



El Paso Natural Gas
Company, L.L.C.
a Kinder Morgan company



APPROVED

By OCD Dr Oberding at 3:22 pm, Nov 29, 2016

Kristen D. Lynch
Environmental Specialist, District 1
Oil Conservation Division, EMNRD
1625 N. French Drive
Hobbs, New Mexico 88240

RE: El Paso Natural Gas Company Line No. 3031 Inadvertent Release – Rupture No. 5
Request for Closure of RP No. 4409

Dear Ms. Lynch,

El Paso Natural Gas Company (EPNG) is formally requesting the closure of RP No. 4409. This RP number was assigned to the notification record for the inadvertent release of hydrostatic test water (Rupture No. 5) during the spike test of EPNG's Line No. 3031 located in Lea County, New Mexico. The attached document includes all of the documentation and email correspondence related to the rupture event which took place on August 4, 2016.

Included in the attached document:

- Final Form C-141_with signature
- Initial Form C-141_with signature
- Email Correspondence related to the assignment of RP#
- Email Correspondence granting permission to backfill the open trench at rupture site
- Soil Analysis Report
- Water Analysis Report

Thank you very much for your assistance with the NMOC process and documentation of this hydrostatic test rupture event. Please feel free to contact me if you have any questions or require any additional information.

Sincerely,

KINDER MORGAN

Sheila Castellano - Contractor Consultant
2 North Nevada Ave
Colorado Springs, CO 80903
o: 719 520-3719
c: 719 352-1367

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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

Form C-141
Revised August 8, 2011

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

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Rupture #5 RP#4409

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company El Paso Natural Gas Company, LLC (a Kinder Morgan owned company)	Contact Sheila Castellano
Address 2 N. Nevada Avenue, Colorado Springs, CO 80919	Telephone No. (719) 520-3719
Facility Name El Paso Natural Gas Company Line 3031	Facility Type 8-inch Natural Gas Pipeline

Surface Owner LKM Lowe Family Partnership, LTD	Mineral Owner	API No.
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LOCATION OF RELEASE

Unit Letter	Section S/2 Sec18	Township 14S	Range 38E	Feet from the 60	North/South Line South	Feet from the 2,620	East/West Line West	County Lea County, NM
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Latitude 33.097587 Longitude -103.136577

NATURE OF RELEASE

Type of Release Inadvertent release of hydrostatic test water	Volume of Release approximately 1,500 gallons	Volume Recovered none
Source of Release 8-inch natural gas pipeline	Date and Hour of Occurrence 8/4/16 9:11a MDT	Date and Hour of Discovery 8/4/16 9:11a MDT
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? NMOCD Santa Fe Office: Jim Griswold (505) 476-3465 NMOCD Santa Fe Office: Tomas Oberding (505) 476-3403 NMOCD District 1 Office: Maxey Brown (575) 393-6161 x102	
By Whom? Sheila Castellano	Date and Hour 8/4/16 1:30p MDT	
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.*

EPNG was conducting a hydrostatic spike test of the existing L3031 and the pipeline failed during the test. Test was stopped. Water and soil samples were collected for analysis using Test 8260B.

Describe Area Affected and Cleanup Action Taken.*

Test water release flowed to the east, approximately 30-feet beyond EPNG's existing right of way boundary. Water also flowed north along the existing patrol road for approximately 265-feet. The patrol road is located within the existing EPNG easement boundary.

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: 	<u>OIL CONSERVATION DIVISION</u>		
Printed Name: Sheila F. Castellano	Approved by Environmental Specialist:		
Title: Consultant/Contractor	Approval Date:	Expiration Date:	
E-mail Address: sheila_castellano@kindermorgan.com	Conditions of Approval:		Attached ☐
Date: November 9, 2016 Phone: (719) 520-3719			

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
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1000 Rio Brazos Road, Aztec, NM 87410
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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 August 8, 2011

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

x Initial Report ☐ Final Report

Name of Company El Paso Natural Gas Company, LLC (a Kinder Morgan owned company)	Contact Sheila Castellano	
Address	Telephone No. (719) 520-3719	
Facility Name El Paso Natural Gas Company Line 3031	Facility Type 8-inch Natural Gas Pipeline	
Surface Owner LKM Lowe Family Partnership, LTD	Mineral Owner	API No.

LOCATION OF RELEASE – RUPTURE #5

Unit Letter	Section S/2 Sec18	Township 14S	Range 38E	Feet from the 60	North/South Line South	Feet from the 2,620	East/West Line West	County Lea County, NM
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Source of Release 8-inch natural gas pipeline	Date and Hour of Occurrence 8/4/16 9:11a MDT	Date and Hour of Discovery 8/4/16 9:11a MDT
Was Immediate Notice Given? X Yes ☐ No ☐ Not Required	If YES, To Whom? NMOCD Santa Fe Office: Jim Griswold (505) 476-3465 NMOCD Santa Fe Office: Tomas Oberding (505) 476-3403 NMOCD District 1 Office: Maxey Brown (575) 393-6161 x102	
By Whom? Sheila Castellano	Date and Hour 8/4/16 1:30p MDT	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

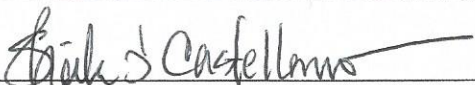
Describe Cause of Problem and Remedial Action Taken.*

EPNG was conducting a hydrostatic spike test of the existing L3031 and the pipeline failed during the test. Test was stopped. Water and soil samples were collected for analysis using Test 8260B.

Describe Area Affected and Cleanup Action Taken.*

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Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Sheila F. Castellano	Approved by Environmental Specialist:	
Title: Consultant/Contractor	Approval Date:	Expiration Date:
E-mail Address: sheila_castellano@kindermorgan.com	Conditions of Approval:	Attached ☐
Date: August 18, 2016 Phone: (719) 520-3719		

* Attach Additional Sheets If Necessary

Castellano, Sheila Fennell (Contractor)

From: Castellano, Sheila Fennell (Contractor)
Sent: Thursday, August 18, 2016 12:25 PM
To: Jim.Griswold@state.nm.us
Cc: tomas.oberding@state.nm.us; MaxeyG.Brown@state.nm.us; Lynch, Kristen, EMNRD; Keyes, Jamie, EMNRD
Subject: El Paso Natural Gas Company_Line No. 3031 Spike Test_Form C141 Release Notification_Rupture #5
Attachments: NMOCD_Form C-141_Rupture #5.pdf

Mr. Griswold,

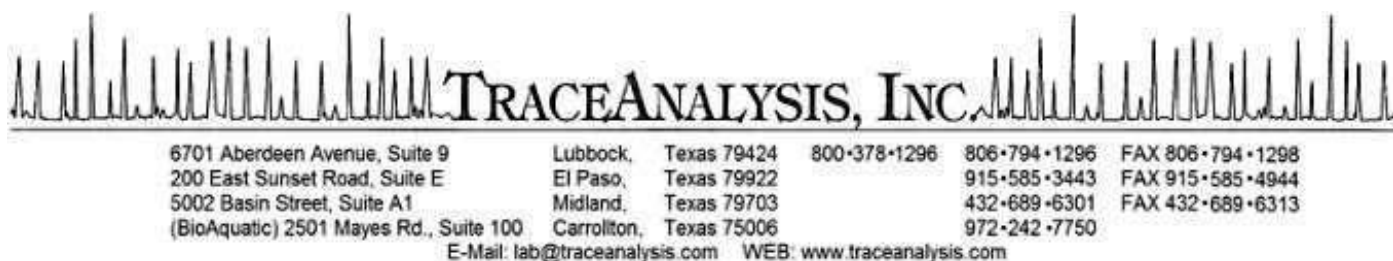
Attached is El Paso Natural Gas Company's (EPNG) submittal of Form C-141, as NMOCD's required Written Notification, for the unauthorized release of hydrostatic test water in Lea County, New Mexico. The event (**RUPTURE #5**) occurred during a hydrostatic spike test of EPNG's existing 8-inch O.D. Tipperary – Denten Crossover Line (Line No. 3031) on August 4, 2016.

Please feel free to contact me directly if you have any questions.

Thank you,
Sheila Castellano

KINDER MORGAN

Sheila Castellano - Contractor Consultant
2 North Nevada Ave
Colorado Springs, CO 80903
o: 719 520-3719
c: 719 352-1367



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Mary Martino
Kinder Morgan-Colorado Springs
2 North Nevada Avenue
Colorado Springs, CO, 80903

Report Date: August 17, 2016

Work Order: 16081001



Project Location: Lea County, NM
Project Name: EPNG Line 3031 Spike Test
Project Number: AFE 403828

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
426114	Rupture #5 Background	soil	2016-08-04	09:45	2016-08-08
426115	Rupture #5 Contaminated	soil	2016-08-04	09:45	2016-08-08
426117	Rupture #6 Background	soil	2016-08-04	09:50	2016-08-08
426118	Rupture #6 Contaminated	soil	2016-08-04	09:50	2016-08-08

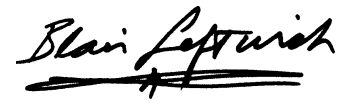
Notes

- **Work Order 16081001:** Broken voa when received

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 35 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a prominent horizontal line underneath the name.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

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Case Narrative

Samples for project EPNG Line 3031 Spike Test were received by TraceAnalysis, Inc. on 2016-08-08 and assigned to work order 16081001. Samples for work order 16081001 were received intact at a temperature of 4.2 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (Titration)	SM 4500-Cl B	111922	2016-08-11 at 12:00	132076	2016-08-11 at 14:00
TPH DRO	S 8015 D	111902	2016-08-10 at 13:00	132041	2016-08-10 at 16:08
TPH GRO	S 8015 D	111906	2016-08-10 at 14:44	132052	2016-08-10 at 14:44
Volatiles	S 8260 C	111957	2016-08-12 at 12:00	132111	2016-08-12 at 12:00

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16081001 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 426114 - Rupture #5 Background

Laboratory: Lubbock
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 132076 Date Analyzed: 2016-08-11 Analyzed By: RL
Prep Batch: 111922 Sample Preparation: 2016-08-11 Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U	1	<250	mg/Kg	5	50.0

Sample: 426114 - Rupture #5 Background

Laboratory: Lubbock
Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 132041 Date Analyzed: 2016-08-10 Analyzed By: HJ
Prep Batch: 111902 Sample Preparation: 2016-08-10 Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.8	mg/Kg	1	25.0	111	58.2 - 150

Sample: 426114 - Rupture #5 Background

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 132052 Date Analyzed: 2016-08-10 Analyzed By: MT
Prep Batch: 111906 Sample Preparation: 2016-08-10 Prepared By: MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1,2,3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	2.57	mg/Kg	1	2.00	128	76.4 - 123

continued ...

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			2.34	mg/Kg	1	2.00	117	69.4 - 120

Sample: 426114 - Rupture #5 Background

Laboratory: Lubbock
Analysis: Volatiles
QC Batch: 132111
Prep Batch: 111957

Analytical Method: S 8260 C
Date Analyzed: 2016-08-12
Sample Preparation: 2016-08-12

Prep Method: S 5030B
Analyzed By: KB
Prepared By: KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dichlorodifluoromethane	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloromethane (methyl chloride)	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Vinyl Chloride	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromomethane (methyl bromide)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
Chloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichlorofluoromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acetone	Qc,Qr,U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acrylonitrile	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Butanone (MEK)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
2-Hexanone	Qc,U	1,2,3,4	<100	µg/Kg	1	100
trans 1,4-Dichloro-2-butene	Qc,U	1,2,3,4	<200	µg/Kg	1	200
1,1-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	U	1,2,3,4	<100	µg/Kg	1	100
MTBE	U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,2-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2,2-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichloroethane (EDC)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloroform	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1-Trichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Carbon Tetrachloride	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichloroethene (TCE)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromomethane (methylene bromide)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromodichloromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0

continued ...

sample 426114 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
2-Chloroethyl vinyl ether	U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,3-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,3-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Toluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2-Trichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromochloromethane	U	1,3,4	<20.0	µg/Kg	1	20.0
1,2-Dibromoethane (EDB)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Tetrachloroethene (PCE)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chlorobenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1,2-Tetrachloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Ethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
m,p-Xylene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromoform	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Styrene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
o-Xylene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2,2-Tetrachloroethane	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Chlorotoluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,3-Trichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Isopropylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromobenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Propylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3,5-Trimethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
tert-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,4-Trimethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,4-Dichlorobenzene (para)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
sec-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichlorobenzene (meta)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
p-Isopropyltoluene	U	1,2,3	<20.0	µg/Kg	1	20.0
4-Chlorotoluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichlorobenzene (ortho)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dibromo-3-chloropropane	Qc,U	1,3,4	<100	µg/Kg	1	100
1,2,3-Trichlorobenzene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
1,2,4-Trichlorobenzene	U	1,2,3,4	<100	µg/Kg	1	100
Naphthalene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Hexachlorobutadiene	U	1,2,3,4	<100	µg/Kg	1	100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	944	µg/Kg	1	975	97	78 - 119
Toluene-d8			949	µg/Kg	1	975	97	85 - 116
4-Bromofluorobenzene (4-BFB)			902	µg/Kg	1	975	92	79 - 119

Report Date: August 17, 2016
AFE 403828

Work Order: 16081001
EPNG Line 3031 Spike Test

Page Number: 8 of 35
Lea County, NM

Sample: 426115 - Rupture #5 Contaminated

Laboratory:	Lubbock	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2016-08-11	Analyzed By:	RL
QC Batch:	132076	Sample Preparation:	2016-08-11	Prepared By:	RL
Prep Batch:	111922				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U	1	<250	mg/Kg	5	50.0

Sample: 426115 - Rupture #5 Contaminated

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2016-08-10	Analyzed By:	HJ
QC Batch:	132041	Sample Preparation:	2016-08-10	Prepared By:	HJ
Prep Batch:	111902				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			25.6	mg/Kg	1	25.0	102	58.2 - 150

Sample: 426115 - Rupture #5 Contaminated

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2016-08-10	Analyzed By:	MT
QC Batch:	132052	Sample Preparation:	2016-08-10	Prepared By:	MT
Prep Batch:	111906				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1,2,3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.11	mg/Kg	1	2.00	106	76.4 - 123
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	1	2.00	100	69.4 - 120

Sample: 426115 - Rupture #5 Contaminated

Laboratory: Lubbock
Analysis: Volatiles
QC Batch: 132111
Prep Batch: 111957

Analytical Method: S 8260 C
Date Analyzed: 2016-08-12
Sample Preparation: 2016-08-12

Prep Method: S 5030B
Analyzed By: KB
Prepared By: KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dichlorodifluoromethane	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloromethane (methyl chloride)	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Vinyl Chloride	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromomethane (methyl bromide)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
Chloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichlorofluoromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acetone	Qc,Qr,U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acrylonitrile	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Butanone (MEK)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
2-Hexanone	Qc,U	1,2,3,4	<100	µg/Kg	1	100
trans 1,4-Dichloro-2-butene	Qc,U	1,2,3,4	<200	µg/Kg	1	200
1,1-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	U	1,2,3,4	<100	µg/Kg	1	100
MTBE	U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,2-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2,2-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichloroethane (EDC)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloroform	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1-Trichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Carbon Tetrachloride	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichloroethene (TCE)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromomethane (methylene bromide)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromodichloromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Chloroethyl vinyl ether	U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,3-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,3-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Toluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2-Trichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromochloromethane	U	1,3,4	<20.0	µg/Kg	1	20.0

continued ...

sample 426115 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
1,2-Dibromoethane (EDB)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Tetrachloroethene (PCE)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chlorobenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1,2-Tetrachloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Ethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
m,p-Xylene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromoform	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Styrene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
o-Xylene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2,2-Tetrachloroethane	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Chlorotoluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,3-Trichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Isopropylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromobenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Propylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3,5-Trimethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
tert-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,4-Trimethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,4-Dichlorobenzene (para)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
sec-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichlorobenzene (meta)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
p-Isopropyltoluene	U	1,2,3	<20.0	µg/Kg	1	20.0
4-Chlorotoluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichlorobenzene (ortho)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dibromo-3-chloropropane	Qc,U	1,3,4	<100	µg/Kg	1	100
1,2,3-Trichlorobenzene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
1,2,4-Trichlorobenzene	U	1,2,3,4	<100	µg/Kg	1	100
Naphthalene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Hexachlorobutadiene	U	1,2,3,4	<100	µg/Kg	1	100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	929	µg/Kg	1	985	94	78 - 119
Toluene-d8			944	µg/Kg	1	985	96	85 - 116
4-Bromofluorobenzene (4-BFB)			923	µg/Kg	1	985	94	79 - 119

Report Date: August 17, 2016
AFE 403828

Work Order: 16081001
EPNG Line 3031 Spike Test

Page Number: 11 of 35
Lea County, NM

Sample: 426117 - Rupture #6 Background

Laboratory: Lubbock
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 132076 Date Analyzed: 2016-08-11 Analyzed By: RL
Prep Batch: 111922 Sample Preparation: 2016-08-11 Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U	1	<250	mg/Kg	5	50.0

Sample: 426117 - Rupture #6 Background

Laboratory: Lubbock
Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 132041 Date Analyzed: 2016-08-10 Analyzed By: HJ
Prep Batch: 111902 Sample Preparation: 2016-08-10 Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			23.9	mg/Kg	1	25.0	96	58.2 - 150

Sample: 426117 - Rupture #6 Background

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 132052 Date Analyzed: 2016-08-10 Analyzed By: MT
Prep Batch: 111906 Sample Preparation: 2016-08-10 Prepared By: MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1,2,3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.28	mg/Kg	1	2.00	114	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	69.4 - 120

Sample: 426117 - Rupture #6 Background

Laboratory: Lubbock

Analysis: Volatiles

QC Batch: 132111

Prep Batch: 111957

Analytical Method: S 8260 C

Date Analyzed: 2016-08-12

Sample Preparation: 2016-08-12

Prep Method: S 5030B

Analyzed By: KB

Prepared By: KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dichlorodifluoromethane	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloromethane (methyl chloride)	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Vinyl Chloride	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromomethane (methyl bromide)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
Chloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichlorofluoromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acetone	Qc,Qr,U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acrylonitrile	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Butanone (MEK)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
2-Hexanone	Qc,U	1,2,3,4	<100	µg/Kg	1	100
trans 1,4-Dichloro-2-butene	Qc,U	1,2,3,4	<200	µg/Kg	1	200
1,1-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	U	1,2,3,4	<100	µg/Kg	1	100
MTBE	U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,2-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2,2-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichloroethane (EDC)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloroform	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1-Trichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Carbon Tetrachloride	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichloroethene (TCE)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromomethane (methylene bromide)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromodichloromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Chloroethyl vinyl ether	U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,3-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,3-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Toluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2-Trichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromochloromethane	U	1,3,4	<20.0	µg/Kg	1	20.0

continued ...

sample 426117 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
1,2-Dibromoethane (EDB)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Tetrachloroethene (PCE)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chlorobenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1,2-Tetrachloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Ethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
m,p-Xylene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromoform	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Styrene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
o-Xylene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2,2-Tetrachloroethane	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Chlorotoluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,3-Trichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Isopropylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromobenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Propylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3,5-Trimethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
tert-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,4-Trimethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,4-Dichlorobenzene (para)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
sec-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichlorobenzene (meta)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
p-Isopropyltoluene	U	1,2,3	<20.0	µg/Kg	1	20.0
4-Chlorotoluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichlorobenzene (ortho)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dibromo-3-chloropropane	Qc,U	1,3,4	<100	µg/Kg	1	100
1,2,3-Trichlorobenzene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
1,2,4-Trichlorobenzene	U	1,2,3,4	<100	µg/Kg	1	100
Naphthalene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Hexachlorobutadiene	U	1,2,3,4	<100	µg/Kg	1	100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	916	µg/Kg	1	1000	92	78 - 119
Toluene-d8			966	µg/Kg	1	1000	97	85 - 116
4-Bromofluorobenzene (4-BFB)			904	µg/Kg	1	1000	90	79 - 119

Report Date: August 17, 2016
AFE 403828

Work Order: 16081001
EPNG Line 3031 Spike Test

Page Number: 14 of 35
Lea County, NM

Sample: 426118 - Rupture #6 Contaminated

Laboratory: Lubbock
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 132076 Date Analyzed: 2016-08-11 Analyzed By: RL
Prep Batch: 111922 Sample Preparation: 2016-08-11 Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U	1	<250	mg/Kg	5	50.0

Sample: 426118 - Rupture #6 Contaminated

Laboratory: Lubbock
Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 132041 Date Analyzed: 2016-08-10 Analyzed By: HJ
Prep Batch: 111902 Sample Preparation: 2016-08-10 Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			24.3	mg/Kg	1	25.0	97	58.2 - 150

Sample: 426118 - Rupture #6 Contaminated

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 132052 Date Analyzed: 2016-08-10 Analyzed By: MT
Prep Batch: 111906 Sample Preparation: 2016-08-10 Prepared By: MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1,2,3	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.20	mg/Kg	1	2.00	110	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	69.4 - 120

Sample: 426118 - Rupture #6 Contaminated

Laboratory: Lubbock

Analysis: Volatiles

QC Batch: 132111

Prep Batch: 111957

Analytical Method: S 8260 C

Date Analyzed: 2016-08-12

Sample Preparation: 2016-08-12

Prep Method: S 5030B

Analyzed By: KB

Prepared By: KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dichlorodifluoromethane	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloromethane (methyl chloride)	Qc,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Vinyl Chloride	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromomethane (methyl bromide)	Qc,Qs,U	1,2,3,4	<100	µg/Kg	1	100
Chloroethane	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichlorofluoromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acetone	Qc,Qr,U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acrylonitrile	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Butanone (MEK)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	Qc,U	1,2,3,4	<100	µg/Kg	1	100
2-Hexanone	Qc,U	1,2,3,4	<100	µg/Kg	1	100
trans 1,4-Dichloro-2-butene	Qc,U	1,2,3,4	<200	µg/Kg	1	200
1,1-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	U	1,2,3,4	<100	µg/Kg	1	100
MTBE	U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,2-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2,2-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichloroethane (EDC)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloroform	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1-Trichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Carbon Tetrachloride	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichloroethene (TCE)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromomethane (methylene bromide)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromodichloromethane	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Chloroethyl vinyl ether	U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,3-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,3-Dichloropropene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Toluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2-Trichloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichloropropane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromochloromethane	Qs,U	1,3,4	<20.0	µg/Kg	1	20.0

continued ...

sample 426118 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
1,2-Dibromoethane (EDB)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Tetrachloroethene (PCE)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chlorobenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1,2-Tetrachloroethane	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Ethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
m,p-Xylene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromoform	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Styrene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
o-Xylene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2,2-Tetrachloroethane	Qc,Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Chlorotoluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,3-Trichloropropane	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Isopropylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromobenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Propylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3,5-Trimethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
tert-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,4-Trimethylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,4-Dichlorobenzene (para)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
sec-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichlorobenzene (meta)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
p-Isopropyltoluene	U	1,2,3	<20.0	µg/Kg	1	20.0
4-Chlorotoluene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichlorobenzene (ortho)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Butylbenzene	U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dibromo-3-chloropropane	Qc,Qs,U	1,3,4	<100	µg/Kg	1	100
1,2,3-Trichlorobenzene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
1,2,4-Trichlorobenzene	U	1,2,3,4	<100	µg/Kg	1	100
Naphthalene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Hexachlorobutadiene	U	1,2,3,4	<100	µg/Kg	1	100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	899	µg/Kg	1	975	92	78 - 119
Toluene-d8			946	µg/Kg	1	975	97	85 - 116
4-Bromofluorobenzene (4-BFB)			907	µg/Kg	1	975	93	79 - 119

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Method Blanks

Method Blank (1) QC Batch: 132041

QC Batch: 132041 Date Analyzed: 2016-08-10 Analyzed By: HJ
Prep Batch: 111902 QC Preparation: 2016-08-10 Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2,3	<8.47	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			23.3	mg/Kg	1	25.0	93	58.2 - 150

Method Blank (1) QC Batch: 132052

QC Batch: 132052 Date Analyzed: 2016-08-10 Analyzed By: MT
Prep Batch: 111906 QC Preparation: 2016-08-10 Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1,2,3	<0.271	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.37	mg/Kg	1	2.00	118	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.17	mg/Kg	1	2.00	108	69.4 - 120

Method Blank (1) QC Batch: 132076

QC Batch: 132076 Date Analyzed: 2016-08-11 Analyzed By: RL
Prep Batch: 111922 QC Preparation: 2016-08-11 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	<31.4	mg/Kg	50

Method Blank (1) QC Batch: 132111

QC Batch: 132111
Prep Batch: 111957

Date Analyzed: 2016-08-12
QC Preparation: 2016-08-12

Analyzed By: KB
Prepared By: KB

Parameter	Flag	Cert	MDL Result	Units	RL
Bromochloromethane		1,2,3,4	<9.28	µg/Kg	20
Dichlorodifluoromethane		1,2,3,4	<9.82	µg/Kg	20
Chloromethane (methyl chloride)		1,2,3,4	<11.7	µg/Kg	20
Vinyl Chloride		1,2,3,4	<10.6	µg/Kg	20
Bromomethane (methyl bromide)		1,2,3,4	<13.5	µg/Kg	100
Chloroethane		1,2,3,4	<9.16	µg/Kg	20
Trichlorofluoromethane		1,2,3,4	<12.4	µg/Kg	20
Acetone		1,2,3,4	<7.34	µg/Kg	200
Iodomethane (methyl iodide)		1,2,3,4	<8.64	µg/Kg	100
Carbon Disulfide		1,2,3,4	<9.90	µg/Kg	20
Acrylonitrile		1,2,3,4	<9.14	µg/Kg	20
2-Butanone (MEK)		1,2,3,4	<13.4	µg/Kg	100
4-Methyl-2-pentanone (MIBK)		1,2,3,4	<14.1	µg/Kg	100
2-Hexanone		1,2,3,4	<10.6	µg/Kg	100
trans 1,4-Dichloro-2-butene		1,2,3,4	<8.49	µg/Kg	200
1,1-Dichloroethene		1,2,3,4	<10.4	µg/Kg	20
Methylene chloride		1,2,3,4	<11.0	µg/Kg	100
MTBE		1,2,3,4	<11.4	µg/Kg	20
trans-1,2-Dichloroethene		1,2,3,4	<9.80	µg/Kg	20
1,1-Dichloroethane		1,2,3,4	<9.82	µg/Kg	20
cis-1,2-Dichloroethene		1,2,3,4	<9.58	µg/Kg	20
2,2-Dichloropropane		1,2,3,4	<8.99	µg/Kg	20
1,2-Dichloroethane (EDC)		1,2,3,4	<9.58	µg/Kg	20
Chloroform		1,2,3,4	<9.68	µg/Kg	20
1,1,1-Trichloroethane		1,2,3,4	<10.6	µg/Kg	20
1,1-Dichloropropene		1,2,3,4	<9.74	µg/Kg	20
Benzene		1,2,3,4	<10.3	µg/Kg	20
Carbon Tetrachloride		1,2,3,4	<8.88	µg/Kg	20
1,2-Dichloropropane		1,2,3,4	<9.48	µg/Kg	20
Trichloroethene (TCE)		1,2,3,4	<10.4	µg/Kg	20
Dibromomethane (methylene bromide)		1,2,3,4	<9.65	µg/Kg	20
Bromodichloromethane		1,2,3,4	<9.23	µg/Kg	20
2-Chloroethyl vinyl ether		1,2,3,4	<10.8	µg/Kg	20
cis-1,3-Dichloropropene		1,2,3,4	<9.76	µg/Kg	20
trans-1,3-Dichloropropene		1,2,3,4	<9.24	µg/Kg	20
Toluene		1,2,3,4	<9.74	µg/Kg	20
1,1,2-Trichloroethane		1,2,3,4	<11.1	µg/Kg	20
1,3-Dichloropropane		1,2,3,4	<10.4	µg/Kg	20
Dibromochloromethane		1,3,4	<9.66	µg/Kg	20
1,2-Dibromoethane (EDB)		1,2,3,4	<10.8	µg/Kg	20
Tetrachloroethene (PCE)		1,2,3,4	<6.38	µg/Kg	20

continued ...

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
Chlorobenzene		1,2,3,4	<10.5	µg/Kg	20
1,1,1,2-Tetrachloroethane		1,2,3,4	<10.2	µg/Kg	20
Ethylbenzene		1,2,3,4	<10.8	µg/Kg	20
m,p-Xylene		1,2,3,4	<11.0	µg/Kg	20
Bromoform		1,2,3,4	<8.43	µg/Kg	20
Styrene		1,2,3,4	<9.62	µg/Kg	20
o-Xylene		1,2,3,4	<11.0	µg/Kg	20
1,1,2,2-Tetrachloroethane		1,2,3,4	<10.2	µg/Kg	20
2-Chlorotoluene		1,2,3,4	<11.5	µg/Kg	20
1,2,3-Trichloropropane		1,2,3,4	<9.22	µg/Kg	20
Isopropylbenzene		1,2,3,4	<10.2	µg/Kg	20
Bromobenzene		1,2,3,4	<11.2	µg/Kg	20
n-Propylbenzene		1,2,3,4	<10.6	µg/Kg	20
1,3,5-Trimethylbenzene		1,2,3,4	<11.5	µg/Kg	20
tert-Butylbenzene		1,2,3,4	<10.3	µg/Kg	20
1,2,4-Trimethylbenzene		1,2,3,4	<11.0	µg/Kg	20
1,4-Dichlorobenzene (para)		1,2,3,4	<12.0	µg/Kg	20
sec-Butylbenzene		1,2,3,4	<11.3	µg/Kg	20
1,3-Dichlorobenzene (meta)		1,2,3,4	<11.6	µg/Kg	20
p-Isopropyltoluene		1,2,3	<11.1	µg/Kg	20
4-Chlorotoluene		1,2,3,4	<11.7	µg/Kg	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	<12.0	µg/Kg	20
n-Butylbenzene		1,2,3,4	<11.0	µg/Kg	20
1,2-Dibromo-3-chloropropane		1,3,4	<9.07	µg/Kg	100
1,2,3-Trichlorobenzene		1,2,3,4	<12.6	µg/Kg	100
1,2,4-Trichlorobenzene		1,2,3,4	<12.4	µg/Kg	100
Naphthalene		1,2,3,4	<10.7	µg/Kg	100
Hexachlorobutadiene		1,2,3,4	<17.2	µg/Kg	100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	1030	µg/Kg	1	1000	103	78 - 119
Toluene-d8			974	µg/Kg	1	1000	97	85 - 116
4-Bromofluorobenzene (4-BFB)			977	µg/Kg	1	1000	98	79 - 119

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 132041
Prep Batch: 111902

Date Analyzed: 2016-08-10
QC Preparation: 2016-08-10

Analyzed By: HJ
Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	473	mg/Kg	1	500	<8.47	95	68.5 - 136

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	471	mg/Kg	1	500	<8.47	94	68.5 - 136	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	26.1	27.8	mg/Kg	1	25.0	104	111	58.2 - 150

Laboratory Control Spike (LCS-1)

QC Batch: 132052
Prep Batch: 111906

Date Analyzed: 2016-08-10
QC Preparation: 2016-08-10

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	18.1	mg/Kg	1	20.0	<0.271	90	64.2 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3	18.1	mg/Kg	1	20.0	<0.271	90	64.2 - 120	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.05	2.08	mg/Kg	1	2.00	102	104	76.4 - 123
4-Bromofluorobenzene (4-BFB)	2.31	2.20	mg/Kg	1	2.00	116	110	69.4 - 120

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Laboratory Control Spike (LCS-1)

QC Batch: 132076
Prep Batch: 111922

Date Analyzed: 2016-08-11
QC Preparation: 2016-08-11

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	2570	mg/Kg	5	2500	<157	103	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	2610	mg/Kg	5	2500	<157	104	85 - 115	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 132111
Prep Batch: 111957

Date Analyzed: 2016-08-12
QC Preparation: 2016-08-12

Analyzed By: KB
Prepared By: KB

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Bromochloromethane		1,2,3,4	984	μg/Kg	1	1000	<9.28	98	78 - 125
Dichlorodifluoromethane		1,2,3,4	667	μg/Kg	1	1000	<9.82	67	29 - 149
Chloromethane (methyl chloride)		1,2,3,4	788	μg/Kg	1	1000	<11.7	79	50 - 136
Vinyl Chloride		1,2,3,4	895	μg/Kg	1	1000	<10.6	90	56 - 135
Bromomethane (methyl bromide)		1,2,3,4	821	μg/Kg	1	1000	<13.5	82	53 - 143
Chloroethane		1,2,3,4	847	μg/Kg	1	1000	<9.16	85	59 - 139
Trichlorofluoromethane		1,2,3,4	881	μg/Kg	1	1000	<12.4	88	62 - 140
Acetone		1,2,3,4	1150	μg/Kg	1	1000	<7.34	115	36 - 164
Iodomethane (methyl iodide)		1,2,3,4	981	μg/Kg	1	1000	<8.64	98	71 - 131
Carbon Disulfide		1,2,3,4	968	μg/Kg	1	1000	<9.90	97	63 - 132
Acrylonitrile		1,2,3,4	905	μg/Kg	1	1000	<9.14	90	65 - 134
2-Butanone (MEK)		1,2,3,4	763	μg/Kg	1	1000	<13.4	76	51 - 148
4-Methyl-2-pentanone (MIBK)		1,2,3,4	877	μg/Kg	1	1000	<14.1	88	65 - 135
2-Hexanone		1,2,3,4	728	μg/Kg	1	1000	<10.6	73	53 - 145
trans 1,4-Dichloro-2-butene	Qs	Qs	1400	μg/Kg	1	1000	<8.49	140	62 - 136
1,1-Dichloroethene		1,2,3,4	984	μg/Kg	1	1000	<10.4	98	70 - 131
Methylene chloride		1,2,3,4	1010	μg/Kg	1	1000	<11.0	101	70 - 128
MTBE		1,2,3,4	979	μg/Kg	1	1000	<11.4	98	73 - 125
trans-1,2-Dichloroethene		1,2,3,4	1000	μg/Kg	1	1000	<9.80	100	74 - 125
1,1-Dichloroethane		1,2,3,4	968	μg/Kg	1	1000	<9.82	97	76 - 125
cis-1,2-Dichloroethene		1,2,3,4	993	μg/Kg	1	1000	<9.58	99	77 - 123

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
2,2-Dichloropropane		1,2,3,4	1160	µg/Kg	1	1000	<8.99	116	67 - 133
1,2-Dichloroethane (EDC)		1,2,3,4	928	µg/Kg	1	1000	<9.58	93	73 - 128
Chloroform		1,2,3,4	1000	µg/Kg	1	1000	<9.68	100	78 - 123
1,1,1-Trichloroethane		1,2,3,4	1020	µg/Kg	1	1000	<10.6	102	73 - 130
1,1-Dichloropropene		1,2,3,4	1000	µg/Kg	1	1000	<9.74	100	76 - 125
Benzene		1,2,3,4	970	µg/Kg	1	1000	<10.3	97	77 - 121
Carbon Tetrachloride		1,2,3,4	986	µg/Kg	1	1000	<8.88	99	80 - 120
1,2-Dichloropropane		1,2,3,4	1010	µg/Kg	1	1000	<9.48	101	76 - 123
Trichloroethene (TCE)		1,2,3,4	976	µg/Kg	1	1000	<10.4	98	77 - 123
Dibromomethane (methylene bromide)		1,2,3,4	921	µg/Kg	1	1000	<9.65	92	78 - 125
Bromodichloromethane		1,2,3,4	978	µg/Kg	1	1000	<9.23	98	75 - 127
2-Chloroethyl vinyl ether		1,2,3,4	1010	µg/Kg	1	1000	<10.8	101	43 - 149
cis-1,3-Dichloropropene		1,2,3,4	964	µg/Kg	1	1000	<9.76	96	74 - 126
trans-1,3-Dichloropropene		1,2,3,4	956	µg/Kg	1	1000	<9.24	96	71 - 130
Toluene		1,2,3,4	1000	µg/Kg	1	1000	<9.74	100	77 - 121
1,1,2-Trichloroethane		1,2,3,4	897	µg/Kg	1	1000	<11.1	90	78 - 121
1,3-Dichloropropane		1,2,3,4	910	µg/Kg	1	1000	<10.4	91	77 - 121
Dibromochloromethane		1,3,4	923	µg/Kg	1	1000	<9.66	92	74 - 126
1,2-Dibromoethane (EDB)		1,2,3,4	918	µg/Kg	1	1000	<10.8	92	78 - 122
Tetrachloroethene (PCE)		1,2,3,4	872	µg/Kg	1	1000	<6.38	87	73 - 128
Chlorobenzene		1,2,3,4	993	µg/Kg	1	1000	<10.5	99	79 - 120
1,1,1,2-Tetrachloroethane		1,2,3,4	964	µg/Kg	1	1000	<10.2	96	78 - 125
Ethylbenzene		1,2,3,4	961	µg/Kg	1	1000	<10.8	96	76 - 122
m,p-Xylene		1,2,3,4	1970	µg/Kg	1	2000	<11.0	98	77 - 124
Bromoform		1,2,3,4	978	µg/Kg	1	1000	<8.43	98	67 - 132
Styrene		1,2,3,4	958	µg/Kg	1	1000	<9.62	96	76 - 124
o-Xylene		1,2,3,4	992	µg/Kg	1	1000	<11.0	99	77 - 123
1,1,2,2-Tetrachloroethane		1,2,3,4	847	µg/Kg	1	1000	<10.2	85	70 - 124
2-Chlorotoluene		1,2,3,4	933	µg/Kg	1	1000	<11.5	93	75 - 122
1,2,3-Trichloropropane		1,2,3,4	884	µg/Kg	1	1000	<9.22	88	73 - 125
Isopropylbenzene		1,2,3,4	907	µg/Kg	1	1000	<10.2	91	68 - 134
Bromobenzene		1,2,3,4	923	µg/Kg	1	1000	<11.2	92	78 - 121
n-Propylbenzene		1,2,3,4	929	µg/Kg	1	1000	<10.6	93	73 - 125
1,3,5-Trimethylbenzene		1,2,3,4	956	µg/Kg	1	1000	<11.5	96	73 - 124
tert-Butylbenzene		1,2,3,4	955	µg/Kg	1	1000	<10.3	96	73 - 125
1,2,4-Trimethylbenzene		1,2,3,4	960	µg/Kg	1	1000	<11.0	96	75 - 123
1,4-Dichlorobenzene (para)		1,2,3,4	1000	µg/Kg	1	1000	<12.0	100	75 - 120
sec-Butylbenzene		1,2,3,4	964	µg/Kg	1	1000	<11.3	96	73 - 126
1,3-Dichlorobenzene (meta)		1,2,3,4	992	µg/Kg	1	1000	<11.6	99	77 - 121
p-Isopropyltoluene		1,2,3	974	µg/Kg	1	1000	<11.1	97	73 - 127
4-Chlorotoluene		1,2,3,4	921	µg/Kg	1	1000	<11.7	92	72 - 124
1,2-Dichlorobenzene (ortho)		1,2,3,4	975	µg/Kg	1	1000	<12.0	98	78 - 121
n-Butylbenzene		1,2,3,4	972	µg/Kg	1	1000	<11.0	97	70 - 128
1,2-Dibromo-3-chloropropane		1,3,4	867	µg/Kg	1	1000	<9.07	87	61 - 132

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
1,2,3-Trichlorobenzene		1,2,3,4	1200	µg/Kg	1	1000	<12.6	120	66 - 130
1,2,4-Trichlorobenzene		1,2,3,4	1130	µg/Kg	1	1000	<12.4	113	67 - 129
Naphthalene		1,2,3,4	1120	µg/Kg	1	1000	<10.7	112	62 - 129
Hexachlorobutadiene		1,2,3,4	1050	µg/Kg	1	1000	<17.2	105	31 - 135

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Bromochloromethane		1,2,3,4	998	µg/Kg	1	1000	<9.28	100	78 - 125	1	20
Dichlorodifluoromethane		1,2,3,4	624	µg/Kg	1	1000	<9.82	62	29 - 149	7	20
Chloromethane (methyl chloride)		1,2,3,4	757	µg/Kg	1	1000	<11.7	76	50 - 136	4	20
Vinyl Chloride		1,2,3,4	840	µg/Kg	1	1000	<10.6	84	56 - 135	6	20
Bromomethane (methyl bromide)		1,2,3,4	786	µg/Kg	1	1000	<13.5	79	53 - 143	4	20
Chloroethane		1,2,3,4	814	µg/Kg	1	1000	<9.16	81	59 - 139	4	20
Trichlorofluoromethane		1,2,3,4	872	µg/Kg	1	1000	<12.4	87	62 - 140	1	20
Acetone		1,2,3,4	1110	µg/Kg	1	1000	<7.34	111	36 - 164	4	20
Iodomethane (methyl iodide)		1,2,3,4	957	µg/Kg	1	1000	<8.64	96	71 - 131	2	20
Carbon Disulfide		1,2,3,4	964	µg/Kg	1	1000	<9.90	96	63 - 132	0	20
Acrylonitrile		1,2,3,4	860	µg/Kg	1	1000	<9.14	86	65 - 134	5	20
2-Butanone (MEK)		1,2,3,4	742	µg/Kg	1	1000	<13.4	74	51 - 148	3	20
4-Methyl-2-pentanone (MIBK)		1,2,3,4	876	µg/Kg	1	1000	<14.1	88	65 - 135	0	20
2-Hexanone		1,2,3,4	741	µg/Kg	1	1000	<10.6	74	53 - 145	2	20
trans 1,4-Dichloro-2-butene		1,2,3,4	1340	µg/Kg	1	1000	<8.49	134	62 - 136	4	20
1,1-Dichloroethene		1,2,3,4	983	µg/Kg	1	1000	<10.4	98	70 - 131	0	20
Methylene chloride		1,2,3,4	1010	µg/Kg	1	1000	<11.0	101	70 - 128	0	20
MTBE		1,2,3,4	964	µg/Kg	1	1000	<11.4	96	73 - 125	2	20
trans-1,2-Dichloroethene		1,2,3,4	1000	µg/Kg	1	1000	<9.80	100	74 - 125	0	20
1,1-Dichloroethane		1,2,3,4	964	µg/Kg	1	1000	<9.82	96	76 - 125	0	20
cis-1,2-Dichloroethene		1,2,3,4	982	µg/Kg	1	1000	<9.58	98	77 - 123	1	20
2,2-Dichloropropane		1,2,3,4	1150	µg/Kg	1	1000	<8.99	115	67 - 133	1	20
1,2-Dichloroethane (EDC)		1,2,3,4	893	µg/Kg	1	1000	<9.58	89	73 - 128	4	20
Chloroform		1,2,3,4	984	µg/Kg	1	1000	<9.68	98	78 - 123	2	20
1,1,1-Trichloroethane		1,2,3,4	1010	µg/Kg	1	1000	<10.6	101	73 - 130	1	20
1,1-Dichloropropene		1,2,3,4	987	µg/Kg	1	1000	<9.74	99	76 - 125	1	20
Benzene		1,2,3,4	950	µg/Kg	1	1000	<10.3	95	77 - 121	2	20
Carbon Tetrachloride		1,2,3,4	982	µg/Kg	1	1000	<8.88	98	80 - 120	0	20
1,2-Dichloropropane		1,2,3,4	1010	µg/Kg	1	1000	<9.48	101	76 - 123	0	20
Trichloroethene (TCE)		1,2,3,4	967	µg/Kg	1	1000	<10.4	97	77 - 123	1	20
Dibromomethane (methylene bromide)		1,2,3,4	928	µg/Kg	1	1000	<9.65	93	78 - 125	1	20
Bromodichloromethane		1,2,3,4	972	µg/Kg	1	1000	<9.23	97	75 - 127	1	20
2-Chloroethyl vinyl ether		1,2,3,4	989	µg/Kg	1	1000	<10.8	99	43 - 149	2	20
cis-1,3-Dichloropropene		1,2,3,4	937	µg/Kg	1	1000	<9.76	94	74 - 126	3	20
trans-1,3-Dichloropropene		1,2,3,4	931	µg/Kg	1	1000	<9.24	93	71 - 130	3	20
Toluene		1,2,3,4	991	µg/Kg	1	1000	<9.74	99	77 - 121	1	20

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
1,1,2-Trichloroethane		1,2,3,4	877	µg/Kg	1	1000	<11.1	88	78 - 121	2	20
1,3-Dichloropropane		1,2,3,4	874	µg/Kg	1	1000	<10.4	87	77 - 121	4	20
Dibromochloromethane		1,3,4	915	µg/Kg	1	1000	<9.66	92	74 - 126	1	20
1,2-Dibromoethane (EDB)		1,2,3,4	858	µg/Kg	1	1000	<10.8	86	78 - 122	7	20
Tetrachloroethene (PCE)		1,2,3,4	832	µg/Kg	1	1000	<6.38	83	73 - 128	5	20
Chlorobenzene		1,2,3,4	959	µg/Kg	1	1000	<10.5	96	79 - 120	4	20
1,1,1,2-Tetrachloroethane		1,2,3,4	930	µg/Kg	1	1000	<10.2	93	78 - 125	4	20
Ethylbenzene		1,2,3,4	936	µg/Kg	1	1000	<10.8	94	76 - 122	3	20
m,p-Xylene		1,2,3,4	1900	µg/Kg	1	2000	<11.0	95	77 - 124	4	20
Bromoform		1,2,3,4	938	µg/Kg	1	1000	<8.43	94	67 - 132	4	20
Styrene		1,2,3,4	910	µg/Kg	1	1000	<9.62	91	76 - 124	5	20
o-Xylene		1,2,3,4	959	µg/Kg	1	1000	<11.0	96	77 - 123	3	20
1,1,2,2-Tetrachloroethane		1,2,3,4	832	µg/Kg	1	1000	<10.2	83	70 - 124	2	20
2-Chlorotoluene		1,2,3,4	913	µg/Kg	1	1000	<11.5	91	75 - 122	2	20
1,2,3-Trichloropropane		1,2,3,4	838	µg/Kg	1	1000	<9.22	84	73 - 125	5	20
Isopropylbenzene		1,2,3,4	908	µg/Kg	1	1000	<10.2	91	68 - 134	0	20
Bromobenzene		1,2,3,4	882	µg/Kg	1	1000	<11.2	88	78 - 121	4	20
n-Propylbenzene		1,2,3,4	911	µg/Kg	1	1000	<10.6	91	73 - 125	2	20
1,3,5-Trimethylbenzene		1,2,3,4	932	µg/Kg	1	1000	<11.5	93	73 - 124	2	20
tert-Butylbenzene		1,2,3,4	933	µg/Kg	1	1000	<10.3	93	73 - 125	2	20
1,2,4-Trimethylbenzene		1,2,3,4	936	µg/Kg	1	1000	<11.0	94	75 - 123	2	20
1,4-Dichlorobenzene (para)		1,2,3,4	974	µg/Kg	1	1000	<12.0	97	75 - 120	3	20
sec-Butylbenzene		1,2,3,4	940	µg/Kg	1	1000	<11.3	94	73 - 126	2	20
1,3-Dichlorobenzene (meta)		1,2,3,4	960	µg/Kg	1	1000	<11.6	96	77 - 121	3	20
p-Isopropyltoluene		1,2,3	959	µg/Kg	1	1000	<11.1	96	73 - 127	2	20
4-Chlorotoluene		1,2,3,4	904	µg/Kg	1	1000	<11.7	90	72 - 124	2	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	957	µg/Kg	1	1000	<12.0	96	78 - 121	2	20
n-Butylbenzene		1,2,3,4	965	µg/Kg	1	1000	<11.0	96	70 - 128	1	20
1,2-Dibromo-3-chloropropane		1,3,4	809	µg/Kg	1	1000	<9.07	81	61 - 132	7	20
1,2,3-Trichlorobenzene		1,2,3,4	1190	µg/Kg	1	1000	<12.6	119	66 - 130	1	20
1,2,4-Trichlorobenzene		1,2,3,4	1080	µg/Kg	1	1000	<12.4	108	67 - 129	4	20
Naphthalene		1,2,3,4	1140	µg/Kg	1	1000	<10.7	114	62 - 129	2	20
Hexachlorobutadiene		1,2,3,4	1050	µg/Kg	1	1000	<17.2	105	31 - 135	0	20

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

Surrogate		LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Dibromofluoromethane	4	971	970	µg/Kg	1	1000	97	97	78 - 119
Toluene-d8		936	947	µg/Kg	1	1000	94	95	85 - 116
4-Bromofluorobenzene (4-BFB)		1010	977	µg/Kg	1	1000	101	98	79 - 119

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Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 426114

QC Batch: 132041
Prep Batch: 111902

Date Analyzed: 2016-08-10
QC Preparation: 2016-08-10

Analyzed By: HJ
Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	430	mg/Kg	1	500	<8.47	86	49.3 - 138

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	438	mg/Kg	1	500	<8.47	88	49.3 - 138	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	28.9	29.2	mg/Kg	1	25	116	117	58.2 - 150

Matrix Spike (MS-1) Spiked Sample: 426117

QC Batch: 132052
Prep Batch: 111906

Date Analyzed: 2016-08-10
QC Preparation: 2016-08-10

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	15.9	mg/Kg	1	20.0	<0.271	80	35.3 - 129

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3	16.9	mg/Kg	1	20.0	<0.271	84	35.3 - 129	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.33	2.17	mg/Kg	1	2	116	108	76.4 - 123
4-Bromofluorobenzene (4-BFB)	2.36	2.29	mg/Kg	1	2	118	114	69.4 - 120

Report Date: August 17, 2016
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Matrix Spike (MS-1) Spiked Sample: 426118

QC Batch: 132076
Prep Batch: 111922

Date Analyzed: 2016-08-11
QC Preparation: 2016-08-11

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	2710	mg/Kg	5	2500	<157	105	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	2660	mg/Kg	5	2500	<157	103	80 - 120	2	20

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

Matrix Spike (MS-1) Spiked Sample: 426118

QC Batch: 132111
Prep Batch: 111957

Date Analyzed: 2016-08-12
QC Preparation: 2016-08-12

Analyzed By: KB
Prepared By: KB

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Bromochloromethane			1,2,3,4	1030	μg/Kg	1	995	<9.28	104 78 - 125
Dichlorodifluoromethane			1,2,3,4	514	μg/Kg	1	995	<9.82	52 29 - 149
Chloromethane (methyl chloride)			1,2,3,4	663	μg/Kg	1	995	<11.7	67 50 - 136
Vinyl Chloride			1,2,3,4	726	μg/Kg	1	995	<10.6	73 56 - 135
Bromomethane (methyl bromide)	Qs	Qs	1,2,3,4	497	μg/Kg	1	995	<13.5	50 53 - 143
Chloroethane	Qs	Qs	1,2,3,4	394	μg/Kg	1	995	<9.16	40 59 - 139
Trichlorofluoromethane			1,2,3,4	723	μg/Kg	1	995	<12.4	73 62 - 140
Acetone			1,2,3,4	584	μg/Kg	1	995	<7.34	59 36 - 164
Iodomethane (methyl iodide)			1,2,3,4	967	μg/Kg	1	995	<8.64	97 71 - 131
Carbon Disulfide			1,2,3,4	894	μg/Kg	1	995	<9.90	90 63 - 132
Acrylonitrile			1,2,3,4	900	μg/Kg	1	995	<9.14	90 65 - 134
2-Butanone (MEK)			1,2,3,4	663	μg/Kg	1	995	<13.4	67 51 - 148
4-Methyl-2-pentanone (MIBK)			1,2,3,4	684	μg/Kg	1	995	<14.1	69 65 - 135
2-Hexanone			1,2,3,4	588	μg/Kg	1	995	<10.6	59 53 - 145
trans 1,4-Dichloro-2-butene			1,2,3,4	835	μg/Kg	1	995	<8.49	84 62 - 136
1,1-Dichloroethene			1,2,3,4	979	μg/Kg	1	995	<10.4	98 70 - 131
Methylene chloride			1,2,3,4	982	μg/Kg	1	995	<11.0	99 70 - 128
MTBE			1,2,3,4	910	μg/Kg	1	995	<11.4	91 73 - 125
trans-1,2-Dichloroethene			1,2,3,4	1030	μg/Kg	1	995	<9.80	104 74 - 125
1,1-Dichloroethane			1,2,3,4	956	μg/Kg	1	995	<9.82	96 76 - 125
cis-1,2-Dichloroethene			1,2,3,4	980	μg/Kg	1	995	<9.58	98 77 - 123

continued ...

matrix spikes continued . . .

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
2,2-Dichloropropane		1,2,3,4	746	µg/Kg	1	995	<8.99	75	67 - 133
1,2-Dichloroethane (EDC)		1,2,3,4	846	µg/Kg	1	995	<9.58	85	73 - 128
Chloroform		1,2,3,4	945	µg/Kg	1	995	<9.68	95	78 - 123
1,1,1-Trichloroethane		1,2,3,4	803	µg/Kg	1	995	<10.6	81	73 - 130
1,1-Dichloropropene		1,2,3,4	977	µg/Kg	1	995	<9.74	98	76 - 125
Benzene		1,2,3,4	978	µg/Kg	1	995	<10.3	98	77 - 121
Carbon Tetrachloride	Qs	Qs	597	µg/Kg	1	995	<8.88	60	80 - 120
1,2-Dichloropropane		1,2,3,4	988	µg/Kg	1	995	<9.48	99	76 - 123
Trichloroethene (TCE)		1,2,3,4	1010	µg/Kg	1	995	<10.4	102	77 - 123
Dibromomethane (methylene bromide)		1,2,3,4	872	µg/Kg	1	995	<9.65	88	78 - 125
Bromodichloromethane	Qs	Qs	736	µg/Kg	1	995	<9.23	74	75 - 127
2-Chloroethyl vinyl ether		1,2,3,4	1110	µg/Kg	1	995	<10.8	112	43 - 149
cis-1,3-Dichloropropene		1,2,3,4	828	µg/Kg	1	995	<9.76	83	74 - 126
trans-1,3-Dichloropropene		1,2,3,4	786	µg/Kg	1	995	<9.24	79	71 - 130
Toluene		1,2,3,4	1000	µg/Kg	1	995	<9.74	100	77 - 121
1,1,2-Trichloroethane		1,2,3,4	822	µg/Kg	1	995	<11.1	83	78 - 121
1,3-Dichloropropane		1,2,3,4	843	µg/Kg	1	995	<10.4	85	77 - 121
Dibromochloromethane	Qs	Qs	607	µg/Kg	1	995	<9.66	61	74 - 126
1,2-Dibromoethane (EDB)		1,2,3,4	841	µg/Kg	1	995	<10.8	84	78 - 122
Tetrachloroethene (PCE)		1,2,3,4	961	µg/Kg	1	995	<6.38	96	73 - 128
Chlorobenzene		1,2,3,4	982	µg/Kg	1	995	<10.5	99	79 - 120
1,1,1,2-Tetrachloroethane	Qs	Qs	757	µg/Kg	1	995	<10.2	76	78 - 125
Ethylbenzene		1,2,3,4	956	µg/Kg	1	995	<10.8	96	76 - 122
m,p-Xylene		1,2,3,4	1960	µg/Kg	1	1990	<11.0	98	77 - 124
Bromoform	Qs	Qs	459	µg/Kg	1	995	<8.43	46	67 - 132
Styrene		1,2,3,4	943	µg/Kg	1	995	<9.62	95	76 - 124
o-Xylene		1,2,3,4	970	µg/Kg	1	995	<11.0	97	77 - 123
1,1,2,2-Tetrachloroethane	Qs	Qs	670	µg/Kg	1	995	<10.2	67	70 - 124
2-Chlorotoluene		1,2,3,4	916	µg/Kg	1	995	<11.5	92	75 - 122
1,2,3-Trichloropropane	Qs	Qs	705	µg/Kg	1	995	<9.22	71	73 - 125
Isopropylbenzene		1,2,3,4	930	µg/Kg	1	995	<10.2	93	68 - 134
Bromobenzene		1,2,3,4	840	µg/Kg	1	995	<11.2	84	78 - 121
n-Propylbenzene		1,2,3,4	958	µg/Kg	1	995	<10.6	96	73 - 125
1,3,5-Trimethylbenzene		1,2,3,4	977	µg/Kg	1	995	<11.5	98	73 - 124
tert-Butylbenzene		1,2,3,4	1010	µg/Kg	1	995	<10.3	102	73 - 125
1,2,4-Trimethylbenzene		1,2,3,4	974	µg/Kg	1	995	<11.0	98	75 - 123
1,4-Dichlorobenzene (para)		1,2,3,4	992	µg/Kg	1	995	<12.0	100	75 - 120
sec-Butylbenzene		1,2,3,4	1040	µg/Kg	1	995	<11.3	104	73 - 126
1,3-Dichlorobenzene (meta)		1,2,3,4	1000	µg/Kg	1	995	<11.6	100	77 - 121
p-Isopropyltoluene		1,2,3	1080	µg/Kg	1	995	<11.1	108	73 - 127
4-Chlorotoluene		1,2,3,4	898	µg/Kg	1	995	<11.7	90	72 - 124
1,2-Dichlorobenzene (ortho)		1,2,3,4	924	µg/Kg	1	995	<12.0	93	78 - 121
n-Butylbenzene		1,2,3,4	1080	µg/Kg	1	995	<11.0	108	70 - 128
1,2-Dibromo-3-chloropropane	Qs	Qs	472	µg/Kg	1	995	<9.07	47	61 - 132

continued . . .

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
1,2,3-Trichlorobenzene		1,2,3,4	812	µg/Kg	1	995	<12.6	82	66 - 130
1,2,4-Trichlorobenzene		1,2,3,4	1030	µg/Kg	1	995	<12.4	104	67 - 129
Naphthalene		1,2,3,4	617	µg/Kg	1	995	<10.7	62	62 - 129
Hexachlorobutadiene		1,2,3,4	1100	µg/Kg	1	995	<17.2	110	31 - 135

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

Param			MSD		Dil.	Spike	Matrix	Rec.		RPD	Limit	
	F	C	Result	Units		Amount	Result	Rec.	Limit			
Bromochloromethane			1,2,3,4	981	µg/Kg	1	980	<9.28	100	78 - 125	5	20
Dichlorodifluoromethane			1,2,3,4	505	µg/Kg	1	980	<9.82	52	29 - 149	2	20
Chloromethane (methyl chloride)			1,2,3,4	692	µg/Kg	1	980	<11.7	71	50 - 136	4	20
Vinyl Chloride			1,2,3,4	757	µg/Kg	1	980	<10.6	77	56 - 135	4	20
Bromomethane (methyl bromide)	Qs	Qs	1,2,3,4	460	µg/Kg	1	980	<13.5	47	53 - 143	8	20
Chloroethane	Qs	Qs	1,2,3,4	337	µg/Kg	1	980	<9.16	34	59 - 139	16	20
Trichlorofluoromethane			1,2,3,4	691	µg/Kg	1	980	<12.4	70	62 - 140	4	20
Acetone	Qr	Qr	1,2,3,4	736	µg/Kg	1	980	<7.34	75	36 - 164	23	20
Iodomethane (methyl iodide)			1,2,3,4	958	µg/Kg	1	980	<8.64	98	71 - 131	1	20
Carbon Disulfide			1,2,3,4	869	µg/Kg	1	980	<9.90	89	63 - 132	3	20
Acrylonitrile			1,2,3,4	883	µg/Kg	1	980	<9.14	90	65 - 134	2	20
2-Butanone (MEK)			1,2,3,4	696	µg/Kg	1	980	<13.4	71	51 - 148	5	20
4-Methyl-2-pentanone (MIBK)			1,2,3,4	760	µg/Kg	1	980	<14.1	78	65 - 135	10	20
2-Hexanone			1,2,3,4	592	µg/Kg	1	980	<10.6	60	53 - 145	1	20
trans 1,4-Dichloro-2-butene			1,2,3,4	765	µg/Kg	1	980	<8.49	78	62 - 136	9	20
1,1-Dichloroethene			1,2,3,4	953	µg/Kg	1	980	<10.4	97	70 - 131	3	20
Methylene chloride			1,2,3,4	968	µg/Kg	1	980	<11.0	99	70 - 128	1	20
MTBE			1,2,3,4	873	µg/Kg	1	980	<11.4	89	73 - 125	4	20
trans-1,2-Dichloroethene			1,2,3,4	986	µg/Kg	1	980	<9.80	101	74 - 125	4	20
1,1-Dichloroethane			1,2,3,4	900	µg/Kg	1	980	<9.82	92	76 - 125	6	20
cis-1,2-Dichloroethene			1,2,3,4	965	µg/Kg	1	980	<9.58	98	77 - 123	2	20
2,2-Dichloropropane			1,2,3,4	725	µg/Kg	1	980	<8.99	74	67 - 133	3	20
1,2-Dichloroethane (EDC)			1,2,3,4	777	µg/Kg	1	980	<9.58	79	73 - 128	8	20
Chloroform			1,2,3,4	884	µg/Kg	1	980	<9.68	90	78 - 123	7	20
1,1,1-Trichloroethane			1,2,3,4	776	µg/Kg	1	980	<10.6	79	73 - 130	3	20
1,1-Dichloropropene			1,2,3,4	924	µg/Kg	1	980	<9.74	94	76 - 125	6	20
Benzene			1,2,3,4	953	µg/Kg	1	980	<10.3	97	77 - 121	3	20
Carbon Tetrachloride	Qs	Qs	1,2,3,4	629	µg/Kg	1	980	<8.88	64	80 - 120	5	20
1,2-Dichloropropane			1,2,3,4	976	µg/Kg	1	980	<9.48	100	76 - 123	1	20
Trichloroethene (TCE)			1,2,3,4	1000	µg/Kg	1	980	<10.4	102	77 - 123	1	20
Dibromomethane (methylene bromide)			1,2,3,4	837	µg/Kg	1	980	<9.65	85	78 - 125	4	20
Bromodichloromethane	Qs	Qs	1,2,3,4	708	µg/Kg	1	980	<9.23	72	75 - 127	4	20
2-Chloroethyl vinyl ether			1,2,3,4	1120	µg/Kg	1	980	<10.8	114	43 - 149	1	20
cis-1,3-Dichloropropene			1,2,3,4	816	µg/Kg	1	980	<9.76	83	74 - 126	1	20
trans-1,3-Dichloropropene			1,2,3,4	760	µg/Kg	1	980	<9.24	78	71 - 130	3	20
Toluene			1,2,3,4	974	µg/Kg	1	980	<9.74	99	77 - 121	3	20

continued ...

matrix spikes continued . . .

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
1,1,2-Trichloroethane		1,2,3,4	785	µg/Kg	1	980	<11.1	80	78 - 121	5	20
1,3-Dichloropropane		1,2,3,4	802	µg/Kg	1	980	<10.4	82	77 - 121	5	20
Dibromochloromethane	Qs	Qs 1,3,4	593	µg/Kg	1	980	<9.66	60	74 - 126	2	20
1,2-Dibromoethane (EDB)		1,2,3,4	806	µg/Kg	1	980	<10.8	82	78 - 122	4	20
Tetrachloroethene (PCE)		1,2,3,4	924	µg/Kg	1	980	<6.38	94	73 - 128	4	20
Chlorobenzene		1,2,3,4	943	µg/Kg	1	980	<10.5	96	79 - 120	4	20
1,1,1,2-Tetrachloroethane	Qs	Qs 1,2,3,4	733	µg/Kg	1	980	<10.2	75	78 - 125	3	20
Ethylbenzene		1,2,3,4	910	µg/Kg	1	980	<10.8	93	76 - 122	5	20
m,p-Xylene		1,2,3,4	1850	µg/Kg	1	1960	<11.0	94	77 - 124	6	20
Bromoform	Qs	Qs 1,2,3,4	473	µg/Kg	1	980	<8.43	48	67 - 132	3	20
Styrene		1,2,3,4	898	µg/Kg	1	980	<9.62	92	76 - 124	5	20
o-Xylene		1,2,3,4	914	µg/Kg	1	980	<11.0	93	77 - 123	6	20
1,1,2,2-Tetrachloroethane	Qs	Qs 1,2,3,4	650	µg/Kg	1	980	<10.2	66	70 - 124	3	20
2-Chlorotoluene		1,2,3,4	898	µg/Kg	1	980	<11.5	92	75 - 122	2	20
1,2,3-Trichloropropane	Qs	Qs 1,2,3,4	680	µg/Kg	1	980	<9.22	69	73 - 125	4	20
Isopropylbenzene		1,2,3,4	925	µg/Kg	1	980	<10.2	94	68 - 134	0	20
Bromobenzene		1,2,3,4	809	µg/Kg	1	980	<11.2	82	78 - 121	4	20
n-Propylbenzene		1,2,3,4	942	µg/Kg	1	980	<10.6	96	73 - 125	2	20
1,3,5-Trimethylbenzene		1,2,3,4	953	µg/Kg	1	980	<11.5	97	73 - 124	2	20
tert-Butylbenzene		1,2,3,4	1000	µg/Kg	1	980	<10.3	102	73 - 125	1	20
1,2,4-Trimethylbenzene		1,2,3,4	959	µg/Kg	1	980	<11.0	98	75 - 123	2	20
1,4-Dichlorobenzene (para)		1,2,3,4	958	µg/Kg	1	980	<12.0	98	75 - 120	4	20
sec-Butylbenzene		1,2,3,4	1030	µg/Kg	1	980	<11.3	105	73 - 126	1	20
1,3-Dichlorobenzene (meta)		1,2,3,4	976	µg/Kg	1	980	<11.6	100	77 - 121	2	20
p-Isopropyltoluene		1,2,3	1060	µg/Kg	1	980	<11.1	108	73 - 127	2	20
4-Chlorotoluene		1,2,3,4	878	µg/Kg	1	980	<11.7	90	72 - 124	2	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	912	µg/Kg	1	980	<12.0	93	78 - 121	1	20
n-Butylbenzene		1,2,3,4	1070	µg/Kg	1	980	<11.0	109	70 - 128	1	20
1,2-Dibromo-3-chloropropane	Qs	Qs 1,3,4	505	µg/Kg	1	980	<9.07	52	61 - 132	7	20
1,2,3-Trichlorobenzene	Qr	Qr 1,2,3,4	997	µg/Kg	1	980	<12.6	102	66 - 130	20	20
1,2,4-Trichlorobenzene		1,2,3,4	1080	µg/Kg	1	980	<12.4	110	67 - 129	5	20
Naphthalene	Qr	Qr 1,2,3,4	789	µg/Kg	1	980	<10.7	80	62 - 129	24	20
Hexachlorobutadiene		1,2,3,4	1160	µg/Kg	1	980	<17.2	118	31 - 135	5	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Dibromofluoromethane	4	929	909	µg/Kg	1	995	93	78 - 119
Toluene-d8		958	933	µg/Kg	1	995	96	85 - 116
4-Bromofluorobenzene (4-BFB)		952	898	µg/Kg	1	995	96	79 - 119

Calibration Standards

Standard (CCV-1)

QC Batch: 132041

Date Analyzed: 2016-08-10

Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	442	88	80 - 120	2016-08-10

Standard (CCV-2)

QC Batch: 132041

Date Analyzed: 2016-08-10

Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	461	92	80 - 120	2016-08-10

Standard (CCV-1)

QC Batch: 132052

Date Analyzed: 2016-08-10

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/Kg	1.00	1.07	107	80 - 120	2016-08-10

Standard (CCV-2)

QC Batch: 132052

Date Analyzed: 2016-08-10

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/Kg	1.00	0.847	85	80 - 120	2016-08-10

Standard (ICV-1)

QC Batch: 132076

Date Analyzed: 2016-08-11

Analyzed By: RL

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/Kg	100	99.0	99	85 - 115	2016-08-11

Standard (CCV-1)

QC Batch: 132076

Date Analyzed: 2016-08-11

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/Kg	100	101	101	85 - 115	2016-08-11

Standard (CCV-1)

QC Batch: 132111

Date Analyzed: 2016-08-12

Analyzed By: KB

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromochloromethane			1,2,3,4 $\mu\text{g/Kg}$	50.0	46.8	94	80 - 120	2016-08-12
Dichlorodifluoromethane	Qc	Qc	1,2,3,4 $\mu\text{g/Kg}$	50.0	31.5	63	80 - 120	2016-08-12
Chloromethane (methyl chloride)	Qc	Qc	1,2,3,4 $\mu\text{g/Kg}$	50.0	37.3	75	80 - 120	2016-08-12
Vinyl Chloride			1,2,3,4 $\mu\text{g/Kg}$	50.0	40.7	81	80 - 120	2016-08-12
Bromomethane (methyl bromide)	Qc	Qc	1,2,3,4 $\mu\text{g/Kg}$	50.0	38.2	76	80 - 120	2016-08-12
Chloroethane			1,2,3,4 $\mu\text{g/Kg}$	50.0	40.4	81	80 - 120	2016-08-12
Trichlorofluoromethane			1,2,3,4 $\mu\text{g/Kg}$	50.0	44.0	88	80 - 120	2016-08-12
Acetone	Qc	Qc	1,2,3,4 $\mu\text{g/Kg}$	50.0	69.8	140	80 - 120	2016-08-12
Iodomethane (methyl iodide)			1,2,3,4 $\mu\text{g/Kg}$	50.0	47.0	94	80 - 120	2016-08-12
Carbon Disulfide			1,2,3,4 $\mu\text{g/Kg}$	50.0	47.6	95	80 - 120	2016-08-12
Acrylonitrile			1,2,3,4 $\mu\text{g/Kg}$	50.0	40.5	81	80 - 120	2016-08-12
2-Butanone (MEK)	Qc	Qc	1,2,3,4 $\mu\text{g/Kg}$	50.0	38.4	77	80 - 120	2016-08-12
4-Methyl-2-pentanone (MIBK)	Qc	Qc	1,2,3,4 $\mu\text{g/Kg}$	50.0	38.7	77	80 - 120	2016-08-12
2-Hexanone	Qc	Qc	1,2,3,4 $\mu\text{g/Kg}$	50.0	34.7	69	80 - 120	2016-08-12
trans 1,4-Dichloro-2-butene	Qc	Qc	1,2,3,4 $\mu\text{g/Kg}$	50.0	68.5	137	80 - 120	2016-08-12
1,1-Dichloroethene			1,2,3,4 $\mu\text{g/Kg}$	50.0	47.8	96	80 - 120	2016-08-12
Methylene chloride			1,2,3,4 $\mu\text{g/Kg}$	50.0	49.2	98	80 - 120	2016-08-12
MTBE			1,2,3,4 $\mu\text{g/Kg}$	50.0	46.2	92	80 - 120	2016-08-12

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
trans-1,2-Dichloroethene		1,2,3,4	µg/Kg	50.0	49.6	99	80 - 120	2016-08-12
1,1-Dichloroethane		1,2,3,4	µg/Kg	50.0	47.7	95	80 - 120	2016-08-12
cis-1,2-Dichloroethene		1,2,3,4	µg/Kg	50.0	47.7	95	80 - 120	2016-08-12
2,2-Dichloropropane		1,2,3,4	µg/Kg	50.0	56.1	112	80 - 120	2016-08-12
1,2-Dichloroethane (EDC)		1,2,3,4	µg/Kg	50.0	44.5	89	80 - 120	2016-08-12
Chloroform		1,2,3,4	µg/Kg	50.0	49.4	99	80 - 120	2016-08-12
1,1,1-Trichloroethane		1,2,3,4	µg/Kg	50.0	49.6	99	80 - 120	2016-08-12
1,1-Dichloropropene		1,2,3,4	µg/Kg	50.0	47.9	96	80 - 120	2016-08-12
Benzene		1,2,3,4	µg/Kg	50.0	46.2	92	80 - 120	2016-08-12
Carbon Tetrachloride		1,2,3,4	µg/Kg	50.0	48.3	97	80 - 120	2016-08-12
1,2-Dichloropropane		1,2,3,4	µg/Kg	50.0	46.8	94	80 - 120	2016-08-12
Trichloroethene (TCE)		1,2,3,4	µg/Kg	50.0	46.2	92	80 - 120	2016-08-12
Dibromomethane (methylene bromide)		1,2,3,4	µg/Kg	50.0	42.6	85	80 - 120	2016-08-12
Bromodichloromethane		1,2,3,4	µg/Kg	50.0	46.7	93	80 - 120	2016-08-12
2-Chloroethyl vinyl ether		1,2,3,4	µg/Kg	50.0	43.6	87	80 - 120	2016-08-12
cis-1,3-Dichloropropene		1,2,3,4	µg/Kg	50.0	43.9	88	80 - 120	2016-08-12
trans-1,3-Dichloropropene		1,2,3,4	µg/Kg	50.0	43.1	86	80 - 120	2016-08-12
Toluene		1,2,3,4	µg/Kg	50.0	47.3	95	80 - 120	2016-08-12
1,1,2-Trichloroethane		1,2,3,4	µg/Kg	50.0	40.7	81	80 - 120	2016-08-12
1,3-Dichloropropane		1,2,3,4	µg/Kg	50.0	40.3	81	80 - 120	2016-08-12
Dibromochloromethane		1,3,4	µg/Kg	50.0	42.5	85	80 - 120	2016-08-12
1,2-Dibromoethane (EDB)		1,2,3,4	µg/Kg	50.0	40.3	81	80 - 120	2016-08-12
Tetrachloroethene (PCE)		1,2,3,4	µg/Kg	50.0	41.9	84	80 - 120	2016-08-12
Chlorobenzene		1,2,3,4	µg/Kg	50.0	46.0	92	80 - 120	2016-08-12
1,1,1,2-Tetrachloroethane		1,2,3,4	µg/Kg	50.0	46.7	93	80 - 120	2016-08-12
Ethylbenzene		1,2,3,4	µg/Kg	50.0	46.0	92	80 - 120	2016-08-12
m,p-Xylene		1,2,3,4	µg/Kg	100	93.7	94	80 - 120	2016-08-12
Bromoform		1,2,3,4	µg/Kg	50.0	44.3	89	80 - 120	2016-08-12
Styrene		1,2,3,4	µg/Kg	50.0	44.3	89	80 - 120	2016-08-12
o-Xylene		1,2,3,4	µg/Kg	50.0	47.8	96	80 - 120	2016-08-12
1,1,2,2-Tetrachloroethane	Qc	Qc	µg/Kg	50.0	39.0	78	80 - 120	2016-08-12
2-Chlorotoluene		1,2,3,4	µg/Kg	50.0	43.1	86	80 - 120	2016-08-12
1,2,3-Trichloropropane		1,2,3,4	µg/Kg	50.0	40.9	82	80 - 120	2016-08-12
Isopropylbenzene		1,2,3,4	µg/Kg	50.0	42.4	85	80 - 120	2016-08-12
Bromobenzene		1,2,3,4	µg/Kg	50.0	40.8	82	80 - 120	2016-08-12
n-Propylbenzene		1,2,3,4	µg/Kg	50.0	43.1	86	80 - 120	2016-08-12
1,3,5-Trimethylbenzene		1,2,3,4	µg/Kg	50.0	44.4	89	80 - 120	2016-08-12
tert-Butylbenzene		1,2,3,4	µg/Kg	50.0	45.0	90	80 - 120	2016-08-12
1,2,4-Trimethylbenzene		1,2,3,4	µg/Kg	50.0	44.4	89	80 - 120	2016-08-12
1,4-Dichlorobenzene (para)		1,2,3,4	µg/Kg	50.0	45.6	91	80 - 120	2016-08-12
sec-Butylbenzene		1,2,3,4	µg/Kg	50.0	45.9	92	80 - 120	2016-08-12
1,3-Dichlorobenzene (meta)		1,2,3,4	µg/Kg	50.0	45.7	91	80 - 120	2016-08-12
p-Isopropyltoluene		1,2,3	µg/Kg	50.0	46.7	93	80 - 120	2016-08-12

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs	CCVs	CCVs	Percent	Date
				True Conc.	Found Conc.	Percent Recovery	Recovery Limits	
4-Chlorotoluene		1,2,3,4	μg/Kg	50.0	41.7	83	80 - 120	2016-08-12
1,2-Dichlorobenzene (ortho)		1,2,3,4	μg/Kg	50.0	45.4	91	80 - 120	2016-08-12
n-Butylbenzene		1,2,3,4	μg/Kg	50.0	47.5	95	80 - 120	2016-08-12
1,2-Dibromo-3-chloropropane	Qc	Qc	1,3,4	μg/Kg	50.0	38.8	78	2016-08-12
1,2,3-Trichlorobenzene		1,2,3,4	μg/Kg	50.0	55.1	110	80 - 120	2016-08-12
1,2,4-Trichlorobenzene		1,2,3,4	μg/Kg	50.0	53.2	106	80 - 120	2016-08-12
Naphthalene		1,2,3,4	μg/Kg	50.0	52.5	105	80 - 120	2016-08-12
Hexachlorobutadiene		1,2,3,4	μg/Kg	50.0	49.4	99	80 - 120	2016-08-12

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	NELAP	T104704219-16-12	Lubbock
4		2015-066	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 1608092
Trace Analysis, Inc.
email: lab@traceanalysis.com

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

200 East Sunset Rd., Suite E
El Paso, Texas 79922
Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

BioAquatic Testing
2501 Mayton Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750
Fax (972) 242-7561
Fax (972) 392-4508

Company Name: Kinder Morgan Phone #: (719) 505-5255
Address: 2 North Nevada Ave., Colorado Springs, CO 80903 Fax #:
Contact Person: Mary Martino E-mail: mary_martino@kindermorgan.com
Invoice to: Mary Martino
(If different from above)

Project #: AFE 403828 Project Name: EPNG Line 3031 Spike Test
Project Location (including state): Lea County, NM Sampler Signature: *Alvin Westcott*

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX				PRESERVATIVE METHOD				SAMPLING	
				WATER	AIR	SLUDGE	HCl	HNO ₃	H ₂ SO ₄	NaOH	ICE	DATE	TIME
426 114	Rupture #5 background	1		X							X	08/04	9:45am
115	Rupture #5 contaminated	1		X							X	08/04	9:45am
116	Rupture #5 release	1	250mL	X							X	08/04	9:45am
116	Rupture #5 release	98	40mL	X			X					08/04	9:45am
117	Rupture #6 background	1		X							X	08/05	9:50am
118	Rupture #6 contaminated	1		X							X	08/05	9:50am
118	Rupture #6 release	1	250mL	X							X	08/05	9:50am
119	Rupture #6 release	98	40mL	X			X					08/05	9:50am

Relinquished by: <u>Elisabeth Westcott</u> Company: <u>KMI</u> Date: <u>8/18/06</u> Time: <u>3:07pm</u>	Received by: <u><i>Alvin Westcott</i></u> Company: <u>Bridges</u> Date: <u>8/8</u> Time: <u>15:07</u>	INST: <u>22</u> COR: <u>0</u>	LAB USE ONLY Inhalation <u>N</u> Headspace <u>Y</u> / <u>N</u> / <u>NA</u> Log-in-Review <u>X</u>	REMARKS: <u>2 Broken Vials</u>
Relinquished by: <u>Elisabeth Westcott</u> Company: <u>KMI</u> Date: <u>8/18/06</u> Time: <u>3:07pm</u>	Received by: <u><i>Alvin Westcott</i></u> Company: <u>Bridges</u> Date: <u>8/8</u> Time: <u>15:07</u>	INST: <u>22</u> COR: <u>0</u>		
Relinquished by: <u>Elisabeth Westcott</u> Company: <u>KMI</u> Date: <u>8/18/06</u> Time: <u>3:07pm</u>	Received by: <u><i>Alvin Westcott</i></u> Company: <u>Bridges</u> Date: <u>8/8</u> Time: <u>15:07</u>	INST: <u>22</u> COR: <u>0</u>		

Dry Weight Basis Required ☐
TRRP Report Required ☐
Check if Special Reporting Limits Are Needed ☐

Carrier # 25 24008421

Summary Report

Mary Martino
Kinder Morgan-Colorado Springs
2 North Nevada Avenue
Colorado Springs, CO 80903

Report Date: August 17, 2016

Work Order: 16081001



Project Location: Lea County, NM
Project Name: EPNG Line 3031 Spike Test
Project Number: AFE 403828

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
426114	Rupture #5 Background	soil	2016-08-04	09:45	2016-08-08
426115	Rupture #5 Contaminated	soil	2016-08-04	09:45	2016-08-08
426117	Rupture #6 Background	soil	2016-08-04	09:50	2016-08-08
426118	Rupture #6 Contaminated	soil	2016-08-04	09:50	2016-08-08

Sample - Field Code	TPH DRO DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
426114 - Rupture #5 Background	<50.0	<4.00
426115 - Rupture #5 Contaminated	<50.0	<4.00
426117 - Rupture #6 Background	<50.0	<4.00
426118 - Rupture #6 Contaminated	<50.0	<4.00

Sample: 426114 - Rupture #5 Background

Param	Flag	Result	Units	RL
Chloride		<250	mg/Kg	50
Bromochloromethane		<20.0	µg/Kg	20
Dichlorodifluoromethane	Qc	<20.0	µg/Kg	20
Chloromethane (methyl chloride)	Qc	<20.0	µg/Kg	20
Vinyl Chloride		<20.0	µg/Kg	20
Bromomethane (methyl bromide)	Qc	<100	µg/Kg	100
Chloroethane		<20.0	µg/Kg	20
Trichlorofluoromethane		<20.0	µg/Kg	20
Acetone	Qc, Qr	<200	µg/Kg	200
Iodomethane (methyl iodide)		<100	µg/Kg	100
Carbon Disulfide		<20.0	µg/Kg	20

continued ...

sample 426114 continued ...

Param	Flag	Result	Units	RL
Acrylonitrile		<20.0	µg/Kg	20
2-Butanone (MEK)	Qc	<100	µg/Kg	100
4-Methyl-2-pentanone (MIBK)	Qc	<100	µg/Kg	100
2-Hexanone	Qc	<100	µg/Kg	100
trans 1,4-Dichloro-2-butene	Qc	<200	µg/Kg	200
1,1-Dichloroethene		<20.0	µg/Kg	20
Methylene chloride		<100	µg/Kg	100
MTBE		<20.0	µg/Kg	20
trans-1,2-Dichloroethene		<20.0	µg/Kg	20
1,1-Dichloroethane		<20.0	µg/Kg	20
cis-1,2-Dichloroethene		<20.0	µg/Kg	20
2,2-Dichloropropane		<20.0	µg/Kg	20
1,2-Dichloroethane (EDC)		<20.0	µg/Kg	20
Chloroform		<20.0	µg/Kg	20
1,1,1-Trichloroethane		<20.0	µg/Kg	20
1,1-Dichloropropene		<20.0	µg/Kg	20
Benzene		<20.0	µg/Kg	20
Carbon Tetrachloride		<20.0	µg/Kg	20
1,2-Dichloropropane		<20.0	µg/Kg	20
Trichloroethene (TCE)		<20.0	µg/Kg	20
Dibromomethane (methylene bromide)		<20.0	µg/Kg	20
Bromodichloromethane		<20.0	µg/Kg	20
2-Chloroethyl vinyl ether		<20.0	µg/Kg	20
cis-1,3-Dichloropropene		<20.0	µg/Kg	20
trans-1,3-Dichloropropene		<20.0	µg/Kg	20
Toluene		<20.0	µg/Kg	20
1,1,2-Trichloroethane		<20.0	µg/Kg	20
1,3-Dichloropropane		<20.0	µg/Kg	20
Dibromochloromethane		<20.0	µg/Kg	20
1,2-Dibromoethane (EDB)		<20.0	µg/Kg	20
Tetrachloroethene (PCE)		<20.0	µg/Kg	20
Chlorobenzene		<20.0	µg/Kg	20
1,1,1,2-Tetrachloroethane		<20.0	µg/Kg	20
Ethylbenzene		<20.0	µg/Kg	20
m,p-Xylene		<20.0	µg/Kg	20
Bromoform		<20.0	µg/Kg	20
Styrene		<20.0	µg/Kg	20
o-Xylene		<20.0	µg/Kg	20
1,1,2,2-Tetrachloroethane	Qc	<20.0	µg/Kg	20
2-Chlorotoluene		<20.0	µg/Kg	20
1,2,3-Trichloropropane		<20.0	µg/Kg	20
Isopropylbenzene		<20.0	µg/Kg	20
Bromobenzene		<20.0	µg/Kg	20
n-Propylbenzene		<20.0	µg/Kg	20
1,3,5-Trimethylbenzene		<20.0	µg/Kg	20
tert-Butylbenzene		<20.0	µg/Kg	20
1,2,4-Trimethylbenzene		<20.0	µg/Kg	20

continued ...

sample 426114 continued ...

Param	Flag	Result	Units	RL
1,4-Dichlorobenzene (para)		<20.0	µg/Kg	20
sec-Butylbenzene		<20.0	µg/Kg	20
1,3-Dichlorobenzene (meta)		<20.0	µg/Kg	20
p-Isopropyltoluene		<20.0	µg/Kg	20
4-Chlorotoluene		<20.0	µg/Kg	20
1,2-Dichlorobenzene (ortho)		<20.0	µg/Kg	20
n-Butylbenzene		<20.0	µg/Kg	20
1,2-Dibromo-3-chloropropane	Qc	<100	µg/Kg	100
1,2,3-Trichlorobenzene	Qr	<100	µg/Kg	100
1,2,4-Trichlorobenzene		<100	µg/Kg	100
Naphthalene	Qr	<100	µg/Kg	100
Hexachlorobutadiene		<100	µg/Kg	100

Sample: 426115 - Rupture #5 Contaminated

Param	Flag	Result	Units	RL
Chloride		<250	mg/Kg	50
Bromochloromethane		<20.0	µg/Kg	20
Dichlorodifluoromethane	Qc	<20.0	µg/Kg	20
Chloromethane (methyl chloride)	Qc	<20.0	µg/Kg	20
Vinyl Chloride		<20.0	µg/Kg	20
Bromomethane (methyl bromide)	Qc	<100	µg/Kg	100
Chloroethane		<20.0	µg/Kg	20
Trichlorofluoromethane		<20.0	µg/Kg	20
Acetone	Qc, Qr	<200	µg/Kg	200
Iodomethane (methyl iodide)		<100	µg/Kg	100
Carbon Disulfide		<20.0	µg/Kg	20
Acrylonitrile		<20.0	µg/Kg	20
2-Butanone (MEK)	Qc	<100	µg/Kg	100
4-Methyl-2-pentanone (MIBK)	Qc	<100	µg/Kg	100
2-Hexanone	Qc	<100	µg/Kg	100
trans 1,4-Dichloro-2-butene	Qc	<200	µg/Kg	200
1,1-Dichloroethene		<20.0	µg/Kg	20
Methylene chloride		<100	µg/Kg	100
MTBE		<20.0	µg/Kg	20
trans-1,2-Dichloroethene		<20.0	µg/Kg	20
1,1-Dichloroethane		<20.0	µg/Kg	20
cis-1,2-Dichloroethene		<20.0	µg/Kg	20
2,2-Dichloropropane		<20.0	µg/Kg	20
1,2-Dichloroethane (EDC)		<20.0	µg/Kg	20
Chloroform		<20.0	µg/Kg	20
1,1,1-Trichloroethane		<20.0	µg/Kg	20
1,1-Dichloropropene		<20.0	µg/Kg	20
Benzene		<20.0	µg/Kg	20
Carbon Tetrachloride		<20.0	µg/Kg	20
1,2-Dichloropropane		<20.0	µg/Kg	20

continued ...

sample 426115 continued ...

Param	Flag	Result	Units	RL
Trichloroethene (TCE)		<20.0	µg/Kg	20
Dibromomethane (methylene bromide)		<20.0	µg/Kg	20
Bromodichloromethane		<20.0	µg/Kg	20
2-Chloroethyl vinyl ether		<20.0	µg/Kg	20
cis-1,3-Dichloropropene		<20.0	µg/Kg	20
trans-1,3-Dichloropropene		<20.0	µg/Kg	20
Toluene		<20.0	µg/Kg	20
1,1,2-Trichloroethane		<20.0	µg/Kg	20
1,3-Dichloropropane		<20.0	µg/Kg	20
Dibromochloromethane		<20.0	µg/Kg	20
1,2-Dibromoethane (EDB)		<20.0	µg/Kg	20
Tetrachloroethene (PCE)		<20.0	µg/Kg	20
Chlorobenzene		<20.0	µg/Kg	20
1,1,1,2-Tetrachloroethane		<20.0	µg/Kg	20
Ethylbenzene		<20.0	µg/Kg	20
m,p-Xylene		<20.0	µg/Kg	20
Bromoform		<20.0	µg/Kg	20
Styrene		<20.0	µg/Kg	20
o-Xylene		<20.0	µg/Kg	20
1,1,2,2-Tetrachloroethane	Qc	<20.0	µg/Kg	20
2-Chlorotoluene		<20.0	µg/Kg	20
1,2,3-Trichloropropane		<20.0	µg/Kg	20
Isopropylbenzene		<20.0	µg/Kg	20
Bromobenzene		<20.0	µg/Kg	20
n-Propylbenzene		<20.0	µg/Kg	20
1,3,5-Trimethylbenzene		<20.0	µg/Kg	20
tert-Butylbenzene		<20.0	µg/Kg	20
1,2,4-Trimethylbenzene		<20.0	µg/Kg	20
1,4-Dichlorobenzene (para)		<20.0	µg/Kg	20
sec-Butylbenzene		<20.0	µg/Kg	20
1,3-Dichlorobenzene (meta)		<20.0	µg/Kg	20
p-Isopropyltoluene		<20.0	µg/Kg	20
4-Chlorotoluene		<20.0	µg/Kg	20
1,2-Dichlorobenzene (ortho)		<20.0	µg/Kg	20
n-Butylbenzene		<20.0	µg/Kg	20
1,2-Dibromo-3-chloropropane	Qc	<100	µg/Kg	100
1,2,3-Trichlorobenzene	Qr	<100	µg/Kg	100
1,2,4-Trichlorobenzene		<100	µg/Kg	100
Naphthalene	Qr	<100	µg/Kg	100
Hexachlorobutadiene		<100	µg/Kg	100

Sample: 426117 - Rupture #6 Background

Param	Flag	Result	Units	RL
Chloride		<250	mg/Kg	50
Bromochloromethane		<20.0	µg/Kg	20

continued ...

sample 426117 continued ...

Param	Flag	Result	Units	RL
Dichlorodifluoromethane	Qc	<20.0	µg/Kg	20
Chloromethane (methyl chloride)	Qc	<20.0	µg/Kg	20
Vinyl Chloride		<20.0	µg/Kg	20
Bromomethane (methyl bromide)	Qc	<100	µg/Kg	100
Chloroethane		<20.0	µg/Kg	20
Trichlorofluoromethane		<20.0	µg/Kg	20
Acetone	Qc, Qr	<200	µg/Kg	200
Iodomethane (methyl iodide)		<100	µg/Kg	100
Carbon Disulfide		<20.0	µg/Kg	20
Acrylonitrile		<20.0	µg/Kg	20
2-Butanone (MEK)	Qc	<100	µg/Kg	100
4-Methyl-2-pentanone (MIBK)	Qc	<100	µg/Kg	100
2-Hexanone	Qc	<100	µg/Kg	100
trans 1,4-Dichloro-2-butene	Qc	<200	µg/Kg	200
1,1-Dichloroethene		<20.0	µg/Kg	20
Methylene chloride		<100	µg/Kg	100
MTBE		<20.0	µg/Kg	20
trans-1,2-Dichloroethene		<20.0	µg/Kg	20
1,1-Dichloroethane		<20.0	µg/Kg	20
cis-1,2-Dichloroethene		<20.0	µg/Kg	20
2,2-Dichloropropane		<20.0	µg/Kg	20
1,2-Dichloroethane (EDC)		<20.0	µg/Kg	20
Chloroform		<20.0	µg/Kg	20
1,1,1-Trichloroethane		<20.0	µg/Kg	20
1,1-Dichloropropene		<20.0	µg/Kg	20
Benzene		<20.0	µg/Kg	20
Carbon Tetrachloride		<20.0	µg/Kg	20
1,2-Dichloropropane		<20.0	µg/Kg	20
Trichloroethene (TCE)		<20.0	µg/Kg	20
Dibromomethane (methylene bromide)		<20.0	µg/Kg	20
Bromodichloromethane		<20.0	µg/Kg	20
2-Chloroethyl vinyl ether		<20.0	µg/Kg	20
cis-1,3-Dichloropropene		<20.0	µg/Kg	20
trans-1,3-Dichloropropene		<20.0	µg/Kg	20
Toluene		<20.0	µg/Kg	20
1,1,2-Trichloroethane		<20.0	µg/Kg	20
1,3-Dichloropropane		<20.0	µg/Kg	20
Dibromochloromethane		<20.0	µg/Kg	20
1,2-Dibromoethane (EDB)		<20.0	µg/Kg	20
Tetrachloroethene (PCE)		<20.0	µg/Kg	20
Chlorobenzene		<20.0	µg/Kg	20
1,1,1,2-Tetrachloroethane		<20.0	µg/Kg	20
Ethylbenzene		<20.0	µg/Kg	20
m,p-Xylene		<20.0	µg/Kg	20
Bromoform		<20.0	µg/Kg	20
Styrene		<20.0	µg/Kg	20
o-Xylene		<20.0	µg/Kg	20

continued ...

sample 426117 continued ...

Param	Flag	Result	Units	RL
1,1,2,2-Tetrachloroethane	Qc	<20.0	µg/Kg	20
2-Chlorotoluene		<20.0	µg/Kg	20
1,2,3-Trichloropropane		<20.0	µg/Kg	20
Isopropylbenzene		<20.0	µg/Kg	20
Bromobenzene		<20.0	µg/Kg	20
n-Propylbenzene		<20.0	µg/Kg	20
1,3,5-Trimethylbenzene		<20.0	µg/Kg	20
tert-Butylbenzene		<20.0	µg/Kg	20
1,2,4-Trimethylbenzene		<20.0	µg/Kg	20
1,4-Dichlorobenzene (para)		<20.0	µg/Kg	20
sec-Butylbenzene		<20.0	µg/Kg	20
1,3-Dichlorobenzene (meta)		<20.0	µg/Kg	20
p-Isopropyltoluene		<20.0	µg/Kg	20
4-Chlorotoluene		<20.0	µg/Kg	20
1,2-Dichlorobenzene (ortho)		<20.0	µg/Kg	20
n-Butylbenzene		<20.0	µg/Kg	20
1,2-Dibromo-3-chloropropane	Qc	<100	µg/Kg	100
1,2,3-Trichlorobenzene	Qr	<100	µg/Kg	100
1,2,4-Trichlorobenzene		<100	µg/Kg	100
Naphthalene	Qr	<100	µg/Kg	100
Hexachlorobutadiene		<100	µg/Kg	100

Sample: 426118 - Rupture #6 Contaminated

Param	Flag	Result	Units	RL
Chloride		<250	mg/Kg	50
Bromochloromethane		<20.0	µg/Kg	20
Dichlorodifluoromethane	Qc	<20.0	µg/Kg	20
Chloromethane (methyl chloride)	Qc	<20.0	µg/Kg	20
Vinyl Chloride		<20.0	µg/Kg	20
Bromomethane (methyl bromide)	Qc, Qs	<100	µg/Kg	100
Chloroethane	Qs	<20.0	µg/Kg	20
Trichlorofluoromethane		<20.0	µg/Kg	20
Acetone	Qc, Qr	<200	µg/Kg	200
Iodomethane (methyl iodide)		<100	µg/Kg	100
Carbon Disulfide		<20.0	µg/Kg	20
Acrylonitrile		<20.0	µg/Kg	20
2-Butanone (MEK)	Qc	<100	µg/Kg	100
4-Methyl-2-pentanone (MIBK)	Qc	<100	µg/Kg	100
2-Hexanone	Qc	<100	µg/Kg	100
trans 1,4-Dichloro-2-butene	Qc	<200	µg/Kg	200
1,1-Dichloroethene		<20.0	µg/Kg	20
Methylene chloride		<100	µg/Kg	100
MTBE		<20.0	µg/Kg	20
trans-1,2-Dichloroethene		<20.0	µg/Kg	20
1,1-Dichloroethane		<20.0	µg/Kg	20

continued ...

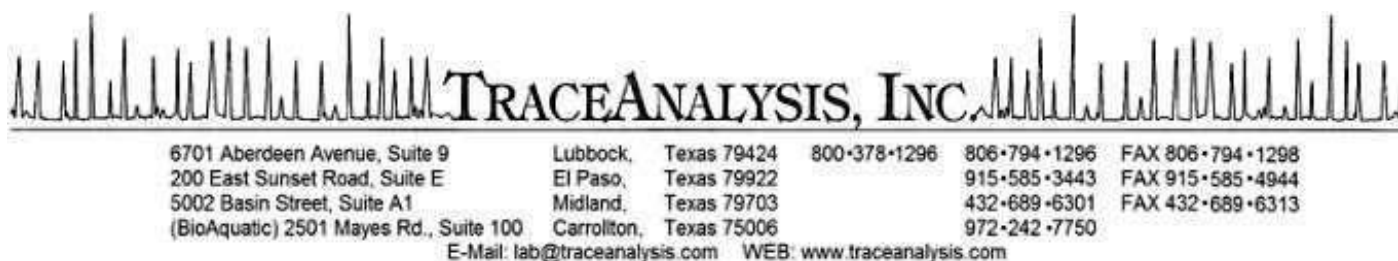
sample 426118 continued ...

Param	Flag	Result	Units	RL
cis-1,2-Dichloroethene		<20.0	µg/Kg	20
2,2-Dichloropropane		<20.0	µg/Kg	20
1,2-Dichloroethane (EDC)		<20.0	µg/Kg	20
Chloroform		<20.0	µg/Kg	20
1,1,1-Trichloroethane		<20.0	µg/Kg	20
1,1-Dichloropropene		<20.0	µg/Kg	20
Benzene		<20.0	µg/Kg	20
Carbon Tetrachloride	Qs	<20.0	µg/Kg	20
1,2-Dichloropropane		<20.0	µg/Kg	20
Trichloroethene (TCE)		<20.0	µg/Kg	20
Dibromomethane (methylene bromide)		<20.0	µg/Kg	20
Bromodichloromethane	Qs	<20.0	µg/Kg	20
2-Chloroethyl vinyl ether		<20.0	µg/Kg	20
cis-1,3-Dichloropropene		<20.0	µg/Kg	20
trans-1,3-Dichloropropene		<20.0	µg/Kg	20
Toluene		<20.0	µg/Kg	20
1,1,2-Trichloroethane		<20.0	µg/Kg	20
1,3-Dichloropropane		<20.0	µg/Kg	20
Dibromochloromethane	Qs	<20.0	µg/Kg	20
1,2-Dibromoethane (EDB)		<20.0	µg/Kg	20
Tetrachloroethene (PCE)		<20.0	µg/Kg	20
Chlorobenzene		<20.0	µg/Kg	20
1,1,1,2-Tetrachloroethane	Qs	<20.0	µg/Kg	20
Ethylbenzene		<20.0	µg/Kg	20
m,p-Xylene		<20.0	µg/Kg	20
Bromoform	Qs	<20.0	µg/Kg	20
Styrene		<20.0	µg/Kg	20
o-Xylene		<20.0	µg/Kg	20
1,1,2,2-Tetrachloroethane	Qc, Qs	<20.0	µg/Kg	20
2-Chlorotoluene		<20.0	µg/Kg	20
1,2,3-Trichloropropane	Qs	<20.0	µg/Kg	20
Isopropylbenzene		<20.0	µg/Kg	20
Bromobenzene		<20.0	µg/Kg	20
n-Propylbenzene		<20.0	µg/Kg	20
1,3,5-Trimethylbenzene		<20.0	µg/Kg	20
tert-Butylbenzene		<20.0	µg/Kg	20
1,2,4-Trimethylbenzene		<20.0	µg/Kg	20
1,4-Dichlorobenzene (para)		<20.0	µg/Kg	20
sec-Butylbenzene		<20.0	µg/Kg	20
1,3-Dichlorobenzene (meta)		<20.0	µg/Kg	20
p-Isopropyltoluene		<20.0	µg/Kg	20
4-Chlorotoluene		<20.0	µg/Kg	20
1,2-Dichlorobenzene (ortho)		<20.0	µg/Kg	20
n-Butylbenzene		<20.0	µg/Kg	20
1,2-Dibromo-3-chloropropane	Qc, Qs	<100	µg/Kg	100
1,2,3-Trichlorobenzene	Qr	<100	µg/Kg	100
1,2,4-Trichlorobenzene		<100	µg/Kg	100

continued ...

sample 426118 continued ...

Param	Flag	Result	Units	RL
Naphthalene	Q _r	<100	μg/Kg	100
Hexachlorobutadiene		<100	μg/Kg	100



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Mary Martino
Kinder Morgan-Colorado Springs
2 North Nevada Avenue
Colorado Springs, CO, 80903

Report Date: August 17, 2016

Work Order: 16081001



Project Location: Lea County, NM
Project Name: EPNG Line 3031 Spike Test
Project Number: AFE 403828

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
426116	Rupture #5 Release	water	2016-08-04	09:45	2016-08-08
426119	Rupture #6 Release	water	2016-08-04	09:50	2016-08-08

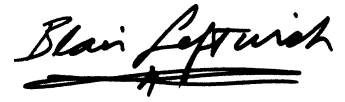
Notes

- **Work Order 16081001:** Broken voa when received

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 29 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a prominent horizontal line underneath the name.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

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Case Narrative

Samples for project EPNG Line 3031 Spike Test were received by TraceAnalysis, Inc. on 2016-08-08 and assigned to work order 16081001. Samples for work order 16081001 were received intact at a temperature of 4.2 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chloride (IC)	E 300.0	111971	2016-08-15 at 09:00	132122	2016-08-15 at 09:36
TPH DRO	S 8015 D	111970	2016-08-15 at 13:00	132127	2016-08-16 at 09:03
TPH GRO	S 8015 D	111947	2016-08-12 at 16:15	132100	2016-08-12 at 16:15
Volatiles	S 8260 C	111933	2016-08-11 at 13:00	132085	2016-08-11 at 14:00

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16081001 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

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EPNG Line 3031 Spike Test

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Analytical Report

Sample: 426116 - Rupture #5 Release

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2016-08-15	Analyzed By:	RL
QC Batch:	132122	Sample Preparation:	2016-08-15	Prepared By:	RL
Prep Batch:	111971				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,3,4	70.6	mg/L	5	2.50

Sample: 426116 - Rupture #5 Release

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2016-08-16	Analyzed By:	HJ
QC Batch:	132127	Sample Preparation:	2016-08-15	Prepared By:	HJ
Prep Batch:	111970				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<5.00	mg/L	1	5.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			2.84	mg/L	1	2.50	114	70 - 130

Sample: 426116 - Rupture #5 Release

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	S 5030B
Analysis:	TPH GRO	Date Analyzed:	2016-08-12	Analyzed By:	MT
QC Batch:	132100	Sample Preparation:	2016-08-12	Prepared By:	MT
Prep Batch:	111947				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1,2,3	5.48	mg/L	10	0.200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.20	mg/L	10	1.00	120	72.8 - 136

continued ...

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sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	1.31	mg/L	10	1.00	131	73.3 - 120

Sample: 426116 - Rupture #5 Release

Laboratory: Lubbock
Analysis: Volatiles
QC Batch: 132085
Prep Batch: 111933

Analytical Method: S 8260 C
Date Analyzed: 2016-08-11
Sample Preparation: 2016-08-11

Prep Method: S 5030B
Analyzed By: JG
Prepared By: JG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	U	1,2,3,4	<10.0	µg/L	10	1.00
Dichlorodifluoromethane	Q _c ,U	1,2,3,4	<10.0	µg/L	10	1.00
Chloromethane (methyl chloride)	Q _c ,U	1,2,3,4	<10.0	µg/L	10	1.00
Vinyl Chloride	U	1,2,3,4	<10.0	µg/L	10	1.00
Bromomethane (methyl bromide)	Q _c ,U	1,2,3,4	<50.0	µg/L	10	5.00
Chloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
Trichlorofluoromethane	U	1,2,3,4	<10.0	µg/L	10	1.00
Acetone	U	1,2,3,4	<100	µg/L	10	10.0
Iodomethane (methyl iodide)	U	1,2,3,4	<50.0	µg/L	10	5.00
Carbon Disulfide		1,2,3,4	11.8	µg/L	10	1.00
Acrylonitrile	Q _r ,U	1,2,3,4	<10.0	µg/L	10	1.00
2-Butanone (MEK)	Q _c ,U	1,2,3,4	<50.0	µg/L	10	5.00
4-Methyl-2-pentanone (MIBK)	Q _c ,U	1,2,3,4	<50.0	µg/L	10	5.00
2-Hexanone	Q _c ,U	1,2,3,4	<50.0	µg/L	10	5.00
trans 1,4-Dichloro-2-butene	Q _c ,U	1,2,3,4	<100	µg/L	10	10.0
1,1-Dichloroethene	U	1,2,3,4	<10.0	µg/L	10	1.00
Methylene chloride	U	1,2,3,4	<50.0	µg/L	10	5.00
MTBE	U	1,2,3,4	<10.0	µg/L	10	1.00
trans-1,2-Dichloroethene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1-Dichloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
cis-1,2-Dichloroethene	U	1,2,3,4	<10.0	µg/L	10	1.00
2,2-Dichloropropane	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2-Dichloroethane (EDC)	U	1,2,3,4	<10.0	µg/L	10	1.00
Chloroform	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1,1-Trichloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1-Dichloropropene	U	1,2,3,4	<10.0	µg/L	10	1.00
Benzene		1,2,3,4	26.3	µg/L	10	1.00
Carbon Tetrachloride	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2-Dichloropropane	U	1,2,3,4	<10.0	µg/L	10	1.00
Trichloroethene (TCE)	U	1,2,3,4	<10.0	µg/L	10	1.00
Dibromomethane (methylene bromide)	U	1,2,3,4	<10.0	µg/L	10	1.00
Bromodichloromethane	U	1,2,3,4	<10.0	µg/L	10	1.00

continued ...

sample 426116 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
2-Chloroethyl vinyl ether	U	1,2,3,4	<50.0	µg/L	10	5.00
cis-1,3-Dichloropropene	U	1,2,3,4	<10.0	µg/L	10	1.00
trans-1,3-Dichloropropene	U	1,2,3,4	<10.0	µg/L	10	1.00
Toluene		1,2,3,4	<10.0	µg/L	10	1.00
1,1,2-Trichloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
1,3-Dichloropropane	U	1,2,3,4	<10.0	µg/L	10	1.00
Dibromochloromethane	U	1,3,4	<10.0	µg/L	10	1.00
1,2-Dibromoethane (EDB)	U	1,2,3,4	<10.0	µg/L	10	1.00
Tetrachloroethene (PCE)	U	1,2,3,4	<10.0	µg/L	10	1.00
Chlorobenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1,1,2-Tetrachloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
Ethylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
m,p-Xylene	U	1,2,3,4	<10.0	µg/L	10	1.00
Bromoform	U	1,2,3,4	<10.0	µg/L	10	1.00
Styrene	U	1,2,3,4	<10.0	µg/L	10	1.00
o-Xylene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1,2,2-Tetrachloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
2-Chlorotoluene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2,3-Trichloropropane	U	1,2,3,4	<10.0	µg/L	10	1.00
Isopropylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
Bromobenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
n-Propylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,3,5-Trimethylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
tert-Butylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2,4-Trimethylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,4-Dichlorobenzene (para)	U	1,2,3,4	<10.0	µg/L	10	1.00
sec-Butylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,3-Dichlorobenzene (meta)	U	1,2,3,4	<10.0	µg/L	10	1.00
p-Isopropyltoluene	U	1,2,3	<10.0	µg/L	10	1.00
4-Chlorotoluene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2-Dichlorobenzene (ortho)	U	1,2,3,4	<10.0	µg/L	10	1.00
n-Butylbenzene	B,U	1,2,3,4	<10.0	µg/L	10	1.00
1,2-Dibromo-3-chloropropane	U	1,3	<50.0	µg/L	10	5.00
1,2,3-Trichlorobenzene	U	1,2,3,4	<50.0	µg/L	10	5.00
1,2,4-Trichlorobenzene	U	1,2,3,4	<50.0	µg/L	10	5.00
Naphthalene	U	1,2,3,4	<50.0	µg/L	10	5.00
Hexachlorobutadiene	U	1,2,3,4	<50.0	µg/L	10	5.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane			535	µg/L	10	500	107	70 - 130
Toluene-d8			485	µg/L	10	500	97	70 - 130
4-Bromofluorobenzene (4-BFB)			499	µg/L	10	500	100	70 - 130

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Sample: 426119 - Rupture #6 Release

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2016-08-15	Analyzed By:	RL
QC Batch:	132122	Sample Preparation:	2016-08-15	Prepared By:	RL
Prep Batch:	111971				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,3,4	103	mg/L	5	2.50

Sample: 426119 - Rupture #6 Release

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2016-08-16	Analyzed By:	HJ
QC Batch:	132127	Sample Preparation:	2016-08-15	Prepared By:	HJ
Prep Batch:	111970				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1,2,3	<5.00	mg/L	1	5.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			2.84	mg/L	1	2.50	114	70 - 130

Sample: 426119 - Rupture #6 Release

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	S 5030B
Analysis:	TPH GRO	Date Analyzed:	2016-08-12	Analyzed By:	MT
QC Batch:	132100	Sample Preparation:	2016-08-12	Prepared By:	MT
Prep Batch:	111947				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1,2,3	3.30	mg/L	10	0.200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.22	mg/L	10	1.00	122	72.8 - 136
4-Bromofluorobenzene (4-BFB)			1.13	mg/L	10	1.00	113	73.3 - 120

Sample: 426119 - Rupture #6 Release

Laboratory: Lubbock

Analysis: Volatiles

QC Batch: 132085

Prep Batch: 111933

Analytical Method: S 8260 C

Date Analyzed: 2016-08-11

Sample Preparation: 2016-08-11

Prep Method: S 5030B

Analyzed By: JG

Prepared By: JG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	U	1,2,3,4	<10.0	µg/L	10	1.00
Dichlorodifluoromethane	QC,U	1,2,3,4	<10.0	µg/L	10	1.00
Chloromethane (methyl chloride)	QC,U	1,2,3,4	<10.0	µg/L	10	1.00
Vinyl Chloride	U	1,2,3,4	<10.0	µg/L	10	1.00
Bromomethane (methyl bromide)	QC,U	1,2,3,4	<50.0	µg/L	10	5.00
Chloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
Trichlorofluoromethane	U	1,2,3,4	<10.0	µg/L	10	1.00
Acetone	U	1,2,3,4	<100	µg/L	10	10.0
Iodomethane (methyl iodide)	U	1,2,3,4	<50.0	µg/L	10	5.00
Carbon Disulfide		1,2,3,4	12.9	µg/L	10	1.00
Acrylonitrile	QR,U	1,2,3,4	<10.0	µg/L	10	1.00
2-Butanone (MEK)	QC,U	1,2,3,4	<50.0	µg/L	10	5.00
4-Methyl-2-pentanone (MIBK)	QC,U	1,2,3,4	<50.0	µg/L	10	5.00
2-Hexanone	QC,U	1,2,3,4	<50.0	µg/L	10	5.00
trans 1,4-Dichloro-2-butene	QC,U	1,2,3,4	<100	µg/L	10	10.0
1,1-Dichloroethene	U	1,2,3,4	<10.0	µg/L	10	1.00
Methylene chloride	U	1,2,3,4	<50.0	µg/L	10	5.00
MTBE	U	1,2,3,4	<10.0	µg/L	10	1.00
trans-1,2-Dichloroethene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1-Dichloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
cis-1,2-Dichloroethene	U	1,2,3,4	<10.0	µg/L	10	1.00
2,2-Dichloropropane	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2-Dichloroethane (EDC)	U	1,2,3,4	<10.0	µg/L	10	1.00
Chloroform	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1,1-Trichloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1-Dichloropropene	U	1,2,3,4	<10.0	µg/L	10	1.00
Benzene		1,2,3,4	18.9	µg/L	10	1.00
Carbon Tetrachloride	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2-Dichloropropane	U	1,2,3,4	<10.0	µg/L	10	1.00
Trichloroethene (TCE)	U	1,2,3,4	<10.0	µg/L	10	1.00
Dibromomethane (methylene bromide)	U	1,2,3,4	<10.0	µg/L	10	1.00
Bromodichloromethane	U	1,2,3,4	<10.0	µg/L	10	1.00
2-Chloroethyl vinyl ether	U	1,2,3,4	<50.0	µg/L	10	5.00
cis-1,3-Dichloropropene	U	1,2,3,4	<10.0	µg/L	10	1.00
trans-1,3-Dichloropropene	U	1,2,3,4	<10.0	µg/L	10	1.00
Toluene		1,2,3,4	<10.0	µg/L	10	1.00
1,1,2-Trichloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
1,3-Dichloropropane	U	1,2,3,4	<10.0	µg/L	10	1.00
Dibromochloromethane	U	1,3,4	<10.0	µg/L	10	1.00

continued ...

sample 426119 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
1,2-Dibromoethane (EDB)	U	1,2,3,4	<10.0	µg/L	10	1.00
Tetrachloroethene (PCE)	U	1,2,3,4	<10.0	µg/L	10	1.00
Chlorobenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1,1,2-Tetrachloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
Ethylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
m,p-Xylene	U	1,2,3,4	<10.0	µg/L	10	1.00
Bromoform	U	1,2,3,4	<10.0	µg/L	10	1.00
Styrene	U	1,2,3,4	<10.0	µg/L	10	1.00
o-Xylene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,1,2,2-Tetrachloroethane	U	1,2,3,4	<10.0	µg/L	10	1.00
2-Chlorotoluene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2,3-Trichloropropane	U	1,2,3,4	<10.0	µg/L	10	1.00
Isopropylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
Bromobenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
n-Propylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,3,5-Trimethylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
tert-Butylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2,4-Trimethylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,4-Dichlorobenzene (para)	U	1,2,3,4	<10.0	µg/L	10	1.00
sec-Butylbenzene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,3-Dichlorobenzene (meta)	U	1,2,3,4	<10.0	µg/L	10	1.00
p-Isopropyltoluene		1,2,3	<10.0	µg/L	10	1.00
4-Chlorotoluene	U	1,2,3,4	<10.0	µg/L	10	1.00
1,2-Dichlorobenzene (ortho)	U	1,2,3,4	<10.0	µg/L	10	1.00
n-Butylbenzene	B,U	1,2,3,4	<10.0	µg/L	10	1.00
1,2-Dibromo-3-chloropropane	U	1,3	<50.0	µg/L	10	5.00
1,2,3-Trichlorobenzene	U	1,2,3,4	<50.0	µg/L	10	5.00
1,2,4-Trichlorobenzene	U	1,2,3,4	<50.0	µg/L	10	5.00
Naphthalene	U	1,2,3,4	<50.0	µg/L	10	5.00
Hexachlorobutadiene	U	1,2,3,4	<50.0	µg/L	10	5.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane			523	µg/L	10	500	105	70 - 130
Toluene-d8			483	µg/L	10	500	97	70 - 130
4-Bromofluorobenzene (4-BFB)			505	µg/L	10	500	101	70 - 130

Method Blanks

Method Blank (1) QC Batch: 132085

QC Batch: 132085
Prep Batch: 111933

Date Analyzed: 2016-08-11
QC Preparation: 2016-08-11

Analyzed By: JG
Prepared By: JG

Parameter	Flag	Cert	MDL Result	Units	RL
Bromochloromethane		1,2,3,4	<0.330	µg/L	1
Dichlorodifluoromethane		1,2,3,4	<0.350	µg/L	1
Chloromethane (methyl chloride)		1,2,3,4	<0.330	µg/L	1
Vinyl Chloride		1,2,3,4	<0.410	µg/L	1
Bromomethane (methyl bromide)		1,2,3,4	<1.69	µg/L	5
Chloroethane		1,2,3,4	<0.420	µg/L	1
Trichlorofluoromethane		1,2,3,4	<0.410	µg/L	1
Acetone		1,2,3,4	<1.09	µg/L	10
Iodomethane (methyl iodide)		1,2,3,4	<2.47	µg/L	5
Carbon Disulfide		1,2,3,4	<0.400	µg/L	1
Acrylonitrile		1,2,3,4	<0.360	µg/L	1
2-Butanone (MEK)		1,2,3,4	<1.67	µg/L	5
4-Methyl-2-pentanone (MIBK)		1,2,3,4	<2.14	µg/L	5
2-Hexanone		1,2,3,4	<1.49	µg/L	5
trans 1,4-Dichloro-2-butene		1,2,3,4	<1.75	µg/L	10
1,1-Dichloroethene		1,2,3,4	<0.330	µg/L	1
Methylene chloride		1,2,3,4	<2.04	µg/L	5
MTBE		1,2,3,4	<0.320	µg/L	1
trans-1,2-Dichloroethene		1,2,3,4	<0.360	µg/L	1
1,1-Dichloroethane		1,2,3,4	<0.330	µg/L	1
cis-1,2-Dichloroethene		1,2,3,4	<0.330	µg/L	1
2,2-Dichloropropane		1,2,3,4	<0.380	µg/L	1
1,2-Dichloroethane (EDC)		1,2,3,4	<0.280	µg/L	1
Chloroform		1,2,3,4	<0.390	µg/L	1
1,1,1-Trichloroethane		1,2,3,4	<0.370	µg/L	1
1,1-Dichloropropene		1,2,3,4	<0.320	µg/L	1
Benzene		1,2,3,4	<0.340	µg/L	1
Carbon Tetrachloride		1,2,3,4	<0.350	µg/L	1
1,2-Dichloropropane		1,2,3,4	<0.270	µg/L	1
Trichloroethene (TCE)		1,2,3,4	<0.310	µg/L	1
Dibromomethane (methylene bromide)		1,2,3,4	<0.230	µg/L	1
Bromodichloromethane		1,2,3,4	<0.320	µg/L	1
2-Chloroethyl vinyl ether		1,2,3,4	<0.480	µg/L	5
cis-1,3-Dichloropropene		1,2,3,4	<0.210	µg/L	1
trans-1,3-Dichloropropene		1,2,3,4	<0.310	µg/L	1
Toluene		1,2,3,4	<0.350	µg/L	1

continued ...

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
1,1,2-Trichloroethane		1,2,3,4	<0.390	µg/L	1
1,3-Dichloropropane		1,2,3,4	<0.310	µg/L	1
Dibromochloromethane		1,3,4	<0.370	µg/L	1
1,2-Dibromoethane (EDB)		1,2,3,4	<0.310	µg/L	1
Tetrachloroethene (PCE)		1,2,3,4	<0.190	µg/L	1
Chlorobenzene		1,2,3,4	<0.290	µg/L	1
1,1,1,2-Tetrachloroethane		1,2,3,4	<0.300	µg/L	1
Ethylbenzene		1,2,3,4	<0.260	µg/L	1
m,p-Xylene		1,2,3,4	<0.480	µg/L	1
Bromoform		1,2,3,4	<0.480	µg/L	1
Styrene		1,2,3,4	<0.250	µg/L	1
o-Xylene		1,2,3,4	<0.260	µg/L	1
1,1,2,2-Tetrachloroethane		1,2,3,4	<0.560	µg/L	1
2-Chlorotoluene		1,2,3,4	<0.250	µg/L	1
1,2,3-Trichloropropane		1,2,3,4	<0.450	µg/L	1
Isopropylbenzene		1,2,3,4	<0.260	µg/L	1
Bromobenzene		1,2,3,4	<0.280	µg/L	1
n-Propylbenzene		1,2,3,4	<0.240	µg/L	1
1,3,5-Trimethylbenzene		1,2,3,4	<0.260	µg/L	1
tert-Butylbenzene		1,2,3,4	<0.270	µg/L	1
1,2,4-Trimethylbenzene		1,2,3,4	<0.270	µg/L	1
1,4-Dichlorobenzene (para)		1,2,3,4	<0.310	µg/L	1
sec-Butylbenzene		1,2,3,4	<0.200	µg/L	1
1,3-Dichlorobenzene (meta)		1,2,3,4	<0.280	µg/L	1
p-Isopropyltoluene		1,2,3	<0.200	µg/L	1
4-Chlorotoluene		1,2,3,4	<0.290	µg/L	1
1,2-Dichlorobenzene (ortho)		1,2,3,4	<0.250	µg/L	1
n-Butylbenzene	B	B	0.310	µg/L	1
1,2-Dibromo-3-chloropropane		1,3	<1.70	µg/L	5
1,2,3-Trichlorobenzene		1,2,3,4	<0.400	µg/L	5
1,2,4-Trichlorobenzene		1,2,3,4	<2.12	µg/L	5
Naphthalene		1,2,3,4	<2.23	µg/L	5
Hexachlorobutadiene		1,2,3,4	<0.760	µg/L	5

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane			52.3	µg/L	1	50.0	105	70 - 130
Toluene-d8			48.9	µg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)			48.4	µg/L	1	50.0	97	70 - 130

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Method Blank (1) QC Batch: 132100

QC Batch: 132100
Prep Batch: 111947

Date Analyzed: 2016-08-12
QC Preparation: 2016-08-12

Analyzed By: MT
Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1,2,3	<0.0369	mg/L	0.2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.119	mg/L	1	0.100	119	72.8 - 136
4-Bromofluorobenzene (4-BFB)			0.102	mg/L	1	0.100	102	73.3 - 120

Method Blank (1) QC Batch: 132122

QC Batch: 132122
Prep Batch: 111971

Date Analyzed: 2016-08-15
QC Preparation: 2016-08-15

Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1,2,3,4	<0.297	mg/L	2.5

Method Blank (1) QC Batch: 132127

QC Batch: 132127
Prep Batch: 111970

Date Analyzed: 2016-08-16
QC Preparation: 2016-08-15

Analyzed By: HJ
Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2,3	<0.890	mg/L	5

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			2.82	mg/L	1	2.50	113	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 132085
Prep Batch: 111933

Date Analyzed: 2016-08-11
QC Preparation: 2016-08-11

Analyzed By: JG
Prepared By: JG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Bromochloromethane		1,2,3,4	50.3	µg/L	1	50.0	<0.330	101	74.4 - 128
Dichlorodifluoromethane		1,2,3,4	32.6	µg/L	1	50.0	<0.350	65	46.8 - 148
Chloromethane (methyl chloride)		1,2,3,4	39.6	µg/L	1	50.0	<0.330	79	63.8 - 125
Vinyl Chloride		1,2,3,4	42.2	µg/L	1	50.0	<0.410	84	60.3 - 129
Bromomethane (methyl bromide)		1,2,3,4	39.0	µg/L	1	50.0	<1.69	78	49.7 - 141
Chloroethane		1,2,3,4	41.5	µg/L	1	50.0	<0.420	83	62.4 - 131
Trichlorofluoromethane		1,2,3,4	42.9	µg/L	1	50.0	<0.410	86	53.5 - 152
Acetone		1,2,3,4	37.0	µg/L	1	50.0	<1.09	74	20 - 190
Iodomethane (methyl iodide)		1,2,3,4	48.4	µg/L	1	50.0	<2.47	97	67.8 - 135
Carbon Disulfide		1,2,3,4	48.4	µg/L	1	50.0	<0.400	97	68.9 - 136
Acrylonitrile		1,2,3,4	44.4	µg/L	1	50.0	<0.360	89	67.6 - 131
2-Butanone (MEK)		1,2,3,4	37.4	µg/L	1	50.0	<1.67	75	45 - 137
4-Methyl-2-pentanone (MIBK)		1,2,3,4	40.9	µg/L	1	50.0	<2.14	82	61.4 - 142
2-Hexanone		1,2,3,4	37.0	µg/L	1	50.0	<1.49	74	51.7 - 145
trans 1,4-Dichloro-2-butene		1,2,3,4	68.1	µg/L	1	50.0	<1.75	136	44.3 - 137
1,1-Dichloroethene		1,2,3,4	49.3	µg/L	1	50.0	<0.330	99	70.6 - 132
Methylene chloride		1,2,3,4	47.5	µg/L	1	50.0	<2.04	95	66.5 - 135
MTBE		1,2,3,4	48.3	µg/L	1	50.0	<0.320	97	72.1 - 130
trans-1,2-Dichloroethene		1,2,3,4	49.8	µg/L	1	50.0	<0.360	100	75.5 - 127
1,1-Dichloroethane		1,2,3,4	48.8	µg/L	1	50.0	<0.330	98	73.7 - 129
cis-1,2-Dichloroethene		1,2,3,4	49.0	µg/L	1	50.0	<0.330	98	75.5 - 127
2,2-Dichloropropane		1,2,3,4	56.4	µg/L	1	50.0	<0.380	113	24.3 - 158
1,2-Dichloroethane (EDC)		1,2,3,4	46.0	µg/L	1	50.0	<0.280	92	71 - 134
Chloroform		1,2,3,4	50.6	µg/L	1	50.0	<0.390	101	74 - 131
1,1,1-Trichloroethane		1,2,3,4	50.9	µg/L	1	50.0	<0.370	102	59.2 - 150
1,1-Dichloropropene		1,2,3,4	50.6	µg/L	1	50.0	<0.320	101	77.7 - 128
Benzene		1,2,3,4	48.6	µg/L	1	50.0	<0.340	97	73 - 124
Carbon Tetrachloride		1,2,3,4	49.4	µg/L	1	50.0	<0.350	99	61.2 - 146
1,2-Dichloropropane		1,2,3,4	49.5	µg/L	1	50.0	<0.270	99	78 - 125
Trichloroethene (TCE)		1,2,3,4	49.7	µg/L	1	50.0	<0.310	99	70.9 - 137
Dibromomethane (methylene bromide)		1,2,3,4	47.0	µg/L	1	50.0	<0.230	94	76.2 - 127
Bromodichloromethane		1,2,3,4	50.1	µg/L	1	50.0	<0.320	100	73.6 - 130
2-Chloroethyl vinyl ether		1,2,3,4	50.9	µg/L	1	50.0	<0.480	102	61.1 - 136
cis-1,3-Dichloropropene		1,2,3,4	47.9	µg/L	1	50.0	<0.210	96	79 - 125
trans-1,3-Dichloropropene		1,2,3,4	47.6	µg/L	1	50.0	<0.310	95	77.1 - 128

continued ...

control spikes continued . . .

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Toluene		1,2,3,4	49.8	µg/L	1	50.0	<0.350	100	75.4 - 126
1,1,2-Trichloroethane		1,2,3,4	43.8	µg/L	1	50.0	<0.390	88	72.9 - 122
1,3-Dichloropropane		1,2,3,4	44.2	µg/L	1	50.0	<0.310	88	75 - 120
Dibromochloromethane		1,3,4	47.3	µg/L	1	50.0	<0.370	95	64.8 - 128
1,2-Dibromoethane (EDB)		1,2,3,4	44.4	µg/L	1	50.0	<0.310	89	74.6 - 121
Tetrachloroethene (PCE)		1,2,3,4	42.7	µg/L	1	50.0	<0.190	85	28.6 - 177
Chlorobenzene		1,2,3,4	48.7	µg/L	1	50.0	<0.290	97	73.5 - 120
1,1,1,2-Tetrachloroethane		1,2,3,4	48.8	µg/L	1	50.0	<0.300	98	67 - 128
Ethylbenzene		1,2,3,4	47.8	µg/L	1	50.0	<0.260	96	73 - 123
m,p-Xylene		1,2,3,4	97.9	µg/L	1	100	<0.480	98	71 - 126
Bromoform		1,2,3,4	50.8	µg/L	1	50.0	<0.480	102	55.5 - 131
Styrene		1,2,3,4	47.7	µg/L	1	50.0	<0.250	95	75.7 - 122
o-Xylene		1,2,3,4	48.9	µg/L	1	50.0	<0.260	98	70.2 - 125
1,1,2,2-Tetrachloroethane		1,2,3,4	43.3	µg/L	1	50.0	<0.560	87	61.1 - 133
2-Chlorotoluene		1,2,3,4	45.4	µg/L	1	50.0	<0.250	91	71.8 - 120
1,2,3-Trichloropropane		1,2,3,4	43.9	µg/L	1	50.0	<0.450	88	67.2 - 132
Isopropylbenzene		1,2,3,4	44.6	µg/L	1	50.0	<0.260	89	72.2 - 123
Bromobenzene		1,2,3,4	44.1	µg/L	1	50.0	<0.280	88	66.7 - 121
n-Propylbenzene		1,2,3,4	45.0	µg/L	1	50.0	<0.240	90	72.9 - 121
1,3,5-Trimethylbenzene		1,2,3,4	46.3	µg/L	1	50.0	<0.260	93	68.4 - 126
tert-Butylbenzene		1,2,3,4	44.8	µg/L	1	50.0	<0.270	90	68.7 - 128
1,2,4-Trimethylbenzene		1,2,3,4	45.4	µg/L	1	50.0	<0.270	91	70.4 - 124
1,4-Dichlorobenzene (para)		1,2,3,4	49.4	µg/L	1	50.0	<0.310	99	73.5 - 120
sec-Butylbenzene		1,2,3,4	45.6	µg/L	1	50.0	<0.200	91	69.6 - 128
1,3-Dichlorobenzene (meta)		1,2,3,4	48.9	µg/L	1	50.0	<0.280	98	74.2 - 120
p-Isopropyltoluene		1,2,3	47.2	µg/L	1	50.0	<0.200	94	73.1 - 124
4-Chlorotoluene		1,2,3,4	44.8	µg/L	1	50.0	<0.290	90	72.8 - 120
1,2-Dichlorobenzene (ortho)		1,2,3,4	47.1	µg/L	1	50.0	<0.250	94	65.2 - 126
n-Butylbenzene		1,2,3,4	48.6	µg/L	1	50.0	0.31	96	70.1 - 127
1,2-Dibromo-3-chloropropane		1,3	41.2	µg/L	1	50.0	<1.70	82	50.5 - 136
1,2,3-Trichlorobenzene		1,2,3,4	58.0	µg/L	1	50.0	<0.400	116	43.3 - 153
1,2,4-Trichlorobenzene		1,2,3,4	55.1	µg/L	1	50.0	<2.12	110	59.6 - 134
Naphthalene		1,2,3,4	55.5	µg/L	1	50.0	<2.23	111	38.5 - 159
Hexachlorobutadiene		1,2,3,4	51.8	µg/L	1	50.0	<0.760	104	35.8 - 175

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Bromochloromethane		1,2,3,4	52.4	µg/L	1	50.0	<0.330	105	74.4 - 128	4	20
Dichlorodifluoromethane		1,2,3,4	34.4	µg/L	1	50.0	<0.350	69	46.8 - 148	5	20
Chloromethane (methyl chloride)		1,2,3,4	41.2	µg/L	1	50.0	<0.330	82	63.8 - 125	4	20
Vinyl Chloride		1,2,3,4	44.8	µg/L	1	50.0	<0.410	90	60.3 - 129	6	20
Bromomethane (methyl bromide)		1,2,3,4	42.2	µg/L	1	50.0	<1.69	84	49.7 - 141	8	20
Chloroethane		1,2,3,4	45.2	µg/L	1	50.0	<0.420	90	62.4 - 131	8	20

continued . . .

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Trichlorofluoromethane		1,2,3,4	46.1	µg/L	1	50.0	<0.410	92	53.5 - 152	7	20
Acetone		1,2,3,4	31.9	µg/L	1	50.0	<1.09	64	20 - 190	15	20
Iodomethane (methyl iodide)		1,2,3,4	52.1	µg/L	1	50.0	<2.47	104	67.8 - 135	7	20
Carbon Disulfide		1,2,3,4	52.0	µg/L	1	50.0	<0.400	104	68.9 - 136	7	20
Acrylonitrile		1,2,3,4	47.8	µg/L	1	50.0	<0.360	96	67.6 - 131	7	20
2-Butanone (MEK)		1,2,3,4	37.7	µg/L	1	50.0	<1.67	75	45 - 137	1	20
4-Methyl-2-pentanone (MIBK)		1,2,3,4	46.6	µg/L	1	50.0	<2.14	93	61.4 - 142	13	20
2-Hexanone		1,2,3,4	38.4	µg/L	1	50.0	<1.49	77	51.7 - 145	4	20
trans 1,4-Dichloro-2-butene	Qs	Qs	72.9	µg/L	1	50.0	<1.75	146	44.3 - 137	7	20
1,1-Dichloroethene		1,2,3,4	52.7	µg/L	1	50.0	<0.330	105	70.6 - 132	7	20
Methylene chloride		1,2,3,4	51.0	µg/L	1	50.0	<2.04	102	66.5 - 135	7	20
MTBE		1,2,3,4	51.7	µg/L	1	50.0	<0.320	103	72.1 - 130	7	20
trans-1,2-Dichloroethene		1,2,3,4	54.2	µg/L	1	50.0	<0.360	108	75.5 - 127	8	20
1,1-Dichloroethane		1,2,3,4	52.0	µg/L	1	50.0	<0.330	104	73.7 - 129	6	20
cis-1,2-Dichloroethene		1,2,3,4	53.3	µg/L	1	50.0	<0.330	107	75.5 - 127	8	20
2,2-Dichloropropane		1,2,3,4	62.0	µg/L	1	50.0	<0.380	124	24.3 - 158	9	20
1,2-Dichloroethane (EDC)		1,2,3,4	48.6	µg/L	1	50.0	<0.280	97	71 - 134	6	20
Chloroform		1,2,3,4	53.0	µg/L	1	50.0	<0.390	106	74 - 131	5	20
1,1,1-Trichloroethane		1,2,3,4	53.5	µg/L	1	50.0	<0.370	107	59.2 - 150	5	20
1,1-Dichloropropene		1,2,3,4	52.2	µg/L	1	50.0	<0.320	104	77.7 - 128	3	20
Benzene		1,2,3,4	52.4	µg/L	1	50.0	<0.340	105	73 - 124	8	20
Carbon Tetrachloride		1,2,3,4	52.6	µg/L	1	50.0	<0.350	105	61.2 - 146	6	20
1,2-Dichloropropane		1,2,3,4	52.7	µg/L	1	50.0	<0.270	105	78 - 125	6	20
Trichloroethene (TCE)		1,2,3,4	51.9	µg/L	1	50.0	<0.310	104	70.9 - 137	4	20
Dibromomethane (methylene bromide)		1,2,3,4	48.4	µg/L	1	50.0	<0.230	97	76.2 - 127	3	20
Bromodichloromethane		1,2,3,4	52.4	µg/L	1	50.0	<0.320	105	73.6 - 130	4	20
2-Chloroethyl vinyl ether		1,2,3,4	52.4	µg/L	1	50.0	<0.480	105	61.1 - 136	3	20
cis-1,3-Dichloropropene		1,2,3,4	50.3	µg/L	1	50.0	<0.210	101	79 - 125	5	20
trans-1,3-Dichloropropene		1,2,3,4	50.1	µg/L	1	50.0	<0.310	100	77.1 - 128	5	20
Toluene		1,2,3,4	53.2	µg/L	1	50.0	<0.350	106	75.4 - 126	7	20
1,1,2-Trichloroethane		1,2,3,4	46.7	µg/L	1	50.0	<0.390	93	72.9 - 122	6	20
1,3-Dichloropropane		1,2,3,4	47.4	µg/L	1	50.0	<0.310	95	75 - 120	7	20
Dibromochloromethane		1,3,4	50.3	µg/L	1	50.0	<0.370	101	64.8 - 128	6	20
1,2-Dibromoethane (EDB)		1,2,3,4	46.4	µg/L	1	50.0	<0.310	93	74.6 - 121	4	20
Tetrachloroethene (PCE)		1,2,3,4	45.3	µg/L	1	50.0	<0.190	91	28.6 - 177	6	20
Chlorobenzene		1,2,3,4	51.5	µg/L	1	50.0	<0.290	103	73.5 - 120	6	20
1,1,1,2-Tetrachloroethane		1,2,3,4	51.6	µg/L	1	50.0	<0.300	103	67 - 128	6	20
Ethylbenzene		1,2,3,4	50.8	µg/L	1	50.0	<0.260	102	73 - 123	6	20
m,p-Xylene		1,2,3,4	102	µg/L	1	100	<0.480	102	71 - 126	4	20
Bromoform		1,2,3,4	52.6	µg/L	1	50.0	<0.480	105	55.5 - 131	4	20
Styrene		1,2,3,4	49.0	µg/L	1	50.0	<0.250	98	75.7 - 122	3	20
o-Xylene		1,2,3,4	52.5	µg/L	1	50.0	<0.260	105	70.2 - 125	7	20
1,1,2,2-Tetrachloroethane		1,2,3,4	44.2	µg/L	1	50.0	<0.560	88	61.1 - 133	2	20
2-Chlorotoluene		1,2,3,4	48.8	µg/L	1	50.0	<0.250	98	71.8 - 120	7	20

continued ...

control spikes continued ...

Param	F	C	LCSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
1,2,3-Trichloropropane		1,2,3,4	43.4	µg/L	1	50.0	<0.450	87	67.2 - 132	1	20
Isopropylbenzene		1,2,3,4	48.4	µg/L	1	50.0	<0.260	97	72.2 - 123	8	20
Bromobenzene		1,2,3,4	48.0	µg/L	1	50.0	<0.280	96	66.7 - 121	8	20
n-Propylbenzene		1,2,3,4	49.0	µg/L	1	50.0	<0.240	98	72.9 - 121	8	20
1,3,5-Trimethylbenzene		1,2,3,4	50.0	µg/L	1	50.0	<0.260	100	68.4 - 126	8	20
tert-Butylbenzene		1,2,3,4	49.5	µg/L	1	50.0	<0.270	99	68.7 - 128	10	20
1,2,4-Trimethylbenzene		1,2,3,4	50.7	µg/L	1	50.0	<0.270	101	70.4 - 124	11	20
1,4-Dichlorobenzene (para)		1,2,3,4	52.7	µg/L	1	50.0	<0.310	105	73.5 - 120	6	20
sec-Butylbenzene		1,2,3,4	50.6	µg/L	1	50.0	<0.200	101	69.6 - 128	10	20
1,3-Dichlorobenzene (meta)		1,2,3,4	52.3	µg/L	1	50.0	<0.280	105	74.2 - 120	7	20
p-Isopropyltoluene		1,2,3	51.9	µg/L	1	50.0	<0.200	104	73.1 - 124	10	20
4-Chlorotoluene		1,2,3,4	48.0	µg/L	1	50.0	<0.290	96	72.8 - 120	7	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	51.2	µg/L	1	50.0	<0.250	102	65.2 - 126	8	20
n-Butylbenzene		1,2,3,4	52.4	µg/L	1	50.0	0.31	104	70.1 - 127	8	20
1,2-Dibromo-3-chloropropane		1,3	46.8	µg/L	1	50.0	<1.70	94	50.5 - 136	13	20
1,2,3-Trichlorobenzene		1,2,3,4	61.6	µg/L	1	50.0	<0.400	123	43.3 - 153	6	20
1,2,4-Trichlorobenzene		1,2,3,4	59.5	µg/L	1	50.0	<2.12	119	59.6 - 134	8	20
Naphthalene		1,2,3,4	60.0	µg/L	1	50.0	<2.23	120	38.5 - 159	8	20
Hexachlorobutadiene		1,2,3,4	56.6	µg/L	1	50.0	<0.760	113	35.8 - 175	9	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	50.9	51.1	µg/L	1	50.0	102	102	70 - 130
Toluene-d8	47.8	47.7	µg/L	1	50.0	96	95	70 - 130
4-Bromofluorobenzene (4-BFB)	51.1	49.7	µg/L	1	50.0	102	99	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 132100
Prep Batch: 111947

Date Analyzed: 2016-08-12
QC Preparation: 2016-08-12

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	0.998	mg/L	1	1.00	<0.0369	100	74.6 - 123

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3	1.03	mg/L	1	1.00	<0.0369	103	74.6 - 123	3	20

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

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.112	0.114	mg/L	1	0.100	112	114	72.8 - 136
4-Bromofluorobenzene (4-BFB)	0.111	0.110	mg/L	1	0.100	111	110	73.3 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 132122
Prep Batch: 111971

Date Analyzed: 2016-08-15
QC Preparation: 2016-08-15

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1,2,3,4	24.7	mg/L	1	25.0	<0.297	99	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1,2,3,4	24.2	mg/L	1	25.0	<0.297	97	90 - 110	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 132127
Prep Batch: 111970

Date Analyzed: 2016-08-16
QC Preparation: 2016-08-15

Analyzed By: HJ
Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	56.9	mg/L	1	50.0	<0.890	114	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	50.6	mg/L	1	50.0	<0.890	101	70 - 130	12	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	3.10	3.00	mg/L	1	2.50	124	120	70 - 130

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 426171

QC Batch: 132085
Prep Batch: 111933

Date Analyzed: 2016-08-11
QC Preparation: 2016-08-11

Analyzed By: JG
Prepared By: JG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Bromochloromethane		1,2,3,4	48.3	µg/L	1	50.0	<0.330	97	64.4 - 146
Dichlorodifluoromethane		1,2,3,4	29.5	µg/L	1	50.0	<0.350	59	36.2 - 162
Chloromethane (methyl chloride)		1,2,3,4	35.3	µg/L	1	50.0	<0.330	71	56.1 - 142
Vinyl Chloride		1,2,3,4	39.1	µg/L	1	50.0	<0.410	78	12 - 172
Bromomethane (methyl bromide)		1,2,3,4	36.3	µg/L	1	50.0	<1.69	73	43.6 - 159
Chloroethane		1,2,3,4	39.4	µg/L	1	50.0	<0.420	79	58 - 148
Trichlorofluoromethane		1,2,3,4	43.0	µg/L	1	50.0	<0.410	86	52.2 - 163
Acetone		1,2,3,4	31.9	µg/L	1	50.0	<1.09	64	12.8 - 120
Iodomethane (methyl iodide)		1,2,3,4	46.8	µg/L	1	50.0	<2.47	94	10 - 200
Carbon Disulfide		1,2,3,4	47.2	µg/L	1	50.0	<0.400	94	57.6 - 149
Acrylonitrile		1,2,3,4	35.0	µg/L	1	50.0	<0.360	70	67.2 - 134
2-Butanone (MEK)		1,2,3,4	32.2	µg/L	1	50.0	<1.67	64	31.3 - 124
4-Methyl-2-pentanone (MIBK)		1,2,3,4	39.9	µg/L	1	50.0	<2.14	80	56.5 - 143
2-Hexanone		1,2,3,4	36.0	µg/L	1	50.0	<1.49	72	29 - 144
trans 1,4-Dichloro-2-butene		1,2,3,4	68.9	µg/L	1	50.0	<1.75	138	10 - 143
1,1-Dichloroethene		1,2,3,4	46.7	µg/L	1	50.0	<0.330	93	34.6 - 166
Methylene chloride		1,2,3,4	45.1	µg/L	1	50.0	<2.04	90	64.3 - 140
MTBE		1,2,3,4	48.8	µg/L	1	50.0	<0.320	98	41.6 - 161
trans-1,2-Dichloroethene		1,2,3,4	49.4	µg/L	1	50.0	<0.360	99	63.2 - 146
1,1-Dichloroethane		1,2,3,4	48.6	µg/L	1	50.0	<0.330	97	69.2 - 143
cis-1,2-Dichloroethene		1,2,3,4	47.9	µg/L	1	50.0	<0.330	96	64.8 - 144
2,2-Dichloropropane		1,2,3,4	52.1	µg/L	1	50.0	<0.380	104	21.7 - 152
1,2-Dichloroethane (EDC)		1,2,3,4	49.6	µg/L	1	50.0	<0.280	99	62 - 157
Chloroform		1,2,3,4	51.8	µg/L	1	50.0	<0.390	104	64.9 - 150
1,1,1-Trichloroethane		1,2,3,4	51.7	µg/L	1	50.0	<0.370	103	62.3 - 163
1,1-Dichloropropene		1,2,3,4	49.6	µg/L	1	50.0	<0.320	99	31 - 174
Benzene		1,2,3,4	48.4	µg/L	1	50.0	<0.340	97	62 - 139
Carbon Tetrachloride		1,2,3,4	52.4	µg/L	1	50.0	<0.350	105	58 - 164
1,2-Dichloropropane		1,2,3,4	50.4	µg/L	1	50.0	<0.270	101	68.1 - 140
Trichloroethene (TCE)		1,2,3,4	46.8	µg/L	1	50.0	<0.310	94	49.9 - 163
Dibromomethane (methylene bromide)		1,2,3,4	47.6	µg/L	1	50.0	<0.230	95	66.8 - 142
Bromodichloromethane		1,2,3,4	52.1	µg/L	1	50.0	<0.320	104	63.9 - 152
2-Chloroethyl vinyl ether		1,2,3,4	<0.480	µg/L	1	50.0	<0.480	0	0 - 120
cis-1,3-Dichloropropene		1,2,3,4	47.7	µg/L	1	50.0	<0.210	95	32.6 - 160
trans-1,3-Dichloropropene		1,2,3,4	48.3	µg/L	1	50.0	<0.310	97	31.4 - 163

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Toluene		1,2,3,4	49.4	µg/L	1	50.0	<0.350	99	40.7 - 160
1,1,2-Trichloroethane		1,2,3,4	44.2	µg/L	1	50.0	<0.390	88	66 - 130
1,3-Dichloropropane		1,2,3,4	44.0	µg/L	1	50.0	<0.310	88	66.2 - 131
Dibromochloromethane		1,3,4	48.2	µg/L	1	50.0	<0.370	96	58.8 - 143
1,2-Dibromoethane (EDB)		1,2,3,4	43.7	µg/L	1	50.0	<0.310	87	66.8 - 132
Tetrachloroethene (PCE)		1,2,3,4	43.7	µg/L	1	50.0	<0.190	87	28.8 - 126
Chlorobenzene		1,2,3,4	47.4	µg/L	1	50.0	<0.290	95	61.6 - 134
1,1,1,2-Tetrachloroethane		1,2,3,4	49.0	µg/L	1	50.0	<0.300	98	63.1 - 139
Ethylbenzene		1,2,3,4	47.5	µg/L	1	50.0	<0.260	95	43 - 148
m,p-Xylene		1,2,3,4	97.5	µg/L	1	100	<0.480	98	21.5 - 165
Bromoform		1,2,3,4	51.7	µg/L	1	50.0	<0.480	103	49 - 144
Styrene		1,2,3,4	46.2	µg/L	1	50.0	<0.250	92	10 - 192
o-Xylene		1,2,3,4	49.4	µg/L	1	50.0	<0.260	99	28.4 - 160
1,1,2,2-Tetrachloroethane		1,2,3,4	43.9	µg/L	1	50.0	<0.560	88	65.3 - 133
2-Chlorotoluene		1,2,3,4	43.5	µg/L	1	50.0	<0.250	87	56 - 134
1,2,3-Trichloropropane		1,2,3,4	41.9	µg/L	1	50.0	<0.450	84	62.8 - 126
Isopropylbenzene		1,2,3,4	42.2	µg/L	1	50.0	<0.260	84	31.4 - 156
Bromobenzene		1,2,3,4	43.6	µg/L	1	50.0	<0.280	87	57.8 - 128
n-Propylbenzene		1,2,3,4	43.1	µg/L	1	50.0	<0.240	86	30.5 - 154
1,3,5-Trimethylbenzene		1,2,3,4	44.3	µg/L	1	50.0	<0.260	89	10 - 183
tert-Butylbenzene		1,2,3,4	43.3	µg/L	1	50.0	<0.270	87	42.8 - 148
1,2,4-Trimethylbenzene		1,2,3,4	45.2	µg/L	1	50.0	<0.270	90	10 - 179
1,4-Dichlorobenzene (para)		1,2,3,4	46.8	µg/L	1	50.0	<0.310	94	66 - 123
sec-Butylbenzene		1,2,3,4	43.3	µg/L	1	50.0	<0.200	87	30.8 - 155
1,3-Dichlorobenzene (meta)		1,2,3,4	46.0	µg/L	1	50.0	<0.280	92	66 - 124
p-Isopropyltoluene		1,2,3	44.8	µg/L	1	50.0	<0.200	90	20.9 - 164
4-Chlorotoluene		1,2,3,4	43.4	µg/L	1	50.0	<0.290	87	54.8 - 136
1,2-Dichlorobenzene (ortho)		1,2,3,4	46.0	µg/L	1	50.0	<0.250	92	65.9 - 124
n-Butylbenzene		1,2,3,4	44.4	µg/L	1	50.0	<0.170	89	31.3 - 153
1,2-Dibromo-3-chloropropane		1,3	40.1	µg/L	1	50.0	<1.70	80	49.3 - 138
1,2,3-Trichlorobenzene		1,2,3,4	49.0	µg/L	1	50.0	<0.400	98	37.5 - 146
1,2,4-Trichlorobenzene		1,2,3,4	48.8	µg/L	1	50.0	<2.12	98	55.3 - 132
Naphthalene		1,2,3,4	46.2	µg/L	1	50.0	<2.23	92	10 - 169
Hexachlorobutadiene		1,2,3,4	45.7	µg/L	1	50.0	<0.760	91	47.4 - 146

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Bromochloromethane		1,2,3,4	48.8	µg/L	1	50.0	<0.330	98	64.4 - 146	1	20
Dichlorodifluoromethane		1,2,3,4	30.6	µg/L	1	50.0	<0.350	61	36.2 - 162	4	20
Chloromethane (methyl chloride)		1,2,3,4	36.2	µg/L	1	50.0	<0.330	72	56.1 - 142	2	20
Vinyl Chloride		1,2,3,4	40.1	µg/L	1	50.0	<0.410	80	12 - 172	2	20
Bromomethane (methyl bromide)		1,2,3,4	37.0	µg/L	1	50.0	<1.69	74	43.6 - 159	2	20
Chloroethane		1,2,3,4	38.1	µg/L	1	50.0	<0.420	76	58 - 148	3	20

continued ...

matrix spikes continued ...

Param			MSD		Dil.	Spike Amount	Matrix		Rec. Limit	RPD	
	F	C	Result	Units			Result	Rec.		RPD	Limit
Trichlorofluoromethane		1,2,3,4	42.5	µg/L	1	50.0	<0.410	85	52.2 - 163	1	20
Acetone		1,2,3,4	34.5	µg/L	1	50.0	<1.09	69	12.8 - 120	8	20
Iodomethane (methyl iodide)		1,2,3,4	46.4	µg/L	1	50.0	<2.47	93	10 - 200	1	20
Carbon Disulfide		1,2,3,4	47.2	µg/L	1	50.0	<0.400	94	57.6 - 149	0	20
Acrylonitrile	Qr	Qr 1,2,3,4	44.2	µg/L	1	50.0	<0.360	88	67.2 - 134	23	20
2-Butanone (MEK)		1,2,3,4	36.3	µg/L	1	50.0	<1.67	73	31.3 - 124	12	20
4-Methyl-2-pentanone (MIBK)		1,2,3,4	43.4	µg/L	1	50.0	<2.14	87	56.5 - 143	8	20
2-Hexanone		1,2,3,4	37.6	µg/L	1	50.0	<1.49	75	29 - 144	4	20
trans 1,4-Dichloro-2-butene		1,2,3,4	67.1	µg/L	1	50.0	<1.75	134	10 - 143	3	20
1,1-Dichloroethene		1,2,3,4	47.0	µg/L	1	50.0	<0.330	94	34.6 - 166	1	20
Methylene chloride		1,2,3,4	45.6	µg/L	1	50.0	<2.04	91	64.3 - 140	1	20
MTBE		1,2,3,4	47.8	µg/L	1	50.0	<0.320	96	41.6 - 161	2	20
trans-1,2-Dichloroethene		1,2,3,4	49.1	µg/L	1	50.0	<0.360	98	63.2 - 146	1	20
1,1-Dichloroethane		1,2,3,4	47.2	µg/L	1	50.0	<0.330	94	69.2 - 143	3	20
cis-1,2-Dichloroethene		1,2,3,4	47.5	µg/L	1	50.0	<0.330	95	64.8 - 144	1	20
2,2-Dichloropropane		1,2,3,4	49.2	µg/L	1	50.0	<0.380	98	21.7 - 152	6	20
1,2-Dichloroethane (EDC)		1,2,3,4	47.7	µg/L	1	50.0	<0.280	95	62 - 157	4	20
Chloroform		1,2,3,4	50.5	µg/L	1	50.0	<0.390	101	64.9 - 150	2	20
1,1,1-Trichloroethane		1,2,3,4	50.7	µg/L	1	50.0	<0.370	101	62.3 - 163	2	20
1,1-Dichloropropene		1,2,3,4	48.4	µg/L	1	50.0	<0.320	97	31 - 174	2	20
Benzene		1,2,3,4	46.7	µg/L	1	50.0	<0.340	93	62 - 139	4	20
Carbon Tetrachloride		1,2,3,4	50.4	µg/L	1	50.0	<0.350	101	58 - 164	4	20
1,2-Dichloropropane		1,2,3,4	49.6	µg/L	1	50.0	<0.270	99	68.1 - 140	2	20
Trichloroethene (TCE)		1,2,3,4	46.5	µg/L	1	50.0	<0.310	93	49.9 - 163	1	20
Dibromomethane (methylene bromide)		1,2,3,4	46.8	µg/L	1	50.0	<0.230	94	66.8 - 142	2	20
Bromodichloromethane		1,2,3,4	50.0	µg/L	1	50.0	<0.320	100	63.9 - 152	4	20
2-Chloroethyl vinyl ether		1,2,3,4	<0.480	µg/L	1	50.0	<0.480	0	0 - 120	0	20
cis-1,3-Dichloropropene		1,2,3,4	45.8	µg/L	1	50.0	<0.210	92	32.6 - 160	4	20
trans-1,3-Dichloropropene		1,2,3,4	46.9	µg/L	1	50.0	<0.310	94	31.4 - 163	3	20
Toluene		1,2,3,4	48.7	µg/L	1	50.0	<0.350	97	40.7 - 160	1	20
1,1,2-Trichloroethane		1,2,3,4	42.6	µg/L	1	50.0	<0.390	85	66 - 130	4	20
1,3-Dichloropropane		1,2,3,4	44.1	µg/L	1	50.0	<0.310	88	66.2 - 131	0	20
Dibromochloromethane		1,3,4	46.8	µg/L	1	50.0	<0.370	94	58.8 - 143	3	20
1,2-Dibromoethane (EDB)		1,2,3,4	43.0	µg/L	1	50.0	<0.310	86	66.8 - 132	2	20
Tetrachloroethene (PCE)		1,2,3,4	41.7	µg/L	1	50.0	<0.190	83	28.8 - 126	5	20
Chlorobenzene		1,2,3,4	46.0	µg/L	1	50.0	<0.290	92	61.6 - 134	3	20
1,1,1,2-Tetrachloroethane		1,2,3,4	47.6	µg/L	1	50.0	<0.300	95	63.1 - 139	3	20
Ethylbenzene		1,2,3,4	45.3	µg/L	1	50.0	<0.260	91	43 - 148	5	20
m,p-Xylene		1,2,3,4	93.5	µg/L	1	100	<0.480	94	21.5 - 165	4	20
Bromoform		1,2,3,4	50.4	µg/L	1	50.0	<0.480	101	49 - 144	2	20
Styrene		1,2,3,4	44.5	µg/L	1	50.0	<0.250	89	10 - 192	4	20
o-Xylene		1,2,3,4	47.6	µg/L	1	50.0	<0.260	95	28.4 - 160	4	20
1,1,2,2-Tetrachloroethane		1,2,3,4	42.9	µg/L	1	50.0	<0.560	86	65.3 - 133	2	20
2-Chlorotoluene		1,2,3,4	43.2	µg/L	1	50.0	<0.250	86	56 - 134	1	20

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
1,2,3-Trichloropropane		1,2,3,4	46.9	µg/L	1	50.0	<0.450	94	62.8 - 126	11	20
Isopropylbenzene		1,2,3,4	41.5	µg/L	1	50.0	<0.260	83	31.4 - 156	2	20
Bromobenzene		1,2,3,4	43.6	µg/L	1	50.0	<0.280	87	57.8 - 128	0	20
n-Propylbenzene		1,2,3,4	42.4	µg/L	1	50.0	<0.240	85	30.5 - 154	2	20
1,3,5-Trimethylbenzene		1,2,3,4	43.4	µg/L	1	50.0	<0.260	87	10 - 183	2	20
tert-Butylbenzene		1,2,3,4	42.1	µg/L	1	50.0	<0.270	84	42.8 - 148	3	20
1,2,4-Trimethylbenzene		1,2,3,4	44.5	µg/L	1	50.0	<0.270	89	10 - 179	2	20
1,4-Dichlorobenzene (para)		1,2,3,4	46.5	µg/L	1	50.0	<0.310	93	66 - 123	1	20
sec-Butylbenzene		1,2,3,4	43.7	µg/L	1	50.0	<0.200	87	30.8 - 155	1	20
1,3-Dichlorobenzene (meta)		1,2,3,4	45.2	µg/L	1	50.0	<0.280	90	66 - 124	2	20
p-Isopropyltoluene		1,2,3	43.8	µg/L	1	50.0	<0.200	88	20.9 - 164	2	20
4-Chlorotoluene		1,2,3,4	42.5	µg/L	1	50.0	<0.290	85	54.8 - 136	2	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	46.0	µg/L	1	50.0	<0.250	92	65.9 - 124	0	20
n-Butylbenzene		1,2,3,4	44.1	µg/L	1	50.0	<0.170	88	31.3 - 153	1	20
1,2-Dibromo-3-chloropropane		1,3	44.1	µg/L	1	50.0	<1.70	88	49.3 - 138	10	20
1,2,3-Trichlorobenzene		1,2,3,4	56.3	µg/L	1	50.0	<0.400	113	37.5 - 146	14	20
1,2,4-Trichlorobenzene		1,2,3,4	52.0	µg/L	1	50.0	<2.12	104	55.3 - 132	6	20
Naphthalene		1,2,3,4	54.4	µg/L	1	50.0	<2.23	109	10 - 169	16	20
Hexachlorobutadiene		1,2,3,4	46.0	µg/L	1	50.0	<0.760	92	47.4 - 146	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Dibromofluoromethane	52.4	52.5	µg/L	1	50	105	105	70 - 130
Toluene-d8	48.3	47.5	µg/L	1	50	97	95	70 - 130
4-Bromofluorobenzene (4-BFB)	51.9	50.8	µg/L	1	50	104	102	70 - 130

Matrix Spike (MS-1) Spiked Sample: 426316

QC Batch: 132100
Prep Batch: 111947

Date Analyzed: 2016-08-12
QC Preparation: 2016-08-12

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	14.4	mg/L	10	10.0	6.13	83	57 - 134

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3	15.1	mg/L	10	10.0	6.13	90	57 - 134	5	20

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

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Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.08	1.09	mg/L	10	1	108	109	72.8 - 136
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	mg/L	10	1	147	145	73.3 - 120

Matrix Spike (MS-1) Spiked Sample: 426201

QC Batch: 132122
Prep Batch: 111971

Date Analyzed: 2016-08-15
QC Preparation: 2016-08-15

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1,2,3,4	3000	mg/L	100	2500	513	99	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1,2,3,4	2970	mg/L	100	2500	513	98	80 - 120	1	20

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

Matrix Spike (MS-1) Spiked Sample: 426116

QC Batch: 132127
Prep Batch: 111970

Date Analyzed: 2016-08-16
QC Preparation: 2016-08-15

Analyzed By: HJ
Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	46.7	mg/L	1	50.0	<0.890	93	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	48.1	mg/L	1	50.0	<0.890	96	70 - 130	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	3.04	3.13	mg/L	1	2.5	122	125	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 132085

Date Analyzed: 2016-08-11

Analyzed By: JG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromochloromethane		1,2,3,4	µg/L	50.0	48.3	97	80 - 120	2016-08-11
Dichlorodifluoromethane	Qc	Qc	µg/L	50.0	35.1	70	80 - 120	2016-08-11
Chloromethane (methyl chloride)	Qc	Qc	µg/L	50.0	38.6	77	80 - 120	2016-08-11
Vinyl Chloride		1,2,3,4	µg/L	50.0	42.8	86	80 - 120	2016-08-11
Bromomethane (methyl bromide)	Qc	Qc	µg/L	50.0	39.9	80	80 - 120	2016-08-11
Chloroethane		1,2,3,4	µg/L	50.0	42.7	85	80 - 120	2016-08-11
Trichlorofluoromethane		1,2,3,4	µg/L	50.0	45.5	91	80 - 120	2016-08-11
Acetone		1,2,3,4	µg/L	50.0	55.9	112	80 - 120	2016-08-11
Iodomethane (methyl iodide)		1,2,3,4	µg/L	50.0	49.6	99	80 - 120	2016-08-11
Carbon Disulfide		1,2,3,4	µg/L	50.0	49.3	99	80 - 120	2016-08-11
Acrylonitrile		1,2,3,4	µg/L	50.0	42.5	85	80 - 120	2016-08-11
2-Butanone (MEK)	Qc	Qc	µg/L	50.0	33.9	68	80 - 120	2016-08-11
4-Methyl-2-pentanone (MIBK)	Qc	Qc	µg/L	50.0	39.2	78	80 - 120	2016-08-11
2-Hexanone	Qc	Qc	µg/L	50.0	39.1	78	80 - 120	2016-08-11
trans 1,4-Dichloro-2-butene	Qc	Qc	µg/L	50.0	70.9	142	80 - 120	2016-08-11
1,1-Dichloroethene		1,2,3,4	µg/L	50.0	49.0	98	80 - 120	2016-08-11
Methylene chloride		1,2,3,4	µg/L	50.0	48.4	97	80 - 120	2016-08-11
MTBE		1,2,3,4	µg/L	50.0	47.2	94	80 - 120	2016-08-11
trans-1,2-Dichloroethene		1,2,3,4	µg/L	50.0	49.0	98	80 - 120	2016-08-11
1,1-Dichloroethane		1,2,3,4	µg/L	50.0	48.2	96	80 - 120	2016-08-11
cis-1,2-Dichloroethene		1,2,3,4	µg/L	50.0	49.1	98	80 - 120	2016-08-11
2,2-Dichloropropane		1,2,3,4	µg/L	50.0	58.9	118	80 - 120	2016-08-11
1,2-Dichloroethane (EDC)		1,2,3,4	µg/L	50.0	45.2	90	80 - 120	2016-08-11
Chloroform		1,2,3,4	µg/L	50.0	50.4	101	80 - 120	2016-08-11
1,1,1-Trichloroethane		1,2,3,4	µg/L	50.0	51.3	103	80 - 120	2016-08-11
1,1-Dichloropropene		1,2,3,4	µg/L	50.0	49.3	99	80 - 120	2016-08-11
Benzene		1,2,3,4	µg/L	50.0	47.0	94	80 - 120	2016-08-11
Carbon Tetrachloride		1,2,3,4	µg/L	50.0	50.4	101	80 - 120	2016-08-11
1,2-Dichloropropane		1,2,3,4	µg/L	50.0	48.4	97	80 - 120	2016-08-11
Trichloroethene (TCE)		1,2,3,4	µg/L	50.0	47.2	94	80 - 120	2016-08-11
Dibromomethane (methylene bromide)		1,2,3,4	µg/L	50.0	41.9	84	80 - 120	2016-08-11
Bromodichloromethane		1,2,3,4	µg/L	50.0	45.7	91	80 - 120	2016-08-11
2-Chloroethyl vinyl ether		1,2,3,4	µg/L	50.0	46.2	92	80 - 120	2016-08-11
cis-1,3-Dichloropropene		1,2,3,4	µg/L	50.0	45.5	91	80 - 120	2016-08-11
trans-1,3-Dichloropropene		1,2,3,4	µg/L	50.0	44.8	90	80 - 120	2016-08-11
Toluene		1,2,3,4	µg/L	50.0	47.9	96	80 - 120	2016-08-11

continued . . .

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
1,1,2-Trichloroethane		1,2,3,4	µg/L	50.0	41.4	83	80 - 120	2016-08-11
1,3-Dichloropropane		1,2,3,4	µg/L	50.0	42.8	86	80 - 120	2016-08-11
Dibromochloromethane		1,3,4	µg/L	50.0	44.5	89	80 - 120	2016-08-11
1,2-Dibromoethane (EDB)		1,2,3,4	µg/L	50.0	42.4	85	80 - 120	2016-08-11
Tetrachloroethene (PCE)		1,2,3,4	µg/L	50.0	42.7	85	80 - 120	2016-08-11
Chlorobenzene		1,2,3,4	µg/L	50.0	47.6	95	80 - 120	2016-08-11
1,1,1,2-Tetrachloroethane		1,2,3,4	µg/L	50.0	48.6	97	80 - 120	2016-08-11
Ethylbenzene		1,2,3,4	µg/L	50.0	47.3	95	80 - 120	2016-08-11
m,p-Xylene		1,2,3,4	µg/L	100	96.9	97	80 - 120	2016-08-11
Bromoform		1,2,3,4	µg/L	50.0	47.2	94	80 - 120	2016-08-11
Styrene		1,2,3,4	µg/L	50.0	46.2	92	80 - 120	2016-08-11
o-Xylene		1,2,3,4	µg/L	50.0	49.4	99	80 - 120	2016-08-11
1,1,2,2-Tetrachloroethane		1,2,3,4	µg/L	50.0	40.8	82	80 - 120	2016-08-11
2-Chlorotoluene		1,2,3,4	µg/L	50.0	45.2	90	80 - 120	2016-08-11
1,2,3-Trichloropropane		1,2,3,4	µg/L	50.0	41.7	83	80 - 120	2016-08-11
Isopropylbenzene		1,2,3,4	µg/L	50.0	44.3	89	80 - 120	2016-08-11
Bromobenzene		1,2,3,4	µg/L	50.0	46.7	93	80 - 120	2016-08-11
n-Propylbenzene		1,2,3,4	µg/L	50.0	44.9	90	80 - 120	2016-08-11
1,3,5-Trimethylbenzene		1,2,3,4	µg/L	50.0	46.5	93	80 - 120	2016-08-11
tert-Butylbenzene		1,2,3,4	µg/L	50.0	46.2	92	80 - 120	2016-08-11
1,2,4-Trimethylbenzene		1,2,3,4	µg/L	50.0	46.5	93	80 - 120	2016-08-11
1,4-Dichlorobenzene (para)		1,2,3,4	µg/L	50.0	48.0	96	80 - 120	2016-08-11
sec-Butylbenzene		1,2,3,4	µg/L	50.0	47.5	95	80 - 120	2016-08-11
1,3-Dichlorobenzene (meta)		1,2,3,4	µg/L	50.0	47.4	95	80 - 120	2016-08-11
p-Isopropyltoluene		1,2,3	µg/L	50.0	48.3	97	80 - 120	2016-08-11
4-Chlorotoluene		1,2,3,4	µg/L	50.0	43.8	88	80 - 120	2016-08-11
1,2-Dichlorobenzene (ortho)		1,2,3,4	µg/L	50.0	48.0	96	80 - 120	2016-08-11
n-Butylbenzene		1,2,3,4	µg/L	50.0	49.4	99	80 - 120	2016-08-11
1,2-Dibromo-3-chloropropane		1,3	µg/L	50.0	44.6	89	80 - 120	2016-08-11
1,2,3-Trichlorobenzene		1,2,3,4	µg/L	50.0	59.6	119	80 - 120	2016-08-11
1,2,4-Trichlorobenzene		1,2,3,4	µg/L	50.0	55.2	110	80 - 120	2016-08-11
Naphthalene		1,2,3,4	µg/L	50.0	57.1	114	80 - 120	2016-08-11
Hexachlorobutadiene		1,2,3,4	µg/L	50.0	54.3	109	80 - 120	2016-08-11

Standard (CCV-1)

QC Batch: 132100

Date Analyzed: 2016-08-12

Analyzed By: MT

Report Date: August 17, 2016
AFE 403828

Work Order: 16081001
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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/L	1.00	1.17	117	80 - 120	2016-08-12

Standard (CCV-2)

QC Batch: 132100

Date Analyzed: 2016-08-12

Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/L	1.00	1.05	105	80 - 120	2016-08-12

Standard (CCV-1)

QC Batch: 132122

Date Analyzed: 2016-08-15

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,3,4	mg/L	25.0	25.1	100	90 - 110	2016-08-15

Standard (CCV-2)

QC Batch: 132122

Date Analyzed: 2016-08-15

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1,2,3,4	mg/L	25.0	27.2	109	90 - 110	2016-08-15

Standard (CCV-1)

QC Batch: 132127

Date Analyzed: 2016-08-16

Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/L	500	561	112	80 - 120	2016-08-16

Standard (CCV-2)

QC Batch: 132127

Date Analyzed: 2016-08-16

Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/L	500	570	114	80 - 120	2016-08-16

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	NELAP	T104704219-16-12	Lubbock
4		2015-066	Lubbock

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

LAB Order ID # 16080922

Trace Analysis, Inc.

email: lab@traceanalysis.com

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

5002 Basin Street, Suite A1
Midland, Texas 79922
Tel (432) 689-6301
Fax (432) 689-6313

BioAquatic Testing
2501 Mayton Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750
Fax (972) 242-7561
Fax (972) 242-7561

Company Name: Kinder Morgan
Address: (Street, City, Zip)
2 North Nevada Ave., Colorado Springs, CO 80903
Contact Person: Mary Martino
E-mail: mary_martino@kindermorgan.com
Invoice to: (If different from above)
Project #: AFE 403828
Project Location (including state): Lea County, NM

Project Name: EPNG Line 3031 Spike Test
Sampler Signature: *Alvin Westcott*

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX				PRESERVATIVE METHOD				SAMPLING	
				WATER	AIR	SLUDGE	HCl	HNO ₃	H ₂ SO ₄	NaOH	ICE	DATE	TIME
426 114	Rupture #5 background	1		X							X	08/04	9:45am
115	Rupture #5 contaminated	1		X							X	08/04	9:45am
116	Rupture #5 release	1	250mL	X							X	08/04	9:45am
116	Rupture #5 release	1	40mL	X			X					08/04	9:45am
117	Rupture #6 background	1		X							X	08/05	9:50am
118	Rupture #6 contaminated	1		X							X	08/05	9:50am
118	Rupture #6 release	1	250mL	X							X	08/05	9:50am
119	Rupture #6 release	1	40mL	X			X					08/05	9:50am

Relinquished by: Elisabeth Westcott	Company: KM1	Date: 8/18/06	Time: 3:07pm	Received by: <i>Wanda</i>	Company: <i>Wanda</i>	Date: 8/18/06	Time: 15:07	INST: OBS 22°C COR	LAB USE ONLY		REMARKS:			
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	INST: OBS COR	Inhalation N		2 Broken Vials			
Relinquished by:	Company:	Date:	Time:	Received by: Brenda	Company: <i>Wanda</i>	Date: 8/18/06	Time: 8:55	INST: OBS 3.8°C COR 4.2°C	Headspace Y / N / NA		Dry Weight Basis Required			
										Log-in-Review				
										Check if Special Reporting Limits Are Needed				

Summary Report

Mary Martino
Kinder Morgan-Colorado Springs
2 North Nevada Avenue
Colorado Springs, CO 80903

Report Date: August 17, 2016

Work Order: 16081001



Project Location: Lea County, NM
Project Name: EPNG Line 3031 Spike Test
Project Number: AFE 403828

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
426116	Rupture #5 Release	water	2016-08-04	09:45	2016-08-08
426119	Rupture #6 Release	water	2016-08-04	09:50	2016-08-08

Sample - Field Code	TPH DRO DRO (mg/L)	TPH GRO GRO (mg/L)
426116 - Rupture #5 Release	<5.00	5.48
426119 - Rupture #6 Release	<5.00	3.30

Sample: 426116 - Rupture #5 Release

Param	Flag	Result	Units	RL
Chloride		70.6	mg/L	2.5
Bromochloromethane		<10.0	µg/L	1
Dichlorodifluoromethane	Qc	<10.0	µg/L	1
Chloromethane (methyl chloride)	Qc	<10.0	µg/L	1
Vinyl Chloride		<10.0	µg/L	1
Bromomethane (methyl bromide)	Qc	<50.0	µg/L	5
Chloroethane		<10.0	µg/L	1
Trichlorofluoromethane		<10.0	µg/L	1
Acetone		<100	µg/L	10
Iodomethane (methyl iodide)		<50.0	µg/L	5
Carbon Disulfide		11.8	µg/L	1
Acrylonitrile	Qr	<10.0	µg/L	1
2-Butanone (MEK)	Qc	<50.0	µg/L	5
4-Methyl-2-pentanone (MIBK)	Qc	<50.0	µg/L	5
2-Hexanone	Qc	<50.0	µg/L	5

continued ...

sample 426116 continued ...

Param	Flag	Result	Units	RL
trans 1,4-Dichloro-2-butene	Qc	<100	µg/L	10
1,1-Dichloroethene		<10.0	µg/L	1
Methylene chloride		<50.0	µg/L	5
MTBE		<10.0	µg/L	1
trans-1,2-Dichloroethene		<10.0	µg/L	1
1,1-Dichloroethane		<10.0	µg/L	1
cis-1,2-Dichloroethene		<10.0	µg/L	1
2,2-Dichloropropane		<10.0	µg/L	1
1,2-Dichloroethane (EDC)		<10.0	µg/L	1
Chloroform		<10.0	µg/L	1
1,1,1-Trichloroethane		<10.0	µg/L	1
1,1-Dichloropropene		<10.0	µg/L	1
Benzene		26.3	µg/L	1
Carbon Tetrachloride		<10.0	µg/L	1
1,2-Dichloropropane		<10.0	µg/L	1
Trichloroethene (TCE)		<10.0	µg/L	1
Dibromomethane (methylene bromide)		<10.0	µg/L	1
Bromodichloromethane		<10.0	µg/L	1
2-Chloroethyl vinyl ether		<50.0	µg/L	5
cis-1,3-Dichloropropene		<10.0	µg/L	1
trans-1,3-Dichloropropene		<10.0	µg/L	1
Toluene		<10.0	µg/L	1
1,1,2-Trichloroethane		<10.0	µg/L	1
1,3-Dichloropropane		<10.0	µg/L	1
Dibromochloromethane		<10.0	µg/L	1
1,2-Dibromoethane (EDB)		<10.0	µg/L	1
Tetrachloroethene (PCE)		<10.0	µg/L	1
Chlorobenzene		<10.0	µg/L	1
1,1,1,2-Tetrachloroethane		<10.0	µg/L	1
Ethylbenzene		<10.0	µg/L	1
m,p-Xylene		<10.0	µg/L	1
Bromoform		<10.0	µg/L	1
Styrene		<10.0	µg/L	1
o-Xylene		<10.0	µg/L	1
1,1,2,2-Tetrachloroethane		<10.0	µg/L	1
2-Chlorotoluene		<10.0	µg/L	1
1,2,3-Trichloropropane		<10.0	µg/L	1
Isopropylbenzene		<10.0	µg/L	1
Bromobenzene		<10.0	µg/L	1
n-Propylbenzene		<10.0	µg/L	1
1,3,5-Trimethylbenzene		<10.0	µg/L	1
tert-Butylbenzene		<10.0	µg/L	1
1,2,4-Trimethylbenzene		<10.0	µg/L	1
1,4-Dichlorobenzene (para)		<10.0	µg/L	1
sec-Butylbenzene		<10.0	µg/L	1
1,3-Dichlorobenzene (meta)		<10.0	µg/L	1
p-Isopropyltoluene		<10.0	µg/L	1

continued ...

sample 426116 continued ...

Param	Flag	Result	Units	RL
4-Chlorotoluene		<10.0	µg/L	1
1,2-Dichlorobenzene (ortho)		<10.0	µg/L	1
n-Butylbenzene	B	<10.0	µg/L	1
1,2-Dibromo-3-chloropropane		<50.0	µg/L	5
1,2,3-Trichlorobenzene		<50.0	µg/L	5
1,2,4-Trichlorobenzene		<50.0	µg/L	5
Naphthalene		<50.0	µg/L	5
Hexachlorobutadiene		<50.0	µg/L	5

Sample: 426119 - Rupture #6 Release

Param	Flag	Result	Units	RL
Chloride		103	mg/L	2.5
Bromochloromethane		<10.0	µg/L	1
Dichlorodifluoromethane	Qc	<10.0	µg/L	1
Chloromethane (methyl chloride)	Qc	<10.0	µg/L	1
Vinyl Chloride		<10.0	µg/L	1
Bromomethane (methyl bromide)	Qc	<50.0	µg/L	5
Chloroethane		<10.0	µg/L	1
Trichlorofluoromethane		<10.0	µg/L	1
Acetone		<100	µg/L	10
Iodomethane (methyl iodide)		<50.0	µg/L	5
Carbon Disulfide		12.9	µg/L	1
Acrylonitrile	Qr	<10.0	µg/L	1
2-Butanone (MEK)	Qc	<50.0	µg/L	5
4-Methyl-2-pentanone (MIBK)	Qc	<50.0	µg/L	5
2-Hexanone	Qc	<50.0	µg/L	5
trans 1,4-Dichloro-2-butene	Qc	<100	µg/L	10
1,1-Dichloroethene		<10.0	µg/L	1
Methylene chloride		<50.0	µg/L	5
MTBE		<10.0	µg/L	1
trans-1,2-Dichloroethene		<10.0	µg/L	1
1,1-Dichloroethane		<10.0	µg/L	1
cis-1,2-Dichloroethene		<10.0	µg/L	1
2,2-Dichloropropane		<10.0	µg/L	1
1,2-Dichloroethane (EDC)		<10.0	µg/L	1
Chloroform		<10.0	µg/L	1
1,1,1-Trichloroethane		<10.0	µg/L	1
1,1-Dichloropropene		<10.0	µg/L	1
Benzene		18.9	µg/L	1
Carbon Tetrachloride		<10.0	µg/L	1
1,2-Dichloropropane		<10.0	µg/L	1
Trichloroethene (TCE)		<10.0	µg/L	1
Dibromomethane (methylene bromide)		<10.0	µg/L	1
Bromodichloromethane		<10.0	µg/L	1
2-Chloroethyl vinyl ether		<50.0	µg/L	5

continued ...

sample 426119 continued ...

Param	Flag	Result	Units	RL
cis-1,3-Dichloropropene		<10.0	µg/L	1
trans-1,3-Dichloropropene		<10.0	µg/L	1
Toluene		<10.0	µg/L	1
1,1,2-Trichloroethane		<10.0	µg/L	1
1,3-Dichloropropane		<10.0	µg/L	1
Dibromochloromethane		<10.0	µg/L	1
1,2-Dibromoethane (EDB)		<10.0	µg/L	1
Tetrachloroethene (PCE)		<10.0	µg/L	1
Chlorobenzene		<10.0	µg/L	1
1,1,1,2-Tetrachloroethane		<10.0	µg/L	1
Ethylbenzene		<10.0	µg/L	1
m,p-Xylene		<10.0	µg/L	1
Bromoform		<10.0	µg/L	1
Styrene		<10.0	µg/L	1
o-Xylene		<10.0	µg/L	1
1,1,2,2-Tetrachloroethane		<10.0	µg/L	1
2-Chlorotoluene		<10.0	µg/L	1
1,2,3-Trichloropropane		<10.0	µg/L	1
Isopropylbenzene		<10.0	µg/L	1
Bromobenzene		<10.0	µg/L	1
n-Propylbenzene		<10.0	µg/L	1
1,3,5-Trimethylbenzene		<10.0	µg/L	1
tert-Butylbenzene		<10.0	µg/L	1
1,2,4-Trimethylbenzene		<10.0	µg/L	1
1,4-Dichlorobenzene (para)		<10.0	µg/L	1
sec-Butylbenzene		<10.0	µg/L	1
1,3-Dichlorobenzene (meta)		<10.0	µg/L	1
p-Isopropyltoluene		<10.0	µg/L	1
4-Chlorotoluene		<10.0	µg/L	1
1,2-Dichlorobenzene (ortho)		<10.0	µg/L	1
n-Butylbenzene	B	<10.0	µg/L	1
1,2-Dibromo-3-chloropropane		<50.0	µg/L	5
1,2,3-Trichlorobenzene		<50.0	µg/L	5
1,2,4-Trichlorobenzene		<50.0	µg/L	5
Naphthalene		<50.0	µg/L	5
Hexachlorobutadiene		<50.0	µg/L	5

From: Lynch, Kristen, EMNRD [mailto:Kristen.Lynch@state.nm.us]
Sent: Wednesday, August 31, 2016 12:51 PM
To: Castellano, Sheila Fennell (Contractor); Keyes, Jamie, EMNRD
Subject: RE: El Paso Natural Gas Company_Line No. 3031 Spike Test_Soil and Water Analysis Reports for Rupture Nos. 5-8

Sheila,

After review of your data, permission to backfill Rupture Sites 5,6,7, & 8 is granted. Please submit final C-141s for final approval following backfill of your sites.

Thank You,

*Kristen D. Lynch
Environmental Specialist, District 1
Oil Conservation Division, EMNRD
(575) 393-6161 ext. 111
575-370-3180 (emergency-cell)*

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: Castellano, Sheila Fennell (Contractor) [mailto:Sheila_Castellano@KinderMorgan.com]
Sent: Monday, August 29, 2016 5:12 PM
To: Keyes, Jamie, EMNRD
Cc: Lynch, Kristen, EMNRD
Subject: FW: El Paso Natural Gas Company_Line No. 3031 Spike Test_Soil and Water Analysis Reports for Rupture Nos. 5-8

Mr. Keyes,

EPNG would like to request permission to close the open trench at rupture site numbers 5, 6, 7 and 8.
I would also like to speak with you regarding rupture site #2 and OCD's request for delineation at that location.
Please let me know when would be a good time to give you a call.

Thank you,
Sheila Castellano



Sheila Castellano - Contractor Consultant
2 North Nevada Ave
Colorado Springs, CO 80903

o: 719 520-3719
c: 719 352-1367

From: Keyes, Jamie, EMNRD [mailto:Jamie.Keyes@state.nm.us]
Sent: Monday, August 22, 2016 12:59 PM
To: Castellano, Sheila Fennell (Contractor)
Cc: Lynch, Kristen, EMNRD; Oberding, Tomas, EMNRD
Subject: RE: El Paso Natural Gas Company_Line No. 3031 Spike Test_Form C141 Release Notification_Rupture #5

4409	8/22/2016	A	El Paso Natural Gas	EPNG Company Line 3031 Rupture #5	14S 38E S/2 18	8/4/2016
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Good afternoon,

The C-141 has been received and the RP # for this event is 4409.

Thank you,

Jamie R. Keyes
Environmental Specialist, District 1
Oil Conservation Division, EMNRD
(575) 393-6161 ext. 113
575-370-3188 (emergency-cell)

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: Castellano, Sheila Fennell (Contractor) [mailto:Sheila_Castellano@KinderMorgan.com]
Sent: Thursday, August 18, 2016 12:25 PM
To: Griswold, Jim, EMNRD
Cc: Oberding, Tomas, EMNRD; Brown, Maxey G, EMNRD; Lynch, Kristen, EMNRD; Keyes, Jamie, EMNRD
Subject: El Paso Natural Gas Company_Line No. 3031 Spike Test_Form C141 Release Notification_Rupture #5

Mr. Griswold,

Attached is El Paso Natural Gas Company's (EPNG) submittal of Form C-141, as NMOCD's required Written Notification, for the unauthorized release of hydrostatic test water in Lea County, New Mexico. The event (**RUPTURE #5**) occurred during a hydrostatic spike test of EPNG's existing 8-inch O.D. Tipperary – Denten Crossover Line (Line No. 3031) on August 4, 2016.

Please feel free to contact me directly if you have any questions.

Thank you,
Sheila Castellano



Sheila Castellano - Contractor Consultant
2 North Nevada Ave
Colorado Springs, CO 80903
o: 719 520-3719
c: 719 352-1367