2499-pLWJ1012053850
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1RP 2463

District I
1625 N. French Dr., Hobbs, NM 88240
District II
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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

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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	BC FEDERAL #1 TANK BATTERY	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. LC-029405-A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					LEA

Latitude 32 49.572 **Longitude** 103 47.526

NATURE OF RELEASE

Type of Release	Produced Water	Volume of Release 45bbls	Volume Recovered 40bbls
Source of Release	Transfer Pump	Date and Hour of Occurrence 03/13/2010	Date and Hour of Discovery 03/13/2010
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson - OCD Geoffrey Leking - OCD	
By Whom?	Josh Russo	Date and Hour 03/15/2010	4:59 p.m.
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 cause of the release was due to a power outage to the transfer pump. The power issue has been corrected.

Describe Area Affected and Cleanup Action Taken.*

45bbls of produced water was initially released and the entire release was contained inside the dike walls of the tank battery. A vacuum truck was called and recovered 40bbls of produced water. The contaminated dirt and gravel has been removed. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD/BLM for approval prior to any significant remediation.

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: 03/18/2010 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
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2nd

Form C-141
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Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Repor

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 BC FEDERAL #1 TANK BATTERY	Facility Type Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. NM LC-029405-A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					LEA

Latitude 32 49.572 **Longitude** 103 47.526

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 9bbls	Volume Recovered 6bbls
Source of Release Water Tank	Date and Hour of Occurrence 03/26/2010	Date and Hour of Discovery 03/26/2010 7:30 a.m.
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
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 cause of the problem was due to an alarm system failure. The alarm system has been repaired.

Describe Area Affected and Cleanup Action Taken.*

9bbls of produced water was released and completely contained inside the dike walls of the tank battery. A vacuum truck was called and recovered 6bbls of produced water. The contaminated soil has been removed. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMMOCD for approval prior to any significant remediation work.

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: 04/05/2010 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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District III
1000 Rio Brazos Road, Aztec, NM 87410
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State of New Mexico
Energy Minerals and Natural Resources

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

1RP 2499

3rd

Form C-141
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Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Repor

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	BC FEDERAL #1	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. NMLC 029405-A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					Lea

Latitude 32 49.572 **Longitude** 103 47.526

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 181bbls	Volume Recovered 180bbls
Source of Release Water Tank	Date and Hour of Occurrence 04/20/2010	Date and Hour of Discovery 04/20/2010 4:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson – OCD Geoffrey Leking – OCD Trishia Bad Bear – BLM	
By Whom? Josh Russo	Date and Hour 04/20/2010 4:52 p.m.	
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 cause of the release was due to an alarm system failure. The alarm transducer has been replaced.

Describe Area Affected and Cleanup Action Taken.*

181bbls of water was initially released from the water tank inside the tank batter. We were able to recover 180bbls of produced water. The fluid remained completely inside the firewalls of the tank battery and is located in the excavated area from the previous spill. (The estimated chloride content of this release is 110121.0 mg/L.) Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD / BLM for approval prior to any significant remediation work.

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: 04/28/2010 Phone: 432-212-2399	

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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1000 Rio Brazos Road, Aztec, NM 87410
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State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
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Santa Fe, NM 87505

NAVAJO · 4th Law

Form C-141
Revised October 10, 2003

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side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Repor

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	BC Federal #1 Tank Battery	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. NMLC-029405A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					Lea

Latitude 32 49.576 **Longitude** 103 47.529

NATURE OF RELEASE

Type of Release Oil	Volume of Release 80bbls	Volume Recovered 75bbls
Source of Release Oil tanks	Date and Hour of Occurrence 08/20/2010	Date and Hour of Discovery 08/20/2010 8:30 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson—OCD Geoffrey Leking—OCD Trishia Bad Bear—BLM Jim Amos—BLM	
By Whom? Josh Russo	Date and Hour 08/20/2010 7:50 p.m.	
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.*

Dispatch problems by Navajo Trucking Company resulted in the oil trucks not being able to haul which ultimately led to oil stock tanks running over. Navajo has accepted fault for the release and financially responsible for the environmental cleanup.

Describe Area Affected and Cleanup Action Taken.*

Initially 80bbls of oil was release and completely contained inside the dike walls of the facility. We were able to recover 75bbls with a vacuum truck. The dimensions of the spill area were 30' x 30' located behind the oil tanks. The contaminated soil has been removed and properly disposed. (The closest well location to the release is the BC Federal #1, 330' FNL 1575' FWL, Sec.20-T17S-R32E, Lea Co., NM, NMLC-029405A, API#30-025-34733). Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD / BLM for approval prior to any significant remediation work.

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: 08/30/2010 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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1301 W. Grand Avenue, Artesia, NM 88210
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State of New Mexico
Energy Minerals and Natural Resources

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Revised October 10, 2003

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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 BC Federal #1 Tank Battery	Facility Type Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-025-34733 Closest well location

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					Lea

Latitude 32 51.393 **Longitude** 103 45.798

32.49.575 103.47.525

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 70 bbls	Volume Recovered 65 bbls
Source of Release 6" water line	Date and Hour of Occurrence 06/05/2012	Date and Hour of Discovery 06/05/2012 6:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Geoffrey Leking-OCD James Amos-BLM Terry Gregston-BLM	
By Whom? Michelle Mullins	Date and Hour 06/06/2012 3:08 p.m.	
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.*

A 6" produced water line at the facility ruptured causing the release. The 6" line has been rebuilt and returned to service.

Describe Area Affected and Cleanup Action Taken.*

Initially, 70 bbls of produced water was released from a 6" produced water line and we were able to recover 65 bbls with a vacuum truck. This release occurred inside the BC Federal #1 tank battery. We have recovered all free standing fluid inside the facility and have scraped the pad area from the overspray. We will present a remediation work plan to the OCD/BLM for approval prior to any significant remediation work.

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: 06/14/2012 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
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1000 Rio Brazos Road, Aztec, NM 87410
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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

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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) 230-0077**
Facility Name **BC Federal #1 Tank Battery**	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. LC-029405

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					Lea

Latitude 32.826202 **Longitude** 103.792133

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 45 bbls oil	Volume Recovered 40 bbls
Source of Release: Transfer Pump	Date and Hour of Occurrence 03/13/2010	Date and Hour of Discovery 03/13/2010
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson-OCD Geoffrey Leking-OCD	
By Whom? Josh Russo	Date and Hour 3/15/2010 4:59 p.m.	
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 cause of the release was due to a power outage to the transfer pump. The power issue has been corrected.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it 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 fort COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 5-17-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
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State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
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Form C-141
Revised October 10, 2003

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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) 230-0077**
Facility Name	**BC Federal #1 Tank Battery**	Facility Type	**Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. LC-029405

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					Lea

Latitude 32.826202 **Longitude** 103.792133

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 9 bbls oil	Volume Recovered 6 bbls
Source of Release: Water Tank	Date and Hour of Occurrence 03/26/2010	Date and Hour of Discovery 03/26/2010 7:30 p.m.
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
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 cause of the problem was due to an alarm system failure. The alarm system has been repaired.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it 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 fort COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 5-17-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy Minerals and Natural Resources

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Form C-141
Revised October 10, 2003

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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) 230-0077**
Facility Name **BC Federal #1 Tank Battery**	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. LC-029405

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					Lea

Latitude 32.826202 **Longitude** 103.792133

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 181 bbls oil	Volume Recovered 180 bbls
Source of Release: Water Tank	Date and Hour of Occurrence 04/20/2010	Date and Hour of Discovery 04/20/2010 4:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson-OCD Geoffrey Leking-OCD Trishia Bad Bear-BLM	
By Whom? Josh Russo	Date and Hour 04/20/2010 4:52 p.m.	
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 cause of the problem was due to an alarm system failure. The alarm transducer has been replaced.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it 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 Approved by District Supervisor:	
Printed Name: Ike Tavarez (agent fort COG)		
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 5-17-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

District I
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State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
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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) 230-0077**
Facility Name	**BC Federal #1 Tank Battery**	Facility Type	**Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. LC-029405

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					Lea

Latitude 32.826202 **Longitude** 103.792133

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 70 bbls oil	Volume Recovered 65 bbls
Source of Release: 6" water line	Date and Hour of Occurrence 06/05/2012	Date and Hour of Discovery 06/05/2012 6:00 p.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Geoffrey Leking-OCD Jim Amos-BLM Terry Gregston-BLM	
By Whom? Michelle Mullins	Date and Hour 06/06/12 3:08 p.m.	
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.*

A 6" produced water line at the facility ruptured causing the release. The 6" line has been rebuilt and returned to service.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it 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 fort COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 5-17-13 Phone: (432) 682-4559		

* 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) 230-0077**
Facility Name	**BC Federal #1 Tank Battery**	Facility Type	**Tank Battery**

Surface Owner: Federal	Mineral Owner	Lease No. LC-029405

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	20	17S	32E					Lea

Latitude 32.826202 **Longitude** 103.792133

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 80 bbls oil	Volume Recovered 75 bbls
Source of Release: Oil Tank	Date and Hour of Occurrence 08/20/2010	Date and Hour of Discovery 08/20/2010 8:30 p.m.

Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Larry Johnson-OCD Geoffrey Leking-OCD Trishia Bad Bear-BLM Jim Amos-BLM
By Whom? Josh Russo	Date and Hour 08/20/2010 7:50 p.m.
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.*

Dispatch problems by Navajo Trucking Company resulted in the oil trucks not being able to haul, which ultimately led to oil stock tanks running over. Navajo has accepted fault for the release and financial responsibility for the environmental cleanup.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define the spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted it 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 fort COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 5-17-13 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	BC Federal #1 Tank Battery	
Company:	COG Operating LLC	
Section, Township and Range	Unit C Section 20 Township 17S Range 32E	
Lease Number:	LC-029405-A	
County:	Lea County	
GPS:	32.826202	103.792133
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From intersection of CR126 and Hwy 529, travel north on CR126 for 1.9 miles, turn left (west), go 1.6 miles, turn right (north), go 0.5 miles, turn right and go 0.1 miles, turn left and go 0.1 miles to tank battery	

Release Data:

3/13/2010	*Produced water*	45 bbls lost - recovered 40 - inside TB firewalls
3/26/2010	*Produced water*	9 bbls lost - recovered 6 - inside TB firewalls
4/10/2010	*Produced water*	181 bbls lost - recovered 180 - inside TB firewalls
8/20/2010	*Oil*	80 bbls lost - recovered 75 - inside TB firewalls
6/5/2012	*Produced water*	70 bbls lost - recovered 65 - inside TB firewalls and pasture

Official Communication:

Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		1910 N. Big Spring
P.O. Box	600 W. Illinois Ave.		
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		432-682-4559
Fax:	(432) 684-7137		
Email:	pellis@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	>200'

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

March 19, 2013

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

Re: Work Plan for the COG Operating LLC., BC Federal #1 Tank Battery, located in Unit C, Section 20, Township 17 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 BC Federal #1 Tank Battery, located in Unit C, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.826202°, W 103.792133°. The site location is shown on Figures 1 and 2.

Background

The BC Federal #1 Tank Battery had five (5) separate spills recorded with individual initial C-141 forms. The spills will be separated for clarification and referred to as Spill #1 through Spill #5. The spill inside the firewall did overlap each other as shown on Figure 3. The initial C-141 forms are enclosed in Appendix A. According to the State of New Mexico C-141, the spills detailed are shown below.

Spill #1

On March 13, 2010, the spill occurred and released approximately forty five (45) barrels of produced water due to a power outage to the transfer pump. To alleviate the problem, COG personnel repaired the power outage. Forty (40) barrels of standing fluids were recovered. The spill was contained within the facility berms.

Spill #2

On March 26, 2010, the spill occurred and released approximately nine (9) barrels of produced water due to an alarm failure. To alleviate the problem, COG personnel repaired the alarm system. Six (6) barrels of standing fluids were

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery - Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-1	6/10/10	0-1'		X		1,020	383	1,403	2.41	22.2	18.6	26.8	70.01	9,270
		1-1.5'		X		-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	9,470
		2-2.5'		X		-	-	-	-	-	-	-	-	4,620
		3-3.5'		X		-	-	-	-	-	-	-	-	3,070
	Clay	4-4.5'		X		-	-	-	-	-	-	-	-	3,140
		5-5.5'		X		-	-	-	-	-	-	-	-	4,090
SB-1	5/11/10	5'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	805
		7'		X		-	-	-	-	-	-	-	-	<200
		10'		X		-	-	-	-	-	-	-	-	<200
		12'		X		-	-	-	-	-	-	-	-	<200
		15'		X		-	-	-	-	-	-	-	-	<200
		20'		X		-	-	-	-	-	-	-	-	<200
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-1	4/8/10	0-1'		X		2250	524	2,774	**15.3**	71.6	50.2	69.4	**206.5**	10,500
		1-1.5'		X		-	-	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	13,100
		2-2.5'		X		-	-	-	<0.0100	<0.0100	<0.0100	0.08	0.08	3,960
		3-3.5'		X		-	-	-	-	-	-	-	-	4,090
		4-4.5'		X		-	-	-	-	-	-	-	-	3,540
		5-5.5'		X		-	-	-	-	-	-	-	-	6,770
		6-6.5'		X		-	-	-	-	-	-	-	-	7,180
		7-7.5'		X		-	-	-	-	-	-	-	-	4,680
		8-8.5'		X		-	-	-	-	-	-	-	-	2,830

recovered. The spill was contained within the facilities berm and impacted the same footprint of the previous spill (Spill #1).

Spill #3

On April 20, 2010, the spill occurred and released approximately hundred eighty one (181) barrels of produced water due to an alarm failure. To alleviate the problem, COG personnel replaced the alarm transducer. One hundred eighty (180) barrels of standing fluids were recovered. The spill was contained within the facilities berm and impacted the same footprint of the previous spills (Spill #1 and Spill #2).

Spill #4

On August 20, 2010, the released occurred and released approximately eighty (80) barrels of oil due to tank over flow. Approximately seventy-five (75) barrels of standing fluids were recovered. The spill was contained within the facility berms and impacted the same footprint of the previous spills only on the southwest corner of the facility.

Spill #5

The leak was discovered on June 5, 2012, and released approximately seventy (70) barrels of produced water due to a rupture 6" water line. To alleviate the problem, COG personnel repaired the line. Sixty-five (65) barrels of standing fluids were recovered. The spill was contained within the facility berms and impacted the same footprint of the previous spills only on the southwest corner of the facility. The fluids breached the southwest firewall and migrated approximately 340' southwest of the tank battery.

Spill Chronology and Tetra Tech Sampling

3/13/10	*Spill #1 occurred*
3/26/10	*Spill #2 occurred*
4/8/10	Initial assessment (spill #1 and spill #2) - installed 4 auger holes
4/20/10	*Spill #3 occurred*
5/11/10	Installed 3 borings to delineate impact
6/10/10	Follow up assessment to collected surface samples
8/20/10	*Spill #4 occurred*
9/7/10	Tetra Tech installed a single auger hole
11/20/10	Tetra Tech installed one boring
6/5/12	*Spill #5 occurred*
8/1/12	Tetra Tech installed auger holes
9/12/12	Tetra Tech installed borings

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 20. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 175' below surface. The groundwater data 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-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

Spill #1, #2, and #3 - Sampling
Inside Tank Battery Firewalls

On April 8, 2010, Tetra Tech personnel inspected and sampled the spill area for Spill #1 and Spill #2, which overlapped each other. A total of four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils.

Selected samples were analyzed for TPH 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 B. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the auger hole locations either showed TPH, benzene or total BTEX exceeding the RRAL and vertically defined in the shallow soils. Elevated chloride concentrations were detected at AH-1, AH-2 and AH-3 from surface to a depth of approximately 8-8.5' below surface. Deeper samples were not collected due to the dense caliche formation. The chloride impact was not vertically defined. The chloride impact at AH-4 was vertically defined and significantly declined at 3.0' below surface.

On May 11, 2010, Tetra Tech personnel supervised the installation of soil borings (SB-1, SB-2 and SB-3) utilizing an air rotary drilling rig to collect deeper samples. Prior to the installation of the soil borings, Spill #3 had occurred on top of the two older spills (Spill #1 and #2). The soil borings were installed to a total depth of 20.0' for SB-1 and 30.0' for SB-2, and SB-3. Referring to Table 1, chloride concentrations decreased with depth to less than 400 mg/kg at the bottom hole samples.

On June 10, 2010, Tetra Tech personnel collected additional samples (surface samples 0-5') from all four auger holes (AH-1, AH-2, AH-3 and AH-4) in order to correlate the drilling results with previous spill assessment. The sampling results are summarized in Table 1.

<u>Spill #4 Sampling</u>
Inside Tank Battery (Northwest Corner)

On September 7, 2010, Tetra Tech personnel inspected and sampled the spill area (Spill #4) located southwest corner of the facility, which measured approximately 30' x 30'. A single auger hole (AH-1) was 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 B. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 4.

Referring to Table 2, the submitted samples from AH-1 were below the RRAL for BTEX and TPH. Elevated chloride concentrations were detected down to 9-9.5' below surface of 4,710 mg/kg. In order to delineate the impact of the spill, deeper samples would need to be collected utilizing an air rotary.

On November 10, 2010, Tetra Tech personnel supervised the installation of a single soil boring (SB-1) near AH-1. Soil samples were collected to a depth of 40' below surface. Referring to Table 1, elevated chloride concentrations decreased to less than 200 mg/kg at 25' below surface.

<u>Spill #5 Sampling</u>
(Tank Battery -Northwest Corner and Outside Tank Battery

On August 1 2012, Tetra Tech personnel inspected and sampled the spill area (Spill #5). A total of eight (8) auger holes were installed to assess the spill area. The spill was contained within the facility berms and impacted the same footprint of the previous spills only on the southwest corner of the facility. The fluids breached the southwest firewall and migrated approximately 340' southwest of the tank battery. One auger hoe was installed inside the southwest firewall and seven (7) outside the facility firewalls.

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 B. The sampling results are summarized in Table 2. The auger hole locations are shown on Figure 4.
The

Referring to Table1, the auger hole (AH-1) located on the southwest corner, inside the tank battery showed total BTEX concentrations exceeding the RRAL at 0-1' of 54.1 mg/kg and 1-1.5' of 165.3 mg/kg and decline below the RRAL at 2-2.5' below surface. The chloride impact was not vertically defined, with a chloride of 4,330 mg/kg at 10-10.5 below surface.

Referring to Table 2, majority of the auger holes, installed outside the tank battery firewalls, were below the RRAL for TPH and BTEX, except for the area of AH-2. Auger hole (AH-2) showed a TPH of 6,956 mg/kg exceeding the RRAL, but declined to 297 mg/kg at 1-1.5' below the RRAL. In the areas of auger holes (AH-2 and AH-3), the chloride impacted soils were not defined. However, the remaining areas (AH-4, AH-5, AH-6, AH-7 and AH-8) were vertically defined and showed a declining chloride with depth.

On September 12, 2012, Tetra Tech personnel supervised the installation of a three (3) soil borings (SB-1, SB-2 and SB-3) in the areas of AH-1, AH-2 and AH-3. Auger holes (AH-1 and AH-2) showed a deeper chloride impact to the soils, which significantly declined at 50.0' below surface. In the area of AH-1 (SB-1), the bottom hole sample showed a slight chloride spike of 1,240 mg/kg at 59-60', with appears to be cross-contaminated with the upper sandy soils. The area of AH-3 (SB-3) showed a shallow impact and significant declined at approximately 15.0' below surface.

Work Plan

COG proposes to supervise the removal of impacted material as are highlighted in Table 1 and Table 2. In addition, the proposed excavation areas and depths are shown on Figure 4. For safety concerns and tank stability issues, the impacted soil inside the tank battery firewalls will be excavated to a depth of 3.0' to 4.0' below surface, except for the area of AH-4. Auger hole (AH-4) will be excavated to a depth of approximately 2.0' below surface. Once the areas are excavated to the appropriate depths, the excavation bottom of AH-1, AH-2 and AH-3 will be capped with clay material (6" thick) and backfilled to grade with clean soils.

In addition, the impacted areas outside the tank battery will be excavated from depth of approximately 1.0' to 7.0' below surface to remove the elevated chlorides. The area of AH-2 will be excavated to a depth of 4.0' to 5.0' below surface, where deeper excavation will not performed due to the vicinity of the spill (near tank battery and flow lines). The area of AH-3 will be excavated to a depth of 7.0' to remove majority of the chloride impact in the area.

Due to the location of the spill, the proposed excavation areas or depths may not be achieved due to wall cave ins, limited access, oil and gas equipment, electrical, structures or lines which may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the impacted soils are not accessible, the soils will be deferred until the abandonment of the facility.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Senior Project Manager

cc: Pat Ellis – COG
cc: Jim Amos – BLM

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery - Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-1	6/10/10	0-1'		X		1,020	383	1,403	2.41	22.2	18.6	26.8	**70.01**	9,270
		1-1.5'		X		-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	9,470
		2-2.5'		X		-	-	-	-	-	-	-	-	4,620
		3-3.5'		X		-	-	-	-	-	-	-	-	3,070
	Clay	4-4.5'		X		-	-	-	-	-	-	-	-	3,140
		5-5.5'		X		-	-	-	-	-	-	-	-	4,090
SB-1	5/11/10	5'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	805
		7'		X		-	-	-	-	-	-	-	-	<200
		10'		X		-	-	-	-	-	-	-	-	<200
		12'		X		-	-	-	-	-	-	-	-	<200
		15'		X		-	-	-	-	-	-	-	-	<200
		20'		X		-	-	-	-	-	-	-	-	<200
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-1	4/8/10	0-1'		X		2250	524	2,774	15.3	71.6	50.2	69.4	**206.5**	10,500
		1-1.5'		X		-	-	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	13,100
		2-2.5'		X		-	-	-	<0.0100	<0.0100	<0.0100	0.08	0.08	3,960
		3-3.5'		X		-	-	-	-	-	-	-	-	4,090
		4-4.5'		X		-	-	-	-	-	-	-	-	3,540
		5-5.5'		X		-	-	-	-	-	-	-	-	6,770
		6-6.5'		X		-	-	-	-	-	-	-	-	7,180
		7-7.5'		X		-	-	-	-	-	-	-	-	4,680
		8-8.5'		X		-	-	-	-	-	-	-	-	2,830

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery - Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-2	6/10/10	0-1'		X		209	3,240	3,449	0.67	7.02	4.25	6.22	18.16	3,690
		1-1.5'		X		–	–	–	–	–	–	–	–	4,960
		2-2.5'		X		–	–	–	–	–	–	–	–	7,570
		3-3.5'		X		–	–	–	–	–	–	–	–	12,500
	Clay	4-4.5'		X		–	–	–	–	–	–	–	–	13,000
		5-5.5'		X		–	–	–	–	–	–	–	–	5,880
SB-2	5/11/10	5'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	12,000
		7'		X		–	–	–	–	–	–	–	–	12,400
		10'		X		–	–	–	–	–	–	–	–	8,610
		12'		X		–	–	–	–	–	–	–	–	2,790
		15'		X		–	–	–	–	–	–	–	–	7,130
		20'		X		–	–	–	–	–	–	–	–	881
		25'		X		–	–	–	–	–	–	–	–	996
		30'		X		–	–	–	–	–	–	–	–	<200
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-2	4/8/10	0-1'		X		5,780	5,570	**11,350**	**21.1**	161	106	158	**446.1**	4,740
		1-1.5'		X		2,550	3,980	**6,530**	**25.4**	100	46.8	84.6	**256.8**	5,160
		2-2.5'		X		2,010	1,020	3,030	**14**	70.60	32.50	69.6	**187.1**	11,400
		3-3.5'		X		–	–	–	–	–	–	–	–	10,400
		4-4.5'		X		–	–	–	<0.200	7.63	11.7	26.4	**45.73**	5,440
		5-5.5'		X		–	–	–	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	4,290
		6-6.5'		X		–	–	–	–	–	–	–	–	3,410
		7-7.5'		X		–	–	–	–	–	–	–	–	4,800

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery - Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-4	6/10/10	0-1'		X		741	960	1,701	1.2	11.1	9.88	15.1	37.28	8,570
		1-1.5'		X		-	-	-	-	-	-	-	-	6,930
		2-2.5'		X		-	-	-	-	-	-	-	-	2,400
		3-3.5'		X		-	-	-	-	-	-	-	-	702
		4-4.5'		X		-	-	-	-	-	-	-	-	<200
		5-5.5'		X		-	-	-	-	-	-	-	-	639
		6-6.5'		X		-	-	-	-	-	-	-	-	281
		7-7.5'		X		-	-	-	-	-	-	-	-	<200
		8-8.5'		X		-	-	-	-	-	-	-	-	<200
		9-9.5		X		-	-	-	-	-	-	-	-	<200
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-4	4/8/10	0-1'		X		1,590	643	2,233	8.06	39.1	29.7	45.7	**122.56**	9,850
		1-1.5'		X		-	-	-	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	15,900
		2-2.5'		X		-	-	-	-	-	-	-	-	3,620
		3-3.5'		X		-	-	-	-	-	-	-	-	<200
		4-4.5'		X		-	-	-	-	-	-	-	-	<200
		5-5.5'		X		-	-	-	-	-	-	-	-	2,020
		6-6.5'		X		-	-	-	-	-	-	-	-	<200
		7-7.5'		X		-	-	-	-	-	-	-	-	<200
		8-8.5'		X		-	-	-	-	-	-	-	-	<200

EB	Excavation Bottom
BEB	Below Excavation Bottom
(-)	Not Analyzed
☐	Proposed Excavation Depths
____	Clay cap (excavation bottom)

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery (SOUTHWEST CORNER)														
Spill 5 Assessment - Overlap of Spills #1 through #4														
BH-1	9/12/2012	0-1	2'	X		-	-	-	-	-	-	-		14,200
		2-3		X		-	-	-	-	-	-	-		13,500
	Clay	4-5		X		-	-	-	-	-	-	-		9,750
		6-7		X		-	-	-	-	-	-	-		4,190
		9-10		X		-	-	-	-	-	-	-		3,780
		14-15		X		-	-	-	-	-	-	-		3,640
		19-20		X		-	-	-	-	-	-	-		4,480
		24-25		X		-	-	-	-	-	-	-		7,990
		29-30		X		-	-	-	-	-	-	-		6,780
		39-40		X		-	-	-	-	-	-	-		1,430
		49-50		X		-	-	-	-	-	-	-		79.6
		59-60		X		-	-	-	-	-	-	-		1,240
AH-1	8/1/2012	0-1		X		525	3,630	4,155	<0.100	11.0	12.3	31.1	54.4	7,100
		1-1.5		X		-	-	-	0.449	41.5	41.6	81.8	165.3	1,890
		2-2.5		X		-	-	-	<0.0400	2.37	11.0	26.7	40.1	2,360
		3-3.5		X		-	-	-	-	-	-	-	-	1,980
	Clay	4-4.5		X		-	-	-	-	-	-	-	-	2,000
		5-5.5		X		-	-	-	-	-	-	-	-	2,800
		6-6.5		X		-	-	-	-	-	-	-	-	4,290
		7-7.5		X		-	-	-	-	-	-	-	-	4,820
		8-8.5		X		-	-	-	-	-	-	-	-	4,740
		9-9.5		X		-	-	-	-	-	-	-	-	5,670
		10-10.5		X		-	-	-	-	-	-	-	-	4,330

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Continue - Tank Battery (SOUTHWEST CORNER) -														
Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-3	6/10/10	0-1'		X		5,880	3,760	**9,640**	**45.2**	202	111	154	**512.2**	7,360
		1-1.5'		X		39.3	221	260	0.26	1.00	0.72	1.09	3.1	10,000
		2-2.5'		X		71.9	423	495	0.0795	1.36	1.46	2.21	5.1	12,000
		3-3.5'		X		–	–	–	–	–	–	–	–	11,700
		4-4.5'		X		–	–	–	–	–	–	–	–	1,100
		5-5.5'		X		–	–	–	–	–	–	–	–	9,650
SB-3	5/11/10	5'		X		686	558	1,244	2.18	14.3	10.5	15.7	42.68	8,350
		7'		X		–	–	–	–	–	–	–	–	8,950
		10'		X		–	–	–	–	–	–	–	–	10,100
		12'		X		–	–	–	–	–	–	–	–	9,040
		15'		X		–	–	–	–	–	–	–	–	9,820
		20'		X		–	–	–	–	–	–	–	–	1,470
		25'		X		–	–	–	–	–	–	–	–	874
		30'		X		–	–	–	–	–	–	–	–	360
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-3	4/8/10	0-1'		X		1,320	1,340	2,660	3.30	23.6	23.5	36.4	**86.8**	16,600
		1-1.5'		X		–	–	–	<0.0100	<0.0100	<0.0100	0.108	0.11	12,300
		2-2.5'		X		–	–	–	–	–	–	–	–	6,280
		3-3.5'		X		–	–	–	–	–	–	–	–	4,360
		4-4.5'		X		–	–	–	–	–	–	–	–	2,710
		5-5.5'		X		–	–	–	–	–	–	–	–	3,630
		6-6.5'		X		–	–	–	–	–	–	–	–	3,750
		7-7.5'		X		–	–	–	–	–	–	–	–	3,550
		8-8.5'		X		–	–	–	–	–	–	–	–	2,520
		9-9.5'		X		–	–	–	–	–	–	–	–	2,380

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Continue - Tank Battery (SOUTHWEST CORNER) - Spill 4 Assessment - (Overlap of Spills #1 through #3)														
Spill 4 Assessment - (Overlap of Spills #1 through #3)														
SB-1	11/10/10	0-1'		X		4,110	3,820	7,930	–	–	–	–	–	1,290
		3'		X		6,970	5,630	12,600	–	–	–	–	–	1,000
		5'		X		<50.0	<2.0	<50.0	–	–	–	–	–	1,020
		7'		X		–	–	–	–	–	–	–	–	1,610
		10'		X		–	–	–	–	–	–	–	–	825
		15'		X		–	–	–	–	–	–	–	–	1,520
		20'		X		–	–	–	–	–	–	–	–	2,270
		25'		X		–	–	–	–	–	–	–	–	<200
		30'		X		–	–	–	–	–	–	–	–	<200
		40'		X		–	–	–	–	–	–	–	–	<200
AH-1	9/7/10	0-1'		X		1080	2200	3,280	2.6	42.7	34.4	88.9	168.6	<200
		1-1.5'		X		1,670	758	2,428	5.1	44.0	25.1	73.9	148.1	212
		2-2.5'		X		253	275	528	1.8	10.4	3.7	14.5	30.4	585
		3-3.5'		X		–	–	–	–	–	–	–	–	4,090
		4-4.5'		X		–	–	–	–	–	–	–	–	1,460
		5-5.5'		X		–	–	–	–	–	–	–	–	4,340
		6-6.5'		X		–	–	–	–	–	–	–	–	4,730
		7-7.5'		X		–	–	–	–	–	–	–	–	4,560
		8-8.5'		X		–	–	–	–	–	–	–	–	6,430
		9-9.5'		X		–	–	–	–	–	–	–	–	4,710

Table 2
COG Operating LLC.
BC Federal #1 Tank Battery
Samples Outside of Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample 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						
Spill 5 Assessment - Inside Tank Battery (Northwest corner)													
AH-1	8/1/2012	Data shown in Table 1 (Tank Battery - SOUTHWEST CORNER)											
SB-1	9/12/2012	Data shown in Table 1 (Tank Battery - SOUTHWEST CORNER)											

Table 2
COG Operating LLC.
BC Federal #1 Tank Battery
Samples Outside of Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample 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						
Outside Tank Battery - Spill 5 Assessment													
AH-2	8/1/2102	0-1	X		146	6,810	**6,956**	<0.100	1.39	0.465	0.840	2.70	3,700
	"	1-1.5	X		<4.00	297	297	-	-	-	-	-	2,770
	"	2-2.5	X		-	-	-	-	-	-	-	-	964
	"	3-3.5	X		-	-	-	-	-	-	-	-	1,080
	"	4-4.5	X		-	-	-	-	-	-	-	-	2,550
	"	5-5.5	X		-	-	-	-	-	-	-	-	2,130
	"	6-6.5	X		-	-	-	-	-	-	-	-	1,500
	"	7-7.5	X		-	-	-	-	-	-	-	-	1,130
	"	8-8.5	X		-	-	-	-	-	-	-	-	1,530
	"	9-9.5	X		-	-	-	-	-	-	-	-	3,110
	"	10-10.5	X		-	-	-	-	-	-	-	-	2,680
SB-2	9/13/2012	0-1	X		-	-	-	-	-	-	-	-	5,600
	"	2-3	X		-	-	-	-	-	-	-	-	5,490
	"	4-5	X		-	-	-	-	-	-	-	-	2,440
	"	6-7	X		-	-	-	-	-	-	-	-	1,490
	"	9-10	X		-	-	-	-	-	-	-	-	2,140
	"	14-15	X		-	-	-	-	-	-	-	-	4,970
	"	19-20	X		-	-	-	-	-	-	-	-	3,610
	"	24-25	X		-	-	-	-	-	-	-	-	2,460
	"	29-30	X		-	-	-	-	-	-	-	-	3,530
	"	39-40	X		-	-	-	-	-	-	-	-	1,440
	"	49-50	X		-	-	-	-	-	-	-	-	291
	"	59-60	X		-	-	-	-	-	-	-	-	142

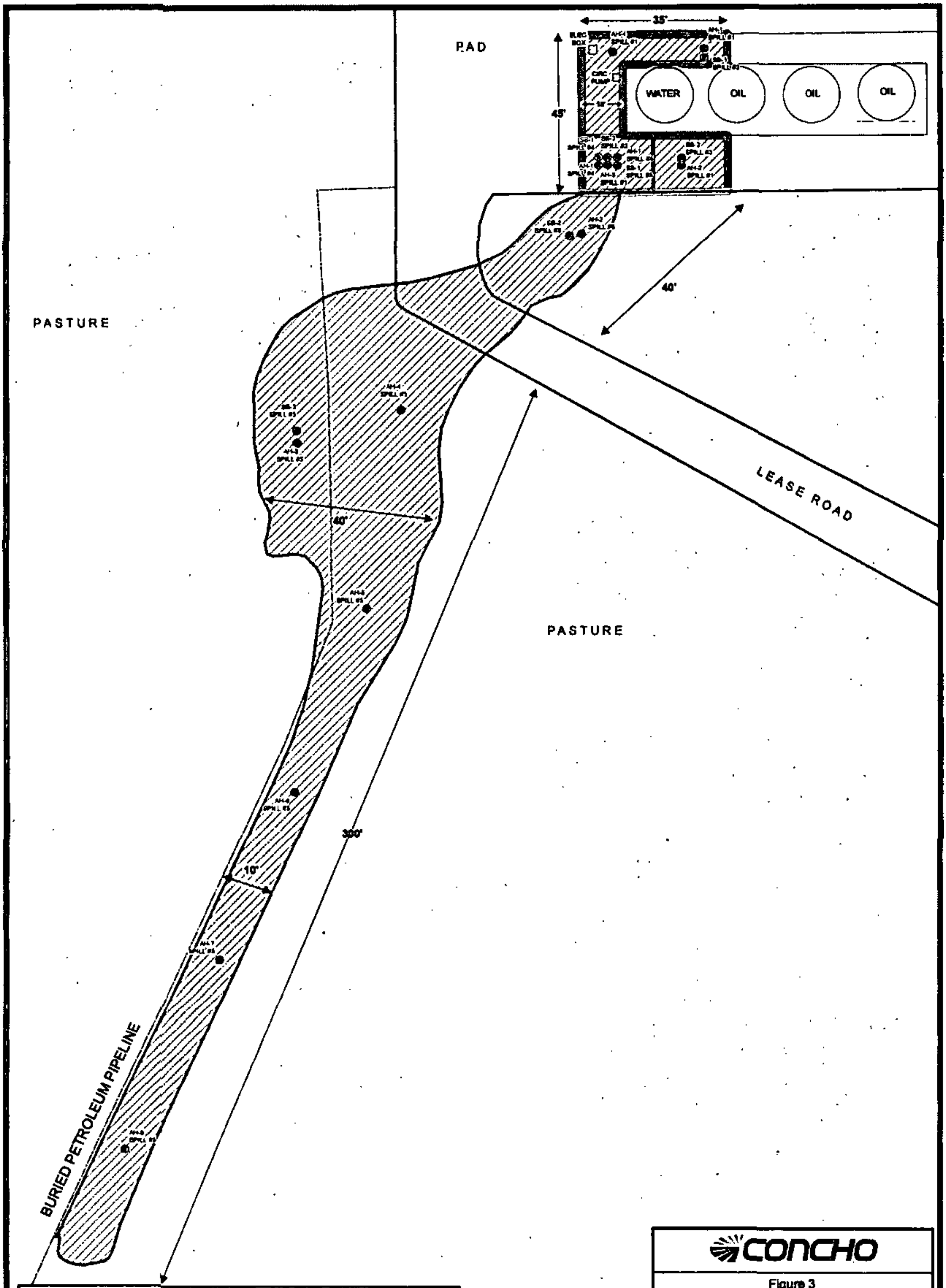
Table 2
COG Operating LLC.
BC Federal #1 Tank Battery
Samples Outside of Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample 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						
Outside Tank Battery - Spill 5 Assessment													
AH-3	8/1/2102	0-1	X		<8.00	<50.0	<50.0	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	3,500
	"	1-1.5	X		-	-	-	-	-	-	-	-	414
	"	2-2.5	X		-	-	-	-	-	-	-	-	212
	"	3-3.5	X		-	-	-	-	-	-	-	-	515
	"	4-4.5	X		-	-	-	-	-	-	-	-	708
	"	5-5.5	X		-	-	-	-	-	-	-	-	1,480
	"	6-6.5	X		-	-	-	-	-	-	-	-	2,580
	"	7-7.5	X		-	-	-	-	-	-	-	-	3,360
	"	8-8.5	X		-	-	-	-	-	-	-	-	2,270
SB-3	9/13/2012	0-1	X		-	-	-	-	-	-	-	-	3,040
	"	2-3	X		-	-	-	-	-	-	-	-	3,380
	"	4-5	X		-	-	-	-	-	-	-	-	1,170
	"	6-7	X		-	-	-	-	-	-	-	-	3,110
	"	9-10	X		-	-	-	-	-	-	-	-	1,710
	"	14-15	X		-	-	-	-	-	-	-	-	285
	"	19-20	X		-	-	-	-	-	-	-	-	270
	"	24-25	X		-	-	-	-	-	-	-	-	191
AH-4	8/1/2102	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2,590
	"	1-1.5	X		-	-	-	-	-	-	-	-	457
	"	2-2.5	X		-	-	-	-	-	-	-	-	605
	"	3-3.5	X		-	-	-	-	-	-	-	-	1,080
	"	4-4.5	X		-	-	-	-	-	-	-	-	744
	"	5-5.5	X		-	-	-	-	-	-	-	-	675

Table 2
COG Operating LLC.
BC Federal #1 Tank Battery
Samples Outside of Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample 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						
Outside Tank Battery - Spill 5 Assessment													
AH-5	8/1/2102	0-1	X		<4.00	<50.0	<50.0	<0.0200	0.0203	<0.0200	0.0214	0.0417	4,950
	"	1-1.5	X		-	-	-	-	-	-	-	-	5,020
	"	2-2.5	X		-	-	-	-	-	-	-	-	5,510
	"	3-3.5	X		-	-	-	-	-	-	-	-	7,850
	"	4-4.5	X		-	-	-	-	-	-	-	-	8,020
	"	5-5.5	X		-	-	-	-	-	-	-	-	522
AH-6	8/1/2102	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,410
	"	1-1.5	X		-	-	-	-	-	-	-	-	275
	"	2-2.5	X		-	-	-	-	-	-	-	-	74.6
	"	3-3.5	X		-	-	-	-	-	-	-	-	42.0
AH-7	8/1/2102	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	8,140
	"	1-1.5	X		-	-	-	-	-	-	-	-	9,210
	"	2-2.5	X		-	-	-	-	-	-	-	-	7,680
	"	3-3.5	X		-	-	-	-	-	-	-	-	1,590
	"	4-4.5	X		-	-	-	-	-	-	-	-	896
	"	5-5.5	X		-	-	-	-	-	-	-	-	439
AH-8	8/1/2102	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,850
	"	1-1.5	X		-	-	-	-	-	-	-	-	92.4
	"	2-2.5	X		-	-	-	-	-	-	-	-	125
	"	3-3.5	X		-	-	-	-	-	-	-	-	480

(-)	Not Analyzed
☐	Proposed Excavated Depths
___	Clay cap or liner



EXPLANATION

- ● SPILL #1, SPILL #2 & SPILL #3 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 4/8/10 - 5/11/10
- ◉ SPILL #4 - AUGER HOLE & BORE HOLE SAMPLE LOCATIONS - 9/7/10 - 11/10/10
- ● SPILL #5 - AUGER HOLE & BORE HOLE SAMPLE LOCATIONS - 8/1/12 - 9/12/12
- ▨ SPILL #1, #2 & #3
- ▨ SPILL #4
- ▨ SPILL #5

CONCHO

Figure 3

BC Federal #1 TB

Spill Assessment Map

Lea County, New Mexico

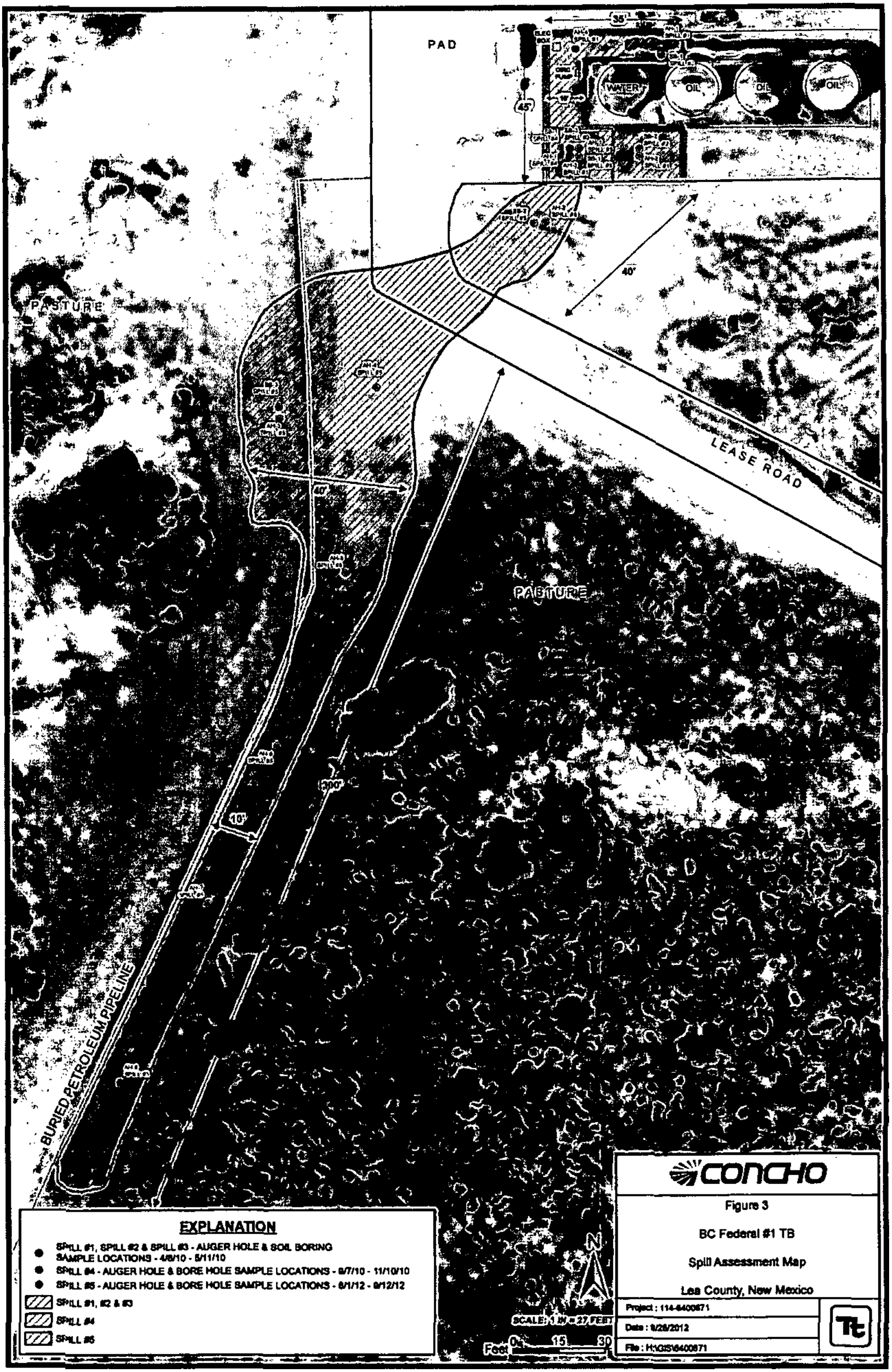
Project : 114-6400671

Date : 9/28/2012

File : H:\GIS\6400671

Tt

Drawn By: [illegible]



EXPLANATION

- ● SPILL #1, SPILL #2 & SPILL #3 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 4/8/10 - 5/11/10
- ● SPILL #4 - AUGER HOLE & BORE HOLE SAMPLE LOCATIONS - 8/7/10 - 11/10/10
- ● SPILL #5 - AUGER HOLE & BORE HOLE SAMPLE LOCATIONS - 8/1/12 - 8/12/12
- ▨ SPILL #1, #2 & #3
- ▨ SPILL #4
- ▨ SPILL #5

CONCHO

Figure 3

BC Federal #1 TB

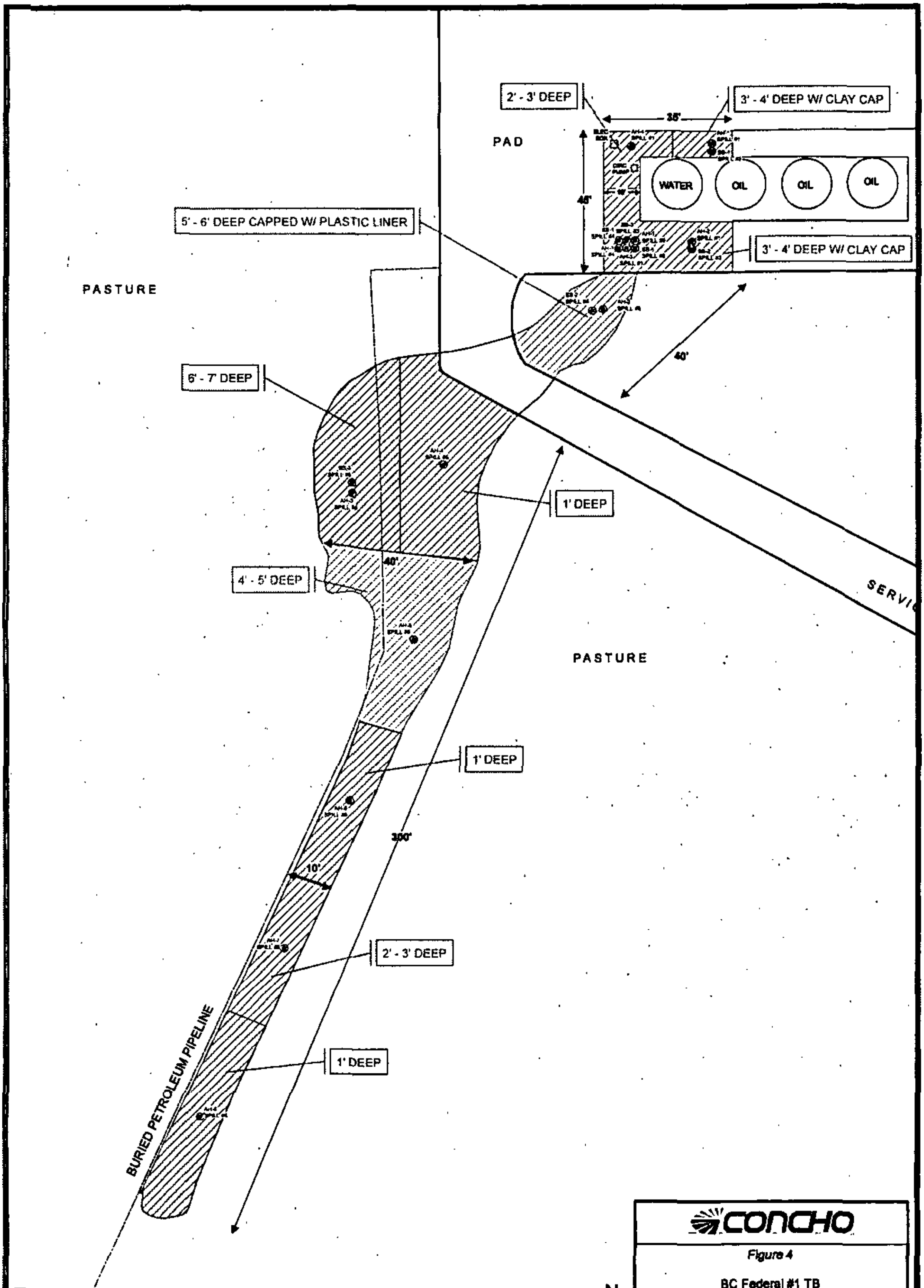
Spill Assessment Map

Lea County, New Mexico

Project : 114-6400671

Date : 8/28/2012

File : H:\GIS\6400671



EXPLANATION

- ● SPILL #1, SPILL #2 & SPILL #3 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 4/8/10 - 5/11/10
- ● SPILL #4 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 9/7/10 - 11/10/10
- ● SPILL #5 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 8/1/12 - 9/12/12
- ▨ EXCAVATED AREAS

CONCHO

Figure 4

BC Federal #1 TB

Excavated Areas & Depths Map

Lea County, New Mexico

Project : 114-6400571

Date : 1/31/2013

File : H:\GIS\6400571

Tt

SITE INFORMATION

Report Type: Closure Report

General Site Information:		
Site:	**BC Federal #1 Tank Battery**	
Company:	**COG Operating LLC**	
Section, Township and Range	**Unit C Section 20 Township 17S Range 32E**	
Lease Number:	**LC-029405-A**	
County:	**Lea County**	
GPS:	**32.826202**	**103.792133**
Surface Owner:	**Federal**	
Mineral Owner:		
Directions:	From intersection of CR126 and Hwy 529, travel north on CR126 for 1.9 miles, turn left (west), go 1.6 miles, turn right (north), go 0.5 miles, turn right and go 0.1 miles, turn left and go 0.1 miles to tank battery	

Release Data:		
3/13/2010	*Produced water*	45 bbls lost - recovered 40 - inside TB firewalls
3/26/2010	*Produced water*	9 bbls lost - recovered 6 - inside TB firewalls
4/10/2010	*Produced water*	181 bbls lost - recovered 180 - inside TB firewalls
8/20/2010	*Oil*	80 bbls lost - recovered 75 - inside TB firewalls
6/5/2012	*Produced water*	70 bbls lost - recovered 65 - inside TB firewalls and pasture

Official Communication:			
Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		1910 N. Big Spring
P.O. Box	600 W. Illnois Ave.		
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		432-682-4559
Fax:	(432) 684-7137		
Email:	pellis@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	**>200'**
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

May 17, 2013

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., BC Federal #1 Tank Battery, located in Unit C, Section 20, Township 17 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 BC Federal #1 Tank Battery, located in Unit C, Section 20, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.826202°, W 103.792133°. The site location is shown on Figures 1 and 2.

Background

The BC Federal #1 Tank Battery had five (5) separate spills recorded with individual initial C-141 forms. The spills will be separated for clarification and referred to as Spill #1 through Spill #5. The spill inside the firewall did overlap each other as shown on Figure 3. The initial C-141 forms are enclosed in Appendix A. According to the State of New Mexico C-141, the spills detailed are shown below.

Spill #1

On March 13, 2010, the spill occurred and released approximately forty five (45) barrels of produced water due to a power outage to the transfer pump. To alleviate the problem, COG personnel repaired the power outage. Forty (40) barrels of standing fluids were recovered. The spill was contained within the facility berms.

Spill #2

On March 26, 2010, the spill occurred and released approximately nine (9) barrels of produced water due to an alarm failure. To alleviate the problem, COG personnel repaired the alarm system. Six (6) barrels of standing fluids were

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

recovered. The spill was contained within the facilities berm and impacted the same footprint of the previous spill (Spill #1).

Spill #3

On April 20, 2010, the spill occurred and released approximately hundred eighty one (181) barrels of produced water due to an alarm failure. To alleviate the problem, COG personnel replaced the alarm transducer. One hundred eighty (180) barrels of standing fluids were recovered. The spill was contained within the facilities berm and impacted the same footprint of the previous spills (Spill #1 and Spill #2).

Spill #4

On August 20, 2010, the released occurred and released approximately eighty (80) barrels of oil due to tank over flow. Approximately seventy-five (75) barrels of standing fluids were recovered. The spill was contained within the facility berms and impacted the same footprint of the previous spills only on the southwest corner of the facility.

Spill #5

The leak was discovered on June 5, 2012, and released approximately seventy (70) barrels of produced water due to a rupture 6" water line. To alleviate the problem, COG personnel repaired the line. Sixty-five (65) barrels of standing fluids were recovered. The spill was contained within the facility berms and impacted the same footprint of the previous spills only on the southwest corner of the facility. The fluids breached the southwest firewall and migrated approximately 340' southwest of the tank battery.

Spill Chronology and Tetra Tech Sampling

3/13/10	*Spill #1 occurred*
3/26/10	*Spill #2 occurred*
4/8/10	Initial assessment (spill #1 and spill #2) - installed 4 auger holes
4/20/10	*Spill #3 occurred*
5/11/10	Installed 3 borings to delineate impact
6/10/10	Follow up assessment to collected surface samples
8/20/10	*Spill #4 occurred*
9/7/10	Tetra Tech installed a single auger hole
11/20/10	Tetra Tech installed one boring
6/5/12	*Spill #5 occurred*
8/1/12	Tetra Tech installed auger holes
9/12/12	Tetra Tech installed borings

Groundwater

The United States Geological Survey (USGS) Well Reports did not list any wells in Section 20. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 175' below surface. The groundwater data 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-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

Spill #1, #2, and #3 - Sampling
Inside Tank Battery

On April 8, 2010, Tetra Tech personnel inspected and sampled the spill area for Spill #1 and Spill #2, which overlapped each other. A total of four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils.

Selected samples were analyzed for TPH 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 B. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the auger hole locations either showed TPH, benzene or total BTEX exceeding the RRAL and vertically defined in the shallow soils. Elevated chloride concentrations were detected at AH-1, AH-2 and AH-3 from surface to a depth of approximately 8-8.5' below surface. Deeper samples were not collected due to the dense caliche formation. The chloride impact was not vertically defined. The chloride impact at AH-4 was vertically defined and significantly declined at 3.0' below surface.

On May 11, 2010, Tetra Tech personnel supervised the installation of soil borings (SB-1, SB-2 and SB-3) utilizing an air rotary drilling rig to collect deeper samples. Prior to the installation of the soil borings, Spill #3 had occurred on top of the two older spills (Spill #1 and #2). The soil borings were installed to a total depth of 20.0' for SB-1 and 30.0' for SB-2, and SB-3. Referring to Table 1, chloride concentrations decreased with depth to less than 400 mg/kg at the bottom hole samples.

On June 10, 2010, Tetra Tech personnel collected additional samples (surface samples 0-5') from all four auger locations in order to correlate the drilling results with previous spill assessment. The sampling results are summarized in Table 1.

Spill #4 Sampling
Inside Tank Battery (Northwest Corner)

On September 7, 2010, Tetra Tech personnel inspected and sampled the spill area (Spill #4) located southwest corner of the facility, which measured approximately 30' x 30'. A single auger hole (AH-1) was 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 B. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 4.

Referring to Table 2, the submitted samples from AH-1 were below the RRAL for BTEX and TPH. Elevated chloride concentrations were detected down to 9-9.5' below surface of 4,710 mg/kg. In order to delineate the impact of the spill, deeper samples would need to be collected utilizing an air rotary.

On November 10, 2010, Tetra Tech personnel supervised the installation of a single soil boring (SB-1) near AH-1. Soil samples were collected to a depth of 40' below surface. Referring to Table 1, elevated chloride concentrations decreased to less than 200 mg/kg at 25' below surface.

Spill #5 Sampling
(Tank Battery -Northwest Corner and Outside Tank Battery

On August 1 2012, Tetra Tech personnel inspected and sampled the spill area (Spill #5). A total of eight (8) auger holes were installed to assess the spill area. The spill was contained within the facility berms and impacted the same footprint of the previous spills only on the southwest corner of the facility. The fluids breached the southwest firewall and migrated approximately 340' southwest of the tank battery. One auger hoe was installed inside the southwest firewall and seven (7) outside the facility firewalls.

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 B. The sampling results are summarized in Table 2. The auger hole locations are shown on Figure 4.
The

Referring to Table1, the auger hole (AH-1) located on the southwest corner, inside the tank battery showed total BTEX concentrations exceeding the RRAL at 0-1' of 54.1 mg/kg and 1-1.5' of 165.3 mg/kg and decline below the RRAL at 2-2.5' below surface. The chloride impact was not vertically defined, with a chloride of 4,330 mg/kg at 10-10.5 below surface.

Referring to Table 2, majority of the auger holes, installed outside the tank battery firewalls, were below the RRAL for TPH and BTEX, except for the area of AH-2. Auger hole (AH-2) showed a TPH of 6,956 mg/kg exceeding the RRAL, but declined to 297 mg/kg at 1-1.5' below the RRAL. In the areas of auger holes (AH-2 and AH-3), the chloride impacted soils were not defined. However, the remaining areas (AH-4, AH-5, AH-6, AH-7 and AH-8) were vertically defined and showed a declining chloride with depth.

On September 12, 2012, Tetra Tech personnel supervised the installation of a three (3) boreholes in the areas of AH-1, AH-2 and AH-3. Auger holes (AH-1 and AH-2) showed a deeper impact to the soils, which significantly declined at 50.0' below surface. In the area of AH-1, the bottom auger hole samples showed a slight chloride spike to 1,240 mg/kg at 59'-60', with appears to be cross-contaminated with the upper soils. The area of AH-3 showed shallow impact and significant declined at approximately 15.0'.

Remediation and Conclusion

From April 18-29, 2013, Tetra Tech personnel supervised the remediation at the site. All of the excavation depths inside and outside the tank battery were achieved as stated in the approved work plan. The excavated areas and depths are highlighted in Table 1 and shown on Figure 4.

Due to safety concerns and tank stability issues, the impacted soil inside the tank battery firewalls were excavated to a depth of 3.0' to 4.0' below surface, except for the area of AH-4 (spill 1). Auger hole (AH-4, spill #1) was excavated to a depth of approximately 2.0' to 3.0' below surface. Once excavated to the appropriate depths, the areas of AH-1, AH-2 and AH-3 were capped with clay material (6" thick) and backfilled to grade with clean soils.

The impacted areas outside the tank battery were excavated from depths ranging from 1.0' to 7.0' below surface to remove the elevated chlorides. The area of AH-2 (spill #5) was excavated to a depth of 4.0' below surface and lined with 40 mil plastic liner.

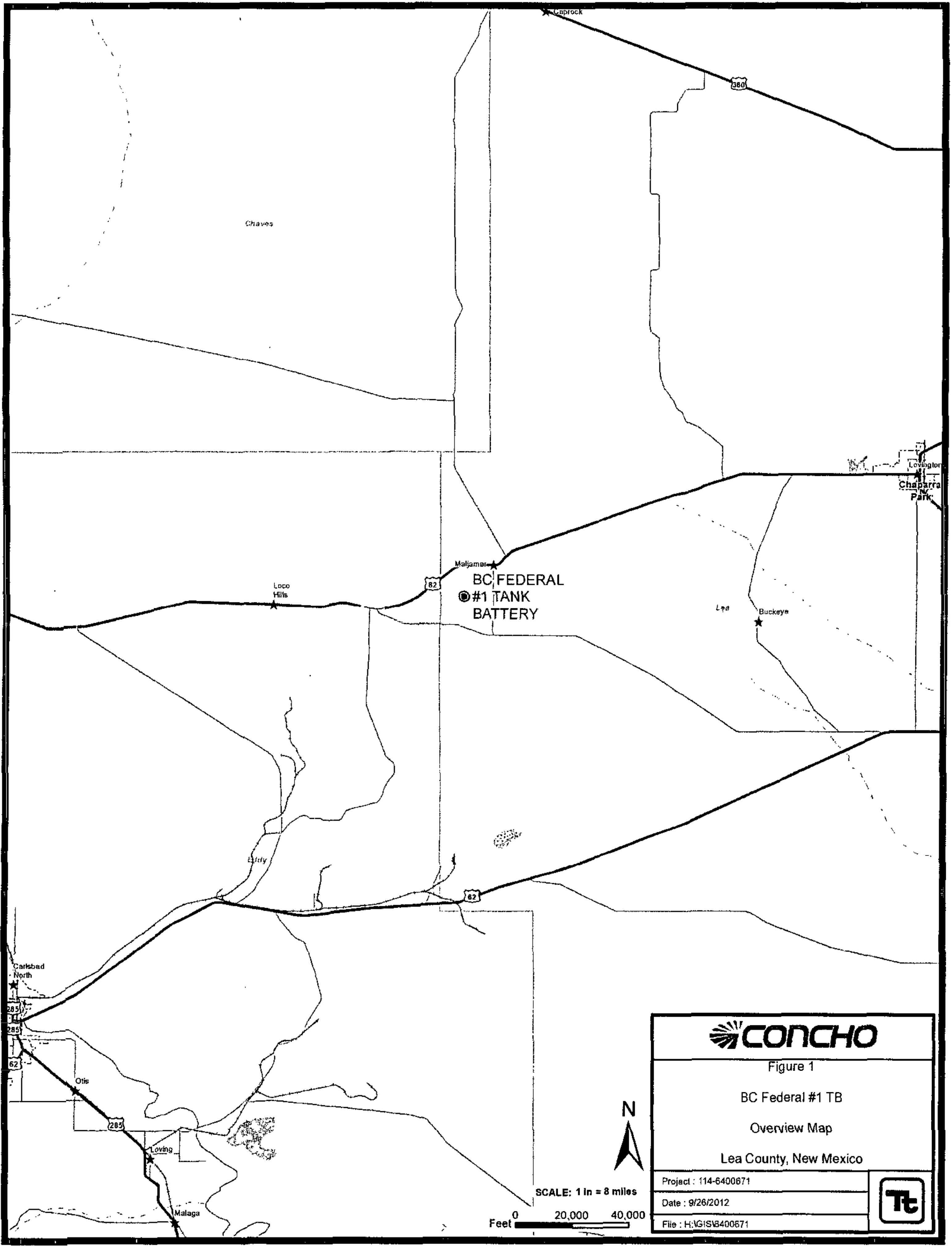
Once approved for backfilling, all of the excavations were then brought to grade with additional clean soil. Approximately 820 cubic yards of soil were excavated and transported to the R360 facility for proper disposal.

Based on the remedial activities performed, COG request closure of the site. Copies of the C-141s (Final) are included in Appendix A. If you have any questions or comments concerning the remedial activities, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, PG
Senior Project Manager

cc: Pat Ellis – COG
cc: Jim Amos – BLM



CONCHO

Figure 1

BC Federal #1 TB

Overview Map

Lea County, New Mexico

Project : 114-6400671

Date : 9/26/2012

File : H:\GIS\6400671

Drawn By Isabel Marmolejo

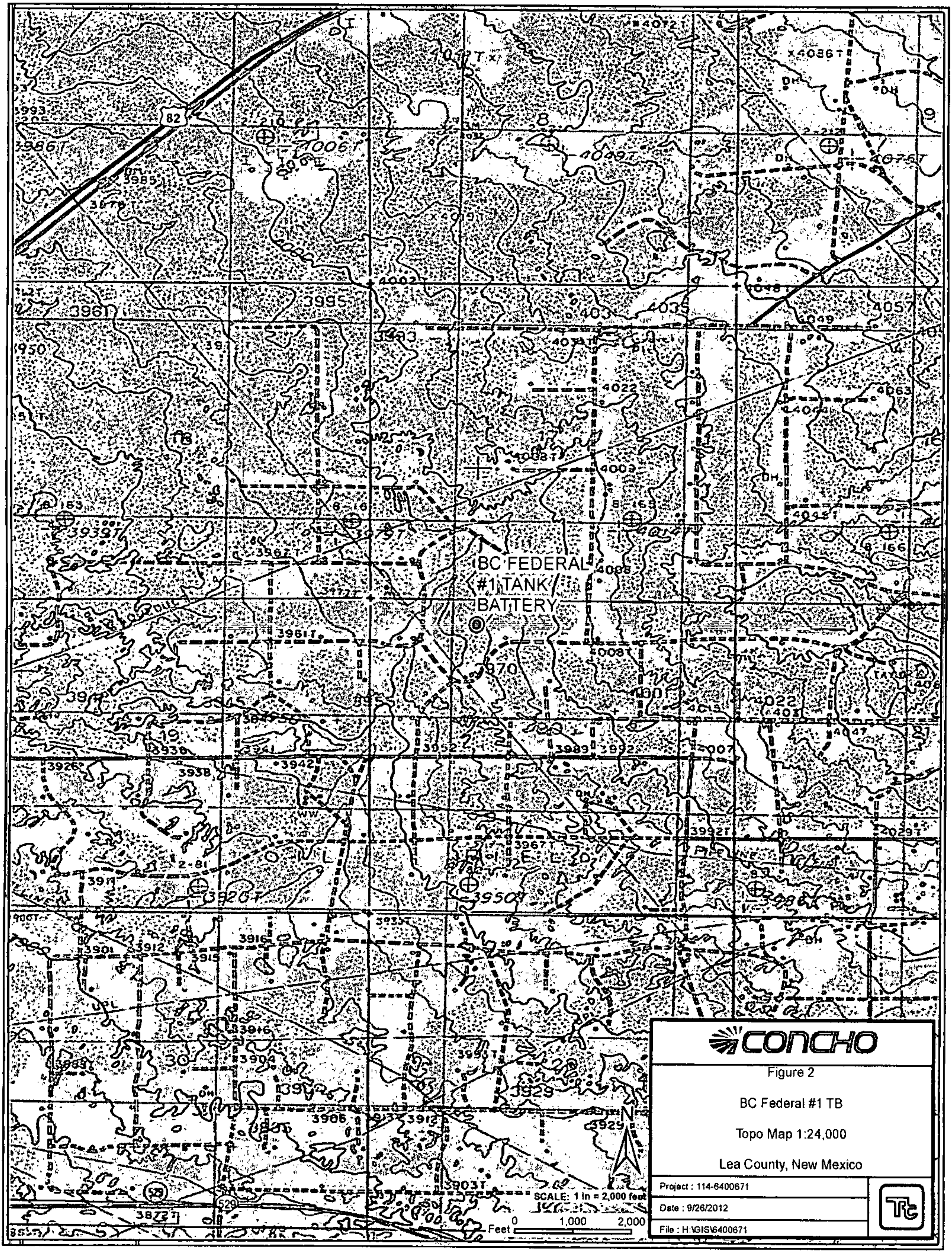


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Figure 2

BC Federal #1 TB

Topo Map 1:24,000

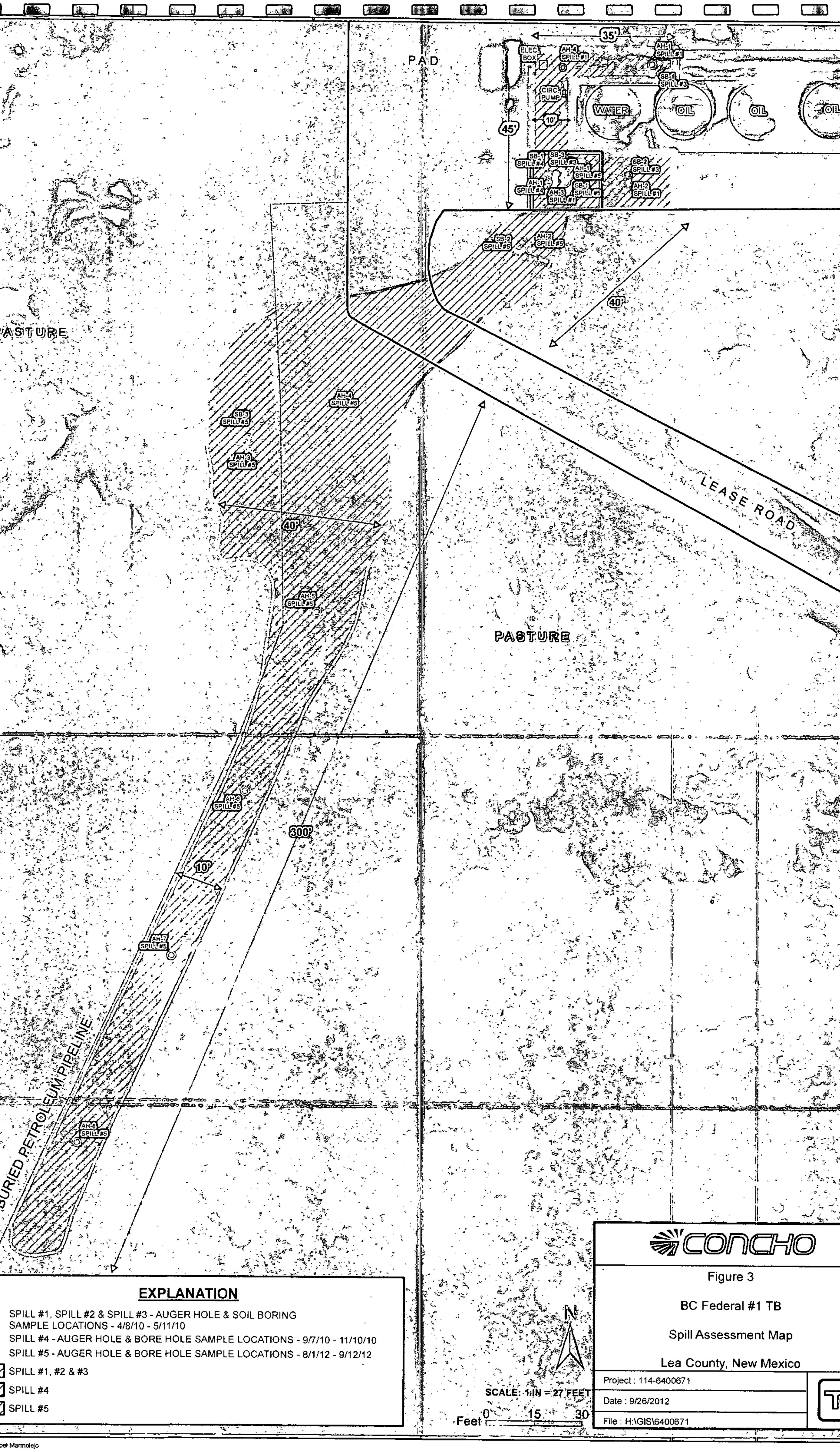
Lea County, New Mexico

Project : 114-6400671

Date : 9/26/2012

File : H:\GIS\6400671

Drawn By: Isabel Marmolejo



EXPLANATION

SPILL #1, SPILL #2 & SPILL #3 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 4/8/10 - 5/11/10

SPILL #4 - AUGER HOLE & BORE HOLE SAMPLE LOCATIONS - 9/7/10 - 11/10/10

SPILL #5 - AUGER HOLE & BORE HOLE SAMPLE LOCATIONS - 8/1/12 - 9/12/12

- ▨ SPILL #1, #2 & #3
- ▨ SPILL #4
- ▨ SPILL #5

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Figure 3

BC Federal #1 TB

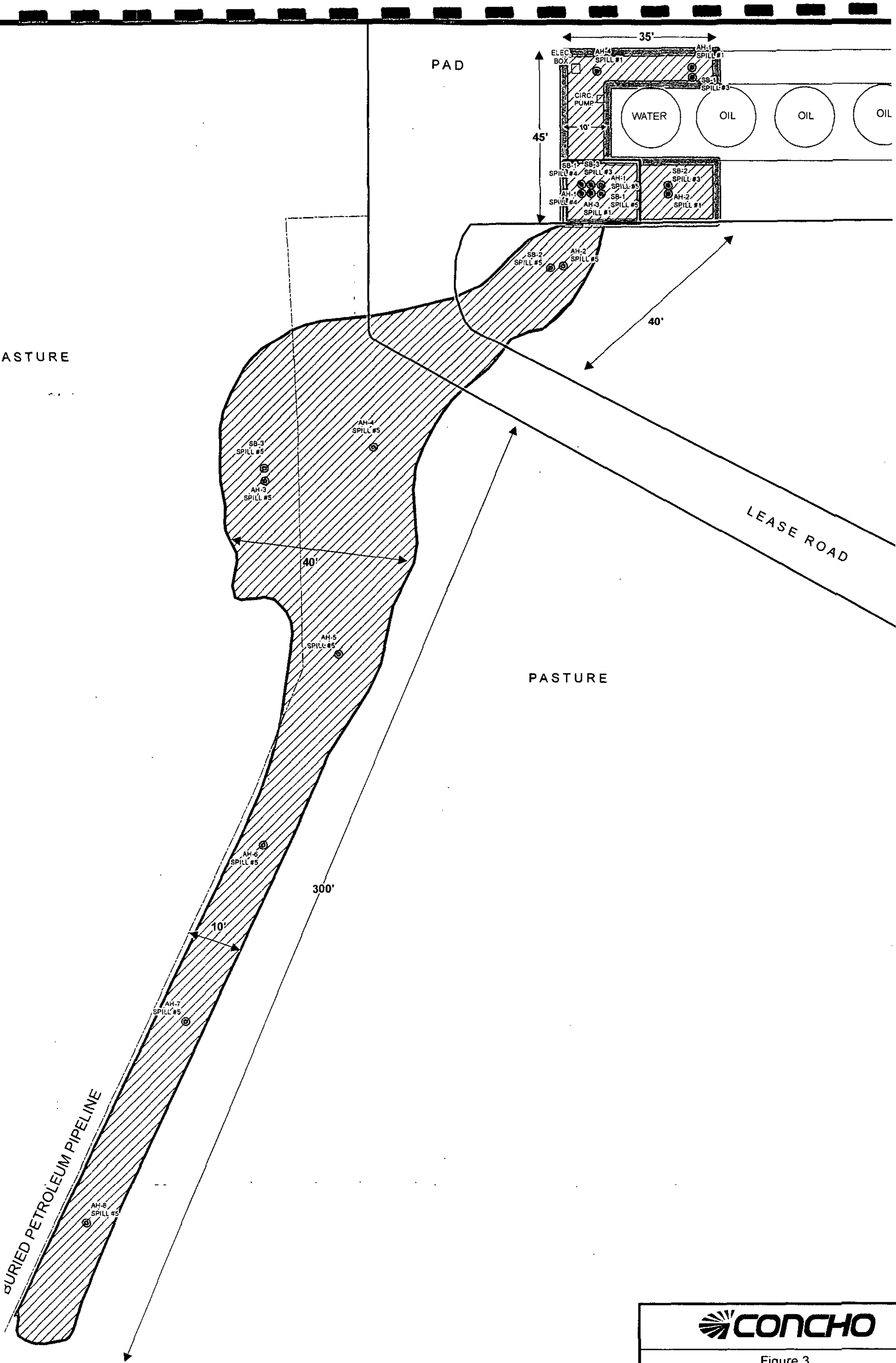
Spill Assessment Map

Lea County, New Mexico

Project : 114-6400671

Date : 9/26/2012

File : H:\GIS\6400671



EXPLANATION

SPILL #1, SPILL #2 & SPILL #3 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 4/8/10 - 5/11/10

SPILL #4 - AUGER HOLE & BORE HOLE SAMPLE LOCATIONS - 9/7/10 - 11/10/10

SPILL #5 - AUGER HOLE & BORE HOLE SAMPLE LOCATIONS - 8/1/12 - 9/12/12

SPILL #1, #2 & #3

SPILL #4

SPILL #5

SCALE: 1 IN = 27 FEET

Feet 0 15 30

CONCHO

Figure 3

BC Federal #1 TB

Spill Assessment Map

Lea County, New Mexico

Project : 114-6400671

Date : 9/26/2012

File : H:\GIS\6400671

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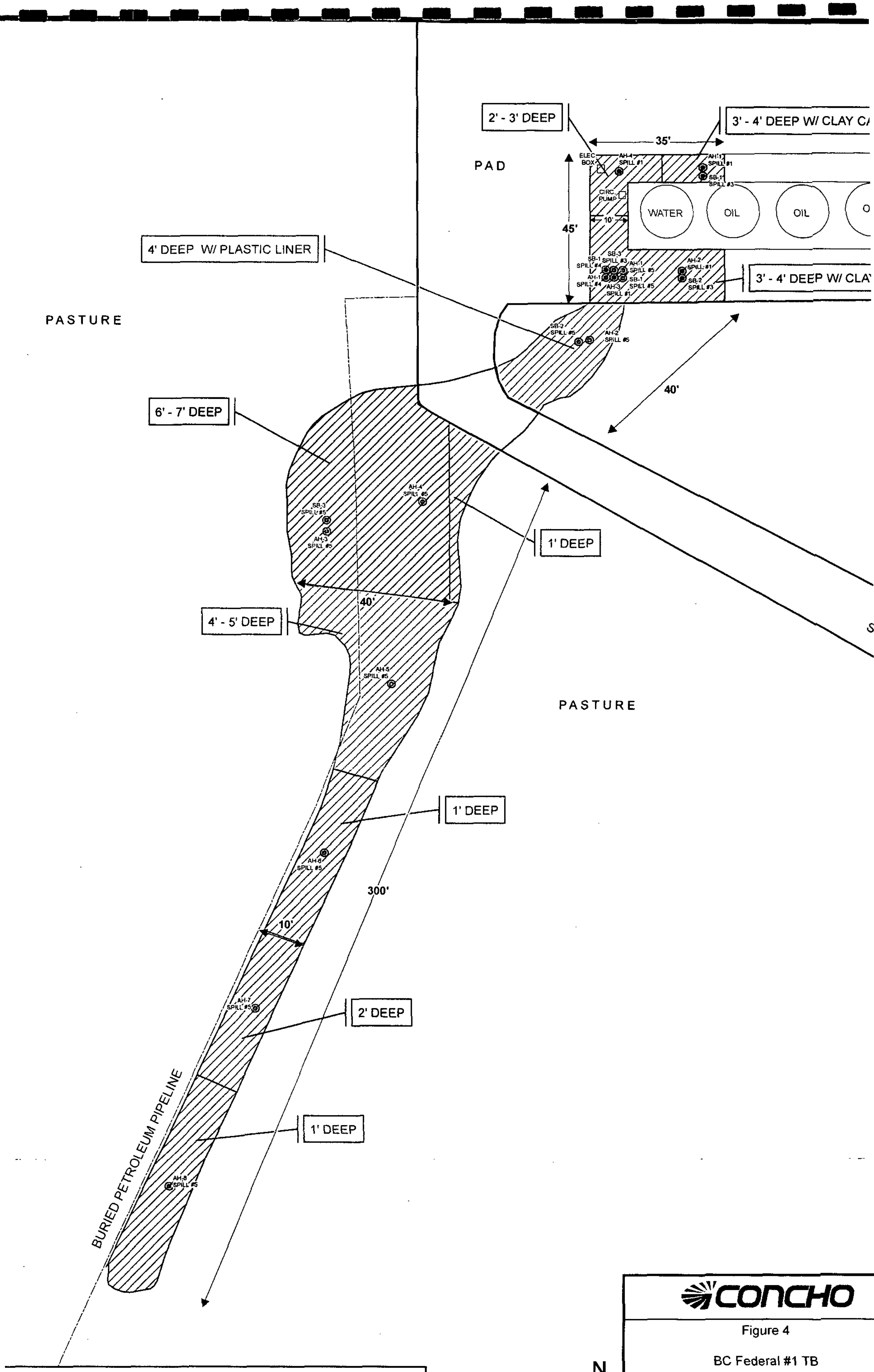

EXPLANATION

SPILL #1, SPILL #2 & SPILL #3 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 4/8/10 - 5/11/10
SPILL #4 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 9/7/10 - 11/10/10
SPILL #5 - AUGER HOLE & SOIL BORING SAMPLE LOCATIONS - 8/1/12 - 9/12/12
▨ EXCAVATED AREAS

CONCHO

Figure 4

BC Federal #1 TB

Excavated Areas & Depths Map

Lea County, New Mexico

Project : 114-6400671
Date : 5/17/2013
File : H:\GIS\6400671

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Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery - Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-1	6/10/10	0-1'			X	1,020	383	1,403	2.41	22.2	18.6	26.8	**70.01**	9,270
		1-1.5'			X	–	–	–	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	9,470
		2-2.5'			X	–	–	–	–	–	–	–	–	4,620
	Clay	3-3.5'			X	–	–	–	–	–	–	–	–	3,070
		4-4.5'		X		–	–	–	–	–	–	–	–	3,140
		5-5.5'		X		–	–	–	–	–	–	–	–	4,090
SB-1	5/11/10	5'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	805
		7'		X		–	–	–	–	–	–	–	–	<200
		10'		X		–	–	–	–	–	–	–	–	<200
		12'		X		–	–	–	–	–	–	–	–	<200
		15'		X		–	–	–	–	–	–	–	–	<200
		20'		X		–	–	–	–	–	–	–	–	<200
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-1	4/8/10	0-1'		X		2250	524	2,774	**15.3**	71.6	50.2	69.4	**206.5**	10,500
		1-1.5'		X		–	–	–	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	13,100
		2-2.5'		X		–	–	–	<0.0100	<0.0100	<0.0100	0.08	0.08	3,960
		3-3.5'		X		–	–	–	–	–	–	–	–	4,090
		4-4.5'		X		–	–	–	–	–	–	–	–	3,540
		5-5.5'		X		–	–	–	–	–	–	–	–	6,770
		6-6.5'		X		–	–	–	–	–	–	–	–	7,180
		7-7.5'		X		–	–	–	–	–	–	–	–	4,680
		8-8.5'		X		–	–	–	–	–	–	–	–	2,830

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery - Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-2	6/10/10	0-1'			X	209	3,240	3,449	0.67	7.02	4.25	6.22	18.16	3,690
		1-1.5'			X	–	–	–	–	–	–	–	–	4,960
		2-2.5'			X	–	–	–	–	–	–	–	–	7,570
	Clay	3-3.5'			X	–	–	–	–	–	–	–	–	12,500
		4-4.5'		X		–	–	–	–	–	–	–	–	13,000
		5-5.5'		X		–	–	–	–	–	–	–	–	5,880
SB-2	5/11/10	5'		X		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	12,000
		7'		X		–	–	–	–	–	–	–	–	12,400
		10'		X		–	–	–	–	–	–	–	–	8,610
		12'		X		–	–	–	–	–	–	–	–	2,790
		15'		X		–	–	–	–	–	–	–	–	7,130
		20'		X		–	–	–	–	–	–	–	–	881
		25'		X		–	–	–	–	–	–	–	–	996
		30'		X		–	–	–	–	–	–	–	–	<200
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-2	4/8/10	0-1'		X		5,780	5,570	**11,350**	**21.1**	161	106	158	**446.1**	4,740
		1-1.5'		X		2,550	3,980	**6,530**	**25.4**	100	46.8	84.6	**256.8**	5,160
		2-2.5'		X		2,010	1,020	3,030	**14**	70.60	32.50	69.6	**187.1**	11,400
		3-3.5'		X		–	–	–	–	–	–	–	–	10,400
		4-4.5'		X		–	–	–	<0.200	7.63	11.7	26.4	**45.73**	5,440
		5-5.5'		X		–	–	–	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	4,290
		6-6.5'		X		–	–	–	–	–	–	–	–	3,410
		7-7.5'		X		–	–	–	–	–	–	–	–	4,800

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery (SOUTHWEST CORNER)														
Spill 5 Assessment - Overlap of Spills #1 through #4														
BH-1	9/12/2012	0-1	2'		X	-	-		-		-			14,200
		2-3			X	-	-		-	-	-			13,500
	Clay	4-5			X	-	-		-		-	-		9,750
		6-7		X		-	-	-	-	-	-	-		4,190
		9-10		X		-	-	-	-	-	-	-		3,780
		14-15		X		-	-	-	-	-	-	-		3,640
		19-20		X		-	-	-	-	-	-	-		4,480
		24-25		X		-	-	-	-	-	-	-		7,990
		29-30		X		-	-	-	-	-	-	-		6,780
		39-40		X		-	-	-	-	-	-	-		1,430
		49-50		X		-	-	-	-	-	-	-		79.6
		59-60		X		-	-	-	-	-	-	-		1,240
AH-1	8/1/2012	0-1			X	525	3,630	4,155	<0.100	11.0	12.3	31.1	**54.4**	7,100
		1-1.5			X	-	-		0.449	41.5	41.6	81.8	**165.3**	1,890
		2-2.5			X	-	-		<0.0400	2.37	11.0	26.7	40.1	2,360
	Clay	3-3.5			X	-	-		-		-		-	1,980
		4-4.5		X		-	-	-	-	-	-	-	-	2,000
		5-5.5		X		-	-	-	-	-	-	-	-	2,800
		6-6.5		X		-	-	-	-	-	-	-	-	4,290
		7-7.5		X		-	-	-	-	-	-	-	-	4,820
		8-8.5		X		-	-	-	-	-	-	-	-	4,740
		9-9.5		X		-	-	-	-	-	-	-	-	5,670
		10-10.5		X		-	-	-	-	-	-	-	-	4,330

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Continue - Tank Battery (SOUTHWEST CORNER) - Spill 4 Assessment - (Overlap of Spills #1 through #3)														
Spill 4 Assessment - (Overlap of Spills #1 through #3)														
SB-1	11/10/10	0-1'		X		4,110	3,820	**7,930**	–	–	–	–	–	1,290
		3'		X		6,970	5,630	**12,600**	–	–	–	–	–	1,000
		5'		X		<50.0	<2.0	<50.0	–	–	–	–	–	1,020
		7'		X		–	–	–	–	–	–	–	–	1,610
		10'		X		–	–	–	–	–	–	–	–	825
		15'		X		–	–	–	–	–	–	–	–	1,520
		20'		X		–	–	–	–	–	–	–	–	2,270
		25'		X		–	–	–	–	–	–	–	–	<200
		30'		X		–	–	–	–	–	–	–	–	<200
		40'		X		–	–	–	–	–	–	–	–	<200
AH-1	9/7/10	0-1'		X		1080	2200	3,280	2.6	42.7	34.4	88.9	**168.6**	<200
		1-1.5'		X		1,670	758	2,428	5.1	44.0	25.1	73.9	**148.1**	212
		2-2.5'		X		253	275	528	1.8	10.4	3.7	14.5	30.4	585
		3-3.5'		X		–	–	–	–	–	–	–	–	4,090
		4-4.5'		X		–	–	–	–	–	–	–	–	1,460
		5-5.5'		X		–	–	–	–	–	–	–	–	4,340
		6-6.5'		X		–	–	–	–	–	–	–	–	4,730
		7-7.5'		X		–	–	–	–	–	–	–	–	4,560
		8-8.5'		X		–	–	–	–	–	–	–	–	6,430
		9-9.5'		X		–	–	–	–	–	–	–	–	4,710

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Continue - Tank Battery (SOUTHWEST CORNER) -														
Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-3	6/10/10	0-1'		X		5,880	3,760	**9,640**	**45.2**	202	111	154	**512.2**	7,360
		1-1.5'		X		39.3	221	260	0.26	1.00	0.72	1.09	3.1	10,000
		2-2.5'		X		71.9	423	495	0.0795	1.36	1.46	2.21	5.1	12,000
		3-3.5'		X		–	–	–	–	–	–	–	–	11,700
		4-4.5'		X		–	–	–	–	–	–	–	–	1,100
		5-5.5'		X		–	–	–	–	–	–	–	–	9,650
SB-3	5/11/10	5'		X		686	558	1,244	2.18	14.3	10.5	15.7	42.68	8,350
		7'		X		–	–	–	–	–	–	–	–	8,950
		10'		X		–	–	–	–	–	–	–	–	10,100
		12'		X		–	–	–	–	–	–	–	–	9,040
		15'		X		–	–	–	–	–	–	–	–	9,820
		20'		X		–	–	–	–	–	–	–	–	1,470
		25'		X		–	–	–	–	–	–	–	–	874
		30'		X		–	–	–	–	–	–	–	–	360
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-3	4/8/10	0-1'		X		1,320	1,340	2,660	3.30	23.6	23.5	36.4	**86.8**	16,600
		1-1.5'		X		–	–	–	<0.0100	<0.0100	<0.0100	0.108	0.11	12,300
		2-2.5'		X		–	–	–	–	–	–	–	–	6,280
		3-3.5'		X		–	–	–	–	–	–	–	–	4,360
		4-4.5'		X		–	–	–	–	–	–	–	–	2,710
		5-5.5'		X		–	–	–	–	–	–	–	–	3,630
		6-6.5'		X		–	–	–	–	–	–	–	–	3,750
		7-7.5'		X		–	–	–	–	–	–	–	–	3,550
		8-8.5'		X		–	–	–	–	–	–	–	–	2,520
		9-9.5'		X		–	–	–	–	–	–	–	–	2,380

Table 1
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Tank Battery Area
LEA COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft), BEB	EB (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Tank Battery - Spill #3 Assessment (overlap Spill #1 and Spill #2)														
AH-4	6/10/10	0-1'			X	741	960	1,701	1.2	11.1	9.88	15.1	37.28	8,570
		1-1.5'			X	–	–	–	–	–	–	–	–	6,930
		2-2.5'			X	–	–	–	–	–	–	–	–	2,400
		3-3.5'		X		–	–	–	–	–	–	–	–	702
		4-4.5'		X		–	–	–	–	–	–	–	–	<200
		5-5.5'		X		–	–	–	–	–	–	–	–	639
		6-6.5'		X		–	–	–	–	–	–	–	–	281
		7-7.5'		X		–	–	–	–	–	–	–	–	<200
		8-8.5'		X		–	–	–	–	–	–	–	–	<200
		9-9.5		X		–	–	–	–	–	–	–	–	<200
Tank Battery - Spill 1 and Spill 2 Assessment														
AH-4	4/8/10	0-1'		X		1,590	643	2,233	8.06	39.1	29.7	45.7	**122.56**	9,850
		1-1.5'		X		–	–	–	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	15,900
		2-2.5'		X		–	–	–	–	–	–	–	–	3,620
		3-3.5'		X		–	–	–	–	–	–	–	–	<200
		4-4.5'		X		–	–	–	–	–	–	–	–	<200
		5-5.5'		X		–	–	–	–	–	–	–	–	2,020
		6-6.5'		X		–	–	–	–	–	–	–	–	<200
		7-7.5'		X		–	–	–	–	–	–	–	–	<200
		8-8.5'		X		–	–	–	–	–	–	–	–	<200

EB	Excavation Bottom
BEB	Below Excavation Bottom
(-)	Not Analyzed
▨	Excavation Depths
___	Clay cap (excavation bottom)

Table 2
COG Operating LLC.
BC FEDERAL #1 TANK BATTERY
Spill #4
LEA 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)	BTEX Total	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
Spill 4 - Inside Tank Battery (northwest corner)														
AH-1	9/7/10	0-1'			X	1080	2200	3,280	2.6	42.7	34.4	88.9	**168.6**	<200
		1-1.5'			X	1,670	758	2,428	5.1	44.0	25.1	73.9	**148.1**	212
		2-2.5'			X	253	275	528	1.8	10.4	3.7	14.5	30.4	585
		3-3.5'			X	-	-	-	-	-	-	-	-	4,090
		4-4.5'		X		-	-	-	-	-	-	-	-	1,460
		5-5.5'		X		-	-	-	-	-	-	-	-	4,340
		6-6.5'		X		-	-	-	-	-	-	-	-	4,730
		7-7.5'		X		-	-	-	-	-	-	-	-	4,560
		8-8.5'		X		-	-	-	-	-	-	-	-	6,430
		9-9.5'		X		-	-	-	-	-	-	-	-	4,710
SB-1	11/10/10	0-1'			X	4,110	3,820	**7,930**	-	-	-	-	-	1,290
		3'			X	6,970	5,630	**12,600**	-	-	-	-	-	1,000
		5'		X		<50.0	<2.0	<50.0	-	-	-	-	-	1,020
		7'		X		-	-	-	-	-	-	-	-	1,610
		10'		X		-	-	-	-	-	-	-	-	825
		15'		X		-	-	-	-	-	-	-	-	1,520
		20'		X		-	-	-	-	-	-	-	-	2,270
		25'		X		-	-	-	-	-	-	-	-	<200
		30'		X		-	-	-	-	-	-	-	-	<200
		40'		X		-	-	-	-	-	-	-	-	<200

BEB	Below Excavation Bottom
(-)	Not Analyzed
▨	Excavation depths
___	Clay Cap

Table 2
COG Operating LLC.
BC Federal #1 Tank Battery
Samples Outside of Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample 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						
Spill 5 Assessment - Inside Tank Battery (Northwest corner)													
AH-1	8/1/2012	Data shown in Table 1 (Tank Battery - SOUTHWEST CORNER)											
SB-1	9/12/2012	Data shown in Table 1 (Tank Battery - SOUTHWEST CORNER)											

Table 2
COG Operating LLC.
BC Federal #1 Tank Battery
Samples Outside of Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample 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						
Outside Tank Battery - Spill 5 Assessment													
AH-2	8/1/2102	0-1		X	146	6,810	**6,956**	<0.100	1.39	0.465	0.840	2.70	3,700
	"	1-1.5		X	<4.00	297	297	-	-	-	-	-	2,770
	"	2-2.5		X	-	-	-	-	-	-	-	-	964
	"	3-3.5		X	-	-	-	-	-	-	-	-	1,080
	"	4-4.5		X	-	-	-	-	-	-	-	-	2,550
	"	5-5.5	X		-	-	-	-	-	-	-	-	2,130
	"	6-6.5	X		-	-	-	-	-	-	-	-	1,500
	"	7-7.5	X		-	-	-	-	-	-	-	-	1,130
	"	8-8.5	X		-	-	-	-	-	-	-	-	1,530
	"	9-9.5	X		-	-	-	-	-	-	-	-	3,110
	"	10-10.5	X		-	-	-	-	-	-	-	-	2,680
SB-2	9/13/2012	0-1		X	-	-	-	-	-	-	-	-	5,600
	"	2-3		X	-	-	-	-	-	-	-	-	5,490
	"	4-5	X		-	-	-	-	-	-	-	-	2,440
	"	6-7	X		-	-	-	-	-	-	-	-	1,490
	"	9-10	X		-	-	-	-	-	-	-	-	2,140
	"	14-15	X		-	-	-	-	-	-	-	-	4,970
	"	19-20	X		-	-	-	-	-	-	-	-	3,610
	"	24-25	X		-	-	-	-	-	-	-	-	2,460
	"	29-30	X		-	-	-	-	-	-	-	-	3,530
	"	39-40	X		-	-	-	-	-	-	-	-	1,440
	"	49-50	X		-	-	-	-	-	-	-	-	291
	"	59-60	X		-	-	-	-	-	-	-	-	142

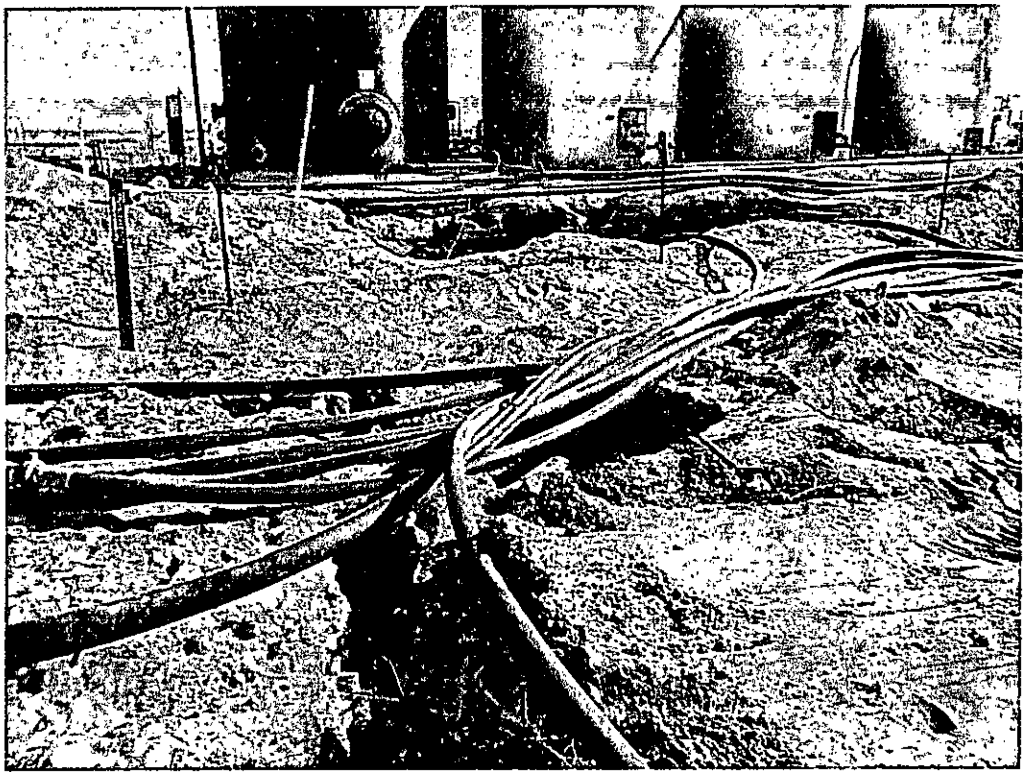
Table 2
COG Operating LLC.
BC Federal #1 Tank Battery
Samples Outside of Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample 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						
Outside Tank Battery - Spill 5 Assessment													
AH-3	8/1/2102	0-1		X	<8.00	<50.0	<50.0	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	3,500
	"	1-1.5		X	-	-	-	-	-	-	-	-	414
	"	2-2.5		X	-	-	-	-	-	-	-	-	212
	"	3-3.5		X	-	-	-	-	-	-	-	-	515
	"	4-4.5		X	-	-	-	-	-	-	-	-	708
	"	5-5.5		X	-	-	-	-	-	-	-	-	1,480
	"	6-6.5		X	-	-	-	-	-	-	-	-	2,580
	"	7-7.5	X		-	-	-	-	-	-	-	-	3,360
	"	8-8.5	X		-	-	-	-	-	-	-	-	2,270
SB-3	9/13/2012	0-1		X	-	-	-	-	-	-	-	-	3,040
	"	2-3		X	-	-	-	-	-	-	-	-	3,380
	"	4-5		X	-	-	-	-	-	-	-	-	1,170
	"	6-7		X	-	-	-	-	-	-	-	-	3,110
	"	9-10	X		-	-	-	-	-	-	-	-	1,710
	"	14-15	X		-	-	-	-	-	-	-	-	285
	"	19-20	X		-	-	-	-	-	-	-	-	270
	"	24-25	X		-	-	-	-	-	-	-	-	191
AH-4	8/1/2102	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2,590
	"	1-1.5	X		-	-	-	-	-	-	-	-	457
	"	2-2.5	X		-	-	-	-	-	-	-	-	605
	"	3-3.5	X		-	-	-	-	-	-	-	-	1,080
	"	4-4.5	X		-	-	-	-	-	-	-	-	744
	"	5-5.5	X		-	-	-	-	-	-	-	-	675

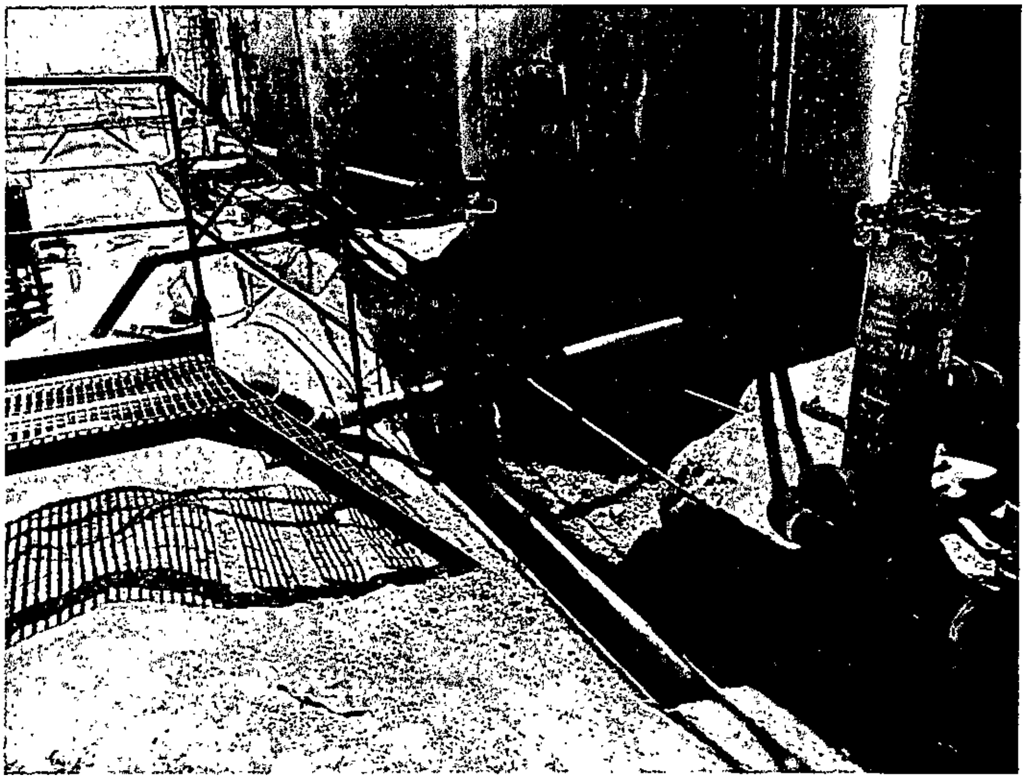
Table 2
COG Operating LLC.
BC Federal #1 Tank Battery
Samples Outside of Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample 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						
Outside Tank Battery - Spill 5 Assessment													
AH-5	8/1/2102	0-1		X	<4.00	<50.0	<50.0	<0.0200	0.0203	<0.0200	0.0214	0.0417	4,950
	"	1-1.5		X	-	-	-	-	-	-	-	-	5,020
	"	2-2.5		X	-	-	-	-	-	-	-	-	5,510
	"	3-3.5		X	-	-	-	-	-	-	-	-	7,850
	"	4-4.5		X	-	-	-	-	-	-	-	-	8,020
	"	5-5.5	X		-	-	-	-	-	-	-	-	522
AH-6	8/1/2102	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,410
	"	1-1.5	X		-	-	-	-	-	-	-	-	275
	"	2-2.5	X		-	-	-	-	-	-	-	-	74.6
	"	3-3.5	X		-	-	-	-	-	-	-	-	42.0
AH-7	8/1/2102	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	8,140
	"	1-1.5		X	-	-	-	-	-	-	-	-	9,210
	"	2-2.5		X	-	-	-	-	-	-	-	-	7,680
	"	3-3.5	X		-	-	-	-	-	-	-	-	1,590
	"	4-4.5	X		-	-	-	-	-	-	-	-	896
	"	5-5.5	X		-	-	-	-	-	-	-	-	439
AH-8	8/1/2102	0-1		X	<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,850
	"	1-1.5	X		-	-	-	-	-	-	-	-	92.4
	"	2-2.5	X		-	-	-	-	-	-	-	-	125
	"	3-3.5	X		-	-	-	-	-	-	-	-	480

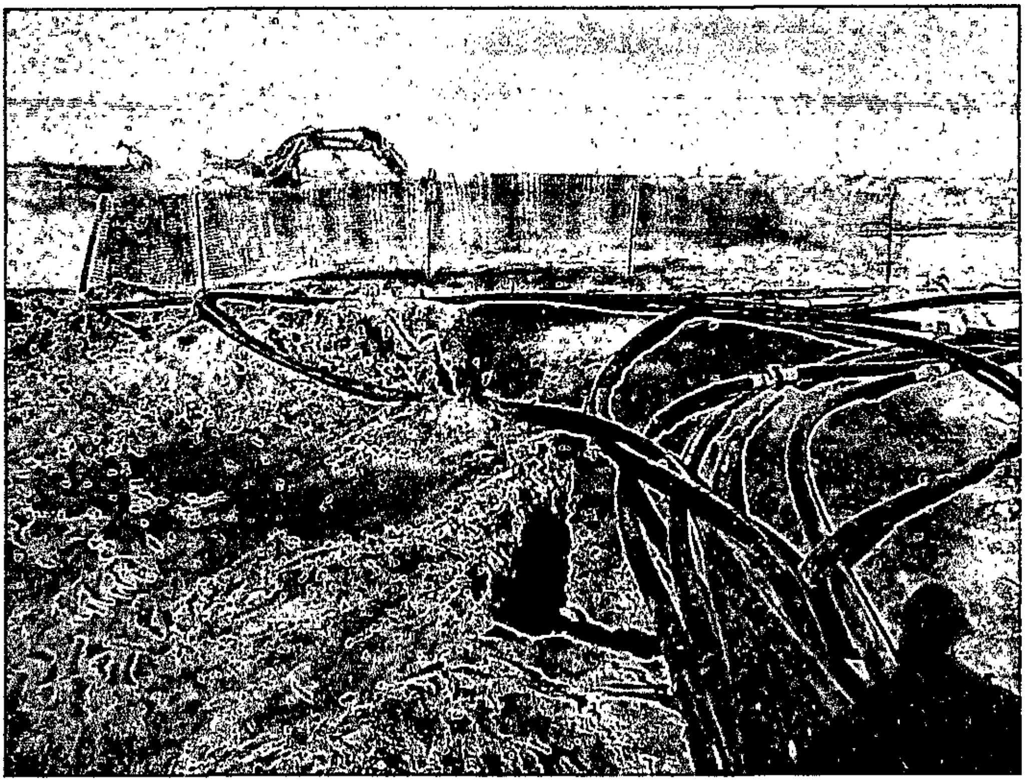
(-)	Not Analyzed
☐	Excavated Depths
——	Clay cap or liner



View North – Area of AH-3 (Spill 1).

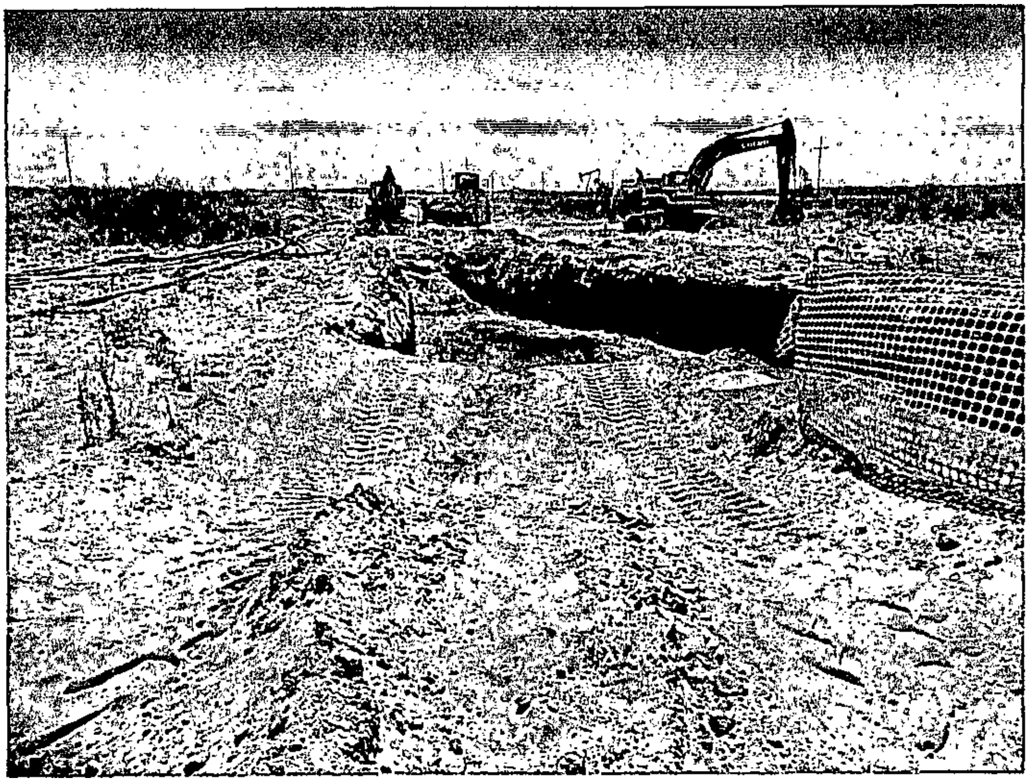


View East– Area of AH-4 (Spill 1).

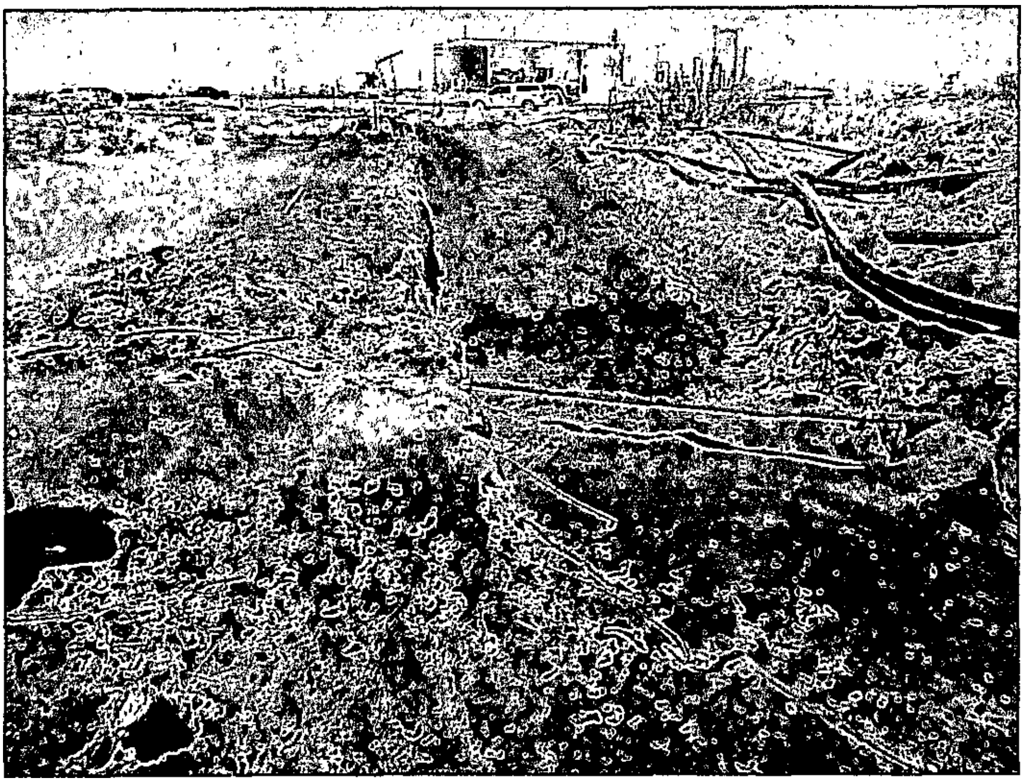


View South– Area of AH-2 (Spill 5).

View Southeast – Area of AH-3 (Spill 5).



View South – Area of AH-5 (Spill 5).



View South – Area of AH-8 (Spill 5).

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

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

16 South 32 East

6	5	4	3 **65**	2 **265**	1 **265**
7	8	9	10	11	12 **215**
18	17	16 **221**	15	14	13 **215**
19 **220**	20	21 **210**	22	23 **210**	24
30	29	28	27	26 **243**	25
31	32	33	34	35	36 **260**

16 South 33 East

6	5 **180**	4 **150**	3 **130**	2 **148**	1 **142**
7	8 **200**	9	10 **182**	11	12 **142**
18	17 **182**	16 **180**	15 **175**	14 **143**	13 **110**
19	20	21	22	23 **120**	24
30 **191**	29	28 **190**	27 **130**	26 **143**	25 **120**
31 **190**	32 **168**	33	34 **160**	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

17 South 32 East

6	5	4 **82**	3 **175**	2 **60**	1 **225**
7	8	9	10	11 **70 88**	12 **120**
18	17	16	15	14	13
19	20 SITE	21	22	23	24
30 **180**	29	28	27	26	25
31	32	33	34	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	29	28	27	26	25
31	32	33	34	35 ***155***	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

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	32	33	34 **117**	35	36

18 South 33 East

6	5	4	3	2	1
7	8 **100**	9	10 **62**	11	12 **143** **140**
18	17 **65**	16	15	14 **36**	13 **60**
19 **>140**	20	21	22	23	24 **195**
30 **35**	29	28	27	26	25
31	32	33	34 **177**	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
☐ Tetra Tech Temporary well (TD 180' - Dry Well)

Summary Report

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

Report Date: April 21, 2010

Work Order: 10040928

Project Location: Lea County, NM
Project Name: COG/BC Federal #1 TB
Project Number: 114-6400487

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
228012	AH-1 0-1' Scrape	soil	2010-04-08	00:00	2010-04-09
228013	AH-1 1-1.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228014	AH-1 2-2.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228015	AH-1 3-3.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228016	AH-1 4-4.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228017	AH-1 5-5.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228018	AH-1 6-6.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228019	AH-1 7-7.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228020	AH-1 8-8.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228021	AH-2 0-1' 2' BEB	soil	2010-04-08	00:00	2010-04-09
228022	AH-2 1-1.5' 2' BEB	soil	2010-04-08	00:00	2010-04-09
228023	AH-2 2-2.5' 2' BEB	soil	2010-04-08	00:00	2010-04-09
228024	AH-2 3-3.5' 2' BEB	soil	2010-04-08	00:00	2010-04-09
228025	AH-2 4-4.5' 2' BEB	soil	2010-04-08	00:00	2010-04-09
228026	AH-2 5-5.5' 2' BEB	soil	2010-04-08	00:00	2010-04-09
228027	AH-2 6-6.5' 2' BEB	soil	2010-04-08	00:00	2010-04-09
228028	AH-2 7-7.5' 2' BEB	soil	2010-04-08	00:00	2010-04-09
228029	AH-3 0-1' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228030	AH-3 1-1.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228031	AH-3 2-2.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228032	AH-3 3-3.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228033	AH-3 4-4.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228034	AH-3 5-5.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228035	AH-3 6-6.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228036	AH-3 7-7.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228037	AH-3 8-8.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228038	AH-3 9-9.5' 4' BEB	soil	2010-04-08	00:00	2010-04-09
228039	AH-4 0-1' Scrape	soil	2010-04-08	00:00	2010-04-09
228040	AH-4 1-1.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228041	AH-4 2-2.5' Scrape	soil	2010-04-08	00:00	2010-04-09

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
228042	AH-4 3-3.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228043	AH-4 4-4.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228044	AH-4 5-5.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228045	AH-4 6-6.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228046	AH-4 7-7.5' Scrape	soil	2010-04-08	00:00	2010-04-09
228047	AH-4 8-8.5' Scrape	soil	2010-04-08	00:00	2010-04-09

	BTEX				TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
228012 - AH-1 0-1' Scrape	**15.3**	**71.6**	**50.2**	**69.4**	**524**	**2250**
228013 - AH-1 1-1.5' Scrape	<0.0100	<0.0100	<0.0100	<0.0100		
228014 - AH-1 2-2.5' Scrape	<0.0100	<0.0100	<0.0100	**0.0800**		
228021 - AH-2 0-1' 2' BEB	**21.1**	**161**	**106**	**158**	**5570**	**4780**
228022 - AH-2 1-1.5' 2' BEB	**25.4**	**100**	**46.8**	**84.6**	**3980**	**2550**
228023 - AH-2 2-2.5' 2' BEB	**14.4**	**70.6**	**32.5**	**69.6**	**1020**	**2010**
228025 - AH-2 4-4.5' 2' BEB	<0.200	**7.63**	**11.7**	**26.4**		
228026 - AH-2 5-5.5' 2' BEB	<0.0100	<0.0100	<0.0100	<0.0100		
228029 - AH-3 0-1' 4' BEB	**3.30**	**23.6**	**23.5**	**36.4**	**1340**	**1320**
228030 - AH-3 1-1.5' 4' BEB	<0.0100	<0.0100	<0.0100	**0.108**		
228039 - AH-4 0-1' Scrape	**8.06**	**39.1**	**29.7**	**45.7**	**643**	**1590**
228040 - AH-4 1-1.5' Scrape	<0.0100	<0.0100	<0.0100	<0.0100		

Sample: 228012 - AH-1 0-1' Scrape

Param	Flag	Result	Units	RL
Chloride		**10500**	mg/Kg	4.00

Sample: 228013 - AH-1 1-1.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**13100**	mg/Kg	4.00

Sample: 228014 - AH-1 2-2.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**3960**	mg/Kg	4.00

Sample: 228015 - AH-1 3-3.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**4090**	mg/Kg	4.00

Sample: 228016 - AH-1 4-4.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**3540**	mg/Kg	4.00

Sample: 228017 - AH-1 5-5.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**6770**	mg/Kg	4.00

Sample: 228018 - AH-1 6-6.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**7180**	mg/Kg	4.00

Sample: 228019 - AH-1 7-7.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**4680**	mg/Kg	4.00

Sample: 228020 - AH-1 8-8.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**2830**	mg/Kg	4.00

Sample: 228021 - AH-2 0-1' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**4740**	mg/Kg	4.00

Sample: 228022 - AH-2 1-1.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**5160**	mg/Kg	4.00

Sample: 228023 - AH-2 2-2.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**11400**	mg/Kg	4.00

Sample: 228024 - AH-2 3-3.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**10400**	mg/Kg	4.00

Sample: 228025 - AH-2 4-4.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**5440**	mg/Kg	4.00

Sample: 228026 - AH-2 5-5.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**4290**	mg/Kg	4.00

Sample: 228027 - AH-2 6-6.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**3410**	mg/Kg	4.00

Sample: 228028 - AH-2 7-7.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**4800**	mg/Kg	4.00

Sample: 228029 - AH-3 0-1' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**16600**	mg/Kg	4.00

Sample: 228030 - AH-3 1-1.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**12300**	mg/Kg	4.00

Sample: 228031 - AH-3 2-2.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**6280**	mg/Kg	4.00

Sample: 228032 - AH-3 3-3.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**4360**	mg/Kg	4.00

Sample: 228033 - AH-3 4-4.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**2710**	mg/Kg	4.00

Sample: 228034 - AH-3 5-5.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**3630**	mg/Kg	4.00

Sample: 228035 - AH-3 6-6.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**3750**	mg/Kg	4.00

Sample: 228036 - AH-3 7-7.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**3550**	mg/Kg	4.00

Sample: 228037 - AH-3 8-8.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**2520**	mg/Kg	4.00

Sample: 228038 - AH-3 9-9.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**2380**	mg/Kg	4.00

Sample: 228039 - AH-4 0-1' Scrape

Param	Flag	Result	Units	RL
Chloride		**9850**	mg/Kg	4.00

Sample: 228040 - AH-4 1-1.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**15900**	mg/Kg	4.00

Sample: 228041 - AH-4 2-2.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**3620**	mg/Kg	4.00

Sample: 228042 - AH-4 3-3.5' Scrape

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

Sample: 228043 - AH-4 4-4.5' Scrape

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

Sample: 228044 - AH-4 5-5.5' Scrape

Param	Flag	Result	Units	RL
Chloride		**2020**	mg/Kg	4.00

Sample: 228045 - AH-4 6-6.5' Scrape

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

Sample: 228046 - AH-4 7-7.5' Scrape

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

Sample: 228047 - AH-4 8-8.5' Scrape

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

Summary Report

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

Report Date: May 21, 2010

Work Order: 10051408

Project Location: Lea County, NM
Project Name: COG/BC Federal #1 TB
Project Number: 114-6400487

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
231620	SB-1 5'	soil	2010-05-11	00:00	2010-05-13
231621	SB-1 7'	soil	2010-05-11	00:00	2010-05-13
231622	SB-1 10'	soil	2010-05-11	00:00	2010-05-13
231623	SB-1 12'	soil	2010-05-11	00:00	2010-05-13
231624	SB-1 15'	soil	2010-05-11	00:00	2010-05-13
231625	SB-1 20'	soil	2010-05-11	00:00	2010-05-13
231626	SB-2 5' (2' BEB)	soil	2010-05-11	00:00	2010-05-13
231627	SB-2 7' (2' BEB)	soil	2010-05-11	00:00	2010-05-13
231628	SB-2 10' (2' BEB)	soil	2010-05-11	00:00	2010-05-13
231629	SB-2 12' (2' BEB)	soil	2010-05-11	00:00	2010-05-13
231630	SB-2 15' (2' BEB)	soil	2010-05-11	00:00	2010-05-13
231631	SB-2 20' (2' BEB)	soil	2010-05-11	00:00	2010-05-13
231632	SB-2 25' (2' BEB)	soil	2010-05-11	00:00	2010-05-13
231633	SB-2 30' (2' BEB)	soil	2010-05-11	00:00	2010-05-13
231634	SB-3 5' (4' BEB)	soil	2010-05-11	00:00	2010-05-13
231635	SB-3 7' (4' BEB)	soil	2010-05-11	00:00	2010-05-13
231636	SB-3 10' (4' BEB)	soil	2010-05-11	00:00	2010-05-13
231637	SB-3 12' (4' BEB)	soil	2010-05-11	00:00	2010-05-13
231638	SB-3 15' (4' BEB)	soil	2010-05-11	00:00	2010-05-13
231639	SB-3 20' (4' BEB)	soil	2010-05-11	00:00	2010-05-13
231640	SB-3 25' (4' BEB)	soil	2010-05-11	00:00	2010-05-13
231641	SB-3 30' (4' BEB)	soil	2010-05-11	00:00	2010-05-13

	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)
231620 - SB-1 5'	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
231626 - SB-2 5' (2' BEB)	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00
231634 - SB-3 5' (4' BEB)	**2.18**	**14.3**	**10.5**	**15.7**	**558**	**686**

Sample: 231620 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		**805**	mg/Kg	4.00

Sample: 231621 - SB-1 7'

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

Sample: 231622 - SB-1 10'

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

Sample: 231623 - SB-1 12'

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

Sample: 231624 - SB-1 15'

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

Sample: 231625 - SB-1 20'

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

Sample: 231626 - SB-2 5' (2' BEB)

Param	Flag	Result	Units	RL
Chloride		**12000**	mg/Kg	4.00

Sample: 231627 - SB-2 7' (2' BEB)

Param	Flag	Result	Units	RL
Chloride		**12400**	mg/Kg	4.00

Sample: 231628 - SB-2 10' (2' BEB)

Param	Flag	Result	Units	RL
Chloride		**8610**	mg/Kg	4.00

Sample: 231629 - SB-2 12' (2' BEB)

Param	Flag	Result	Units	RL
Chloride		**2790**	mg/Kg	4.00

Sample: 231630 - SB-2 15' (2' BEB)

Param	Flag	Result	Units	RL
Chloride		**7130**	mg/Kg	4.00

Sample: 231631 - SB-2 20' (2' BEB)

Param	Flag	Result	Units	RL
Chloride		**881**	mg/Kg	4.00

Sample: 231632 - SB-2 25' (2' BEB)

Param	Flag	Result	Units	RL
Chloride		**996**	mg/Kg	4.00

Sample: 231633 - SB-2 30' (2' BEB)

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

Sample: 231634 - SB-3 5' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		**8350**	mg/Kg	4.00

Sample: 231635 - SB-3 7' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		**8950**	mg/Kg	4.00

Sample: 231636 - SB-3 10' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		**10100**	mg/Kg	4.00

Sample: 231637 - SB-3 12' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		**9040**	mg/Kg	4.00

Sample: 231638 - SB-3 15' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		**9820**	mg/Kg	4.00

Sample: 231639 - SB-3 20' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		**1470**	mg/Kg	4.00

Sample: 231640 - SB-3 25' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		**874**	mg/Kg	4.00

Sample: 231641 - SB-3 30' (4' BEB)

Param	Flag	Result	Units	RL
Chloride		**360**	mg/Kg	4.00

Summary Report

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

Report Date: July 27, 2010

Work Order: 10061118

Project Location: Lea County, NM
Project Name: COG/BC Federal #1 TB
Project Number: 114-6400487

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
234361	AH-1 0-1'	soil	2010-06-10	00:00	2010-06-11
234362	AH-1 1-1.5'	soil	2010-06-10	00:00	2010-06-11
234363	AH-1 2-2.5'	soil	2010-06-10	00:00	2010-06-11
234364	AH-1 3-3.5'	soil	2010-06-10	00:00	2010-06-11
234365	AH-1 4-4.5'	soil	2010-06-10	00:00	2010-06-11
234366	AH-1 5-5.5'	soil	2010-06-10	00:00	2010-06-11
234367	AH-2 0-1' 2' BEB	soil	2010-06-10	00:00	2010-06-11
234368	AH-2 1-1.5' 2' BEB	soil	2010-06-10	00:00	2010-06-11
234369	AH-2 2-2.5' 2' BEB	soil	2010-06-10	00:00	2010-06-11
234370	AH-2 3-3.5' 2' BEB	soil	2010-06-10	00:00	2010-06-11
234371	AH-2 4-4.5' 2' BEB	soil	2010-06-10	00:00	2010-06-11
234372	AH-2 5-5.5' 2' BEB	soil	2010-06-10	00:00	2010-06-11
234373	AH-3 0-1' 4' BEB	soil	2010-06-10	00:00	2010-06-11
234374	AH-3 1-1.5' 4' BEB	soil	2010-06-10	00:00	2010-06-11
234375	AH-3 2-2.5' 4' BEB	soil	2010-06-10	00:00	2010-06-11
234376	AH-3 3-3.5' 4' BEB	soil	2010-06-10	00:00	2010-06-11
234377	AH-3 4-4.5' 4' BEB	soil	2010-06-10	00:00	2010-06-11
234378	AH-3 5-5.5' 4' BEB	soil	2010-06-10	00:00	2010-06-11

Sample: 234361 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**9270**	mg/Kg	4.00

Sample: 234362 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**9470**	mg/Kg	4.00

Sample: 234363 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**4620**	mg/Kg	4.00

Sample: 234364 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**3070**	mg/Kg	4.00

Sample: 234365 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**3140**	mg/Kg	4.00

Sample: 234366 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**4090**	mg/Kg	4.00

Sample: 234367 - AH-2 0-1' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**3690**	mg/Kg	4.00

Sample: 234368 - AH-2 1-1.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**4960**	mg/Kg	4.00

Sample: 234369 - AH-2 2-2.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**7570**	mg/Kg	4.00

Sample: 234370 - AH-2 3-3.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**12500**	mg/Kg	4.00

Sample: 234371 - AH-2 4-4.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**13000**	mg/Kg	4.00

Sample: 234372 - AH-2 5-5.5' 2' BEB

Param	Flag	Result	Units	RL
Chloride		**5880**	mg/Kg	4.00

Sample: 234373 - AH-3 0-1' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**7360**	mg/Kg	4.00

Sample: 234374 - AH-3 1-1.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**10000**	mg/Kg	2.50

Sample: 234375 - AH-3 2-2.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**12000**	mg/Kg	2.50

Sample: 234376 - AH-3 3-3.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**11700**	mg/Kg	4.00

Sample: 234377 - AH-3 4-4.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**11000**	mg/Kg	4.00

Sample: 234378 - AH-3 5-5.5' 4' BEB

Param	Flag	Result	Units	RL
Chloride		**9650**	mg/Kg	4.00

Summary Report

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

Report Date: June 23, 2010

Work Order: 10061118

Project Location: Lea County, NM
Project Name: COG/BC Federal #1 TB
Project Number: 114-6400487

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
234361	AH-1 0-1'	soil	2010-06-10	00:00	2010-06-11
234362	AH-1 1-1.5'	soil	2010-06-10	00:00	2010-06-11
234367	AH-2 0-1' 2' BEB	soil	2010-06-10	00:00	2010-06-11
234373	AH-3 0-1' 4' BEB	soil	2010-06-10	00:00	2010-06-11
234374	AH-3 1-1.5' 4' BEB	soil	2010-06-10	00:00	2010-06-11
234375	AH-3 2-2.5' 4' BEB	soil	2010-06-10	00:00	2010-06-11
234379	AH-4 0-1'	soil	2010-06-10	00:00	2010-06-11
234380	AH-4 1-1.5'	soil	2010-06-10	00:00	2010-06-11
234381	AH-4 2-2.5'	soil	2010-06-10	00:00	2010-06-11
234382	AH-4 3-3.5'	soil	2010-06-10	00:00	2010-06-11
234383	AH-4 4-4.5'	soil	2010-06-10	00:00	2010-06-11
234384	AH-4 5-5.5'	soil	2010-06-10	00:00	2010-06-11
234385	AH-4 6-6.5'	soil	2010-06-10	00:00	2010-06-11
234386	AH-4 7-7.5'	soil	2010-06-10	00:00	2010-06-11
234387	AH-4 8-8.5'	soil	2010-06-10	00:00	2010-06-11
234388	AH-4 9-9.5'	soil	2010-06-10	00:00	2010-06-11

	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)
234361 - AH-1 0-1'	**2.41**	**22.2**	**18.6**	**26.8**	**383**	**1020**
234362 - AH-1 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200		
234367 - AH-2 0-1' 2' BEB	**0.668**	**7.02**	**4.25**	**6.44**	**3240**	**209**
234373 - AH-3 0-1' 4' BEB	**45.2**	**202**	**111**	**154**	**3760**	**5880**
234374 - AH-3 1-1.5' 4' BEB	**0.262**	**1.00**	**0.721**	**1.09**	**221**	**39.3**
234375 - AH-3 2-2.5' 4' BEB	**0.0795**	**1.36**	**1.46**	**2.21**	**423**	**71.9**
234379 - AH-4 0-1'	**1.20**	**11.1**	**9.88**	**15.1**	**960**	**741**

Sample: 234379 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**8570**	mg/Kg	4.00

Sample: 234380 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**6930**	mg/Kg	4.00

Sample: 234381 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2400**	mg/Kg	4.00

Sample: 234382 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**702**	mg/Kg	4.00

Sample: 234383 - AH-4 4-4.5'

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

Sample: 234384 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**639**	mg/Kg	4.00

Sample: 234385 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**281**	mg/Kg	4.00

Sample: 234386 - AH-4 7-7.5'

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

Sample: 234387 - AH-4 8-8.5'

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

Sample: 234388 - AH-4 9-9.5'

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

Summary Report

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

Report Date: September 27, 2010

Work Order: 10091331

Project Location: Lea Co., NM
Project Name: COG/BC Fed. #1 TB
Project Number: 114-6400671

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
244441	AH-1 0-1	soil	2010-09-07	00:00	2010-09-10
244442	AH-1 1-1.5	soil	2010-09-07	00:00	2010-09-10
244443	AH-1 2-2.5	soil	2010-09-07	00:00	2010-09-10
244444	AH-1 3-3.5	soil	2010-09-07	00:00	2010-09-10
244445	AH-1 4-4.5	soil	2010-09-07	00:00	2010-09-10
244446	AH-1 5-5.5	soil	2010-09-07	00:00	2010-09-10
244447	AH-1 6-6.5	soil	2010-09-07	00:00	2010-09-10
244448	AH-1 7-7.5	soil	2010-09-07	00:00	2010-09-10
244449	AH-1 8-8.5	soil	2010-09-07	00:00	2010-09-10
244450	AH-1 9-9.5	soil	2010-09-07	00:00	2010-09-10

	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)
244441 - AH-1 0-1	**2.60**	**42.7**	**34.4**	**88.9**	**2200**	**1080**
244442 - AH-1 1-1.5	**5.14**	**44.0**	**25.1**	**73.9**	**758**	**1670**
244443 - AH-1 2-2.5	**1.80**	**10.4**	**3.74**	**14.5**	**275**	**253**

Sample: 244441 - AH-1 0-1

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

Sample: 244442 - AH-1 1-1.5

continued ...

sample 244442 continued . . .

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**212**	mg/Kg	4.00

Sample: 244443 - AH-1 2-2.5

Param	Flag	Result	Units	RL
Chloride		**585**	mg/Kg	4.00

Sample: 244444 - AH-1 3-3.5

Param	Flag	Result	Units	RL
Chloride		**4090**	mg/Kg	4.00

Sample: 244445 - AH-1 4-4.5

Param	Flag	Result	Units	RL
Chloride		**1460**	mg/Kg	4.00

Sample: 244446 - AH-1 5-5.5

Param	Flag	Result	Units	RL
Chloride		**4340**	mg/Kg	4.00

Sample: 244447 - AH-1 6-6.5

Param	Flag	Result	Units	RL
Chloride		**4730**	mg/Kg	4.00

Sample: 244448 - AH-1 7-7.5

Param	Flag	Result	Units	RL
Chloride		**4560**	mg/Kg	4.00

Sample: 244449 - AH-1 8-8.5

Param	Flag	Result	Units	RL
Chloride		**6430**	mg/Kg	4.00

Sample: 244450 - AH-1 9-9.5

Param	Flag	Result	Units	RL
Chloride		**4710**	mg/Kg	4.00

Summary Report

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

Report Date: November 22, 2010

Work Order: 10111513

Project Location: Lea Co., NM
Project Name: COG-Navajo/BC Fed. #1 TB
Project Number: 114-6400671

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
250479	SB-1 0-1'	soil	2010-11-10	00:00	2010-11-15
250480	SB-1 3'	soil	2010-11-10	00:00	2010-11-15
250481	SB-1 5'	soil	2010-11-10	00:00	2010-11-15
250482	SB-1 7'	soil	2010-11-10	00:00	2010-11-15
250483	SB-1 10'	soil	2010-11-10	00:00	2010-11-15
250484	SB-1 15'	soil	2010-11-10	00:00	2010-11-15
250485	SB-1 20'	soil	2010-11-10	00:00	2010-11-15
250486	SB-1 25'	soil	2010-11-10	00:00	2010-11-15
250487	SB-1 30'	soil	2010-11-10	00:00	2010-11-15
250488	SB-1 40'	soil	2010-11-10	00:00	2010-11-15

	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)
250479 - SB-1 0-1'					**3820**	**4110**
250480 - SB-1 3'	**20.3**	**147**	**72.6**	**129**	**5630**	**6970**
250481 - SB-1 5'	**0.0372**	**0.0257**	<0.0200	**0.0905**	<50.0	<2.00

Sample: 250479 - SB-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**1290**	mg/Kg	4.00

Sample: 250480 - SB-1 3'

continued ...

sample 250480 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**1000**	mg/Kg	4.00

Sample: 250481 - SB-1 5'

Param	Flag	Result	Units	RL
Chloride		**1020**	mg/Kg	4.00

Sample: 250482 - SB-1 7'

Param	Flag	Result	Units	RL
Chloride		**1610**	mg/Kg	4.00

Sample: 250483 - SB-1 10'

Param	Flag	Result	Units	RL
Chloride		**825**	mg/Kg	4.00

Sample: 250484 - SB-1 15'

Param	Flag	Result	Units	RL
Chloride		**1520**	mg/Kg	4.00

Sample: 250485 - SB-1 20'

Param	Flag	Result	Units	RL
Chloride		**2270**	mg/Kg	4.00

Sample: 250486 - SB-1 25'

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

Sample: 250487 - SB-1 30'

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

Sample: 250488 - SB-1 40'

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

Summary Report

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

Report Date: August 20, 2012

Work Order: 12080314

Project Location: Lea Co., NM
Project Name: COG/BC Fed. #1 Tank Battery
Project Number: 114-6400671

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
305725	AH-1 0-1'	soil	2012-08-01	00:00	2012-08-02
305726	AH-1 1-1.5'	soil	2012-08-01	00:00	2012-08-02
305727	AH-1 2-2.5'	soil	2012-08-01	00:00	2012-08-02
305728	AH-1 3-3.5'	soil	2012-08-01	00:00	2012-08-02
305729	AH-1 4-4.5'	soil	2012-08-01	00:00	2012-08-02
305730	AH-1 5-5.5'	soil	2012-08-01	00:00	2012-08-02
305731	AH-1 6-6.5'	soil	2012-08-01	00:00	2012-08-02
305732	AH-1 7-7.5'	soil	2012-08-01	00:00	2012-08-02
305733	AH-1 8-8.5'	soil	2012-08-01	00:00	2012-08-02
305734	AH-1 9-9.5'	soil	2012-08-01	00:00	2012-08-02
305735	AH-1 10-10.5'	soil	2012-08-01	00:00	2012-08-02
305736	AH-2 0-1'	soil	2012-08-01	00:00	2012-08-02
305737	AH-2 1-1.5'	soil	2012-08-01	00:00	2012-08-02
305738	AH-2 2-2.5'	soil	2012-08-01	00:00	2012-08-02
305739	AH-2 3-3.5'	soil	2012-08-01	00:00	2012-08-02
305740	AH-2 4-4.5'	soil	2012-08-01	00:00	2012-08-02
305741	AH-2 5-5.5'	soil	2012-08-01	00:00	2012-08-02
305742	AH-2 6-6.5'	soil	2012-08-01	00:00	2012-08-02
305743	AH-2 7-7.5'	soil	2012-08-01	00:00	2012-08-02
305744	AH-2 8-8.5'	soil	2012-08-01	00:00	2012-08-02
305745	AH-2 9-9.5'	soil	2012-08-01	00:00	2012-08-02
305746	AH-2 10-10.5'	soil	2012-08-01	00:00	2012-08-02
305747	AH-3 0-1'	soil	2012-08-01	00:00	2012-08-02
305748	AH-3 1-1.5'	soil	2012-08-01	00:00	2012-08-02
305749	AH-3 2-2.5'	soil	2012-08-01	00:00	2012-08-02
305750	AH-3 3-3.5'	soil	2012-08-01	00:00	2012-08-02
305751	AH-3 4-4.5'	soil	2012-08-01	00:00	2012-08-02
305752	AH-3 5-5.5'	soil	2012-08-01	00:00	2012-08-02
305753	AH-3 6-6.5'	soil	2012-08-01	00:00	2012-08-02
305754	AH-3 7-7.5'	soil	2012-08-01	00:00	2012-08-02

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
305755	AH-3 8-8.5'	soil	2012-08-01	00:00	2012-08-02
305756	AH-4 0-1'	soil	2012-08-01	00:00	2012-08-02
305757	AH-4 1-1.5'	soil	2012-08-01	00:00	2012-08-02
305758	AH-4 2-2.5'	soil	2012-08-01	00:00	2012-08-02
305759	AH-4 3-3.5'	soil	2012-08-01	00:00	2012-08-02
305760	AH-4 4-4.5'	soil	2012-08-01	00:00	2012-08-02
305761	AH-4 5-5.5'	soil	2012-08-01	00:00	2012-08-02
305762	AH-5 0-1'	soil	2012-08-01	00:00	2012-08-02
305763	AH-5 1-1.5'	soil	2012-08-01	00:00	2012-08-02
305764	AH-5 2-2.5'	soil	2012-08-01	00:00	2012-08-02
305765	AH-5 3-3.5'	soil	2012-08-01	00:00	2012-08-02
305766	AH-5 4-4.5'	soil	2012-08-01	00:00	2012-08-02
305767	AH-5 5-5.5'	soil	2012-08-01	00:00	2012-08-02
305768	AH-6 0-1'	soil	2012-08-01	00:00	2012-08-02
305769	AH-6 1-1.5'	soil	2012-08-01	00:00	2012-08-02
305770	AH-6 2-2.5'	soil	2012-08-01	00:00	2012-08-02
305771	AH-6 3-3.5	soil	2012-08-01	00:00	2012-08-02
305772	AH-7 0-1'	soil	2012-08-01	00:00	2012-08-02
305773	AH-7 1-1.5'	soil	2012-08-01	00:00	2012-08-02
305774	AH-7 2-2.5'	soil	2012-08-01	00:00	2012-08-02
305775	AH-7 3-3.5'	soil	2012-08-01	00:00	2012-08-02
305776	AH-7 4-4.5'	soil	2012-08-01	00:00	2012-08-02
305777	AH-7 5-5.5'	soil	2012-08-01	00:00	2012-08-02
305778	AH-8 0-1'	soil	2012-08-01	00:00	2012-08-02
305779	AH-8 1-1.5'	soil	2012-08-01	00:00	2012-08-02
305780	AH-8 2-2.5'	soil	2012-08-01	00:00	2012-08-02
305781	AH-8 3-3.5'	soil	2012-08-01	00:00	2012-08-02

	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)
305725 - AH-1 0-1'	<0.100 [1]	**11.0**	**12.3**	**31.1**	**3630**	**525** Je
305726 - AH-1 1-1.5'	**0.449** Qs	**41.5** Qs	**41.6** Qs	**81.8** Je,Qs		
305727 - AH-1 2-2.5'	<0.0400 Qr,Qs	**2.37** Qr,Qs	**11.0** Qr	**26.7** Je,Qr		
305736 - AH-2 0-1'	<0.100 [2]	**1.39**	**0.465**	**0.840**	**6810**	**146**
305737 - AH-2 1-1.5'					**297**	<4.00
305747 - AH-3 0-1'	<0.0400 [3]	<0.0400	<0.0400	<0.0400	<50.0	<8.00 [4]
305756 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
305762 - AH-5 0-1'	<0.0200	**0.0203**	<0.0200	**0.0214**	<50.0	<4.00
305768 - AH-6 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
305772 - AH-7 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs
305778 - AH-8 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00 Qs

Sample: 305725 - AH-1 0-1'

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[1] Dilution due to excessive hydrocarbons.

[2] Dilution due to excessive hydrocarbons.

[3] Dilution due to turbidity.

[4] Dilution due to turbidity.

Param	Flag	Result	Units	RL
Chloride		**7100**	mg/Kg	4

Sample: 305726 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1890**	mg/Kg	4

Sample: 305727 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**2360**	mg/Kg	4

Sample: 305728 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1980**	mg/Kg	4

Sample: 305729 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**2000**	mg/Kg	4

Sample: 305730 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**2800**	mg/Kg	4

Sample: 305731 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**4290**	mg/Kg	4

Sample: 305732 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**4820**	mg/Kg	4

Sample: 305733 - AH-1 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**4740**	mg/Kg	4

Sample: 305734 - AH-1 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**5670**	mg/Kg	4

Sample: 305735 - AH-1 10-10.5'

Param	Flag	Result	Units	RL
Chloride		**4330**	mg/Kg	4

Sample: 305736 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**3700**	mg/Kg	4

Sample: 305737 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2770**	mg/Kg	4

Sample: 305738 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**964**	mg/Kg	4

Sample: 305739 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1080**	mg/Kg	4

Sample: 305740 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**2550**	mg/Kg	4

Sample: 305741 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**2130**	mg/Kg	4

Sample: 305742 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**1500**	mg/Kg	4

Sample: 305743 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**1130**	mg/Kg	4

Sample: 305744 - AH-2 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**1530**	mg/Kg	4

Sample: 305745 - AH-2 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**3110**	mg/Kg	4

Sample: 305746 - AH-2 10-10.5'

Param	Flag	Result	Units	RL
Chloride		**2680**	mg/Kg	4

Sample: 305747 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**3500**	mg/Kg	4

Sample: 305748 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**414**	mg/Kg	4

Sample: 305749 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**212**	mg/Kg	4

Sample: 305750 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**515**	mg/Kg	4

Sample: 305751 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**708**	mg/Kg	4

Sample: 305752 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**1480**	mg/Kg	4

Sample: 305753 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**2580**	mg/Kg	4

Sample: 305754 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**3360**	mg/Kg	4

Sample: 305755 - AH-3 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**2270**	mg/Kg	4

Sample: 305756 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**2590**	mg/Kg	4

Sample: 305757 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**457**	mg/Kg	4

Sample: 305758 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**605**	mg/Kg	4

Sample: 305759 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1080**	mg/Kg	4

Sample: 305760 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**744**	mg/Kg	4

Sample: 305761 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**675**	mg/Kg	4

Sample: 305762 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**4950**	mg/Kg	4

Sample: 305763 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**5020**	mg/Kg	4

Sample: 305764 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**5510**	mg/Kg	4

Sample: 305765 - AH-5 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**7850**	mg/Kg	4

Sample: 305766 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**8020**	mg/Kg	4

Sample: 305767 - AH-5 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**522**	mg/Kg	4

Sample: 305768 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**1410**	mg/Kg	4

Sample: 305769 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**275**	mg/Kg	4

Sample: 305770 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**74.6**	mg/Kg	4

Sample: 305771 - AH-6 3-3.5

Param	Flag	Result	Units	RL
Chloride		**42.0**	mg/Kg	4

Sample: 305772 - AH-7 0-1'

Param	Flag	Result	Units	RL
Chloride		**8140**	mg/Kg	4

Sample: 305773 - AH-7 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**9210**	mg/Kg	4

Sample: 305774 - AH-7 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**7680**	mg/Kg	4

Sample: 305775 - AH-7 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1590**	mg/Kg	4

Sample: 305776 - AH-7 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**896**	mg/Kg	4

Sample: 305777 - AH-7 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**439**	mg/Kg	4

Sample: 305778 - AH-8 0-1'

Param	Flag	Result	Units	RL
Chloride		**3850**	mg/Kg	4

Sample: 305779 - AH-8 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**92.4**	mg/Kg	4

Sample: 305780 - AH-8 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**125**	mg/Kg	4

Sample: 305781 - AH-8 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**480**	mg/Kg	4

Summary Report

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

Report Date: September 24, 2012

Work Order: 12091436

Project Location: Lea Co., NM
Project Name: COG/BC Fed. #1 Tank Battery
Project Number: 114-6400671

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
309418	Bore Hole 1 0-1'	soil	2012-09-12	00:00	2012-09-14
309419	Bore Hole 1 2-3'	soil	2012-09-12	00:00	2012-09-14
309420	Bore Hole 1 4-5'	soil	2012-09-12	00:00	2012-09-14
309421	Bore Hole 1 6-7'	soil	2012-09-12	00:00	2012-09-14
309422	Bore Hole 1 9-10'	soil	2012-09-12	00:00	2012-09-14
309423	Bore Hole 1 14-15'	soil	2012-09-12	00:00	2012-09-14
309424	Bore Hole 1 19-20'	soil	2012-09-12	00:00	2012-09-14
309425	Bore Hole 1 24-25'	soil	2012-09-12	00:00	2012-09-14
309426	Bore Hole 1 29-30'	soil	2012-09-12	00:00	2012-09-14
309427	Bore Hole 1 39-40'	soil	2012-09-12	00:00	2012-09-14
309428	Bore Hole 1 49-50'	soil	2012-09-12	00:00	2012-09-14
309429	Bore Hole 1 59-60'	soil	2012-09-12	00:00	2012-09-14
309430	Bore Hole 2 0-1'	soil	2012-09-13	00:00	2012-09-14
309431	Bore Hole 2 2-3'	soil	2012-09-13	00:00	2012-09-14
309432	Bore Hole 2 4-5'	soil	2012-09-13	00:00	2012-09-14
309433	Bore Hole 2 6-7'	soil	2012-09-13	00:00	2012-09-14
309434	Bore Hole 2 9-10'	soil	2012-09-13	00:00	2012-09-14
309435	Bore Hole 2 14-15'	soil	2012-09-13	00:00	2012-09-14
309436	Bore Hole 2 19-20'	soil	2012-09-13	00:00	2012-09-14
309437	Bore Hole 2 24-25'	soil	2012-09-13	00:00	2012-09-14
309438	Bore Hole 2 29-30'	soil	2012-09-13	00:00	2012-09-14
309439	Bore Hole 2 39-40'	soil	2012-09-13	00:00	2012-09-14
309440	Bore Hole 2 49-50'	soil	2012-09-13	00:00	2012-09-14
309441	Bore Hole 2 59-60'	soil	2012-09-13	00:00	2012-09-14
309442	Bore Hole 3 0-1'	soil	2012-09-13	00:00	2012-09-14
309443	Bore Hole 3 2-3'	soil	2012-09-13	00:00	2012-09-14
309444	Bore Hole 3 4-5'	soil	2012-09-13	00:00	2012-09-14
309445	Bore Hole 3 6-7'	soil	2012-09-13	00:00	2012-09-14
309446	Bore Hole 3 9-10'	soil	2012-09-13	00:00	2012-09-14
309447	Bore Hole 3 14-15'	soil	2012-09-13	00:00	2012-09-14

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
309448	Bore Hole 3 19-20'	soil	2012-09-13	00:00	2012-09-14
309449	Bore Hole 3 24-25'	soil	2012-09-13	00:00	2012-09-14

Sample: 309418 - Bore Hole 1 0-1'

Param	Flag	Result	Units	RL
Chloride		**14200**	mg/Kg	4

Sample: 309419 - Bore Hole 1 2-3'

Param	Flag	Result	Units	RL
Chloride		**13500**	mg/Kg	4

Sample: 309420 - Bore Hole 1 4-5'

Param	Flag	Result	Units	RL
Chloride		**9750**	mg/Kg	4

Sample: 309421 - Bore Hole 1 6-7'

Param	Flag	Result	Units	RL
Chloride		**4190**	mg/Kg	4

Sample: 309422 - Bore Hole 1 9-10'

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

Sample: 309423 - Bore Hole 1 14-15'

Param	Flag	Result	Units	RL
Chloride		**3640**	mg/Kg	4

Sample: 309424 - Bore Hole 1 19-20'

continued . . .

sample 309424 continued . . .

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		**4480**	mg/Kg	4

Sample: 309425 - Bore Hole 1 24-25'

Param	Flag	Result	Units	RL
Chloride		**7990**	mg/Kg	4

Sample: 309426 - Bore Hole 1 29-30'

Param	Flag	Result	Units	RL
Chloride		**6780**	mg/Kg	4

Sample: 309427 - Bore Hole 1 39-40'

Param	Flag	Result	Units	RL
Chloride		**1430**	mg/Kg	4

Sample: 309428 - Bore Hole 1 49-50'

Param	Flag	Result	Units	RL
Chloride		**79.6**	mg/Kg	4

Sample: 309429 - Bore Hole 1 59-60'

Param	Flag	Result	Units	RL
Chloride		**1240**	mg/Kg	4

Sample: 309430 - Bore Hole 2 0-1'

Param	Flag	Result	Units	RL
Chloride		**5600**	mg/Kg	4

Sample: 309431 - Bore Hole 2 2-3'

Param	Flag	Result	Units	RL
Chloride		**5490**	mg/Kg	4

Sample: 309432 - Bore Hole 2 4-5'

Param	Flag	Result	Units	RL
Chloride		**2440**	mg/Kg	4

Sample: 309433 - Bore Hole 2 6-7'

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

Sample: 309434 - Bore Hole 2 9-10'

Param	Flag	Result	Units	RL
Chloride		**2140**	mg/Kg	4

Sample: 309435 - Bore Hole 2 14-15'

Param	Flag	Result	Units	RL
Chloride		**4970**	mg/Kg	4

Sample: 309436 - Bore Hole 2 19-20'

Param	Flag	Result	Units	RL
Chloride		**3610**	mg/Kg	4

Sample: 309437 - Bore Hole 2 24-25'

Param	Flag	Result	Units	RL
Chloride		**2460**	mg/Kg	4

Sample: 309438 - Bore Hole 2 29-30'

Param	Flag	Result	Units	RL
Chloride		**3530**	mg/Kg	4

Sample: 309439 - Bore Hole 2 39-40'

Param	Flag	Result	Units	RL
Chloride		**1440**	mg/Kg	4

Sample: 309440 - Bore Hole 2 49-50'

Param	Flag	Result	Units	RL
Chloride		**291**	mg/Kg	4

Sample: 309441 - Bore Hole 2 59-60'

Param	Flag	Result	Units	RL
Chloride		**142**	mg/Kg	4

Sample: 309442 - Bore Hole 3 0-1'

Param	Flag	Result	Units	RL
Chloride		**3040**	mg/Kg	4

Sample: 309443 - Bore Hole 3 2-3'

Param	Flag	Result	Units	RL
Chloride		**3380**	mg/Kg	4

Sample: 309444 - Bore Hole 3 4-5'

Param	Flag	Result	Units	RL
Chloride		**1170**	mg/Kg	4

Sample: 309445 - Bore Hole 3 6-7'

Param	Flag	Result	Units	RL
Chloride		**3110**	mg/Kg	4

Sample: 309446 - Bore Hole 3 9-10'

Param	Flag	Result	Units	RL
Chloride		**1710**	mg/Kg	4

Sample: 309447 - Bore Hole 3 14-15'

Param	Flag	Result	Units	RL
Chloride		**285**	mg/Kg	4

Sample: 309448 - Bore Hole 3 19-20'

Param	Flag	Result	Units	RL
Chloride		**270**	mg/Kg	4

Sample: 309449 - Bore Hole 3 24-25'

Param	Flag	Result	Units	RL
Chloride		**191**	mg/Kg	4