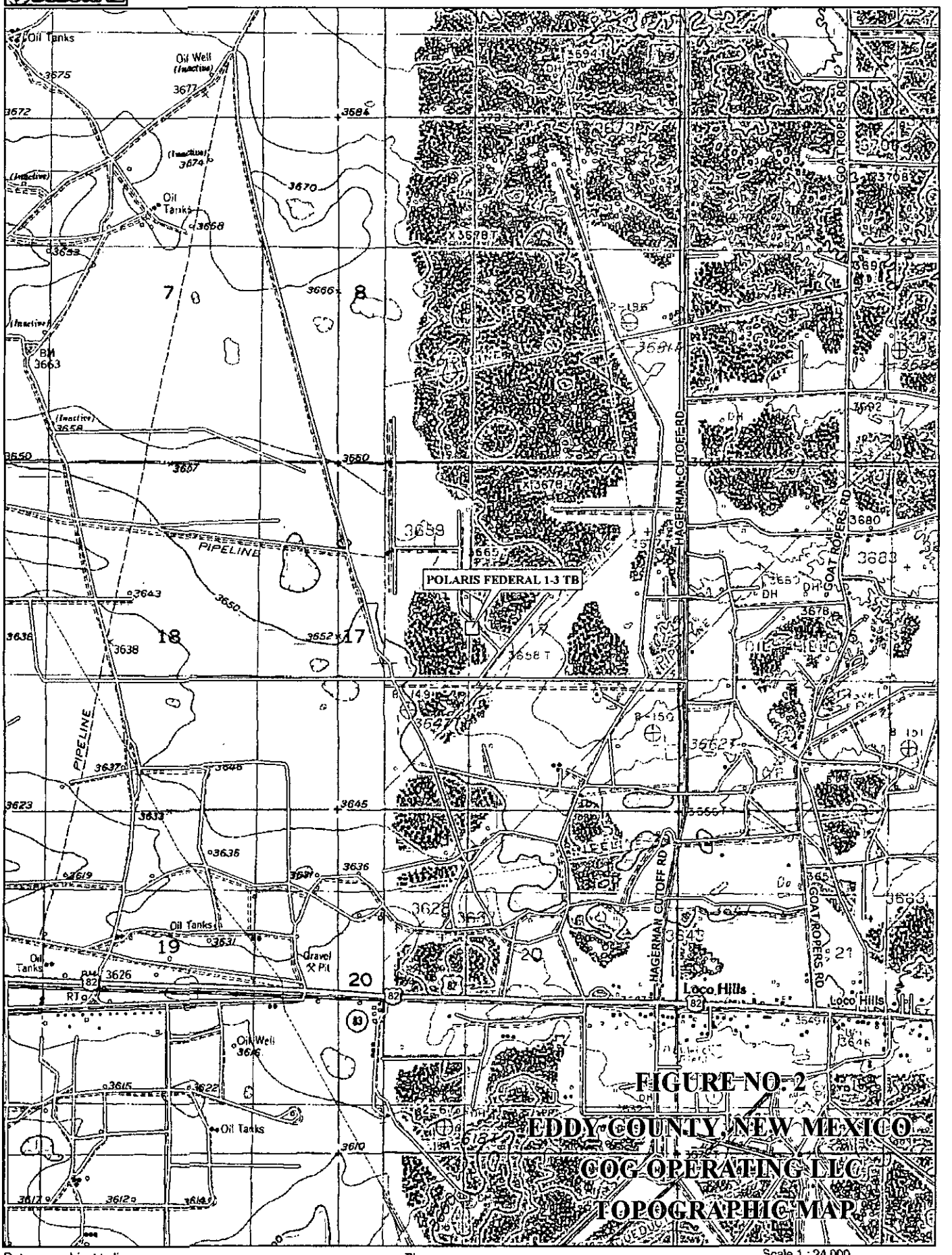


FIGURE NO. 2

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

TN
MN (8.0°E)

Scale 1 : 24,000

1" = 2,000.0 ft Data Zoom 13-0

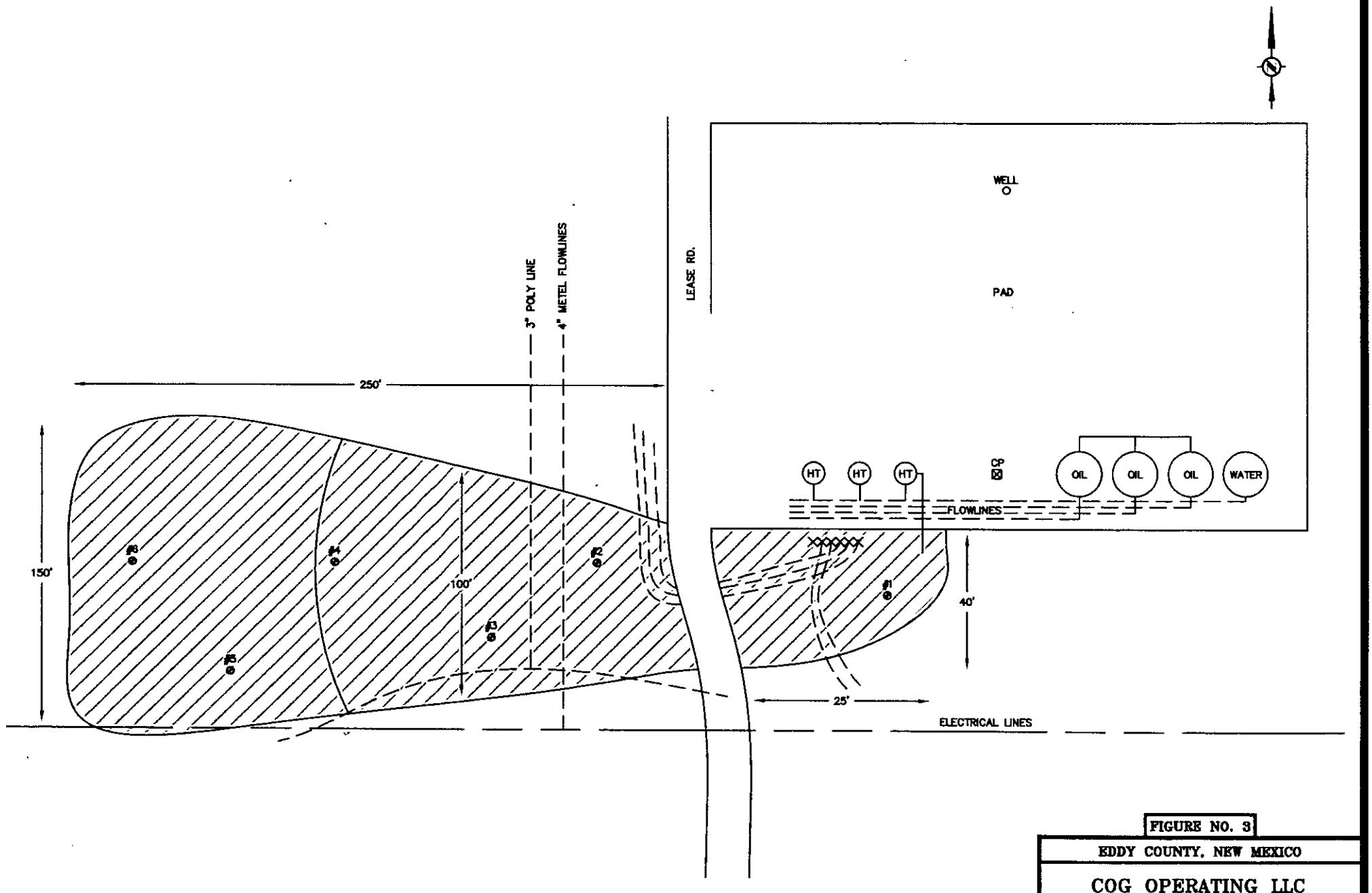


FIGURE NO. 3

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

DATE: 3/4/10
DWN. BY: JJ
FILE: N:\COG\S400480 POLARIS FED. 1-3 TB

POLARIS FEDERAL 1-3 TB

TETRA TECH, INC.
MIDLAND, TEXAS

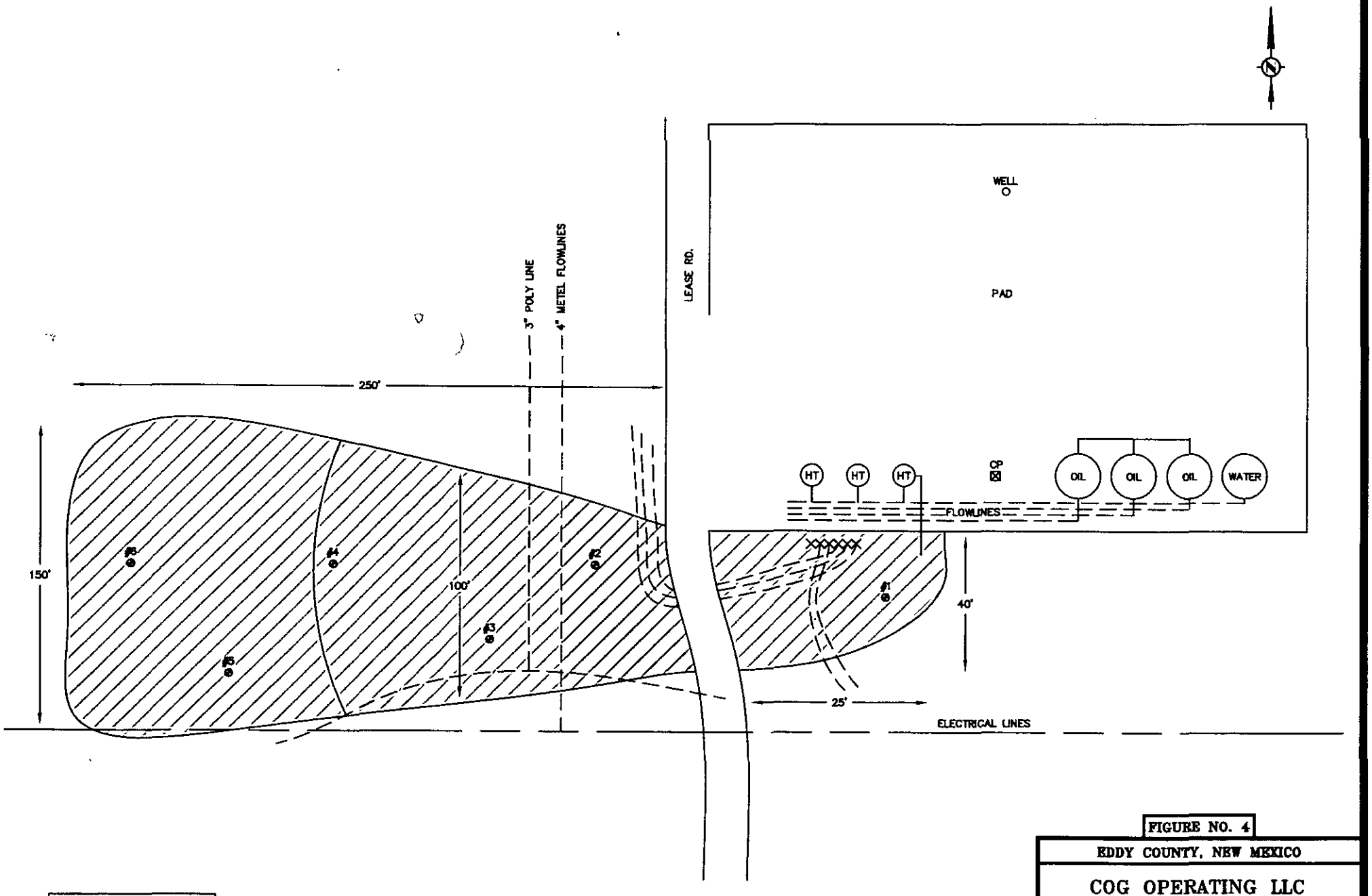


FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

POLARIS FEDERAL 1-3 TB

TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 3/4/10
DWN. BY: JJ
FILE: H:\COG\84000480 POLARIS FED. 1-3 TB

TABLE

Table 1
COG Operating LLC.
Polaris Federal 1-3TB
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total					
AH-1	3/9/2010	0-1'		X		<1.00	162	162	<0.0100	<0.0100	<0.0100	<0.0100	<200
		1-1.5'		X		-	-	-	-	-	-	-	351
AH-2	3/9/2010	0-1'			X	251	286	537	<0.0500	0.236	1.47	3.45	2,680
		1'-1.5'		X		-	-	-	-	-	-	-	<200
		2'-2.5'		X		-	-	-	-	-	-	-	<200
		3'-3.5'		X		-	-	-	-	-	-	-	<200
AH-3	3/9/2010	0-1'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<200
		1'-1.5'		X		-	-	-	-	-	-	-	<200
		2'-2.5'		X		-	-	-	-	-	-	-	<200
		3'-3.5'		X		-	-	-	-	-	-	-	<200
AH-4	3/9/2010	0-1'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<200
		1'-1.5'		X		-	-	-	-	-	-	-	<200
AH-5	3/9/2010	0-1'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<200
AH-6	3/9/2010	0-.5'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<200

(-) Not Analyzed

Excavated material

APPENDIX A

0460

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

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	COG OPERATING, LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Polaris Federal 1-3 Tank Battery	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. (API #) 30-015-31565

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	17	17S	30E	2310	NORTH	2210	WEST	EDDY

Latitude 32 50.105 **Longitude** 103 59.751

NATURE OF RELEASE

Type of Release Produced fluids	Volume of Release 25 bbls	Volume Recovered 15 bbls
Source of Release Header	Date and Hour of Occurrence 02/15/2010	Date and Hour of Discovery 02/15/2010
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Terry Gregston - BLM	
By Whom? Ronnie Tice	Date and Hour 02/15/2010	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The connection from the flowline to the header was defective. The failed header/flowline connection was repaired.

Describe Area Affected and Cleanup Action Taken.*

25 bbls of produced fluid was released at the faulty header connection in the form of free fluid on location or overspray into the pasture. 15 bbls of free fluid was picked up by a vacuum truck. One-call protocol will be made by dirt contractor who will then wait for archeological/ wildlife sensitivity clearance from BLM before removing any saturated soils prior to sampling by Tetra Tech.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Josh Russo	Approved by District Supervisor:	
Title: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 02/17/2010 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

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 COG Operating LLC	Contact Pat Ellis
Address 550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No. (432) 685-4332
Facility Name Polais Federal 1-3 Tank Battery	Facility Type Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. 30-015-31565

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	17	17S	30E	2310	North	2210	West	Eddy

Latitude N 32°50.105 **Longitude** W 103°59.751

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 25 bbls	Volume Recovered 15 bbls
Source of Release Heater	Date and Hour of Occurrence Unknown 2/15/10	Date and Hour of Discovery 2/15/10
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Terry Gregston - BLM	
By Whom? Rick Wright	Date and Hour 2/15/10	
Was a Watercourse Reached? ☐ Yes ☒ 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.*

The connection from the flow line to the heater treater was defective. The failed heater/flow line connection was repaired.

Describe Area Affected and Cleanup Action Taken.*
The spill occurred outside the facility firewalls. Majority of the spill was overspray west of the tank battery. The area was assessed to evaluate the spill. All samples were below the RRAL for TPH and BTEX. Elevated chloride concentrations were removed and hauled to CRI for disposal. The excavation was backfilled with clean soil. A closure report has been prepared and submitted to the NMOCD for review and approval.

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

Signature:	OIL CONSERVATION DIVISION
Printed Name: Ike Tavarez	Approved by District Supervisor:
Title: Project Manager	Approval Date: / Expiration Date:
E-mail Address: ike.tavarez@tetratech.com	Conditions of Approval: / Attached ☐
Date: 6-2-10 Phone: (432) 682-4559	

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
COG - Polaris Federal 1-3 Tank Battery
Average Depth to Groundwater (ft)

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19 **110**	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **288**
18	17	16	15	14	13 **113**
19	20	21	22	23	24
30	29	28	27	26	25
31 **290**	32	33	34	35	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **80**	23	24
30	29 **210** **208'**	28	27	26	25
31	32	33	34	35	36

17 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17 **SITE**	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34 **271**	35	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 31 East

6	5	4	3	2.	1
7	8	9	10	11	12 **400**
18	17	16	15	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **261**	36

88 New Mexico State Engineers Well Reports

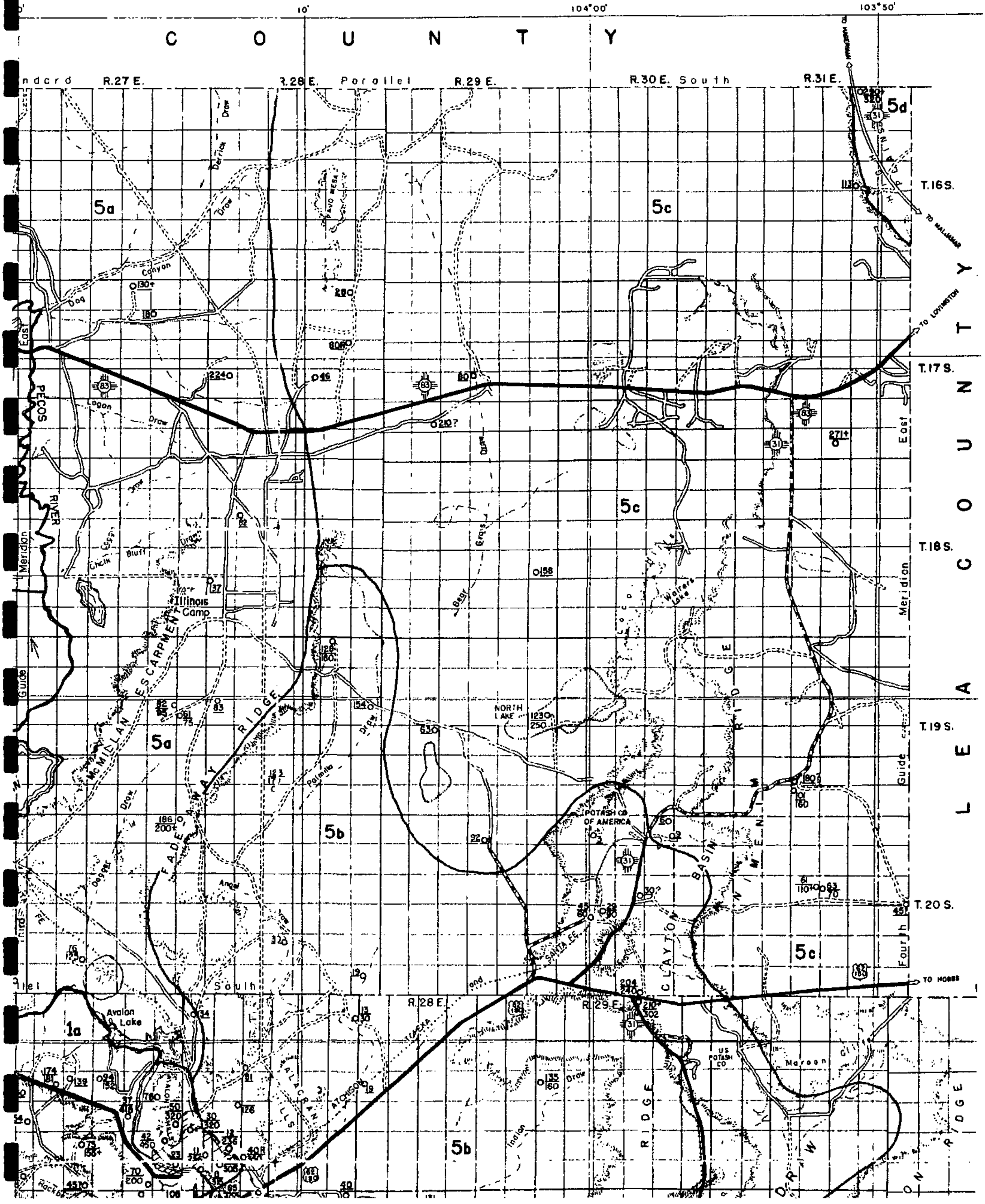
105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Field water level



10'
104°00'
103°50'
C O U N T Y
Standard Parallel South
R.27 E.
R.28 E.
R.29 E.
R.30 E.
R.31 E.
T.16 S.
T.17 S.
T.18 S.
T.19 S.
T. 20 S.
L E A C O U N T Y
East Meridian
Guide
Fourth
5a
5b
5c
5d
1a
PECOS RIVER
Dog Canyon
Logan Draw
Chalk Bluff Draw
Illinois Camp
McMILLAN ESCARPMENT
FADEAWAY RIDGE
NORTH LAKE
Walters Lake
LOCO HILLS
MESCALERO RIDGE
CLAYTON BASIN
POTASH CO OF AMERICA
US POTASH CO
SANTA FE
Avalon Lake
Maroon Cliffs
TO HOBBS
TO LOVINGTON
TO MALJAMAR

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

No records found.

PLSS Search:

Township: 17S Range: 30E

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

No records found.

PLSS Search:

Township: 17S Range: 29E

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.:	2a. Lead (Sponsoring) Agency:	2b. Other Permitting Agency(ies):	3. Lead Agency Report No.:
116904	BLM-CFO		

4. Title of Report: A Class III Cultural Resource Inventory Report for the Polaris Federal Number 1-3 Tank Battery Oil Spill, Section 17, T.17S, R.30E, Eddy County, New Mexico

Author(s) Allen Rorex and Doralene Sanders

5. Type of Report ☒ Negative ☐ Positive

6. Investigation Type
☐ Research Design ☒ Survey/Inventory ☐ Test Excavation ☐ Excavation ☐ Collections/Non-Field Study
☐ Overview/Lit Review ☐ Monitoring ☐ Ethnographic study ☐ Site specific visit ☐ Other

7. Description of Undertaking (what does the project entail?): Tetra Tech, on behalf of COG Operating, requested a class III cultural resource inventory for an oil spill area, resulting from a pipeline/header leak, located in Section 17, T.17S, R.30E, Eddy County, New Mexico. An area 700 ft by 500 ft was inventoried for the reclamation area. The impact area is unknown, as it is dependent upon the necessary cleanup operations. The spill area consisted of an area 300 ft wide by 500 ft long. A 100 ft buffer area was inventoried outside of the oil spill perimeter.

8. Dates of Investigation: March 6, 2010

9. Report Date: March 29, 2010

10. Performing Agency/Consultant: SNMAS, Inc.
Principal Investigator: Joe Ben Sanders
Field Supervisor: Allen Rorex
Field Personnel Names: Allen Rorex

11. Performing Agency/Consultant Report No.:
SNMAS-10NM-3620

12. Applicable Cultural Resource Permit No(s):
145-2920-10-R

13. Client/Customer (project proponent): COG Operating, LLC
Contact: Ike Tavarez
Address: 550 West Texas Ave, Suite 1300
Midland, Texas 79701
Phone: (432) 682-4559

14. Client/Customer Project No.:

15. Land Ownership Status *(Must be indicated on project map):*

Land Owner	Acres Surveyed	Acres in APE
BLM-CFO	8.03	
TOTALS	8.03	

16 Records Search(es): The records search revealed no previously recorded sites located within a quarter mile radius of the project area. There are eleven sites (LA 135,271, LA 126,762, LA 43305, LA 126,766, LA 133,426, LA 68995, LA 139,972, LA 145,097, LA 67525, LA 126,748, and LA 137,438) within a mile. There are five previous inventories, listed under BLM report numbers 01-NM-080-420, 01-NM-080-483, 01-NM-080-288, 96-NM-067-43 and 96-NM-067-43.1.

Date(s) of ARMS File Review 02/26/10	Name of Reviewer(s) Doralene Sanders	
Date(s) of NR/SR File Review N/A	Name of Reviewer(s) N/A	
Date(s) of Other Agency File Review 03/08/10	Name of Reviewer(s) Allen Rorex	Agency BLM-CFO

17. Survey Data:

a. Source Graphics ☒ NAD 27 ☐ NAD 83
☒ USGS 7.5' (1:24,000) topo map ☐ Other topo map, Scale:
☒ GPS Unit Accuracy ☐ <1.0m ☒ 1-10m ☐ 10-100m ☐ >100m

b. USGS 7.5' Topographic Map Name: Loco Hills, NM (Prov. Ed. 1985) — USGS Quad Code: 32103-G8

c. County(ies): Eddy

17. Survey Data (continued):

d. Nearest City or Town: Loco Hills, NM

e. Legal Description:

Township (N/S)	Range (E/W)	Section	¼ ¼ ¼
17S	30E	17	SW, SE, SE, of the NW; NW, NE, NE of the SW

Projected legal description? Yes [ ], No [ ] Unplatted [ ]

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.): An oil spill area measuring approximately 300 ft x 500 ft in size.

18. Survey Field Methods:
Intensity: ☒ 100% coverage ☐ <100% coverage

Configuration: ☒ block survey units **500 ft x 700 ft** ☐ linear survey units (l x w):

Scope: ☒ non-selective (all sites recorded) ☐ selective/thematic (selected sites recorded)

Coverage Method: ☒ systematic pedestrian coverage ☐ other method (describe)

Survey Interval (m): 15 Crew Size: 1 Fieldwork Dates: March 6, 2010

Survey Person Hours: 2 Recording Person Hours: 0 Total Hours: 2

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.): The project is located on open rolling slopes covered with low coppice dunes field formations, up to 1.5 meters height. Exposure is open and drainage is internal. Soils are tan/red loamy silty sands, mixed with caliche nodules. Area vegetation is dominated by grasses, shin oak, mesquite, yucca and sage. The elevation is 3,644 ft above msl.

20.a. Percent Ground Visibility: 76-99 b. Condition of Survey Area (grazed, bladed, undisturbed, etc.): The survey area is covered with oil spray contamination, road and pipeline related refuse is strewn about the area as well.

21. CULTURAL RESOURCE FINDINGS ☐ Yes, See Page 3 ☒No, Discuss Why: The site density in the area is low. The area is unfavorable for exploiting resources.

22. Required Attachments (check all appropriate boxes):
☒ USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn
☒ Copy of NMCRIS Mapserver Map Check
☐ LA Site Forms - new sites (*with sketch map & topographic map*)
☐ LA Site Forms (update) - previously recorded & un-relocated sites (*first 2 pages minimum*)
☐ Historic Cultural Property Inventory Forms
☐ List and Description of isolates, if applicable
☐ List and Description of Collections, if applicable

23. Other Attachments:
☐ Photographs and Log
☐ Other Attachments
(Describe):

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Responsible Archaeologist: Allen Rorex Title (if not PI): Field Supervisor

Signature for Allen Rorex: _____ Date March 29, 2010

25. Reviewing Agency:
Reviewer's Name/Date

Accepted ( ) Rejected ( )

Tribal Consultation (if applicable): ☐ Yes ☐ No

26. SHPO
Reviewer's Name/Date:

HPD Log #:

SHPO File Location:

Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

1. NMCRIS Activity No.:	2. Lead (Sponsoring) Agency:	3. Lead Agency Report No.:
116904	BLM-CFO	

SURVEY RESULTS:

Sites discovered and registered: 0
Sites discovered and NOT registered: 0
Previously recorded sites revisited *(site update form required)*: **0**
Previously recorded sites not relocated ***(site update form required):*** **0**
TOTAL SITES VISITED: 0
Total isolates recorded: 0 **Non-selective isolate recording? ☒**
Total structures recorded *(new and previously recorded, including acequias)*: **0**

MANAGEMENT SUMMARY: During the current inventory, no cultural resources were encountered. Therefore, it is recommended that the proposed undertaking proceed as planned for the oil spill reclamation.

IF REPORT IS NEGATIVE YOU ARE DONE AT THIS POINT.

SURVEY LA NUMBER LOG

Sites Discovered:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

Previously recorded revisited sites:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

MONITORING LA NUMBER LOG *(site form required)*

Sites Discovered *(site form required)* : **Previously recorded sites** ***(Site update form required):***

LA No.	Field/Agency No.	LA No.	Field/Agency No.

Areas outside known nearby site boundaries monitored? Yes ☒, No ☐ If no explain why:

TESTING & EXCAVATION LA NUMBER LOG *(site form required)*

Tested LA number(s)	Excavated LA number(s)

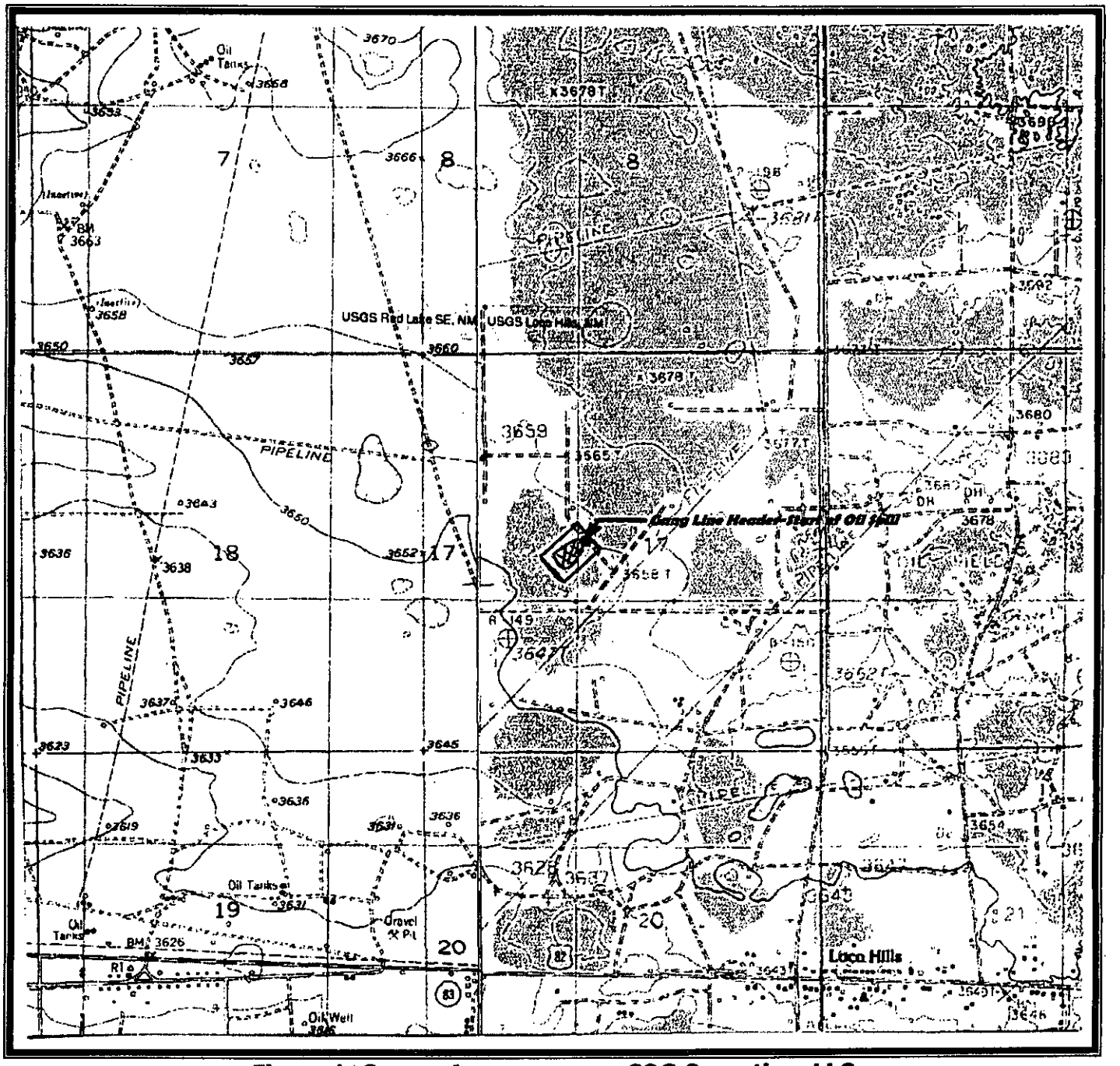


Figure 1: Survey Area **COG Operating, LLC**
The Polaris Federal Number 1-3 Tank Battery Oil Spill
Section 17, T.17S, R.30E
USGS Loco Hills, NM (Prov. Ed. 1985) 7.5' topo map
Eddy County, New Mexico
Scale 1:24,000

N↑

Southern New Mexico Archaeological Services, Inc.

APPENDIX C

Summary Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: March 22, 2010

Work Order: 10031513

Project Location: Lea County, NM
Project Name: COG/Polaris Federal 1-3 TB
Project Number: 114-6400460

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
225658	AH-1 0-1'	soil	2010-03-09	00:00	2010-03-12
225659	AH-1 1-1.5'	soil	2010-03-09	00:00	2010-03-12
225660	AH-2 0-1'	soil	2010-03-09	00:00	2010-03-12
225661	AH-2 1-1.5'	soil	2010-03-09	00:00	2010-03-12
225662	AH-2 2-2.5'	soil	2010-03-09	00:00	2010-03-12
225663	AH-2 3-3.5'	soil	2010-03-09	00:00	2010-03-12
225664	AH-3 0-1'	soil	2010-03-09	00:00	2010-03-12
225665	AH-3 1-1.5'	soil	2010-03-09	00:00	2010-03-12
225666	AH-3 2-2.5'	soil	2010-03-09	00:00	2010-03-12
225667	AH-3 3-3.5'	soil	2010-03-09	00:00	2010-03-12
225668	AH-4 0-1'	soil	2010-03-09	00:00	2010-03-12
225669	AH-4 1-1.5'	soil	2010-03-09	00:00	2010-03-12
225670	AH-5 0-1'	soil	2010-03-09	00:00	2010-03-12
225671	AH-6 0-.5'	soil	2010-03-09	00:00	2010-03-12

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
225658 - AH-1 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	**162**	<1.00
225660 - AH-2 0-1'	<0.0500	**0.236**	**1.47**	**3.45**	**286**	**251**
225664 - AH-3 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
225668 - AH-4 0-1'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
225670 - AH-5 0-1'					<50.0	<1.00
225671 - AH-6 0-.5'					<50.0	<1.00

Sample: 225658 - AH-1 0-1'

continued ...

sample 225658 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225659 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**351**	mg/Kg	4.00

Sample: 225660 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**2680**	mg/Kg	4.00

Sample: 225661 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225662 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225663 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225664 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225665 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225666 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225667 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225668 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225669 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225670 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 225671 - AH-6 0-.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019 **HUB:** 1752439743100-86536 **DBE:** VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX LELAP-02002 **Midland:** T104704392-08-TX

Analytical and Quality Control Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: March 22, 2010

Work Order: 10031513

Project Location: Lea County, NM
Project Name: COG/Polaris Federal 1-3 TB
Project Number: 114-6400460

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
225658	AH-1 0-1'	soil	2010-03-09	00:00	2010-03-12
225659	AH-1 1-1.5'	soil	2010-03-09	00:00	2010-03-12
225660	AH-2 0-1'	soil	2010-03-09	00:00	2010-03-12
225661	AH-2 1-1.5'	soil	2010-03-09	00:00	2010-03-12
225662	AH-2 2-2.5'	soil	2010-03-09	00:00	2010-03-12
225663	AH-2 3-3.5'	soil	2010-03-09	00:00	2010-03-12
225664	AH-3 0-1'	soil	2010-03-09	00:00	2010-03-12
225665	AH-3 1-1.5'	soil	2010-03-09	00:00	2010-03-12
225666	AH-3 2-2.5'	soil	2010-03-09	00:00	2010-03-12
225667	AH-3 3-3.5'	soil	2010-03-09	00:00	2010-03-12

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
225668	AH-4 0-1'	soil	2010-03-09	00:00	2010-03-12
225669	AH-4 1-1.5'	soil	2010-03-09	00:00	2010-03-12
225670	AH-5 0-1'	soil	2010-03-09	00:00	2010-03-12
225671	AH-6 0-.5'	soil	2010-03-09	00:00	2010-03-12

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.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project COG/Polaris Federal 1-3 TB were received by TraceAnalysis, Inc. on 2010-03-12 and assigned to work order 10031513. Samples for work order 10031513 were received intact at a temperature of 6.0 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	58507	2010-03-17 at 11:00	68370	2010-03-17 at 13:22
Chloride (Titration)	SM 4500-Cl B	58451	2010-03-16 at 12:46	68375	2010-03-18 at 15:19
Chloride (Titration)	SM 4500-Cl B	58452	2010-03-16 at 12:46	68376	2010-03-18 at 15:20
Chloride (Titration)	SM 4500-Cl B	58453	2010-03-16 at 12:47	68450	2010-03-22 at 11:08
TPH DRO - NEW	Mod. 8015B	58487	2010-03-17 at 14:37	68350	2010-03-17 at 14:37
TPH GRO	S 8015B	58507	2010-03-17 at 11:00	68371	2010-03-17 at 13:51

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 10031513 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 225658 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68370	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		<0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.94	mg/Kg	1	2.00	97	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.10	mg/Kg	1	2.00	105	43.1 - 158.4

Sample: 225658 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68375	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58451	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225658 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68350	Date Analyzed:	2010-03-17	Analyzed By:	kg
Prep Batch:	58487	Sample Preparation:	2010-03-17	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		**162**	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		122	mg/Kg	1	100	122	70 - 130

Sample: 225658 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68371	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.89	mg/Kg	1	2.00	144	65.3 - 155
4-Bromofluorobenzene (4-BFB)	[1]	2.65	mg/Kg	1	2.00	132	61.7 - 131.1

Sample: 225659 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68375	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58451	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**351**	mg/Kg	50	4.00

Sample: 225660 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68370	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0500	mg/Kg	5	0.0100
Toluene		**0.236**	mg/Kg	5	0.0100
Ethylbenzene		**1.47**	mg/Kg	5	0.0100
Xylene		**3.45**	mg/Kg	5	0.0100

[1] High surrogate recovery. Sample non-detect, result bias high.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		4.56	mg/Kg	5	5.00	91	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		6.14	mg/Kg	5	5.00	123	43.1 - 158.4

Sample: 225660 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68375	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58451	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**2680**	mg/Kg	100	4.00

Sample: 225660 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68350	Date Analyzed:	2010-03-17	Analyzed By:	kg
Prep Batch:	58487	Sample Preparation:	2010-03-17	Prepared By:	kg

Parameter	Flag	Result	RL Units	Dilution	RL
DRO		**286**	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		129	mg/Kg	1	100	129	70 - 130

Sample: 225660 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68371	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	Result	RL Units	Dilution	RL
GRO		**251**	mg/Kg	5	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		6.74	mg/Kg	5	5.00	135	65.3 - 155
4-Bromofluorobenzene (4-BFB)	[2]	8.54	mg/Kg	5	5.00	171	61.7 - 131.1

Sample: 225661 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225662 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225663 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

[2] High surrogate recovery due to peak interference.

Sample: 225664 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68370	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		<0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.80	mg/Kg	1	2.00	90	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		1.96	mg/Kg	1	2.00	98	43.1 - 158.4

Sample: 225664 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225664 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68350	Date Analyzed:	2010-03-17	Analyzed By:	kg
Prep Batch:	58487	Sample Preparation:	2010-03-17	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		94.0	mg/Kg	1	100	94	70 - 130

Sample: 225664 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68371	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.67	mg/Kg	1	2.00	134	65.3 - 155
4-Bromofluorobenzene (4-BFB)		2.48	mg/Kg	1	2.00	124	61.7 - 131.1

Sample: 225665 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225666 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225667 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225668 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	68370	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		<0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.06	mg/Kg	1	2.00	103	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		2.24	mg/Kg	1	2.00	112	43.1 - 158.4

Sample: 225668 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225668 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68350	Date Analyzed:	2010-03-17	Analyzed By:	kg
Prep Batch:	58487	Sample Preparation:	2010-03-17	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		85.0	mg/Kg	1	100	85	70 - 130

Sample: 225668 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68371	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		3.06	mg/Kg	1	2.00	153	65.3 - 155
4-Bromofluorobenzene (4-BFB)	[3]	2.83	mg/Kg	1	2.00	142	61.7 - 131.1

Sample: 225669 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225670 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	Sample Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

[3] High surrogate recovery. Sample non-detect, result bias high.

Sample: 225670 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68350	Date Analyzed:	2010-03-17	Analyzed By:	kg
Prep Batch:	58487	Sample Preparation:	2010-03-17	Prepared By:	kg

Parameter	Flag	Result	RL Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		88.0	mg/Kg	1	100	88	70 - 130

Sample: 225670 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68371	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	Result	RL Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.45	mg/Kg	1	2.00	122	65.3 - 155
4-Bromofluorobenzene (4-BFB)		2.21	mg/Kg	1	2.00	110	61.7 - 131.1

Sample: 225671 - AH-6 0-.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	68450	Date Analyzed:	2010-03-22	Analyzed By:	AR
Prep Batch:	58453	Sample Preparation:	2010-03-17	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 225671 - AH-6 0-.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	68350	Date Analyzed:	2010-03-17	Analyzed By:	kg
Prep Batch:	58487	Sample Preparation:	2010-03-17	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		93.9	mg/Kg	1	100	94	70 - 130

Sample: 225671 - AH-6 0-.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	68371	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	Sample Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.50	mg/Kg	1	2.00	125	65.3 - 155
4-Bromofluorobenzene (4-BFB)		2.30	mg/Kg	1	2.00	115	61.7 - 131.1

Method Blank (1) QC Batch: 68350

QC Batch:	68350	Date Analyzed:	2010-03-17	Analyzed By:	kg
Prep Batch:	58487	QC Preparation:	2010-03-17	Prepared By:	kg

Parameter	Flag	MDL Result	Units	RL
DRO		<5.86	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		77.7	mg/Kg	1	100	78	70 - 130

Method Blank (1) QC Batch: 68370

QC Batch:	68370	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	QC Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00410	mg/Kg	0.01
Toluene		<0.00310	mg/Kg	0.01
Ethylbenzene		<0.00240	mg/Kg	0.01
Xylene		<0.00650	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.79	mg/Kg	1	2.00	90	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		1.74	mg/Kg	1	2.00	87	43.9 - 141.9

Method Blank (1) QC Batch: 68371

QC Batch:	68371	Date Analyzed:	2010-03-17	Analyzed By:	AG
Prep Batch:	58507	QC Preparation:	2010-03-17	Prepared By:	AG

Parameter	Flag	MDL Result	Units	RL
GRO		<0.396	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.67	mg/Kg	1	2.00	134	66.2 - 145
4-Bromofluorobenzene (4-BFB)		2.22	mg/Kg	1	2.00	111	62 - 120.5

Method Blank (1) QC Batch: 68375

QC Batch:	68375	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58451	QC Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 68376

QC Batch:	68376	Date Analyzed:	2010-03-18	Analyzed By:	AR
Prep Batch:	58452	QC Preparation:	2010-03-16	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 68450

QC Batch: 68450 Date Analyzed: 2010-03-22 Analyzed By: AR
Prep Batch: 58453 QC Preparation: 2010-03-16 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Laboratory Control Spike (LCS-1)

QC Batch: 68350 Date Analyzed: 2010-03-17 Analyzed By: kg
Prep Batch: 58487 QC Preparation: 2010-03-17 Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	186	mg/Kg	1	250	<5.86	74	57.4 - 133.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	207	mg/Kg	1	250	<5.86	83	57.4 - 133.4	11	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	81.7	91.6	mg/Kg	1	100	82	92	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 68370 Date Analyzed: 2010-03-17 Analyzed By: AG
Prep Batch: 58507 QC Preparation: 2010-03-17 Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.87	mg/Kg	1	2.00	<0.00410	94	75.4 - 115.7
Toluene	1.88	mg/Kg	1	2.00	<0.00310	94	78.4 - 113.6
Ethylbenzene	1.89	mg/Kg	1	2.00	<0.00240	94	76 - 114.2

continued ...

control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene	5.67	mg/Kg	1	6.00	<0.00650	94	76.9 - 113.6

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.88	mg/Kg	1	2.00	<0.00410	94	75.4 - 115.7	0	20
Toluene	1.88	mg/Kg	1	2.00	<0.00310	94	78.4 - 113.6	0	20
Ethylbenzene	1.87	mg/Kg	1	2.00	<0.00240	94	76 - 114.2	1	20
Xylene	5.66	mg/Kg	1	6.00	<0.00650	94	76.9 - 113.6	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.73	1.77	mg/Kg	1	2.00	86	88	65 - 142.9
4-Bromofluorobenzene (4-BFB)	2.00	2.05	mg/Kg	1	2.00	100	102	43.8 - 144.9

Laboratory Control Spike (LCS-1)

QC Batch: 68371 | Date Analyzed: 2010-03-17 | Analyzed By: AG
Prep Batch: 58507 | QC Preparation: 2010-03-17 | Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	18.0	mg/Kg	1	20.0	<0.396	90	52.5 - 114.3

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	17.6	mg/Kg	1	20.0	<0.396	88	52.5 - 114.3	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.45	2.36	mg/Kg	1	2.00	122	118	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	2.30	2.20	mg/Kg	1	2.00	115	110	64.1 - 127.4

Laboratory Control Spike (LCS-1)

QC Batch: 68375 | Date Analyzed: 2010-03-18 | Analyzed By: AR
Prep Batch: 58451 | QC Preparation: 2010-03-16 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.8	mg/Kg	1	100	<2.18	99	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	100	mg/Kg	1	100	<2.18	100	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 68376 | Date Analyzed: 2010-03-18 | Analyzed By: AR
Prep Batch: 58452 | QC Preparation: 2010-03-16 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.9	mg/Kg	1	100	<2.18	99	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	99.7	mg/Kg	1	100	<2.18	100	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 68450 | Date Analyzed: 2010-03-22 | Analyzed By: AR
Prep Batch: 58453 | QC Preparation: 2010-03-16 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.9	mg/Kg	1	100	<2.18	99	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<2.18	102	85 - 115	3	20

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

Matrix Spike (MS-1) Spiked Sample: 225164

QC Batch: 68350 | Date Analyzed: 2010-03-17 | Analyzed By: kg
Prep Batch: 58487 | QC Preparation: 2010-03-17 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	163	mg/Kg	1	250	<5.86	65	35.2 - 167.1

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	167	mg/Kg	1	250	<5.86	67	35.2 - 167.1	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	87.1	88.6	mg/Kg	1	100	87	89	70 - 130

Matrix Spike (MS-1) Spiked Sample: 225641

QC Batch: 68370 | Date Analyzed: 2010-03-17 | Analyzed By: AG
Prep Batch: 58507 | QC Preparation: 2010-03-17 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.84	mg/Kg	1	2.00	<0.00410	92	57.7 - 140.7
Toluene	1.87	mg/Kg	1	2.00	<0.00310	94	53.4 - 146.6
Ethylbenzene	1.89	mg/Kg	1	2.00	<0.00240	94	62.1 - 141.6
Xylene	5.65	mg/Kg	1	6.00	<0.00650	94	61.2 - 142.7

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.86	mg/Kg	1	2.00	<0.00410	93	57.7 - 140.7	1	20
Toluene	1.90	mg/Kg	1	2.00	<0.00310	95	53.4 - 146.6	2	20
Ethylbenzene	1.92	mg/Kg	1	2.00	<0.00240	96	62.1 - 141.6	2	20
Xylene	5.76	mg/Kg	1	6.00	<0.00650	96	61.2 - 142.7	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.47	1.40	mg/Kg	1	2	74	70	61.7 - 139.6
4-Bromofluorobenzene (4-BFB)	1.62	1.56	mg/Kg	1	2	81	78	49.6 - 146.7

Matrix Spike (MS-1) Spiked Sample: 225701

QC Batch: 68371 | Date Analyzed: 2010-03-17 | Analyzed By: AG
Prep Batch: 58507 | QC Preparation: 2010-03-17 | Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	19.1	mg/Kg	1	20.0	<0.396	96	10 - 198.3

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	19.4	mg/Kg	1	20.0	<0.396	97	10 - 198.3	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.00	2.05	mg/Kg	1	2	100	102	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.07	2.15	mg/Kg	1	2	104	108	58.6 - 140

Matrix Spike (MS-1) Spiked Sample: 225660

QC Batch: 68375 | Date Analyzed: 2010-03-18 | Analyzed By: AR
Prep Batch: 58451 | QC Preparation: 2010-03-16 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12700	mg/Kg	100	10000	2680	100	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12800	mg/Kg	100	10000	2680	101	85 - 115	1	20

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

Matrix Spike (MS-1) Spiked Sample: 225670

QC Batch: 68376 | Date Analyzed: 2010-03-18 | Analyzed By: AR
Prep Batch: 58452 | QC Preparation: 2010-03-16 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9990	mg/Kg	100	10000	<218	100	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10100	mg/Kg	100	10000	<218	101	85 - 115	1	20

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

Matrix Spike (MS-1) Spiked Sample: 225694

QC Batch: 68450 | Date Analyzed: 2010-03-22 | Analyzed By: AR
Prep Batch: 58453 | QC Preparation: 2010-03-16 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	16000	mg/Kg	100	10000	6150	98	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	16200	mg/Kg	100	10000	6150	100	85 - 115	1	20

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

Standard (CCV-2)

QC Batch: 68350 | Date Analyzed: 2010-03-17 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	219	88	80 - 120	2010-03-17

Standard (CCV-3)

QC Batch: 68350 | Date Analyzed: 2010-03-17 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	204	82	80 - 120	2010-03-17

Standard (CCV-1)

QC Batch: 68370 | Date Analyzed: 2010-03-17 | Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0911	91	80 - 120	2010-03-17
Toluene		mg/Kg	0.100	0.0920	92	80 - 120	2010-03-17
Ethylbenzene		mg/Kg	0.100	0.0913	91	80 - 120	2010-03-17
Xylene		mg/Kg	0.300	0.276	92	80 - 120	2010-03-17

Standard (CCV-2)

QC Batch: 68370 Date Analyzed: 2010-03-17 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0925	92	80 - 120	2010-03-17
Toluene		mg/Kg	0.100	0.0919	92	80 - 120	2010-03-17
Ethylbenzene		mg/Kg	0.100	0.0902	90	80 - 120	2010-03-17
Xylene		mg/Kg	0.300	0.272	91	80 - 120	2010-03-17

Standard (CCV-1)

QC Batch: 68371 Date Analyzed: 2010-03-17 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.12	112	80 - 120	2010-03-17

Standard (CCV-2)

QC Batch: 68371 Date Analyzed: 2010-03-17 Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.10	110	80 - 120	2010-03-17

Standard (ICV-1)

QC Batch: 68375 Date Analyzed: 2010-03-18 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.4	99	85 - 115	2010-03-18

Standard (CCV-1)

QC Batch: 68375 Date Analyzed: 2010-03-18 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-03-18

Standard (ICV-1)

QC Batch: 68376 Date Analyzed: 2010-03-18 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.8	100	85 - 115	2010-03-18

Standard (CCV-1)

QC Batch: 68376 Date Analyzed: 2010-03-18 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-03-18

Standard (ICV-1)

QC Batch: 68450 Date Analyzed: 2010-03-22 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	103	103	85 - 115	2010-03-22

Standard (CCV-1)

QC Batch: 68450 Date Analyzed: 2010-03-22 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	96.7	97	85 - 115	2010-03-22

Order #: 100315I3

Analysis Request of Chain of Custody Record

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

PAGE: 1 of 2

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-6400460

PROJECT NAME: COG / Polaris Federal 1-3 TB Lea Co, NM

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 8081/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
225658	3/9		X		X	AH-1	0-1'	1			X		X	X											X				
659						AH-1	1-1.5'																		X				
6600						AH-2	0-1'						X	X											X				
6601						AH-2	1-1.5'																		X				
6602						AH-2	2'-2.5'																		X				
6603						AH-2	3'-3.5'																		X				
6604						AH-3	0-1						X	X											X				
6605						AH-3	1-1.5'																		X				
6606						AH-3	2'-2.5'																		X				
6607	↓		↓		↓	AH-3	3'-3.5'	Y			Y														X				

RELINQUISHED BY: (Signature)	Date: 3-5-10 Time: 151	RECEIVED BY: (Signature)	Date: 3/12/10 Time: 15:25
SAMPLED BY: (Print & Initial) Robert Cruces Jr	Date: 3-5-10 Time: 1730		
RELINQUISHED BY: (Signature)	Date: 3/12/10 Time: 15:25	RECEIVED BY: (Signature)	Date: 3/12/10 Time: 15:26
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS	AIRBILL #:	OTHER:	
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez	Results by:		
RECEIVING LABORATORY: Trace	RECEIVED BY: (Signature)		
ADDRESS:			
CITY: Midland STATE: TX ZIP:			
CONTACT: Romero PHONE:	DATE: TIME:		RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 6.0°c Intact

REMARKS: Run deeper depths if TPH exceeds 5,000 mg/kg

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Order #: 100313 13

Analysis Request of Chain of Custody Record

PAGE: 2 of 2

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-64004460

PROJECT NAME: COG / Polaris Federal 1-3 TB Lea Co, NM

LAB I.D. NUMBER	DATE 2010	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
668	3/9		S		X	AH-4 0-1'	1				X		X	X											X				
669						AH-4 1-1.5'																			X				
670						AH-5 0-1'								X											X				
671						AH-6 0-1.5'								X											X				

RELINQUISHED BY: (Signature)	Date: 3-5-10 Time:	RECEIVED BY: (Signature)	Date: 3/12/10 Time: 15:25	SAMPLED BY: (Print & Initial) Robert Cobbs RC	Date: 3-2-10 Time: 1740
RELINQUISHED BY: (Signature)	Date: 3/12/10 Time: 15:25	RECEIVED BY: (Signature)	Date: 3/12/10 Time: 17:26	SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS	AIRBILL #: OTHER:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:	TETRA TECH CONTACT PERSON: Ike Tavarez	Results by:
RECEIVING LABORATORY: Talon		RECEIVED BY: (Signature)			RUSH Charges Authorized: Yes No
ADDRESS:					
CITY: Midland STATE: TX ZIP:		DATE:	TIME:		
CONTACT: Monica PHONE:					

SAMPLE CONDITION WHEN RECEIVED: 6.0 c iMac

REMARKS:

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.