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

HOBBS OCD
AUG 13 2014
RECEIVED

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 **Robert McNeil**
Address **600 West Illinois Avenue, Midland, Texas 79701**	Telephone No. **(432) 230-0077**
Facility Name LPC 31 Federal #1	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-025-37440

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	31	18S	32E					LEA

Latitude N 32.70587 ° **Longitude** W 103.80451 °

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release 20 **bbls oil** **50 bbls produced water**	Volume Recovered **0 bbls** **16 bbls produced water**
Source of Release Heater Treater	Date and Hour of Occurrence 11-18-2013	Date and Hour of Discovery **11-18-2013 02:00 am**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Geoffrey R. Leking - NMOCD/James Amos - BLM**	
By Whom? Michelle Mullins	Date and Hour 11-18-2013 11:14 am	
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.*

Gasket failed on the heater treater causing leak to hit the flame arrestor and caught the heater on fire. Replaced the heater treater with other equipment.

Describe Area Affected and Cleanup Action Taken.*

Initially 20 bbls of oil and 50 bbls of produced water were released from a gasket on a heater treater that failed. Only 16 bbls of produced water was recovered. The release was contained within the tank battery and location. Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.

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 (Agent for COG)	Approved by ~~District Supervisor~~: Environmental Specialist
Title: Senior Project Manager, P.G.	Approval Date: 8-14-14 Expiration Date: —
E-mail Address: ike.tavarez@tetratech.com	Conditions of Approval: — Attached ☐ IRP-3241
Date: 7-23-14 Phone: (432) 687-8110	

* Attach Additional Sheets If Necessary

AUG 14 2014

ogrid 229137
AFE 1422 632639
PTO 1422 632796

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG -LPC 31 Federal #1
Lea County, New Mexico

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 31 East

6	5	4	3	2	1
7	8	9	10	11	12 **400**
18	17	16	15 **98**	14 **317**	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **261**	36

19 South 31 East

6	5 SITE	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 180	27	26	25
31	32	33 101	34	35	36 **130**

17 South 32 East

6	5	4 **82** Maljamar	3 **175**	2 **60**	1 **225**
7	8	9	10 **132**	11 **70 88**	12 **120**
18	17	16	15	14	13
19	20	21	22	23	24
30 180 dry	29	28	27	26	25
31	32	33	34	35	36

18 South 32 East

6	5	4 **65**	3	2	1
7 **460 82**	8	9	10	11	12
18	17	16 **84**	15	14	13
19	20 **164**	21	22 **429**	23	24
30	29	28	27	26	25
31 SITE	32	33	34 **117**	35	36

19 South 32 East

6	5	4	3	2	1
7	8 **365**	9	10	11	12
18	17	16	15	14	13 135 dry
19 **102**	20 **345**	21	22	23	24
30	29	28	27	26	25
31	32	33	34 **250**	35	36

17 South 33 East

6 **90**	5	4	3 **155**	2 **158**	1 **150**
7 **167**	8 **173**	9 **161**	10	11	12
18 **188**	17 **180**	16	15	14	13 **165**
19	20 **190**	21	22	23 **115**	24
30 **69**	29 **60**	28	27	26	25
31	32	33 **120**	34	35 **155**	36

18 South 33 East

6	5	4	3 **60**	2	1
7	8 **100**	9	10 **62**	11 **46**	12 **143 140**
18	17 **85**	16	15	14 **36**	13 **60**
19 >140	20	21	22	23	24 **195**
30 **35**	29	28	27	26	25
31	32	33 **177**	34	35	36

19 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18 **340**	17 **116**	16	15	14	13
19	20	21	22	23	24
30	29	28 130 dry	27	26 **92 85**	25
31	32 **185**	33	34	35	36

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System

Appendix C

Summary Report

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

Report Date: January 2, 2014

Work Order: 13121621

Project Location: Lea Co, NM
Project Name: COG/LPC 31 Fed #1
Project Number: 112MC05818

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
349055	AH-1 0-1'	soil	2013-12-12	00:00	2013-12-16
349056	AH-1 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349057	AH-1 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349058	AH-1 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349059	AH-1 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349060	AH-1 5-5.5'	soil	2013-12-12	00:00	2013-12-16
349061	AH-1 6-6.5'	soil	2013-12-12	00:00	2013-12-16
349062	AH-1 7-7.5'	soil	2013-12-12	00:00	2013-12-16
349063	AH-1 8-8.5'	soil	2013-12-12	00:00	2013-12-16
349064	AH-1 9-9.5'	soil	2013-12-12	00:00	2013-12-16
349065	AH-2 0-1'	soil	2013-12-12	00:00	2013-12-16
349066	AH-2 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349067	AH-2 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349068	AH-2 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349069	AH-2 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349070	AH-2 5-5.5'	soil	2013-12-12	00:00	2013-12-16
349071	AH-2 6-6.5'	soil	2013-12-12	00:00	2013-12-16
349072	AH-3 0-1'	soil	2013-12-12	00:00	2013-12-16
349073	AH-3 1-1.5'	soil	2013-12-12	00:00	2013-12-16
349074	AH-3 2-2.5'	soil	2013-12-12	00:00	2013-12-16
349075	AH-3 3-3.5'	soil	2013-12-12	00:00	2013-12-16
349076	AH-3 4-4.5'	soil	2013-12-12	00:00	2013-12-16
349077	AH-3 5-5.5'	soil	2013-12-12	00:00	2013-12-16
349078	AH-3 6-6.5'	soil	2013-12-12	00:00	2013-12-16
349079	AH-3 7-7.5'	soil	2013-12-12	00:00	2013-12-16
349080	AH-3 8-8.5'	soil	2013-12-12	00:00	2013-12-16

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)
349055 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
349065 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
349072 - AH-3 0-1'	<0.0200	<0.0200	**0.0902**	**1.01**	<50.0	**5.61**

Sample: 349055 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**4670**	mg/Kg	4

Sample: 349056 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**231**	mg/Kg	4

Sample: 349057 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**187**	mg/Kg	4

Sample: 349058 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**231**	mg/Kg	4

Sample: 349059 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**197**	mg/Kg	4

Sample: 349060 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**373**	mg/Kg	4

Sample: 349061 - AH-1 6-6.5'

continued ...

sample 349061 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**378**	mg/Kg	4

Sample: 349062 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**2700**	mg/Kg	4

Sample: 349063 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**1260**	mg/Kg	4

Sample: 349064 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**1490**	mg/Kg	4

Sample: 349065 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**6140**	mg/Kg	4

Sample: 349066 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2070**	mg/Kg	4

Sample: 349067 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1330**	mg/Kg	4

Sample: 349068 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**903**	mg/Kg	4

Sample: 349069 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**113**	mg/Kg	4

Sample: 349070 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**133**	mg/Kg	4

Sample: 349071 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**1420**	mg/Kg	4

Sample: 349072 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**3560**	mg/Kg	4

Sample: 349073 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2350**	mg/Kg	4

Sample: 349074 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1420**	mg/Kg	4

Sample: 349075 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**454**	mg/Kg	4

Sample: 349076 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**579**	mg/Kg	4

Sample: 349077 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**1290**	mg/Kg	4

Sample: 349078 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**4700**	mg/Kg	4

Sample: 349079 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**2820**	mg/Kg	4

Sample: 349080 - AH-3 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**3780**	mg/Kg	4

Summary Report

(Corrected Report)

Ike Tavarez
Tetra Tech
1901 N. Big Spring St.
Midland, TX 79705

Report Date: April 16, 2014

Work Order: 14031827

Project Location: Lea Co, NM
Project Name: COG/LPC 31 Fed #1
Project Number: 112MC05818

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
358268	BH-1 0-1'	soil	2014-03-11	00:00	2014-03-18
358269	BH-1 2-3'	soil	2014-03-11	00:00	2014-03-18
358270	BH-1 4-5'	soil	2014-03-11	00:00	2014-03-18
358271	BH-1 6-7'	soil	2014-03-11	00:00	2014-03-18
358272	BH-1 9-10'	soil	2014-03-11	00:00	2014-03-18
358273	BH-1 14-15'	soil	2014-03-11	00:00	2014-03-18
358274	BH-1 19-20'	soil	2014-03-11	00:00	2014-03-18
358275	BH-2 0-1'	soil	2014-03-11	00:00	2014-03-18
358276	BH-2 2-3'	soil	2014-03-11	00:00	2014-03-18
358277	BH-2 4-5'	soil	2014-03-11	00:00	2014-03-18
358278	BH-2 6-7'	soil	2014-03-11	00:00	2014-03-18
358279	BH-2 9-10'	soil	2014-03-11	00:00	2014-03-18
358280	BH-2 14-15'	soil	2014-03-11	00:00	2014-03-18
358281	BH-2 19-20'	soil	2014-03-11	00:00	2014-03-18
358282	BH-2 24-25'	soil	2014-03-11	00:00	2014-03-18
358283	BH-2 29-30'	soil	2014-03-11	00:00	2014-03-18
358284	BH-2 34-35'	soil	2014-03-11	00:00	2014-03-18

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
358268 - BH-1 0-1'	<0.400 [1]	<0.400 Qs	**521** Jc,Qs	**3710** Jc,Qs	**433** Qs	**7120** [2] Jc,Qs
358269 - BH-1 2-3'	<0.100	<0.100 Qs	**79.4** Jc,Qs	**582** Jc,Qs	**188**	**4510** [3] Jc,Qs

continued ...

[1] Analyzed previously at 1x with no benzene. Dilution due to xylenes.
[2] Analyzed out of hold time.
[3] Analyzed out of hold time.

... continued

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)
358270 - BH-1 4-5'	<0.0200	**0.0981** Qs	**48.6** Jc,Qs	**589** Jc,Qs	**54.0**	**386** Qs
358271 - BH-1 6-7'	<0.0200	<0.0200 Qs	**0.334** Qs	**2.67** Qs		
358275 - BH-2 0-1'	<0.0400 [4]	<0.0400	**0.981**	**8.50**	**2780** Qs	**67.6**

Sample: 358268 - BH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**767**	mg/Kg	5

Sample: 358269 - BH-1 2-3'

Param	Flag	Result	Units	RL
Chloride		**952**	mg/Kg	5

Sample: 358270 - BH-1 4-5'

Param	Flag	Result	Units	RL
Chloride		**571**	mg/Kg	5

Sample: 358271 - BH-1 6-7'

Param	Flag	Result	Units	RL
Chloride		**500**	mg/Kg	5

Sample: 358272 - BH-1 9-10'

Param	Flag	Result	Units	RL
Chloride		**500**	mg/Kg	5

Sample: 358273 - BH-1 14-15'

Param	Flag	Result	Units	RL
Chloride		**347**	mg/Kg	5

Sample: 358274 - BH-1 19-20'

[4]Dilution due to hydorcarbons.

Param	Flag	Result	Units	RL
Chloride		**114**	mg/Kg	5

Sample: 358275 - BH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**738**	mg/Kg	5

Sample: 358276 - BH-2 2-3'

Param	Flag	Result	Units	RL
Chloride		**643**	mg/Kg	5

Sample: 358277 - BH-2 4-5'

Param	Flag	Result	Units	RL
Chloride		**714**	mg/Kg	5

Sample: 358278 - BH-2 6-7'

Param	Flag	Result	Units	RL
Chloride		**1090**	mg/Kg	5

Sample: 358279 - BH-2 9-10'

Param	Flag	Result	Units	RL
Chloride		**385**	mg/Kg	5

Sample: 358280 - BH-2 14-15'

Param	Flag	Result	Units	RL
Chloride		**337**	mg/Kg	5

Sample: 358281 - BH-2 19-20'

Param	Flag	Result	Units	RL
Chloride		**361**	mg/Kg	5

Sample: 358282 - BH-2 24-25'

Param	Flag	Result	Units	RL
Chloride		**529**	mg/Kg	5

Sample: 358283 - BH-2 29-30'

Param	Flag	Result	Units	RL
Chloride		**95.0**	mg/Kg	5

Sample: 358284 - BH-2 34-35'

Param	Flag	Result	Units	RL
Chloride		**90.0**	mg/Kg	5

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 18, 2014

IKE TAVAREZ

TETRA TECH

1910 N. BIG SPRING STREET

MIDLAND, TX 79705

RE: LPC 31 FEDERAL #1

Enclosed are the results of analyses for samples received by the laboratory on 06/12/14 15:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TETRA TECH
IKE TAVAREZ
1910 N. BIG SPRING STREET
MIDLAND TX, 79705
Fax To: (432) 682-3946

Received:	06/12/2014	Sampling Date:	06/12/2014
Reported:	06/18/2014	Sampling Type:	Soil
Project Name:	LPC 31 FEDERAL #1	Sampling Condition:	Cool & Intact
Project Number:	112MC05818	Sample Received By:	Kathy Perez
Project Location:	COG - LEA COUNTY, NM		

Sample ID: AH 1 BOTTOMHOLE @ 3' (H401800-01)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1170**	16.0	06/18/2014	ND	416	104	400	0.00	

Sample ID: AH 1 NORTH SIDEWALL (H401800-02)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/18/2014	ND	416	104	400	0.00	

Sample ID: AH 1 SOUTH SIDEWALL (H401800-03)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/18/2014	ND	416	104	400	0.00	

Sample ID: AH 1 EAST SIDEWALL (H401800-04)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/18/2014	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TETRA TECH
IKE TAVAREZ
1910 N. BIG SPRING STREET
MIDLAND TX, 79705
Fax To: (432) 682-3946

Received:	06/12/2014	Sampling Date:	06/12/2014
Reported:	06/18/2014	Sampling Type:	Soil
Project Name:	LPC 31 FEDERAL #1	Sampling Condition:	Cool & Intact
Project Number:	112MC05818	Sample Received By:	Kathy Perez
Project Location:	COG - LEA COUNTY, NM		

Sample ID: AH 2 BOTTOMHOLE @ 3' (H401800-05)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**272**	16.0	06/18/2014	ND	416	104	400	0.00	

Sample ID: AH 2 NORTH SIDEWALL (H401800-06)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	06/18/2014	ND	416	104	400	0.00	

Sample ID: AH 2 SOUTH SIDEWALL (H401800-07)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**208**	16.0	06/18/2014	ND	416	104	400	0.00	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

H401800

~~H401799~~

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

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.:

PROJECT NAME: COG - LPC 31 #1

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE 2014	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 (circled)	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
1	6-		S		X	AH 1 Bottomhole @ 3'	1	N			X														X				
2			↓		↓	AH 1 Northsidewall	↓	↓			↓														↓				
3			↓		↓	AH 1 southsidewall	↓	↓			↓														↓				
4			↓		↓	AH 1 East Sidewall	↓	↓			↓														↓				
5			↓		↓	AH 2 Bottomhole @ 3'	↓	↓			↓														↓				
6			↓		↓	AH 2 North Sidewall	↓	↓			↓														↓				
7			↓		↓	AH 2 South Sidewall	↓	↓			↓														↓				
						~~AH 3 Bottomhole~~																							

RELINQUISHED BY: (Signature) Adrian Garcia Date: 6/12/14 Time: 1530

RECEIVED BY: (Signature) [signature] Date: 6/12/14 Time: 3:40

SAMPLED BY: (Print & Initial) Adrian Garcia Date: Time:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED (circled) UPS

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

RECEIVING LABORATORY: Cardinal labs

RECEIVED BY: (Signature)

ADDRESS:

CITY: STATE: ZIP:

CONTACT: PHONE: DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: 4.8° #54

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.

SITE INFORMATION

Report Type: Closure Report

General Site Information:					
Site:	LPC 31 Federal #1				HOBBS OCD
Company:	COG Operating LLC				
Section, Township and Range	Sec 31	T 18S	R 32E		AUG 13 2014
Lease Number:	API # 30-025-37440				
County:	Lea County				
GPS:	32.70587° N			103.80451° W	RECEIVED
Surface Owner:	Federal				
Mineral Owner:					
Directions:	From intersection of Carlsbad HWY and HWY 243, go WEST on Hwy 243 for approximately 4.5 miles, turn NORTH onto CR 126A and continue for approximately 10.2 miles, turn WEST onto lease road and continue for apx. .8 miles, road curves SOUTH and continue for another 0.3 miles, turn EAST onto lease road for an addition .15 miles to location.				

Release Data:	
Date Released:	11/18/2013
Type Release:	Oil and Produced Water
Source of Contamination:	Failed gasket
Fluid Released:	20 bbls oil 50 bbls produced water
Fluids Recovered:	0 bbls oil 16 bbls produced water

Official Communication:			
Name:	Robert McNeil		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	***0***	
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	***0***	*0*
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	
200 ft - 1,000 ft.	10	
>1,000 ft.	***0***	0
Total Ranking Score:	**0**	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	5,000

TETRA TECH

HOBBS OCD

AUG 13 2014

RECEIVED

July 23, 2014

Mr. Geoffrey Leking
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Closure Report for the COG Operating LLC., LPC 31 Federal #1, Unit G, Section 31, Township 18 South, Range 32 East, Lea County, New Mexico.

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the LPC 31 Federal #1, Unit G, Section 31, Township 18 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.70587°, W 103.80451°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on November 18, 2013, and released approximately twenty (20) barrels of oil and fifty (50) barrels of produced water from a failed gasket on a heater treater with zero (0) barrels of oil and sixteen (16) barrels of produced water recovered. The spill occurred on the pad inside the tank firewalls measuring approximately 30' x 100'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 31. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 275' below surface. The average depth to groundwater map is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-

Tetra Tech
4000 North Big Spring, Suite 401, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

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 upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On December 12, 2013, Tetra Tech personnel inspected and sampled the spill area. Three (3) auger holes (AH-1, AH-2, and AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, none of the auger hole samples were above the RRAL's for TPH or BTEX. The area of AH-1 did show a chloride high of 4,670 mg/kg at 0-1' and declined to 231 mg/kg at 1.1.5' below surface. The deeper samples showed chloride spikes to 2,700 mg/kg at 7'-7.5', 1,260 mg/kg at 8-8.5' and 1,490 mg/kg at 9-9.5' below surface.

The area of auger hole (AH-2) showed elevated chloride concentrations down to 2' to 3' below surface and declined with depth, then spiked to 1,420 mg/kg at 6'-6.5' below surface. The area of auger hole (AH-3) showed elevated chloride concentrations with a chloride high of 4,700 mg/kg at 6'-6.5' below surface. None of the auger holes were vertically defined

On March 11, 2014, Tetra Tech personnel installed two (2) boreholes (BH-1 and BH-2) using a drilling rig to vertically define the chloride impact. Due to rig accessibility, BH-2 was installed between AH-1 and AH-2 and BH-3 was installed in the area of AH-3. The borehole locations are shown on Figure 3. The sampling results are summarized in Table 1. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Borehole (BH-1) showed elevated TPH and BTEX concentrations above the RRAL which then declined with depth to below the RRAL, at 6'-7' below surface. Borehole (BH-2) did not show TPH or BTEX concentrations above the RRAL.

Borehole (BH-1) did not show any significant chloride impact to the soils, with a chloride high of 952 mg/kg at 2'-3' below surface. In addition, the area of borehole (BH-2) also did not show a significant chloride impact to the soils. However, the sampling did show a chloride spike of 1,090 mg/kg at 6'-7' below surface.

TETRA TECH

Remedial Activities

According to the borehole data, BH-1 and BH-2 did not correlate to the auger hole data. Based on the evaluation, the impacted areas inside the facility appear to have hot spots of the hydrocarbon and chloride impacts in the subsurface soils. Due to the location of the spill, limited excavation was performed around equipment, production and electrical lines and any remaining impact will be deferred until the abandonment of the facility.

On June 2, 2014, Tetra Tech supervised the removal impacted material as highlighted (green) in Table 1 and shown on Figure 4. As proposed, the areas of auger holes (AH-1 and AH-2) were excavated an approximately depth of 3.0' below surface. Once excavated, bottom hole samples were taken in both areas; AH-1 bottom hole showed a chloride concentration of 1,170 mg/kg and AH-2 bottom hole showed a chloride concentration of 272 mg/kg. In the area of AH-1 North, South, and East sidewall samples were collected which all showed chloride concentrations of 16.0 mg/kg. In the area of AH-2 North and South sidewall samples were collected, which showed chloride concentrations of 48.0 mg/kg and 208 mg/kg, respectively.

In addition, the area of auger hole (AH-3) was excavated deeper to a depth of approximately 5.0' below surface in order to remove the TPH and BTEX impact. Confirmation samples were also collected in this area with a bottom hole chloride concentration of 800 mg/kg. South, West, North, and East sidewall samples were also collected and showed chloride concentrations of 880 mg/kg, 7,000 mg/kg, 2,400 mg/kg, and 128 mg/kg, respectively. None of the confirmation samples showed TPH or BTEX concentrations above the RRAL's. The sidewalls were not excavated further due to the equipment in place.

Once the area was excavated to the appropriate depths, the excavations were capped with a backfilled with clean soil to grade, and approximately 160 cubic yards of excavated material was hauled to proper disposal.

Conclusion

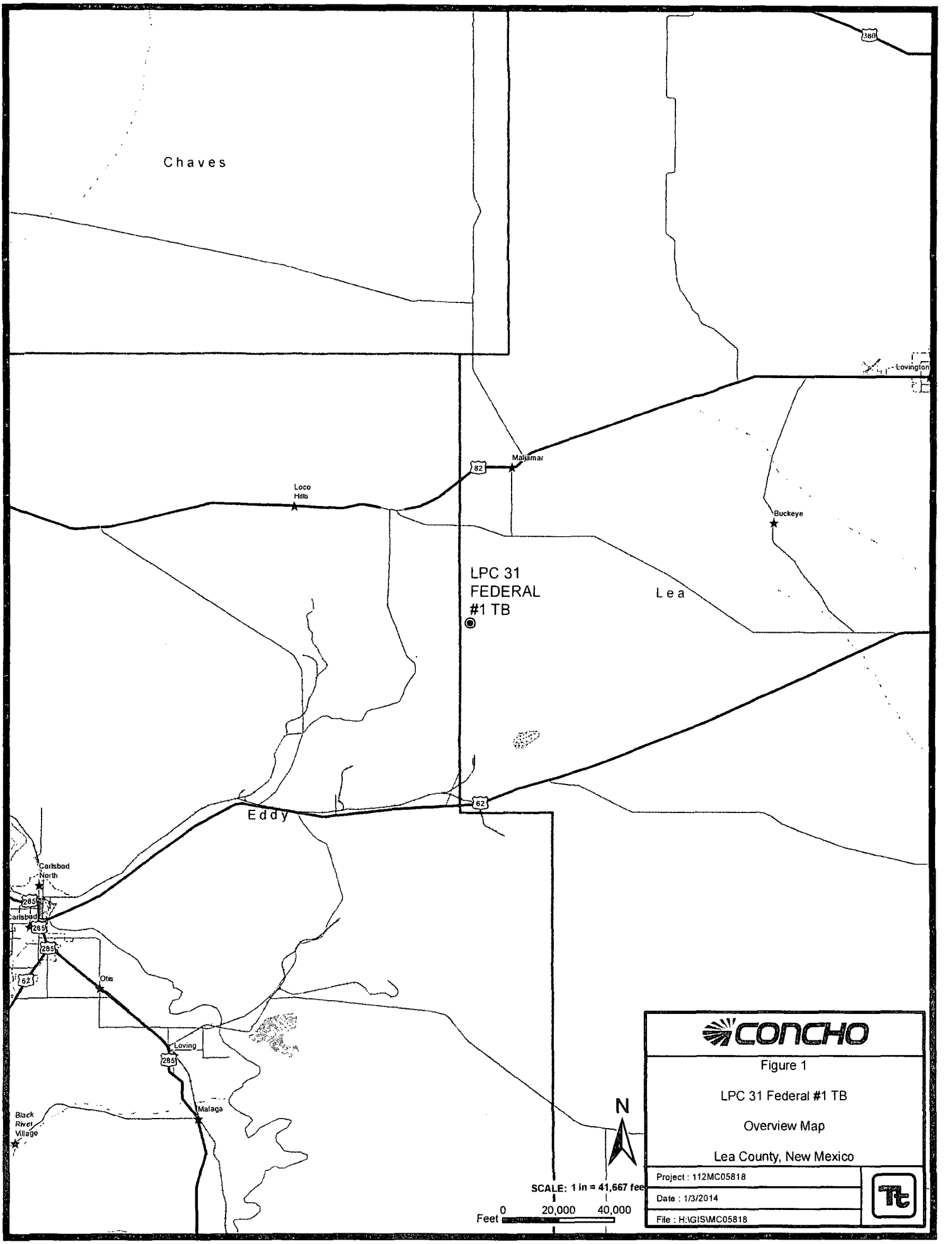
Based on the assessment and work performed at this site, COG requests closure of this spill issue. A final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Clair Gonzales,
Geologist I

cc: Robert McNeill – COG
cc: Jeff Robertson - BLM

Figures



CONCHO

Figure 1

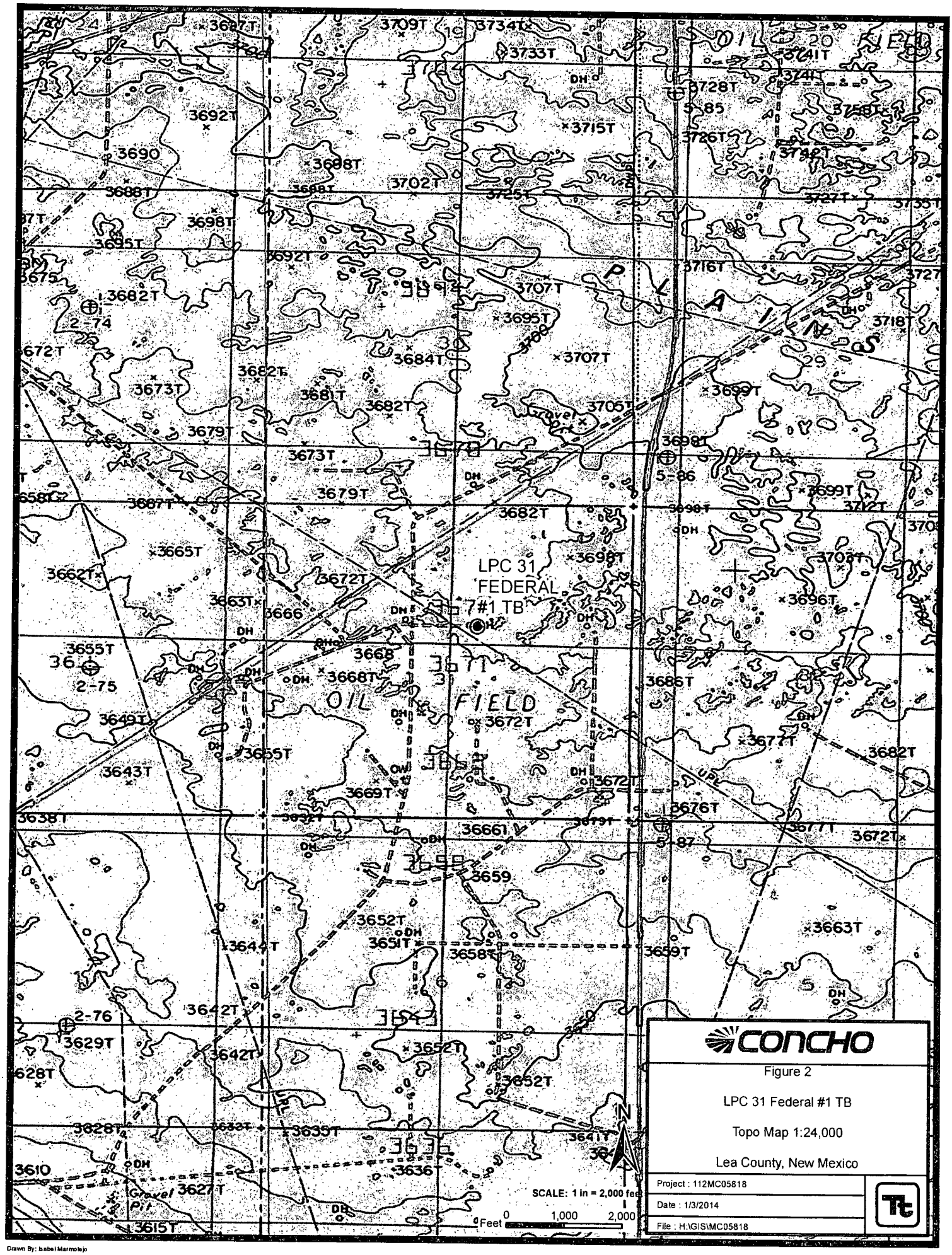
LPC 31 Federal #1 TB

Overview Map

Lea County, New Mexico

Project : 112MC05818	
Date : 1/3/2014	
File : H:\GIS\MC05818	

Drawn By: Isabel Marmolejo



CONCHO

Figure 2

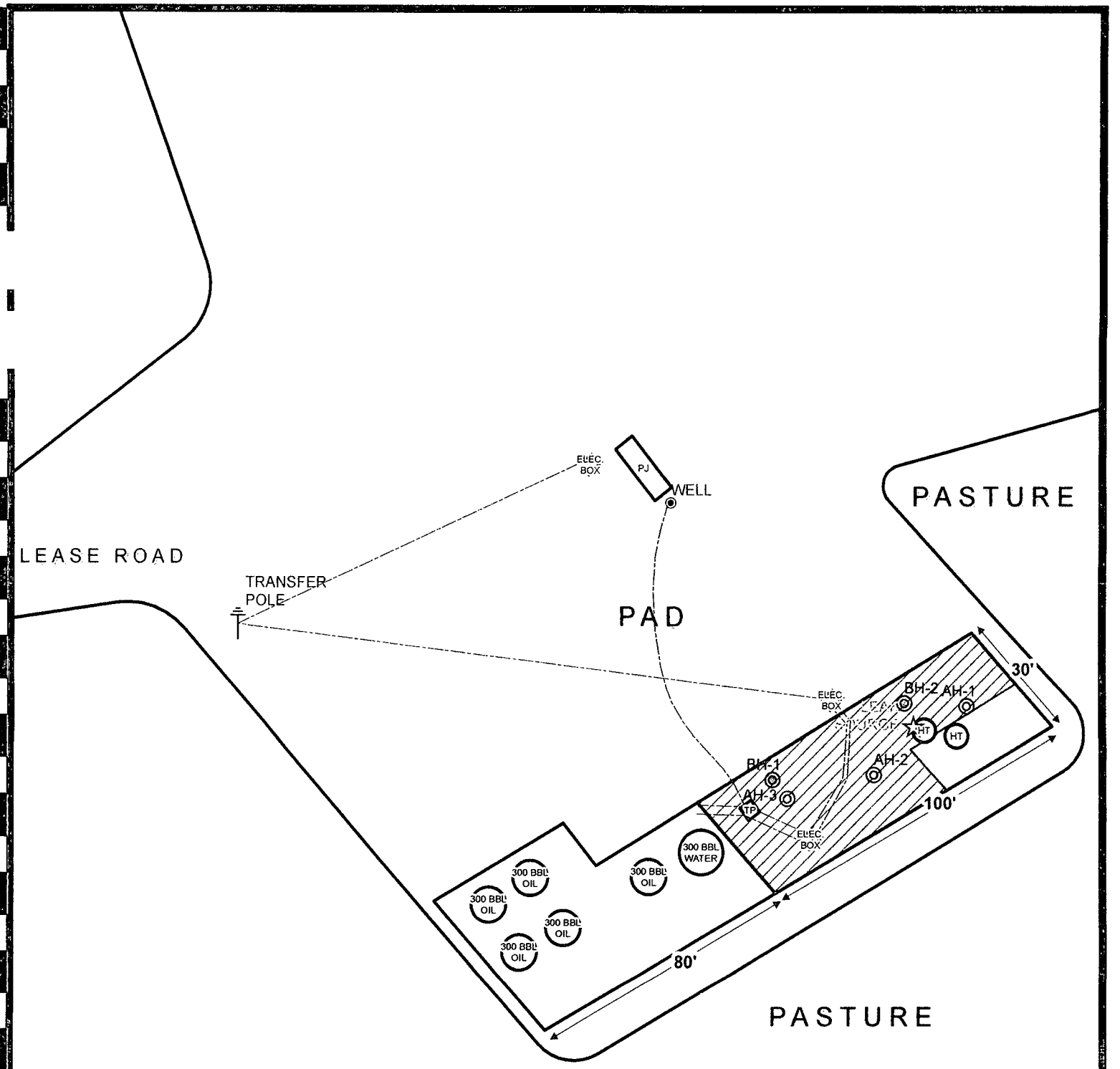
LPC 31 Federal #1 TB

Topo Map 1:24,000

Lea County, New Mexico

Project : 112MC05818	
Date : 1/3/2014	
File : H:\GIS\MC05818	

Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATIONS
- SPILL AREA

N

SCALE: 1 IN = 49 FEET

Feet 0 20 40

CONCHO

Figure 3

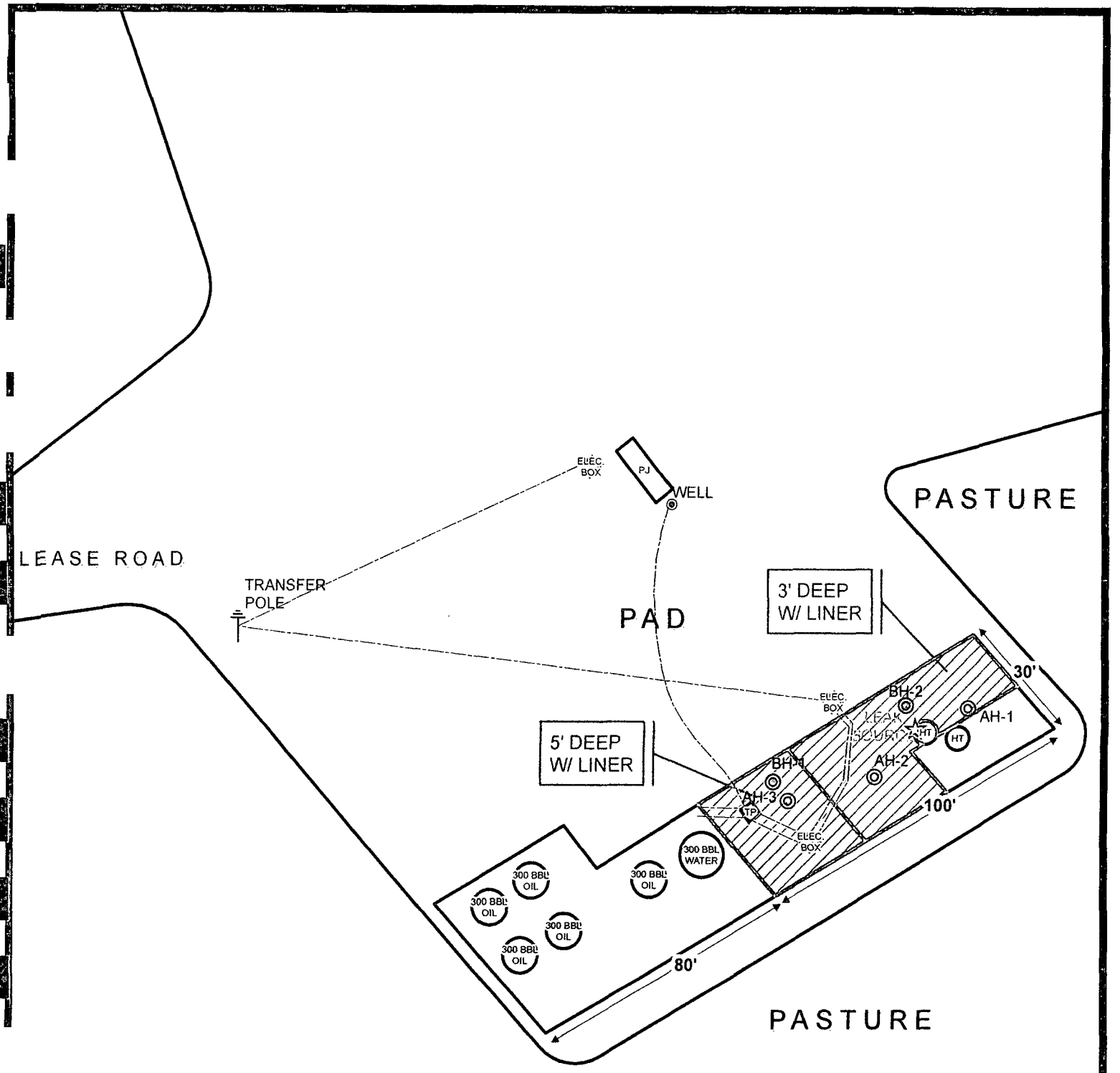
LPC 31 Federal #1 TB

Spill Assessment Map

Lea County, New Mexico

Project : 112MC05818	
Date : 05/30/2014	
File : H:\GIS\MC05818	

Drawn By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATIONS
- EXCAVATED AREAS
- INSTALLED LINER

N

SCALE: 1 IN = 49 FEET

Feet 0 20 40

CONCHO

Figure 4

LPC 31 Federal #1 TB

Excavation Areas & Depths Map

Lea County, New Mexico

Project : 112MC05818

Date : 7/15/2014

File : H:\GIS\MC05818

Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
LPC 31 Federal #1
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	12/12/2013	0-1	-		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	**4,670**
	"	1-1.5	-		X	-	-	-	-	-	-	-	-	231
	"	2-2.5	-		X	-	-	-	-	-	-	-	-	187
	"	3-3.5	-		X	-	-	-	-	-	-	-	-	231
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	197
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	373
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	378
	"	7-7.5	-	X		-	-	-	-	-	-	-	-	**2,700**
	"	8-8.5	-	X		-	-	-	-	-	-	-	-	**1,260**
	"	9-9.5	-	X		-	-	-	-	-	-	-	-	**1,490**
AH-1 Bottom Hole	6/12/2014	3	-	X		-	-	-	-	-	-	-	-	1,170
AH-1 North Sidewall	"	-	-	X		-	-	-	-	-	-	-	-	16.0
AH-1 South Sidewall	"	-	-	X		-	-	-	-	-	-	-	-	<16.0
AH-1 East Sidewall	"	-	-	X		-	-	-	-	-	-	-	-	16.0
AH-2	12/12/2013	0-1	-		X	610	2090	2700	0.110	5.35	5.64	24.7	35.8	**6,140**
	"	1-1.5	-		X	4.34	<50.0	4.34	-	-	-	-	-	**2,070**
	"	2-2.5	-		X	-	-	-	-	-	-	-	-	**1,330**
	"	3-3.5	-		X	-	-	-	-	-	-	-	-	903
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	113
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	133
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	**1,420**
BH-2	3/11/2014	0-1	-		X	67.6	2,780	2,848	<0.0400	<0.0400	0.981	8.50	9.48	738
	"	2-3	-		X	-	-	-	-	-	-	-	-	643
	"	4-5	-	X		-	-	-	-	-	-	-	-	714
	"	6-7	-	X		-	-	-	-	-	-	-	-	**1,090**
	"	9-10	-	X		-	-	-	-	-	-	-	-	385
	"	14-15	-	X		-	-	-	-	-	-	-	-	337
	"	19-20	-	X		-	-	-	-	-	-	-	-	361
	"	24-25	-	X		-	-	-	-	-	-	-	-	529
	"	29-30	-	X		-	-	-	-	-	-	-	-	95.0
	"	34-35	-	X		-	-	-	-	-	-	-	-	90.0
AH-2 Bottom Hole	6/12/2014	3	-	X		-	-	-	-	-	-	-	-	272
AH-2 North Sidewall	"	-	-	X		-	-	-	-	-	-	-	-	48.0
AH-2 South Sidewall	"	-	-	X		-	-	-	-	-	-	-	-	208

Table 1
COG Operating LLC.
LPC 31 Federal #1
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-3	12/12/2013	0-1			X	5.61	<50.0	5.61	<0.0200	<0.0200	0.0902	1.01	1.10	**3,560**
	"	1-1.5			X	-	-	-	-	-	-	-	-	**2,350**
	"	2-2.5			X	-	-	-	-	-	-	-	-	**1,420**
	"	3-3.5			X	-	-	-	-	-	-	-	-	454
	"	4-4.5			X	-	-	-	-	-	-	-	-	579
	"	5-5.5			X	-	-	-	-	-	-	-	-	**1,290**
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	**4,700**
	"	7-7.5	-	X		-	-	-	-	-	-	-	-	**2,820**
	"	8-8.5	-	X		-	-	-	-	-	-	-	-	**3,780**
BH-1	3/11/2014	0-1			X	7,120	433	**7,553**	<0.400	<0.400	521	3,710	**4,231**	767
	"	2-3	-		X	4,510	188	4,698	<0.100	<0.100	79.4	582	**661**	952
	"	4-5			X	386	54.0	440	<0.0200	0.0981	48.6	589	**638**	571
	"	6-7	-	X		-	-	-	<0.0200	<0.0200	0.334	2.67	3.00	500
	"	9-10	-	X		-	-	-	-	-	-	-	-	500
	"	14-15	-	X		-	-	-	-	-	-	-	-	347
	"	19-20	-	X		-	-	-	-	-	-	-	-	114
AH-3 Bottom Hole	6/3/2014	5	-	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	800
AH-3 South Sidewall	"	-	-	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	880
AH-3 West Sidewall	"	-	-	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	7,000
AH-3 North Sidewall	"	-	-	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	2,400
AH-3 East Sidewall	"	-	-	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	128

(-) Not Analyzed

(BEB) Below Excavation Bottom

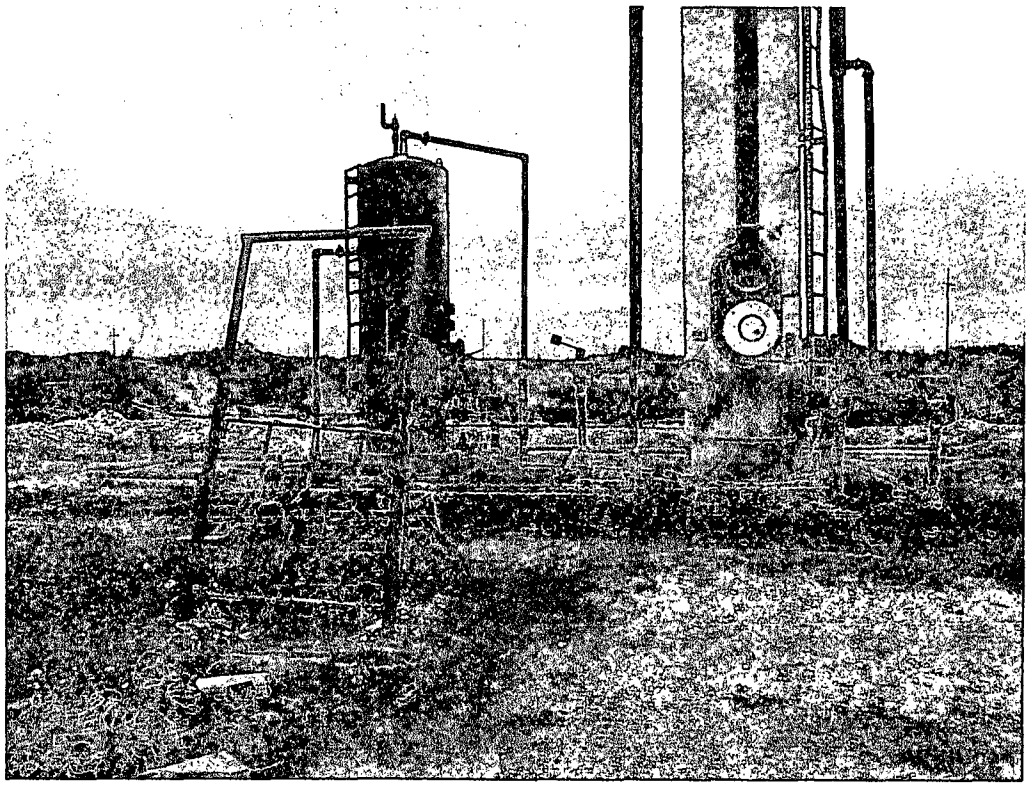
Installed 40 mil liner

Soil Removed and Excavation Depths

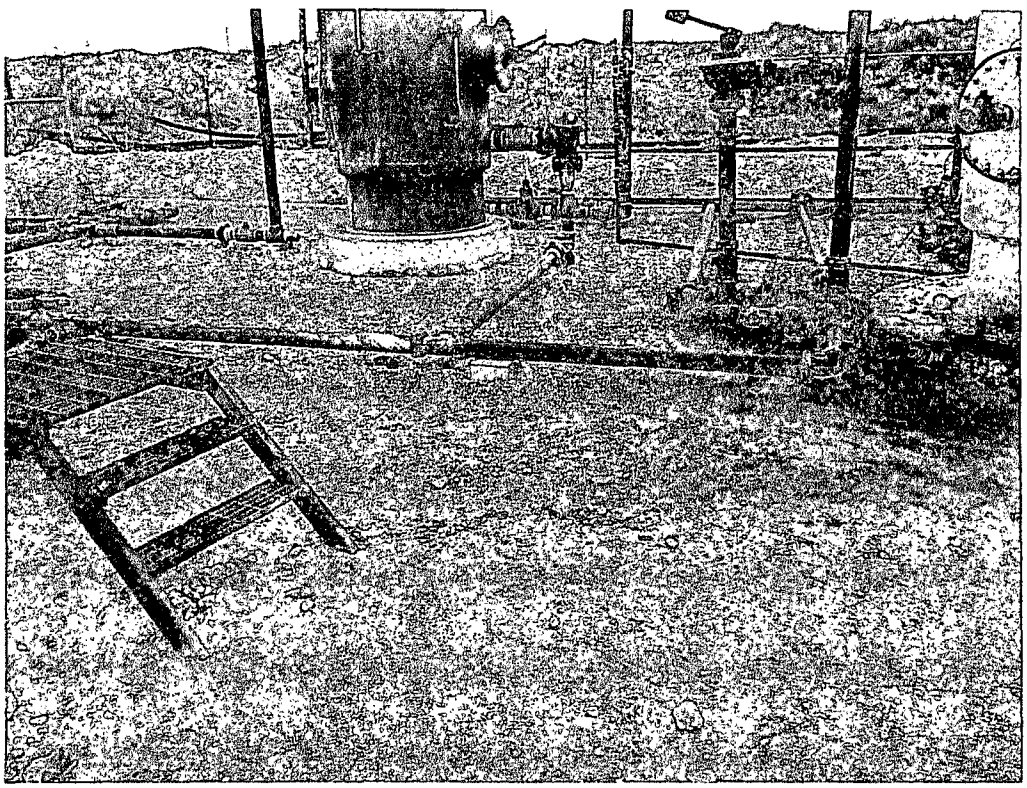
Photos

COG Operating LLC
LPC 31 Federal #1
Lea County, New Mexico

TETRA TECH



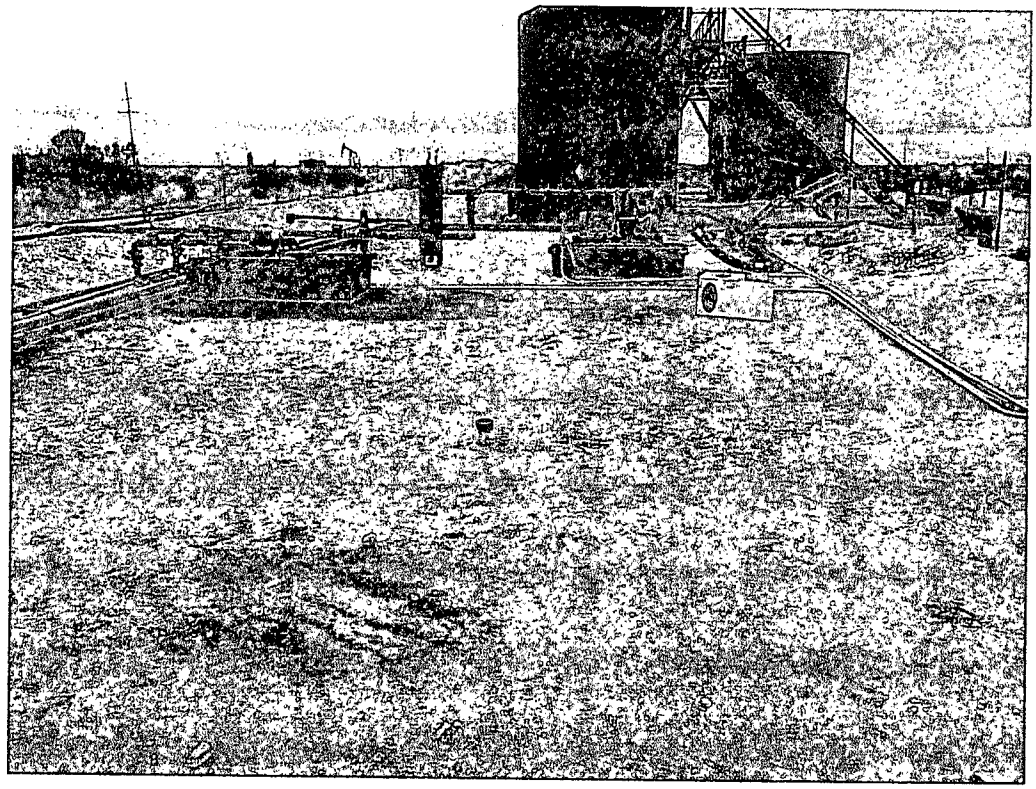
View South – Area of AH-1



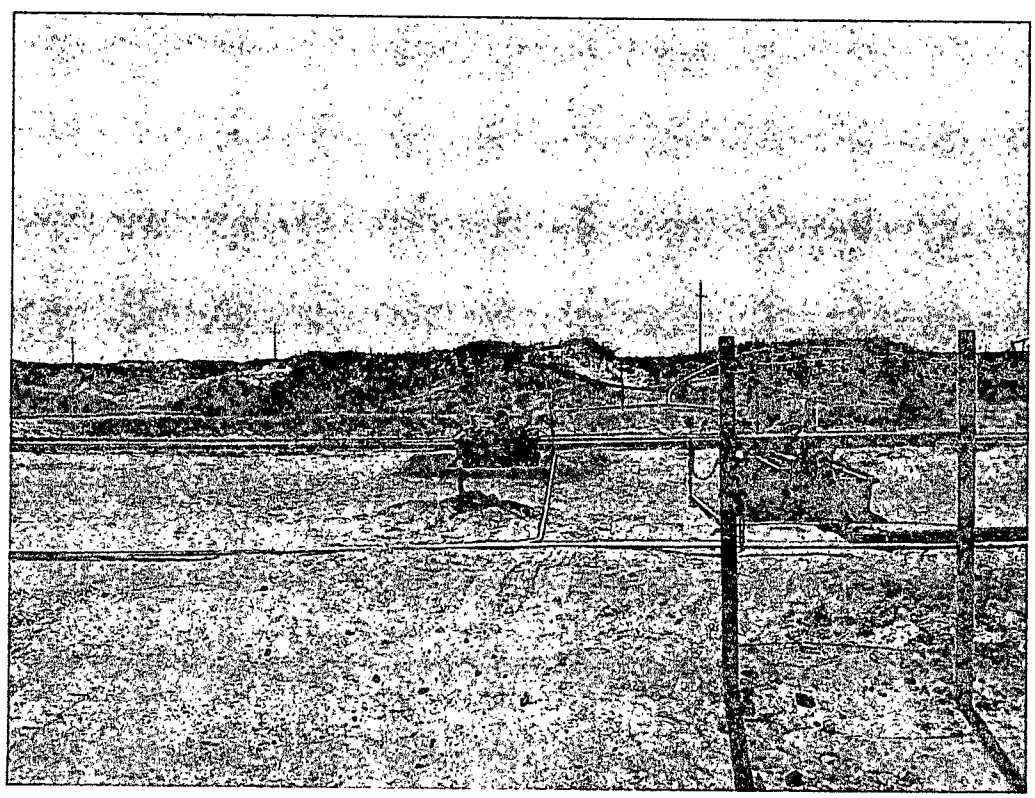
View East – Area of AH-2

COG Operating LLC
LPC 31 Federal #1
Lea County, New Mexico

TETRA TECH



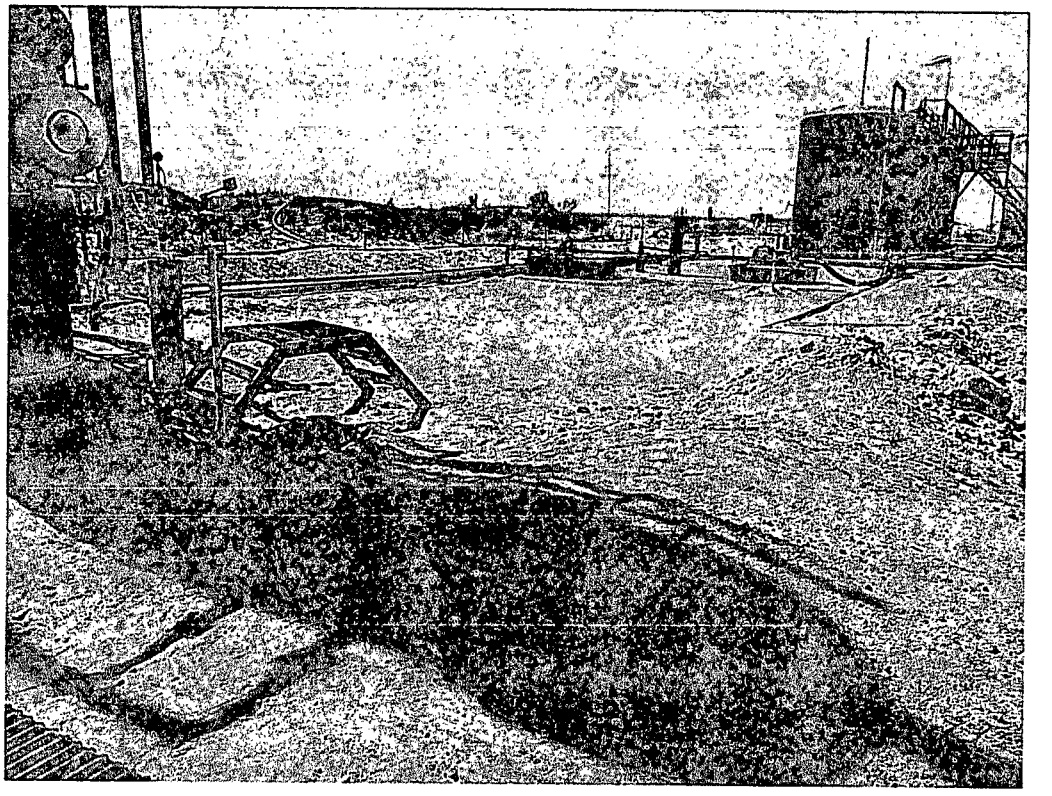
View Southwest – Area of AH-3



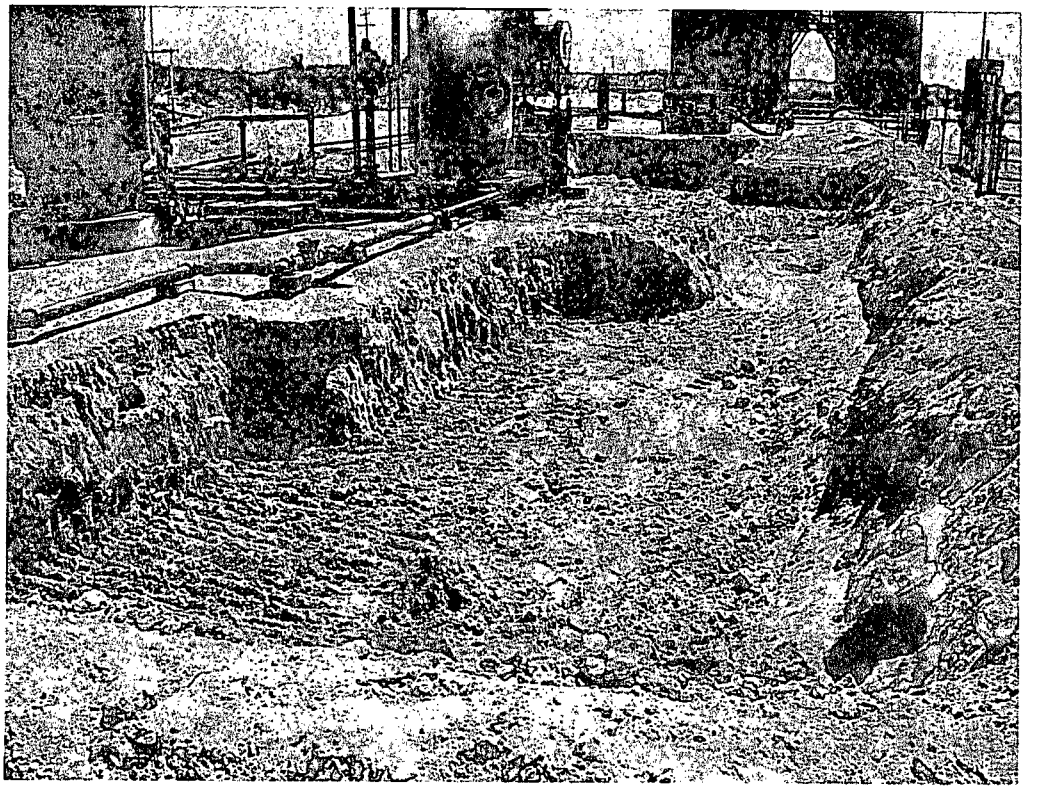
View South – Area of BH-1

COG Operating LLC
LPC 31 Federal #1
Lea County, New Mexico

TETRA TECH



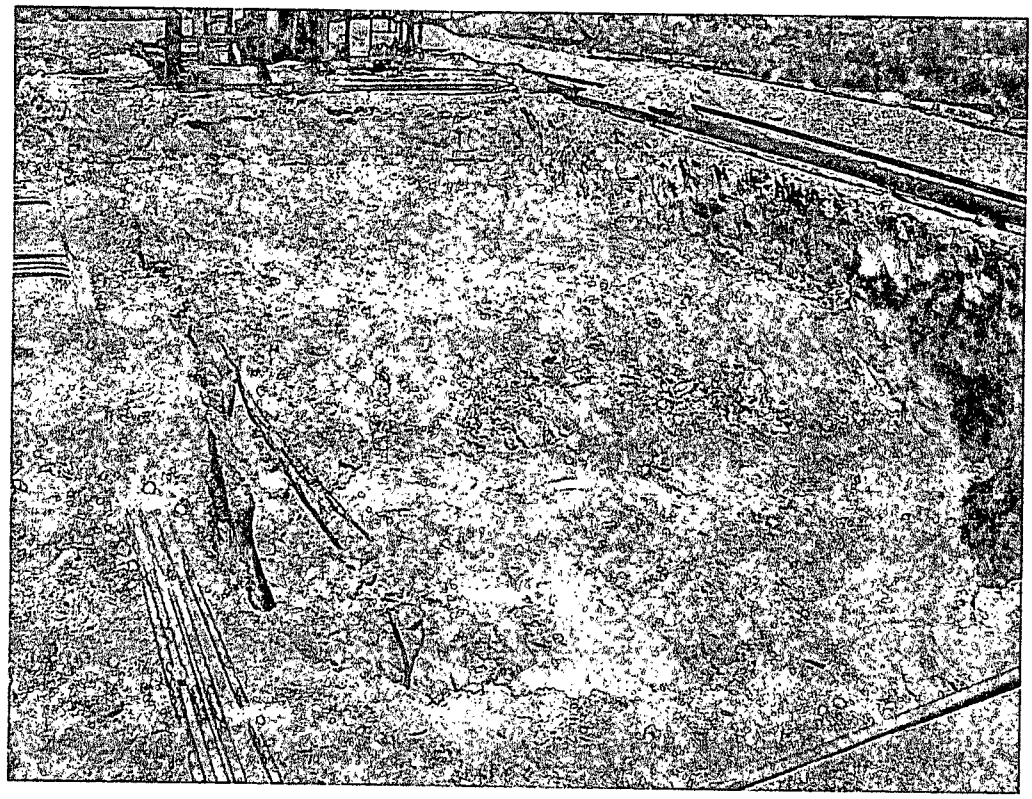
View Southwest – Area of BH-2



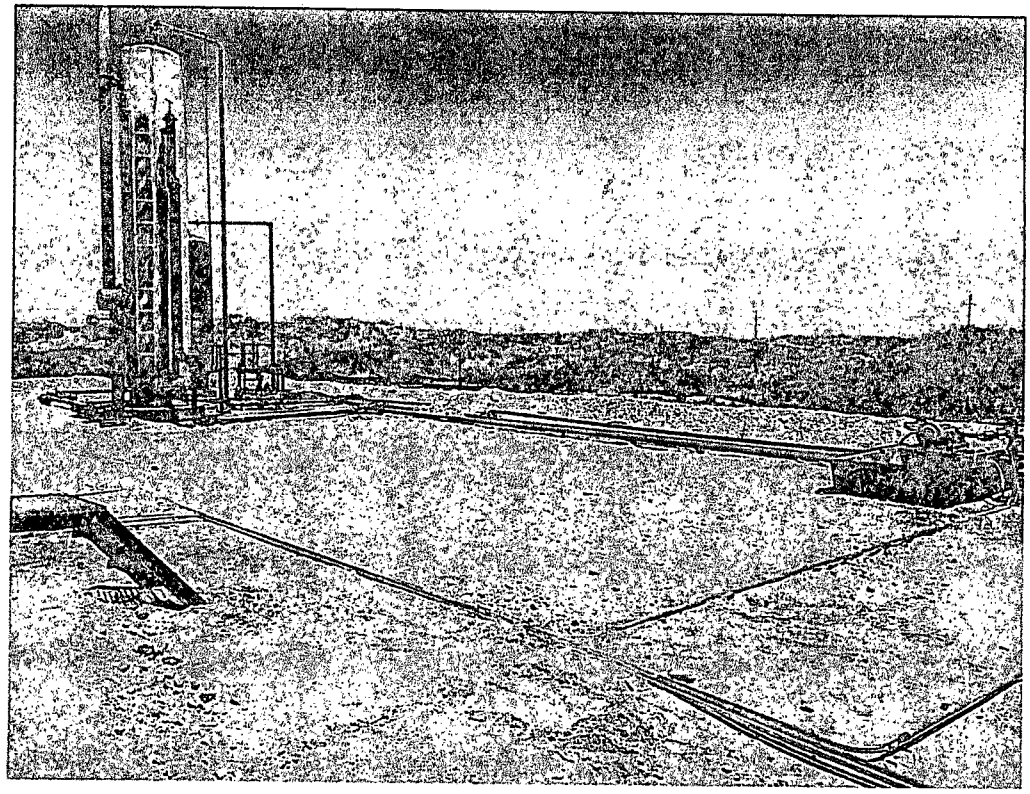
View West – Excavated area of AH-1 and AH-2

COG Operating LLC
LPC 31 Federal #1
Lea County, New Mexico

TETRA TECH



View South – Excavated area of AH-3



View Southwest – Backfilled excavation area

Appendix A