

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

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.

Form C-141
Revised August 8, 2011

Rupture #4

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 approximately 150 feet north of Hennington Road and 0.5 miles east of Heidel Road	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

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 4,000 gallons	Volume Recovered none
Source of Release 8-inch natural gas pipeline	Date and Hour of Occurrence 8/2/16 9:52a MDT	Date and Hour of Discovery 8/2/16 9:52a MDT
Was Immediate Notice Given? X Yes ☐ No ☐ Not Required	If YES, To Whom? NMOCD Santa Fe Office: Jim Griswold NMOCD Santa Fe Office: Tomas Oberding NMOCD District 1 Office: Maxey Brown	
By Whom? Sheila Castellano	Date and Hour 8/2/16 4:00p MDT	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

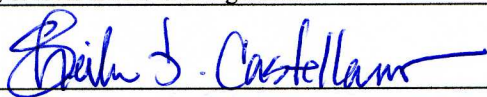
Describe Cause of Problem and Remedial Action Taken.*

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.

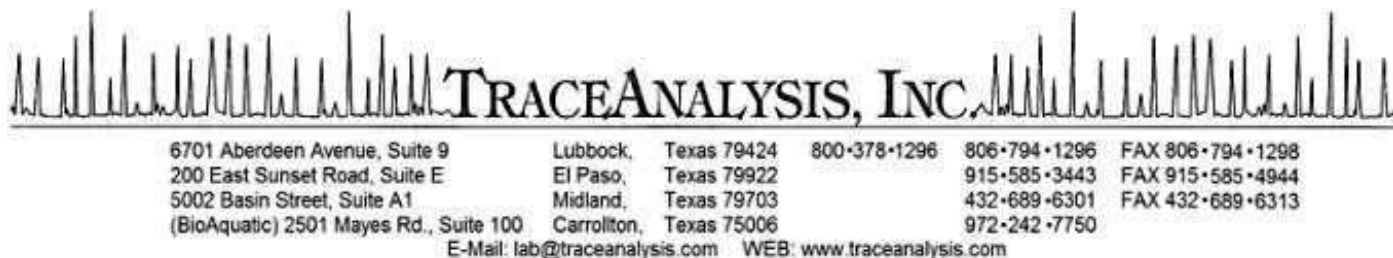
Describe Area Affected and Cleanup Action Taken.*

Test water release flowed to the east, approximately 10-feet beyond EPNG's existing right of way 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: 	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 9, 2016 Phone: (719) 520-3719		

* Attach Additional Sheets If Necessary



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 8, 2016

Work Order: 16080416



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
425808	Rupture #4 Release A	water	2016-08-02	10:45	2016-08-04
425809	Rupture #4 Release B, C, & D	water	2016-08-02	10:45	2016-08-04
425810	Rupture #4 Release E, F, G	water	2016-08-02	10:45	2016-08-04
425811	Rupture #4 Release H, I, J	water	2016-08-02	10:45	2016-08-04

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 27 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.

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

Report Contents

Case Narrative	4
Analytical Report	5
Sample 425808 (Rupture #4 Release A)	5
Sample 425809 (Rupture #4 Release B, C, & D)	5
Sample 425810 (Rupture #4 Release E, F, G)	5
Sample 425811 (Rupture #4 Release H, I, J)	6
Method Blanks	9
QC Batch 131911 - Method Blank (1)	9
QC Batch 131920 - Method Blank (1)	9
QC Batch 131931 - Method Blank (1)	9
QC Batch 131953 - Method Blank (1)	11
Laboratory Control Spikes	12
QC Batch 131911 - LCS (1)	12
QC Batch 131920 - LCS (1)	12
QC Batch 131931 - LCS (1)	12
QC Batch 131953 - LCS (1)	16
Matrix Spikes	17
QC Batch 131911 - MS (1)	17
QC Batch 131920 - MS (1)	17
QC Batch 131931 - MS (1)	17
QC Batch 131953 - MS (1)	21
Calibration Standards	22
QC Batch 131911 - CCV (1)	22
QC Batch 131911 - CCV (2)	22
QC Batch 131920 - CCV (1)	22
QC Batch 131920 - CCV (2)	22
QC Batch 131931 - CCV (1)	22
QC Batch 131953 - CCV (1)	24
QC Batch 131953 - CCV (2)	24
Appendix	26
Report Definitions	26
Laboratory Certifications	26
Standard Flags	26
Attachments	26

Case Narrative

Samples for project EPNG Line 3031 Spike Test were received by TraceAnalysis, Inc. on 2016-08-04 and assigned to work order 16080416. Samples for work order 16080416 were received intact at a temperature of 2.4 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	111794	2016-08-04 at 12:00	131911	2016-08-04 at 13:00
TPH DRO	S 8015 D	111789	2016-08-04 at 14:00	131920	2016-08-05 at 09:44
TPH GRO	S 8015 D	111820	2016-08-05 at 16:42	131953	2016-08-05 at 16:42
Volatiles	S 8260 C	111804	2016-08-04 at 12:00	131931	2016-08-04 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 16080416 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.

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 5 of 27
Lea County, NM

Analytical Report

Sample: 425808 - Rupture #4 Release A

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2016-08-04	Analyzed By:	RL
QC Batch:	131911	Sample Preparation:	2016-08-04	Prepared By:	RL
Prep Batch:	111794				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1,2,3,4	93.2	mg/L	5	2.50

Sample: 425809 - Rupture #4 Release B, C, & D

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2016-08-05	Analyzed By:	HJ
QC Batch:	131920	Sample Preparation:	2016-08-04	Prepared By:	HJ
Prep Batch:	111789				

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			2.60	mg/L	1	2.50	104	70 - 130

Sample: 425810 - Rupture #4 Release E, F, G

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	S 5030B
Analysis:	TPH GRO	Date Analyzed:	2016-08-05	Analyzed By:	MT
QC Batch:	131953	Sample Preparation:	2016-08-05	Prepared By:	MT
Prep Batch:	111820				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	B	1,2,3	3.03	mg/L	10	0.200

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 6 of 27
Lea County, NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.21	mg/L	10	1.00	121	72.8 - 136
4-Bromofluorobenzene (4-BFB)			1.16	mg/L	10	1.00	116	73.3 - 120

Sample: 425811 - Rupture #4 Release H, I, J

Laboratory: Lubbock
Analysis: Volatiles
QC Batch: 131931
Prep Batch: 111804

Analytical Method: S 8260 C
Date Analyzed: 2016-08-04
Sample Preparation: 2016-08-04

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	U	1,2,3,4	<1.00	µg/L	1	1.00
Dichlorodifluoromethane	U	1,2,3,4	<1.00	µg/L	1	1.00
Chloromethane (methyl chloride)	U	1,2,3,4	<1.00	µg/L	1	1.00
Vinyl Chloride	U	1,2,3,4	<1.00	µg/L	1	1.00
Bromomethane (methyl bromide)	U	1,2,3,4	<5.00	µg/L	1	5.00
Chloroethane	U	1,2,3,4	<1.00	µg/L	1	1.00
Trichlorofluoromethane	U	1,2,3,4	<1.00	µg/L	1	1.00
Acetone	Qr,Qs	1,2,3,4	50.2	µg/L	1	10.0
Iodomethane (methyl iodide)	U	1,2,3,4	<5.00	µg/L	1	5.00
Carbon Disulfide		1,2,3,4	9.76	µg/L	1	1.00
Acrylonitrile	U	1,2,3,4	<1.00	µg/L	1	1.00
2-Butanone (MEK)	Qr	1,2,3,4	10.6	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)	U	1,2,3,4	<5.00	µg/L	1	5.00
2-Hexanone	U	1,2,3,4	<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene	Qc,Qs,U	1,2,3,4	<10.0	µg/L	1	10.0
1,1-Dichloroethene	U	1,2,3,4	<1.00	µg/L	1	1.00
Methylene chloride	U	1,2,3,4	<5.00	µg/L	1	5.00
MTBE	U	1,2,3,4	<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene	U	1,2,3,4	<1.00	µg/L	1	1.00
1,1-Dichloroethane	U	1,2,3,4	<1.00	µg/L	1	1.00
cis-1,2-Dichloroethene	U	1,2,3,4	<1.00	µg/L	1	1.00
2,2-Dichloropropane	U	1,2,3,4	<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)	U	1,2,3,4	<1.00	µg/L	1	1.00
Chloroform	U	1,2,3,4	<1.00	µg/L	1	1.00
1,1,1-Trichloroethane	U	1,2,3,4	<1.00	µg/L	1	1.00
1,1-Dichloropropene	U	1,2,3,4	<1.00	µg/L	1	1.00
Benzene		1,2,3,4	22.2	µg/L	1	1.00
Carbon Tetrachloride	U	1,2,3,4	<1.00	µg/L	1	1.00
1,2-Dichloropropane	U	1,2,3,4	<1.00	µg/L	1	1.00
Trichloroethene (TCE)	U	1,2,3,4	<1.00	µg/L	1	1.00

continued ...

sample 425811 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dibromomethane (methylene bromide)	U	1,2,3,4	<1.00	µg/L	1	1.00
Bromodichloromethane	U	1,2,3,4	<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether	Q _r ,U	1,2,3,4	<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene	U	1,2,3,4	<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene	U	1,2,3,4	<1.00	µg/L	1	1.00
Toluene		1,2,3,4	4.18	µg/L	1	1.00
1,1,2-Trichloroethane	U	1,2,3,4	<1.00	µg/L	1	1.00
1,3-Dichloropropane	U	1,2,3,4	<1.00	µg/L	1	1.00
Dibromochloromethane	U	1,3,4	<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)	U	1,2,3,4	<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		1,2,3,4	<1.00	µg/L	1	1.00
Chlorobenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane	U	1,2,3,4	<1.00	µg/L	1	1.00
Ethylbenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
m,p-Xylene		1,2,3,4	<1.00	µg/L	1	1.00
Bromoform	U	1,2,3,4	<1.00	µg/L	1	1.00
Styrene	U	1,2,3,4	<1.00	µg/L	1	1.00
o-Xylene		1,2,3,4	<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane	U	1,2,3,4	<1.00	µg/L	1	1.00
2-Chlorotoluene	U	1,2,3,4	<1.00	µg/L	1	1.00
1,2,3-Trichloropropane	U	1,2,3,4	<1.00	µg/L	1	1.00
Isopropylbenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
Bromobenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
n-Propylbenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
tert-Butylbenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)	U	1,2,3,4	<1.00	µg/L	1	1.00
sec-Butylbenzene	U	1,2,3,4	<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)	U	1,2,3,4	<1.00	µg/L	1	1.00
p-Isopropyltoluene		1,2,3	<1.00	µg/L	1	1.00
4-Chlorotoluene	U	1,2,3,4	<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)	U	1,2,3,4	<1.00	µg/L	1	1.00
n-Butylbenzene		1,2,3,4	<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane	U	1,3	<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene	U	1,2,3,4	<5.00	µg/L	1	5.00
1,2,4-Trichlorobenzene	U	1,2,3,4	<5.00	µg/L	1	5.00
Naphthalene	U	1,2,3,4	<5.00	µg/L	1	5.00
Hexachlorobutadiene	Q _s ,U	1,2,3,4	<5.00	µg/L	1	5.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane			54.5	µg/L	1	50.0	109	70 - 130

continued ...

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Toluene-d8			49.0	µg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)			49.4	µg/L	1	50.0	99	70 - 130

Method Blanks

Method Blank (1) QC Batch: 131911

QC Batch: 131911 Date Analyzed: 2016-08-04 Analyzed By: RL
Prep Batch: 111794 QC Preparation: 2016-08-04 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: 131920

QC Batch: 131920 Date Analyzed: 2016-08-05 Analyzed By: HJ
Prep Batch: 111789 QC Preparation: 2016-08-04 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			2.42	mg/L	1	2.50	97	70 - 130

Method Blank (1) QC Batch: 131931

QC Batch: 131931 Date Analyzed: 2016-08-04 Analyzed By: KB
Prep Batch: 111804 QC Preparation: 2016-08-04 Prepared By: KB

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

continued ...

method blank continued . . .

Parameter	Flag	Cert	MDL Result	Units	RL
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
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

continued . . .

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 11 of 27
Lea County, NM

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
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		1,2,3,4	<0.170	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			50.8	µg/L	1	50.0	102	70 - 130
Toluene-d8			49.5	µg/L	1	50.0	99	70 - 130
4-Bromofluorobenzene (4-BFB)			50.4	µg/L	1	50.0	101	70 - 130

Method Blank (1) QC Batch: 131953

QC Batch: 131953
Prep Batch: 111820

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-05

Analyzed By: MT
Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO	B	B	0.0376	mg/L	0.2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.118	mg/L	1	0.100	118	72.8 - 136
4-Bromofluorobenzene (4-BFB)			0.100	mg/L	1	0.100	100	73.3 - 120

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 131911
Prep Batch: 111794

Date Analyzed: 2016-08-04
QC Preparation: 2016-08-04

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	24.5	mg/L	1	25.0	<0.297	98	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	24.1	mg/L	1	25.0	<0.297	96	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: 131920
Prep Batch: 111789

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-04

Analyzed By: HJ
Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	49.0	mg/L	1	50.0	<0.890	98	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	45.5	mg/L	1	50.0	<0.890	91	70 - 130	7	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	2.79	2.74	mg/L	1	2.50	112	110	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 131931
Prep Batch: 111804

Date Analyzed: 2016-08-04
QC Preparation: 2016-08-04

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	50.9	µg/L	1	50.0	<0.330	102	74.4 - 128
Dichlorodifluoromethane		1,2,3,4	47.5	µg/L	1	50.0	<0.350	95	46.8 - 148
Chloromethane (methyl chloride)		1,2,3,4	44.4	µg/L	1	50.0	<0.330	89	63.8 - 125
Vinyl Chloride		1,2,3,4	52.8	µg/L	1	50.0	<0.410	106	60.3 - 129
Bromomethane (methyl bromide)		1,2,3,4	45.9	µg/L	1	50.0	<1.69	92	49.7 - 141
Chloroethane		1,2,3,4	48.2	µg/L	1	50.0	<0.420	96	62.4 - 131
Trichlorofluoromethane		1,2,3,4	50.1	µg/L	1	50.0	<0.410	100	53.5 - 152
Acetone		1,2,3,4	38.4	µg/L	1	50.0	<1.09	77	20 - 190
Iodomethane (methyl iodide)		1,2,3,4	51.2	µg/L	1	50.0	<2.47	102	67.8 - 135
Carbon Disulfide		1,2,3,4	50.8	µg/L	1	50.0	<0.400	102	68.9 - 136
Acrylonitrile		1,2,3,4	40.8	µg/L	1	50.0	<0.360	82	67.6 - 131
2-Butanone (MEK)		1,2,3,4	41.1	µg/L	1	50.0	<1.67	82	45 - 137
4-Methyl-2-pentanone (MIBK)		1,2,3,4	44.8	µg/L	1	50.0	<2.14	90	61.4 - 142
2-Hexanone		1,2,3,4	42.6	µg/L	1	50.0	<1.49	85	51.7 - 145
trans 1,4-Dichloro-2-butene	Qs	Qs	80.3	µg/L	1	50.0	<1.75	161	44.3 - 137
1,1-Dichloroethene		1,2,3,4	51.4	µg/L	1	50.0	<0.330	103	70.6 - 132
Methylene chloride		1,2,3,4	48.5	µg/L	1	50.0	<2.04	97	66.5 - 135
MTBE		1,2,3,4	49.3	µg/L	1	50.0	<0.320	99	72.1 - 130
trans-1,2-Dichloroethene		1,2,3,4	51.4	µg/L	1	50.0	<0.360	103	75.5 - 127
1,1-Dichloroethane		1,2,3,4	49.1	µg/L	1	50.0	<0.330	98	73.7 - 129
cis-1,2-Dichloroethene		1,2,3,4	50.9	µg/L	1	50.0	<0.330	102	75.5 - 127
2,2-Dichloropropane		1,2,3,4	61.6	µg/L	1	50.0	<0.380	123	24.3 - 158
1,2-Dichloroethane (EDC)		1,2,3,4	53.1	µg/L	1	50.0	<0.280	106	71 - 134
Chloroform		1,2,3,4	54.2	µg/L	1	50.0	<0.390	108	74 - 131
1,1,1-Trichloroethane		1,2,3,4	56.4	µg/L	1	50.0	<0.370	113	59.2 - 150
1,1-Dichloropropene		1,2,3,4	53.6	µg/L	1	50.0	<0.320	107	77.7 - 128
Benzene		1,2,3,4	50.8	µg/L	1	50.0	<0.340	102	73 - 124
Carbon Tetrachloride		1,2,3,4	55.8	µg/L	1	50.0	<0.350	112	61.2 - 146
1,2-Dichloropropane		1,2,3,4	54.0	µg/L	1	50.0	<0.270	108	78 - 125
Trichloroethene (TCE)		1,2,3,4	49.9	µg/L	1	50.0	<0.310	100	70.9 - 137
Dibromomethane (methylene bromide)		1,2,3,4	50.9	µg/L	1	50.0	<0.230	102	76.2 - 127
Bromodichloromethane		1,2,3,4	54.5	µg/L	1	50.0	<0.320	109	73.6 - 130
2-Chloroethyl vinyl ether		1,2,3,4	56.8	µg/L	1	50.0	<0.480	114	61.1 - 136
cis-1,3-Dichloropropene		1,2,3,4	50.4	µg/L	1	50.0	<0.210	101	79 - 125
trans-1,3-Dichloropropene		1,2,3,4	51.9	µg/L	1	50.0	<0.310	104	77.1 - 128
Toluene		1,2,3,4	51.7	µg/L	1	50.0	<0.350	103	75.4 - 126
1,1,2-Trichloroethane		1,2,3,4	48.5	µg/L	1	50.0	<0.390	97	72.9 - 122
1,3-Dichloropropane		1,2,3,4	49.2	µg/L	1	50.0	<0.310	98	75 - 120
Dibromochloromethane		1,3,4	53.4	µg/L	1	50.0	<0.370	107	64.8 - 128
1,2-Dibromoethane (EDB)		1,2,3,4	47.6	µg/L	1	50.0	<0.310	95	74.6 - 121

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Tetrachloroethene (PCE)		1,2,3,4	45.4	µg/L	1	50.0	<0.190	91	28.6 - 177
Chlorobenzene		1,2,3,4	51.4	µg/L	1	50.0	<0.290	103	73.5 - 120
1,1,1,2-Tetrachloroethane		1,2,3,4	53.5	µg/L	1	50.0	<0.300	107	67 - 128
Ethylbenzene		1,2,3,4	51.8	µg/L	1	50.0	<0.260	104	73 - 123
m,p-Xylene		1,2,3,4	107	µg/L	1	100	<0.480	107	71 - 126
Bromoform		1,2,3,4	57.1	µg/L	1	50.0	<0.480	114	55.5 - 131
Styrene		1,2,3,4	50.1	µg/L	1	50.0	<0.250	100	75.7 - 122
o-Xylene		1,2,3,4	53.8	µg/L	1	50.0	<0.260	108	70.2 - 125
1,1,2,2-Tetrachloroethane		1,2,3,4	47.7	µg/L	1	50.0	<0.560	95	61.1 - 133
2-Chlorotoluene		1,2,3,4	50.2	µg/L	1	50.0	<0.250	100	71.8 - 120
1,2,3-Trichloropropane		1,2,3,4	45.8	µg/L	1	50.0	<0.450	92	67.2 - 132
Isopropylbenzene		1,2,3,4	48.7	µg/L	1	50.0	<0.260	97	72.2 - 123
Bromobenzene		1,2,3,4	49.0	µg/L	1	50.0	<0.280	98	66.7 - 121
n-Propylbenzene		1,2,3,4	49.7	µg/L	1	50.0	<0.240	99	72.9 - 121
1,3,5-Trimethylbenzene		1,2,3,4	50.8	µg/L	1	50.0	<0.260	102	68.4 - 126
tert-Butylbenzene		1,2,3,4	49.2	µg/L	1	50.0	<0.270	98	68.7 - 128
1,2,4-Trimethylbenzene		1,2,3,4	51.6	µg/L	1	50.0	<0.270	103	70.4 - 124
1,4-Dichlorobenzene (para)		1,2,3,4	51.1	µg/L	1	50.0	<0.310	102	73.5 - 120
sec-Butylbenzene		1,2,3,4	50.6	µg/L	1	50.0	<0.200	101	69.6 - 128
1,3-Dichlorobenzene (meta)		1,2,3,4	51.6	µg/L	1	50.0	<0.280	103	74.2 - 120
p-Isopropyltoluene		1,2,3	51.5	µg/L	1	50.0	<0.200	103	73.1 - 124
4-Chlorotoluene		1,2,3,4	50.1	µg/L	1	50.0	<0.290	100	72.8 - 120
1,2-Dichlorobenzene (ortho)		1,2,3,4	51.0	µg/L	1	50.0	<0.250	102	65.2 - 126
n-Butylbenzene		1,2,3,4	53.2	µg/L	1	50.0	<0.170	106	70.1 - 127
1,2-Dibromo-3-chloropropane		1,3	47.9	µg/L	1	50.0	<1.70	96	50.5 - 136
1,2,3-Trichlorobenzene		1,2,3,4	59.9	µg/L	1	50.0	<0.400	120	43.3 - 153
1,2,4-Trichlorobenzene		1,2,3,4	57.1	µg/L	1	50.0	<2.12	114	59.6 - 134
Naphthalene		1,2,3,4	57.3	µg/L	1	50.0	<2.23	115	38.5 - 159
Hexachlorobutadiene		1,2,3,4	54.8	µg/L	1	50.0	<0.760	110	35.8 - 175

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	52.3	µg/L	1	50.0	<0.330	105	74.4 - 128	3	20
Dichlorodifluoromethane		1,2,3,4	44.1	µg/L	1	50.0	<0.350	88	46.8 - 148	7	20
Chloromethane (methyl chloride)		1,2,3,4	44.9	µg/L	1	50.0	<0.330	90	63.8 - 125	1	20
Vinyl Chloride		1,2,3,4	50.2	µg/L	1	50.0	<0.410	100	60.3 - 129	5	20
Bromomethane (methyl bromide)		1,2,3,4	44.6	µg/L	1	50.0	<1.69	89	49.7 - 141	3	20
Chloroethane		1,2,3,4	45.6	µg/L	1	50.0	<0.420	91	62.4 - 131	6	20
Trichlorofluoromethane		1,2,3,4	45.6	µg/L	1	50.0	<0.410	91	53.5 - 152	9	20
Acetone		1,2,3,4	33.9	µg/L	1	50.0	<1.09	68	20 - 190	12	20
Iodomethane (methyl iodide)		1,2,3,4	51.1	µg/L	1	50.0	<2.47	102	67.8 - 135	0	20
Carbon Disulfide		1,2,3,4	49.4	µg/L	1	50.0	<0.400	99	68.9 - 136	3	20
Acrylonitrile		1,2,3,4	45.4	µg/L	1	50.0	<0.360	91	67.6 - 131	11	20

continued ...

control spikes continued ...

Param			LCSD			Spike Amount	Matrix		Rec.		RPD	
	F	C	Result	Units	Dil.		Result	Rec.	Limit	RPD	Limit	
2-Butanone (MEK)	Qr	Qr	1,2,3,4	32.7	µg/L	1	50.0	<1.67	65	45 - 137	23	20
4-Methyl-2-pentanone (MIBK)			1,2,3,4	47.3	µg/L	1	50.0	<2.14	95	61.4 - 142	5	20
2-Hexanone			1,2,3,4	38.1	µg/L	1	50.0	<1.49	76	51.7 - 145	11	20
trans 1,4-Dichloro-2-butene	Qs	Qs	1,2,3,4	79.8	µg/L	1	50.0	<1.75	160	44.3 - 137	1	20
1,1-Dichloroethene			1,2,3,4	50.2	µg/L	1	50.0	<0.330	100	70.6 - 132	2	20
Methylene chloride			1,2,3,4	46.8	µg/L	1	50.0	<2.04	94	66.5 - 135	4	20
MTBE			1,2,3,4	47.8	µg/L	1	50.0	<0.320	96	72.1 - 130	3	20
trans-1,2-Dichloroethene			1,2,3,4	51.1	µg/L	1	50.0	<0.360	102	75.5 - 127	1	20
1,1-Dichloroethane			1,2,3,4	47.0	µg/L	1	50.0	<0.330	94	73.7 - 129	4	20
cis-1,2-Dichloroethene			1,2,3,4	49.9	µg/L	1	50.0	<0.330	100	75.5 - 127	2	20
2,2-Dichloropropane			1,2,3,4	54.4	µg/L	1	50.0	<0.380	109	24.3 - 158	12	20
1,2-Dichloroethane (EDC)			1,2,3,4	45.8	µg/L	1	50.0	<0.280	92	71 - 134	15	20
Chloroform			1,2,3,4	48.8	µg/L	1	50.0	<0.390	98	74 - 131	10	20
1,1,1-Trichloroethane			1,2,3,4	49.9	µg/L	1	50.0	<0.370	100	59.2 - 150	12	20
1,1-Dichloropropene			1,2,3,4	49.1	µg/L	1	50.0	<0.320	98	77.7 - 128	9	20
Benzene			1,2,3,4	48.8	µg/L	1	50.0	<0.340	98	73 - 124	4	20
Carbon Tetrachloride			1,2,3,4	49.3	µg/L	1	50.0	<0.350	99	61.2 - 146	12	20
1,2-Dichloropropane			1,2,3,4	49.9	µg/L	1	50.0	<0.270	100	78 - 125	8	20
Trichloroethene (TCE)			1,2,3,4	49.8	µg/L	1	50.0	<0.310	100	70.9 - 137	0	20
Dibromomethane (methylene bromide)			1,2,3,4	47.5	µg/L	1	50.0	<0.230	95	76.2 - 127	7	20
Bromodichloromethane			1,2,3,4	49.8	µg/L	1	50.0	<0.320	100	73.6 - 130	9	20
2-Chloroethyl vinyl ether			1,2,3,4	53.6	µg/L	1	50.0	<0.480	107	61.1 - 136	6	20
cis-1,3-Dichloropropene			1,2,3,4	48.0	µg/L	1	50.0	<0.210	96	79 - 125	5	20
trans-1,3-Dichloropropene			1,2,3,4	47.5	µg/L	1	50.0	<0.310	95	77.1 - 128	9	20
Toluene			1,2,3,4	49.9	µg/L	1	50.0	<0.350	100	75.4 - 126	4	20
1,1,2-Trichloroethane			1,2,3,4	46.5	µg/L	1	50.0	<0.390	93	72.9 - 122	4	20
1,3-Dichloropropane			1,2,3,4	46.5	µg/L	1	50.0	<0.310	93	75 - 120	6	20
Dibromochloromethane			1,3,4	49.7	µg/L	1	50.0	<0.370	99	64.8 - 128	7	20
1,2-Dibromoethane (EDB)			1,2,3,4	46.9	µg/L	1	50.0	<0.310	94	74.6 - 121	2	20
Tetrachloroethene (PCE)			1,2,3,4	45.3	µg/L	1	50.0	<0.190	91	28.6 - 177	0	20
Chlorobenzene			1,2,3,4	50.5	µg/L	1	50.0	<0.290	101	73.5 - 120	2	20
1,1,1,2-Tetrachloroethane			1,2,3,4	51.8	µg/L	1	50.0	<0.300	104	67 - 128	3	20
Ethylbenzene			1,2,3,4	50.8	µg/L	1	50.0	<0.260	102	73 - 123	2	20
m,p-Xylene			1,2,3,4	103	µg/L	1	100	<0.480	103	71 - 126	4	20
Bromoform			1,2,3,4	55.9	µg/L	1	50.0	<0.480	112	55.5 - 131	2	20
Styrene			1,2,3,4	48.9	µg/L	1	50.0	<0.250	98	75.7 - 122	2	20
o-Xylene			1,2,3,4	52.0	µg/L	1	50.0	<0.260	104	70.2 - 125	3	20
1,1,2,2-Tetrachloroethane			1,2,3,4	44.9	µg/L	1	50.0	<0.560	90	61.1 - 133	6	20
2-Chlorotoluene			1,2,3,4	49.8	µg/L	1	50.0	<0.250	100	71.8 - 120	1	20
1,2,3-Trichloropropane			1,2,3,4	48.1	µg/L	1	50.0	<0.450	96	67.2 - 132	5	20
Isopropylbenzene			1,2,3,4	48.7	µg/L	1	50.0	<0.260	97	72.2 - 123	0	20
Bromobenzene			1,2,3,4	48.6	µg/L	1	50.0	<0.280	97	66.7 - 121	1	20
n-Propylbenzene			1,2,3,4	49.5	µg/L	1	50.0	<0.240	99	72.9 - 121	0	20
1,3,5-Trimethylbenzene			1,2,3,4	50.2	µg/L	1	50.0	<0.260	100	68.4 - 126	1	20

continued ...

control spikes continued ...

Param	F	C	LCSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
tert-Butylbenzene		1,2,3,4	49.6	µg/L	1	50.0	<0.270	99	68.7 - 128	1	20
1,2,4-Trimethylbenzene		1,2,3,4	50.8	µg/L	1	50.0	<0.270	102	70.4 - 124	2	20
1,4-Dichlorobenzene (para)		1,2,3,4	51.2	µg/L	1	50.0	<0.310	102	73.5 - 120	0	20
sec-Butylbenzene		1,2,3,4	49.9	µg/L	1	50.0	<0.200	100	69.6 - 128	1	20
1,3-Dichlorobenzene (meta)		1,2,3,4	50.6	µg/L	1	50.0	<0.280	101	74.2 - 120	2	20
p-Isopropyltoluene		1,2,3	51.1	µg/L	1	50.0	<0.200	102	73.1 - 124	1	20
4-Chlorotoluene		1,2,3,4	48.6	µg/L	1	50.0	<0.290	97	72.8 - 120	3	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	51.1	µg/L	1	50.0	<0.250	102	65.2 - 126	0	20
n-Butylbenzene		1,2,3,4	52.8	µg/L	1	50.0	<0.170	106	70.1 - 127	1	20
1,2-Dibromo-3-chloropropane		1,3	49.8	µg/L	1	50.0	<1.70	100	50.5 - 136	4	20
1,2,3-Trichlorobenzene		1,2,3,4	60.4	µg/L	1	50.0	<0.400	121	43.3 - 153	1	20
1,2,4-Trichlorobenzene		1,2,3,4	57.9	µg/L	1	50.0	<2.12	116	59.6 - 134	1	20
Naphthalene		1,2,3,4	61.1	µg/L	1	50.0	<2.23	122	38.5 - 159	6	20
Hexachlorobutadiene		1,2,3,4	55.4	µg/L	1	50.0	<0.760	111	35.8 - 175	1	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	51.4	49.5	µg/L	1	50.0	103	99	70 - 130
Toluene-d8	49.2	48.0	µg/L	1	50.0	98	96	70 - 130
4-Bromofluorobenzene (4-BFB)	52.0	50.9	µg/L	1	50.0	104	102	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 131953
Prep Batch: 111820

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-05

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	1.21	mg/L	1	1.00	0.0376	121	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		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1,2,3	1.22	mg/L	1	1.00	0.0376	122	74.6 - 123	1	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)	0.111	0.111	mg/L	1	0.100	111	111	72.8 - 136
4-Bromofluorobenzene (4-BFB)	0.108	0.110	mg/L	1	0.100	108	110	73.3 - 120

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 425877

QC Batch: 131911
Prep Batch: 111794

Date Analyzed: 2016-08-04
QC Preparation: 2016-08-04

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	2890	mg/L	100	2500	449	98	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	2910	mg/L	100	2500	449	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: 425809

QC Batch: 131920
Prep Batch: 111789

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-04

Analyzed By: HJ
Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	40.1	mg/L	1	50.0	1.79	77	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	36.9	mg/L	1	50.0	1.79	70	70 - 130	8	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	3.27	2.93	mg/L	1	2.5	131	117	70 - 130

Matrix Spike (MS-1) Spiked Sample: 425811

QC Batch: 131931
Prep Batch: 111804

Date Analyzed: 2016-08-04
QC Preparation: 2016-08-04

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	49.4	µg/L	1	50.0	<0.330	99	64.4 - 146
Dichlorodifluoromethane		1,2,3,4	37.0	µg/L	1	50.0	<0.350	74	36.2 - 162
Chloromethane (methyl chloride)		1,2,3,4	37.6	µg/L	1	50.0	<0.330	75	56.1 - 142
Vinyl Chloride		1,2,3,4	40.9	µg/L	1	50.0	<0.410	82	12 - 172
Bromomethane (methyl bromide)		1,2,3,4	37.9	µg/L	1	50.0	<1.69	76	43.6 - 159
Chloroethane		1,2,3,4	39.9	µg/L	1	50.0	<0.420	80	58 - 148
Trichlorofluoromethane		1,2,3,4	41.1	µg/L	1	50.0	<0.410	82	52.2 - 163
Acetone		1,2,3,4	79.3	µg/L	1	50.0	50.2	58	12.8 - 120
Iodomethane (methyl iodide)		1,2,3,4	49.0	µg/L	1	50.0	<2.47	98	10 - 200
Carbon Disulfide		1,2,3,4	56.0	µg/L	1	50.0	9.76	92	57.6 - 149
Acrylonitrile		1,2,3,4	38.3	µg/L	1	50.0	<0.360	77	67.2 - 134
2-Butanone (MEK)		1,2,3,4	47.2	µg/L	1	50.0	10.6	73	31.3 - 124
4-Methyl-2-pentanone (MIBK)		1,2,3,4	47.8	µg/L	1	50.0	<2.14	96	56.5 - 143
2-Hexanone		1,2,3,4	41.4	µg/L	1	50.0	<1.49	83	29 - 144
trans 1,4-Dichloro-2-butene	Qs	Qs	85.8	µg/L	1	50.0	<1.75	172	10 - 143
1,1-Dichloroethene		1,2,3,4	46.3	µg/L	1	50.0	<0.330	93	34.6 - 166
Methylene chloride		1,2,3,4	43.6	µg/L	1	50.0	<2.04	87	64.3 - 140
MTBE		1,2,3,4	46.6	µg/L	1	50.0	<0.320	93	41.6 - 161
trans-1,2-Dichloroethene		1,2,3,4	48.3	µg/L	1	50.0	<0.360	97	63.2 - 146
1,1-Dichloroethane		1,2,3,4	46.2	µg/L	1	50.0	<0.330	92	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	49.0	µg/L	1	50.0	<0.380	98	21.7 - 152
1,2-Dichloroethane (EDC)		1,2,3,4	44.5	µg/L	1	50.0	<0.280	89	62 - 157
Chloroform		1,2,3,4	47.3	µg/L	1	50.0	<0.390	95	64.9 - 150
1,1,1-Trichloroethane		1,2,3,4	47.2	µg/L	1	50.0	<0.370	94	62.3 - 163
1,1-Dichloropropene		1,2,3,4	46.3	µg/L	1	50.0	<0.320	93	31 - 174
Benzene		1,2,3,4	67.3	µg/L	1	50.0	22.2	90	62 - 139
Carbon Tetrachloride		1,2,3,4	45.1	µg/L	1	50.0	<0.350	90	58 - 164
1,2-Dichloropropane		1,2,3,4	47.1	µg/L	1	50.0	<0.270	94	68.1 - 140
Trichloroethene (TCE)		1,2,3,4	47.0	µg/L	1	50.0	<0.310	94	49.9 - 163
Dibromomethane (methylene bromide)		1,2,3,4	46.0	µg/L	1	50.0	<0.230	92	66.8 - 142
Bromodichloromethane		1,2,3,4	48.1	µg/L	1	50.0	<0.320	96	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	46.7	µg/L	1	50.0	<0.210	93	32.6 - 160
trans-1,3-Dichloropropene		1,2,3,4	47.2	µg/L	1	50.0	<0.310	94	31.4 - 163
Toluene		1,2,3,4	52.0	µg/L	1	50.0	4.18	96	40.7 - 160
1,1,2-Trichloroethane		1,2,3,4	43.3	µg/L	1	50.0	<0.390	87	66 - 130
1,3-Dichloropropane		1,2,3,4	43.6	µg/L	1	50.0	<0.310	87	66.2 - 131
Dibromochloromethane		1,3,4	48.1	µg/L	1	50.0	<0.370	96	58.8 - 143
1,2-Dibromoethane (EDB)		1,2,3,4	44.2	µg/L	1	50.0	<0.310	88	66.8 - 132

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Tetrachloroethene (PCE)		1,2,3,4	41.1	µg/L	1	50.0	0.71	81	28.8 - 126
Chlorobenzene		1,2,3,4	47.6	µg/L	1	50.0	<0.290	95	61.6 - 134
1,1,1,2-Tetrachloroethane		1,2,3,4	47.9	µg/L	1	50.0	<0.300	96	63.1 - 139
Ethylbenzene		1,2,3,4	44.2	µg/L	1	50.0	<0.260	88	43 - 148
m,p-Xylene		1,2,3,4	89.5	µg/L	1	100	0.61	89	21.5 - 165
Bromoform		1,2,3,4	54.9	µg/L	1	50.0	<0.480	110	49 - 144
Styrene		1,2,3,4	44.4	µg/L	1	50.0	<0.250	89	10 - 192
o-Xylene		1,2,3,4	45.8	µg/L	1	50.0	0.35	91	28.4 - 160
1,1,2,2-Tetrachloroethane		1,2,3,4	43.4	µg/L	1	50.0	<0.560	87	65.3 - 133
2-Chlorotoluene		1,2,3,4	40.1	µg/L	1	50.0	<0.250	80	56 - 134
1,2,3-Trichloropropane		1,2,3,4	40.1	µg/L	1	50.0	<0.450	80	62.8 - 126
Isopropylbenzene		1,2,3,4	39.5	µg/L	1	50.0	<0.260	79	31.4 - 156
Bromobenzene		1,2,3,4	42.6	µg/L	1	50.0	<0.280	85	57.8 - 128
n-Propylbenzene		1,2,3,4	38.3	µg/L	1	50.0	<0.240	77	30.5 - 154
1,3,5-Trimethylbenzene		1,2,3,4	39.4	µg/L	1	50.0	<0.260	79	10 - 183
tert-Butylbenzene		1,2,3,4	37.3	µg/L	1	50.0	<0.270	75	42.8 - 148
1,2,4-Trimethylbenzene		1,2,3,4	39.6	µg/L	1	50.0	<0.270	79	10 - 179
1,4-Dichlorobenzene (para)		1,2,3,4	44.4	µg/L	1	50.0	<0.310	89	66 - 123
sec-Butylbenzene		1,2,3,4	36.0	µg/L	1	50.0	<0.200	72	30.8 - 155
1,3-Dichlorobenzene (meta)		1,2,3,4	44.7	µg/L	1	50.0	<0.280	89	66 - 124
p-Isopropyltoluene		1,2,3	37.6	µg/L	1	50.0	0.23	75	20.9 - 164
4-Chlorotoluene		1,2,3,4	40.1	µg/L	1	50.0	<0.290	80	54.8 - 136
1,2-Dichlorobenzene (ortho)		1,2,3,4	44.5	µg/L	1	50.0	<0.250	89	65.9 - 124
n-Butylbenzene		1,2,3,4	35.0	µg/L	1	50.0	0.29	69	31.3 - 153
1,2-Dibromo-3-chloropropane		1,3	50.3	µg/L	1	50.0	<1.70	101	49.3 - 138
1,2,3-Trichlorobenzene		1,2,3,4	40.6	µg/L	1	50.0	<0.400	81	37.5 - 146
1,2,4-Trichlorobenzene		1,2,3,4	41.6	µg/L	1	50.0	<2.12	83	55.3 - 132
Naphthalene		1,2,3,4	47.2	µg/L	1	50.0	<2.23	94	10 - 169
Hexachlorobutadiene		1,2,3,4	26.6	µg/L	1	50.0	<0.760	53	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	48.2	µg/L	1	50.0	<0.330	96	64.4 - 146	2	20
Dichlorodifluoromethane		1,2,3,4	31.6	µg/L	1	50.0	<0.350	63	36.2 - 162	16	20
Chloromethane (methyl chloride)		1,2,3,4	38.8	µg/L	1	50.0	<0.330	78	56.1 - 142	3	20
Vinyl Chloride		1,2,3,4	40.3	µg/L	1	50.0	<0.410	81	12 - 172	2	20
Bromomethane (methyl bromide)		1,2,3,4	37.2	µg/L	1	50.0	<1.69	74	43.6 - 159	2	20
Chloroethane		1,2,3,4	37.5	µg/L	1	50.0	<0.420	75	58 - 148	6	20
Trichlorofluoromethane		1,2,3,4	37.6	µg/L	1	50.0	<0.410	75	52.2 - 163	9	20
Acetone	Qr, Qs	Qr, Qs	55.7	µg/L	1	50.0	50.2	11	12.8 - 120	35	20
Iodomethane (methyl iodide)		1,2,3,4	46.6	µg/L	1	50.0	<2.47	93	10 - 200	5	20
Carbon Disulfide		1,2,3,4	52.1	µg/L	1	50.0	9.76	85	57.6 - 149	7	20
Acrylonitrile		1,2,3,4	43.0	µg/L	1	50.0	<0.360	86	67.2 - 134	12	20

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
2-Butanone (MEK)		1,2,3,4	44.3	µg/L	1	50.0	10.6	67	31.3 - 124	6	20
4-Methyl-2-pentanone (MIBK)		1,2,3,4	45.2	µg/L	1	50.0	<2.14	90	56.5 - 143	6	20
2-Hexanone		1,2,3,4	44.2	µg/L	1	50.0	<1.49	88	29 - 144	6	20
trans 1,4-Dichloro-2-butene	Qs	Qs	83.9	µg/L	1	50.0	<1.75	168	10 - 143	2	20
1,1-Dichloroethene		1,2,3,4	46.0	µg/L	1	50.0	<0.330	92	34.6 - 166	1	20
Methylene chloride		1,2,3,4	42.8	µg/L	1	50.0	<2.04	86	64.3 - 140	2	20
MTBE		1,2,3,4	45.2	µg/L	1	50.0	<0.320	90	41.6 - 161	3	20
trans-1,2-Dichloroethene		1,2,3,4	46.5	µg/L	1	50.0	<0.360	93	63.2 - 146	4	20
1,1-Dichloroethane		1,2,3,4	44.7	µg/L	1	50.0	<0.330	89	69.2 - 143	3	20
cis-1,2-Dichloroethene		1,2,3,4	45.8	µg/L	1	50.0	<0.330	92	64.8 - 144	4	20
2,2-Dichloropropane		1,2,3,4	46.2	µg/L	1	50.0	<0.380	92	21.7 - 152	6	20
1,2-Dichloroethane (EDC)		1,2,3,4	46.4	µg/L	1	50.0	<0.280	93	62 - 157	4	20
Chloroform		1,2,3,4	45.6	µg/L	1	50.0	<0.390	91	64.9 - 150	4	20
1,1,1-Trichloroethane		1,2,3,4	45.9	µg/L	1	50.0	<0.370	92	62.3 - 163	3	20
1,1-Dichloropropene		1,2,3,4	47.0	µg/L	1	50.0	<0.320	94	31 - 174	2	20
Benzene		1,2,3,4	64.0	µg/L	1	50.0	22.2	84	62 - 139	5	20
Carbon Tetrachloride		1,2,3,4	45.9	µg/L	1	50.0	<0.350	92	58 - 164	2	20
1,2-Dichloropropane		1,2,3,4	50.6	µg/L	1	50.0	<0.270	101	68.1 - 140	7	20
Trichloroethene (TCE)		1,2,3,4	46.6	µg/L	1	50.0	<0.310	93	49.9 - 163	1	20
Dibromomethane (methylene bromide)		1,2,3,4	46.1	µg/L	1	50.0	<0.230	92	66.8 - 142	0	20
Bromodichloromethane		1,2,3,4	49.2	µg/L	1	50.0	<0.320	98	63.9 - 152	2	20
2-Chloroethyl vinyl ether	Qr	Qr	55.7	µg/L	1	50.0	<0.480	111	0 - 120	200	20
cis-1,3-Dichloropropene		1,2,3,4	47.9	µg/L	1	50.0	<0.210	96	32.6 - 160	2	20
trans-1,3-Dichloropropene		1,2,3,4	49.0	µg/L	1	50.0	<0.310	98	31.4 - 163	4	20
Toluene		1,2,3,4	50.8	µg/L	1	50.0	4.18	93	40.7 - 160	2	20
1,1,2-Trichloroethane		1,2,3,4	45.0	µg/L	1	50.0	<0.390	90	66 - 130	4	20
1,3-Dichloropropane		1,2,3,4	46.7	µg/L	1	50.0	<0.310	93	66.2 - 131	7	20
Dibromochloromethane		1,3,4	49.4	µg/L	1	50.0	<0.370	99	58.8 - 143	3	20
1,2-Dibromoethane (EDB)		1,2,3,4	45.2	µg/L	1	50.0	<0.310	90	66.8 - 132	2	20
Tetrachloroethene (PCE)		1,2,3,4	42.2	µg/L	1	50.0	0.71	83	28.8 - 126	3	20
Chlorobenzene		1,2,3,4	47.2	µg/L	1	50.0	<0.290	94	61.6 - 134	1	20
1,1,1,2-Tetrachloroethane		1,2,3,4	48.8	µg/L	1	50.0	<0.300	98	63.1 - 139	2	20
Ethylbenzene		1,2,3,4	45.2	µg/L	1	50.0	<0.260	90	43 - 148	2	20
m,p-Xylene		1,2,3,4	92.3	µg/L	1	100	0.61	92	21.5 - 165	3	20
Bromoform		1,2,3,4	54.0	µg/L	1	50.0	<0.480	108	49 - 144	2	20
Styrene		1,2,3,4	44.7	µg/L	1	50.0	<0.250	89	10 - 192	1	20
o-Xylene		1,2,3,4	45.9	µg/L	1	50.0	0.35	91	28.4 - 160	0	20
1,1,2,2-Tetrachloroethane		1,2,3,4	42.8	µg/L	1	50.0	<0.560	86	65.3 - 133	1	20
2-Chlorotoluene		1,2,3,4	43.5	µg/L	1	50.0	<0.250	87	56 - 134	8	20
1,2,3-Trichloropropane		1,2,3,4	43.4	µg/L	1	50.0	<0.450	87	62.8 - 126	8	20
Isopropylbenzene		1,2,3,4	41.4	µg/L	1	50.0	<0.260	83	31.4 - 156	5	20
Bromobenzene		1,2,3,4	47.8	µg/L	1	50.0	<0.280	96	57.8 - 128	12	20
n-Propylbenzene		1,2,3,4	41.1	µg/L	1	50.0	<0.240	82	30.5 - 154	7	20
1,3,5-Trimethylbenzene		1,2,3,4	41.4	µg/L	1	50.0	<0.260	83	10 - 183	5	20

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
tert-Butylbenzene		1,2,3,4	38.1	µg/L	1	50.0	<0.270	76	42.8 - 148	2	20
1,2,4-Trimethylbenzene		1,2,3,4	42.2	µg/L	1	50.0	<0.270	84	10 - 179	6	20
1,4-Dichlorobenzene (para)		1,2,3,4	45.9	µg/L	1	50.0	<0.310	92	66 - 123	3	20
sec-Butylbenzene		1,2,3,4	36.5	µg/L	1	50.0	<0.200	73	30.8 - 155	1	20
1,3-Dichlorobenzene (meta)		1,2,3,4	45.1	µg/L	1	50.0	<0.280	90	66 - 124	1	20
p-Isopropyltoluene		1,2,3	37.4	µg/L	1	50.0	0.23	74	20.9 - 164	0	20
4-Chlorotoluene		1,2,3,4	43.5	µg/L	1	50.0	<0.290	87	54.8 - 136	8	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	45.1	µg/L	1	50.0	<0.250	90	65.9 - 124	1	20
n-Butylbenzene		1,2,3,4	35.4	µg/L	1	50.0	0.29	70	31.3 - 153	1	20
1,2-Dibromo-3-chloropropane		1,3	50.1	µg/L	1	50.0	<1.70	100	49.3 - 138	0	20
1,2,3-Trichlorobenzene		1,2,3,4	46.4	µg/L	1	50.0	<0.400	93	37.5 - 146	13	20
1,2,4-Trichlorobenzene		1,2,3,4	43.5	µg/L	1	50.0	<2.12	87	55.3 - 132	4	20
Naphthalene		1,2,3,4	51.7	µg/L	1	50.0	<2.23	103	10 - 169	9	20
Hexachlorobutadiene	Qs	Qs	23.2	µg/L	1	50.0	<0.760	46	47.4 - 146	14	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	49.0	48.2	µg/L	1	50	98	96	70 - 130
Toluene-d8	46.5	48.2	µg/L	1	50	93	96	70 - 130
4-Bromofluorobenzene (4-BFB)	48.6	49.2	µg/L	1	50	97	98	70 - 130

Matrix Spike (MS-1) Spiked Sample: 425810

QC Batch: 131953
Prep Batch: 111820

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-05

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	13.3	mg/L	10	10.0	3.03	103	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	12.2	mg/L	10	10.0	3.03	92	57 - 134	9	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.11	1.08	mg/L	10	1	111	108	72.8 - 136
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	1.29	mg/L	10	1	129	73.3 - 120

Calibration Standards

Standard (CCV-1)

QC Batch: 131911

Date Analyzed: 2016-08-04

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	25.0	100	90 - 110	2016-08-04

Standard (CCV-2)

QC Batch: 131911

Date Analyzed: 2016-08-04

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	24.6	98	90 - 110	2016-08-04

Standard (CCV-1)

QC Batch: 131920

Date Analyzed: 2016-08-05

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	433	87	80 - 120	2016-08-05

Standard (CCV-2)

QC Batch: 131920

Date Analyzed: 2016-08-05

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	511	102	80 - 120	2016-08-05

Standard (CCV-1)

QC Batch: 131931

Date Analyzed: 2016-08-04

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	µg/L	50.0	50.0	100	80 - 120	2016-08-04
Dichlorodifluoromethane		1,2,3,4	µg/L	50.0	50.1	100	80 - 120	2016-08-04
Chloromethane (methyl chloride)		1,2,3,4	µg/L	50.0	43.7	87	80 - 120	2016-08-04
Vinyl Chloride		1,2,3,4	µg/L	50.0	50.0	100	80 - 120	2016-08-04
Bromomethane (methyl bromide)		1,2,3,4	µg/L	50.0	44.6	89	80 - 120	2016-08-04
Chloroethane		1,2,3,4	µg/L	50.0	46.6	93	80 - 120	2016-08-04
Trichlorofluoromethane		1,2,3,4	µg/L	50.0	51.3	103	80 - 120	2016-08-04
Acetone		1,2,3,4	µg/L	50.0	41.2	82	80 - 120	2016-08-04
Iodomethane (methyl iodide)		1,2,3,4	µg/L	50.0	49.1	98	80 - 120	2016-08-04
Carbon Disulfide		1,2,3,4	µg/L	50.0	48.6	97	80 - 120	2016-08-04
Acrylonitrile		1,2,3,4	µg/L	50.0	43.3	87	80 - 120	2016-08-04
2-Butanone (MEK)		1,2,3,4	µg/L	50.0	44.9	90	80 - 120	2016-08-04
4-Methyl-2-pentanone (MIBK)		1,2,3,4	µg/L	50.0	41.1	82	80 - 120	2016-08-04
2-Hexanone		1,2,3,4	µg/L	50.0	44.3	89	80 - 120	2016-08-04
trans 1,4-Dichloro-2-butene	Qc	Qc	µg/L	50.0	78.4	157	80 - 120	2016-08-04
1,1-Dichloroethene		1,2,3,4	µg/L	50.0	47.8	96	80 - 120	2016-08-04
Methylene chloride		1,2,3,4	µg/L	50.0	46.8	94	80 - 120	2016-08-04
MTBE		1,2,3,4	µg/L	50.0	47.7	95	80 - 120	2016-08-04
trans-1,2-Dichloroethene		1,2,3,4	µg/L	50.0	49.4	99	80 - 120	2016-08-04
1,1-Dichloroethane		1,2,3,4	µg/L	50.0	47.4	95	80 - 120	2016-08-04
cis-1,2-Dichloroethene		1,2,3,4	µg/L	50.0	47.8	96	80 - 120	2016-08-04
2,2-Dichloropropane		1,2,3,4	µg/L	50.0	57.3	115	80 - 120	2016-08-04
1,2-Dichloroethane (EDC)		1,2,3,4	µg/L	50.0	47.4	95	80 - 120	2016-08-04
Chloroform		1,2,3,4	µg/L	50.0	50.5	101	80 - 120	2016-08-04
1,1,1-Trichloroethane		1,2,3,4	µg/L	50.0	50.9	102	80 - 120	2016-08-04
1,1-Dichloropropene		1,2,3,4	µg/L	50.0	49.6	99	80 - 120	2016-08-04
Benzene		1,2,3,4	µg/L	50.0	47.3	95	80 - 120	2016-08-04
Carbon Tetrachloride		1,2,3,4	µg/L	50.0	51.1	102	80 - 120	2016-08-04
1,2-Dichloropropane		1,2,3,4	µg/L	50.0	50.6	101	80 - 120	2016-08-04
Trichloroethene (TCE)		1,2,3,4	µg/L	50.0	46.2	92	80 - 120	2016-08-04
Dibromomethane (methylene bromide)		1,2,3,4	µg/L	50.0	48.1	96	80 - 120	2016-08-04
Bromodichloromethane		1,2,3,4	µg/L	50.0	53.8	108	80 - 120	2016-08-04
2-Chloroethyl vinyl ether		1,2,3,4	µg/L	50.0	57.8	116	80 - 120	2016-08-04
cis-1,3-Dichloropropene		1,2,3,4	µg/L	50.0	48.9	98	80 - 120	2016-08-04
trans-1,3-Dichloropropene		1,2,3,4	µg/L	50.0	50.9	102	80 - 120	2016-08-04
Toluene		1,2,3,4	µg/L	50.0	49.0	98	80 - 120	2016-08-04
1,1,2-Trichloroethane		1,2,3,4	µg/L	50.0	46.6	93	80 - 120	2016-08-04
1,3-Dichloropropane		1,2,3,4	µg/L	50.0	48.4	97	80 - 120	2016-08-04
Dibromochloromethane		1,3,4	µg/L	50.0	51.1	102	80 - 120	2016-08-04
1,2-Dibromoethane (EDB)		1,2,3,4	µg/L	50.0	46.6	93	80 - 120	2016-08-04
Tetrachloroethene (PCE)		1,2,3,4	µg/L	50.0	44.3	89	80 - 120	2016-08-04

continued . . .

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 24 of 27
Lea County, NM

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chlorobenzene		1,2,3,4	µg/L	50.0	49.6	99	80 - 120	2016-08-04
1,1,1,2-Tetrachloroethane		1,2,3,4	µg/L	50.0	52.8	106	80 - 120	2016-08-04
Ethylbenzene		1,2,3,4	µg/L	50.0	50.1	100	80 - 120	2016-08-04
m,p-Xylene		1,2,3,4	µg/L	100	103	103	80 - 120	2016-08-04
Bromoform		1,2,3,4	µg/L	50.0	54.4	109	80 - 120	2016-08-04
Styrene		1,2,3,4	µg/L	50.0	48.6	97	80 - 120	2016-08-04
o-Xylene		1,2,3,4	µg/L	50.0	52.5	105	80 - 120	2016-08-04
1,1,2,2-Tetrachloroethane		1,2,3,4	µg/L	50.0	44.7	89	80 - 120	2016-08-04
2-Chlorotoluene		1,2,3,4	µg/L	50.0	48.7	97	80 - 120	2016-08-04
1,2,3-Trichloropropane		1,2,3,4	µg/L	50.0	44.6	89	80 - 120	2016-08-04
Isopropylbenzene		1,2,3,4	µg/L	50.0	46.4	93	80 - 120	2016-08-04
Bromobenzene		1,2,3,4	µg/L	50.0	48.1	96	80 - 120	2016-08-04
n-Propylbenzene		1,2,3,4	µg/L	50.0	47.7	95	80 - 120	2016-08-04
1,3,5-Trimethylbenzene		1,2,3,4	µg/L	50.0	48.4	97	80 - 120	2016-08-04
tert-Butylbenzene		1,2,3,4	µg/L	50.0	47.4	95	80 - 120	2016-08-04
1,2,4-Trimethylbenzene		1,2,3,4	µg/L	50.0	50.0	100	80 - 120	2016-08-04
1,4-Dichlorobenzene (para)		1,2,3,4	µg/L	50.0	49.1	98	80 - 120	2016-08-04
sec-Butylbenzene		1,2,3,4	µg/L	50.0	48.5	97	80 - 120	2016-08-04
1,3-Dichlorobenzene (meta)		1,2,3,4	µg/L	50.0	49.4	99	80 - 120	2016-08-04
p-Isopropyltoluene		1,2,3	µg/L	50.0	49.4	99	80 - 120	2016-08-04
4-Chlorotoluene		1,2,3,4	µg/L	50.0	47.8	96	80 - 120	2016-08-04
1,2-Dichlorobenzene (ortho)		1,2,3,4	µg/L	50.0	48.7	97	80 - 120	2016-08-04
n-Butylbenzene		1,2,3,4	µg/L	50.0	51.2	102	80 - 120	2016-08-04
1,2-Dibromo-3-chloropropane		1,3	µg/L	50.0	46.0	92	80 - 120	2016-08-04
1,2,3-Trichlorobenzene		1,2,3,4	µg/L	50.0	50.9	102	80 - 120	2016-08-04
1,2,4-Trichlorobenzene		1,2,3,4	µg/L	50.0	52.8	106	80 - 120	2016-08-04
Naphthalene		1,2,3,4	µg/L	50.0	49.4	99	80 - 120	2016-08-04
Hexachlorobutadiene		1,2,3,4	µg/L	50.0	51.8	104	80 - 120	2016-08-04

Standard (CCV-1)

QC Batch: 131953

Date Analyzed: 2016-08-05

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	1.16	116	80 - 120	2016-08-05

Page Number: 25 of 27
Lea County, NM

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	1.10	110	80 - 120	2016-08-05

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.

ORIGINAL COPY

Summary Report

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

Report Date: August 8, 2016

Work Order: 16080416



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
425808	Rupture #4 Release A	water	2016-08-02	10:45	2016-08-04
425809	Rupture #4 Release B, C, & D	water	2016-08-02	10:45	2016-08-04
425810	Rupture #4 Release E, F, G	water	2016-08-02	10:45	2016-08-04
425811	Rupture #4 Release H, I, J	water	2016-08-02	10:45	2016-08-04

Sample - Field Code	TPH DRO DRO (mg/L)	TPH GRO GRO (mg/L)
425809 - Rupture #4 Release B, C, & D	<5.00	
425810 - Rupture #4 Release E, F, G		3.03 B

Sample: 425808 - Rupture #4 Release A

Param	Flag	Result	Units	RL
Chloride		93.2	mg/L	2.5

Sample: 425811 - Rupture #4 Release H, I, J

Param	Flag	Result	Units	RL
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1
Trichlorofluoromethane		<1.00	µg/L	1

continued ...

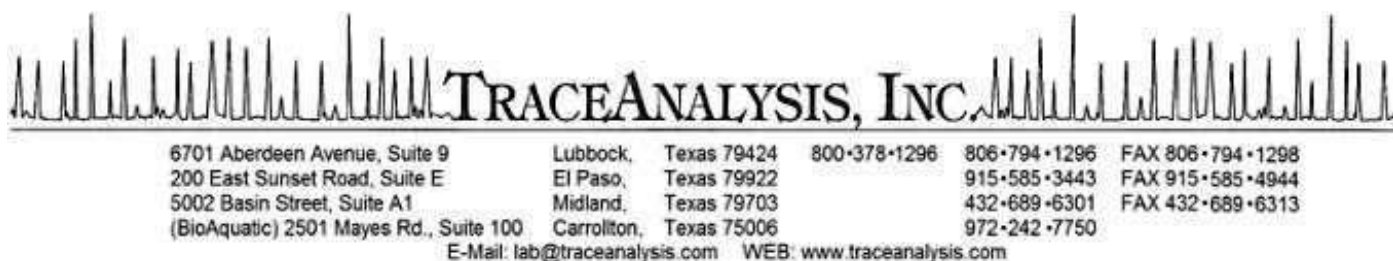
sample 425811 continued ...

Param	Flag	Result	Units	RL
Acetone	Q _r ,Q _s	50.2	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		9.76	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)	Q _r	10.6	µg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-Hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene	Q _c ,Q _s	<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		22.2	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether	Q _r	<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		4.18	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1

continued ...

sample 425811 continued ...

Param	Flag	Result	Units	RL
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene	Qs	<5.00	µg/L	5



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 8, 2016

Work Order: 16080416



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

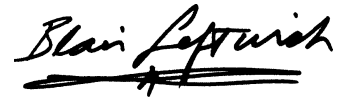
Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
425806	Rupture #4 Contaminated Soil	soil	2016-08-02	10:45	2016-08-04
425807	Rupture #4 Background Soil	soil	2016-08-02	10:45	2016-08-04

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

Report Contents

Case Narrative	4
Analytical Report	5
Sample 425806 (Rupture #4 Contaminated Soil)	5
Sample 425807 (Rupture #4 Background Soil)	8
Method Blanks	11
QC Batch 131919 - Method Blank (1)	11
QC Batch 131932 - Method Blank (1)	11
QC Batch 131954 - Method Blank (1)	13
QC Batch 131966 - Method Blank (1)	13
Laboratory Control Spikes	14
QC Batch 131919 - LCS (1)	14
QC Batch 131932 - LCS (1)	14
QC Batch 131954 - LCS (1)	18
QC Batch 131966 - LCS (1)	18
Matrix Spikes	19
QC Batch 131919 - xMS (1)	19
QC Batch 131932 - MS (1)	19
QC Batch 131954 - MS (1)	23
QC Batch 131966 - MS (1)	23
Calibration Standards	24
QC Batch 131919 - CCV (1)	24
QC Batch 131919 - CCV (2)	24
QC Batch 131932 - CCV (1)	24
QC Batch 131954 - CCV (1)	26
QC Batch 131954 - CCV (2)	26
QC Batch 131966 - ICV (1)	26
QC Batch 131966 - CCV (1)	27
Appendix	28
Report Definitions	28
Laboratory Certifications	28
Standard Flags	28
Attachments	28

Case Narrative

Samples for project EPNG Line 3031 Spike Test were received by TraceAnalysis, Inc. on 2016-08-04 and assigned to work order 16080416. Samples for work order 16080416 were received intact at a temperature of 2.4 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	111833	2016-08-07 at 13:00	131966	2016-08-08 at 09:00
TPH DRO	S 8015 D	111788	2016-08-04 at 13:00	131919	2016-08-05 at 09:42
TPH GRO	S 8015 D	111821	2016-08-05 at 16:42	131954	2016-08-05 at 16:42
Volatiles	S 8260 C	111805	2016-08-04 at 12:00	131932	2016-08-04 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 16080416 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: 425806 - Rupture #4 Contaminated Soil

Laboratory: Lubbock
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 131966 Date Analyzed: 2016-08-08 Analyzed By: RL
Prep Batch: 111833 Sample Preparation: 2016-08-07 Prepared By: RL

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

Sample: 425806 - Rupture #4 Contaminated Soil

Laboratory: Lubbock
Analysis: TPH DRO Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 131919 Date Analyzed: 2016-08-05 Analyzed By: HJ
Prep Batch: 111788 Sample Preparation: 2016-08-04 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			26.2	mg/Kg	1	25.0	105	58.2 - 150

Sample: 425806 - Rupture #4 Contaminated Soil

Laboratory: Lubbock
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 131954 Date Analyzed: 2016-08-05 Analyzed By: MT
Prep Batch: 111821 Sample Preparation: 2016-08-05 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)			2.26	mg/Kg	1	2.00	113	76.4 - 123

continued ...

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 6 of 29
Lea County, NM

sample continued ...

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	69.4 - 120

Sample: 425806 - Rupture #4 Contaminated Soil

Laboratory: Lubbock
Analysis: Volatiles
QC Batch: 131932
Prep Batch: 111805

Analytical Method: S 8260 C
Date Analyzed: 2016-08-04
Sample Preparation: 2016-08-04

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	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloromethane (methyl chloride)	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)	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	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)	U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	Qr,U	1,2,3,4	<100	µg/Kg	1	100
2-Hexanone	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	B,Jb	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 425806 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	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	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	Qr,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	845	µg/Kg	1	915	92	78 - 119
Toluene-d8			903	µg/Kg	1	915	99	85 - 116
4-Bromofluorobenzene (4-BFB)			856	µg/Kg	1	915	94	79 - 119

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 8 of 29
Lea County, NM

Sample: 425807 - Rupture #4 Background Soil

Laboratory:	Lubbock		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	131966	Date Analyzed:	2016-08-08
Prep Batch:	111833	Sample Preparation:	2016-08-07
		Prep Method:	N/A
		Analyzed By:	RL
		Prepared By:	RL

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

Sample: 425807 - Rupture #4 Background Soil

Laboratory:	Lubbock		
Analysis:	TPH DRO	Analytical Method:	S 8015 D
QC Batch:	131919	Date Analyzed:	2016-08-05
Prep Batch:	111788	Sample Preparation:	2016-08-04
		Prep Method:	N/A
		Analyzed By:	HJ
		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			24.2	mg/Kg	1	25.0	97	58.2 - 150

Sample: 425807 - Rupture #4 Background Soil

Laboratory:	Lubbock		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	131954	Date Analyzed:	2016-08-05
Prep Batch:	111821	Sample Preparation:	2016-08-05
		Prep Method:	S 5035
		Analyzed By:	MT
		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	2.50	mg/Kg	1	2.00	125	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.26	mg/Kg	1	2.00	113	69.4 - 120

Sample: 425807 - Rupture #4 Background Soil

Laboratory: Lubbock

Analysis: Volatiles

QC Batch: 131932

Prep Batch: 111805

Analytical Method: S 8260 C

Date Analyzed: 2016-08-04

Sample Preparation: 2016-08-04

Prep Method: S 5030B

Analyzed By: KB

Prepared By: KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dichlorodifluoromethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chloromethane (methyl chloride)	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)	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	U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	Qs,U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	Qs,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)	U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	Qr,U	1,2,3,4	<100	µg/Kg	1	100
2-Hexanone	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	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	B,Jb,Qs	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	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	Qs,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	Qs,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	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	Qs,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	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Trichloroethene (TCE)	Qs,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	Qs,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	Qs,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 425807 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)	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chlorobenzene	Qs,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	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
m,p-Xylene	Qs,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	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
o-Xylene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2,2-Tetrachloroethane	U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Chlorotoluene	Qs,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	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromobenzene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Propylbenzene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3,5-Trimethylbenzene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
tert-Butylbenzene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,4-Trimethylbenzene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,4-Dichlorobenzene (para)	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
sec-Butylbenzene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichlorobenzene (meta)	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
p-Isopropyltoluene	Qs,U	1,2,3	<20.0	µg/Kg	1	20.0
4-Chlorotoluene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichlorobenzene (ortho)	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Butylbenzene	Qs,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dibromo-3-chloropropane	U	1,3,4	<100	µg/Kg	1	100
1,2,3-Trichlorobenzene	Qr,Qs,U	1,2,3,4	<100	µg/Kg	1	100
1,2,4-Trichlorobenzene	Qr,Qs,U	1,2,3,4	<100	µg/Kg	1	100
Naphthalene	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Hexachlorobutadiene	Qs,U	1,2,3,4	<100	µg/Kg	1	100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	847	µg/Kg	1	940	90	78 - 119
Toluene-d8			919	µg/Kg	1	940	98	85 - 116
4-Bromofluorobenzene (4-BFB)			856	µg/Kg	1	940	91	79 - 119

Method Blanks

Method Blank (1) QC Batch: 131919

QC Batch: 131919 Date Analyzed: 2016-08-05 Analyzed By: HJ
Prep Batch: 111788 QC Preparation: 2016-08-04 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			23.1	mg/Kg	1	25.0	92	58.2 - 150

Method Blank (1) QC Batch: 131932

QC Batch: 131932 Date Analyzed: 2016-08-04 Analyzed By: KB
Prep Batch: 111805 QC Preparation: 2016-08-04 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	B	B	40.7	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

continued ...

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
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
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

continued ...

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 13 of 29
Lea County, NM

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
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	955	µg/Kg	1	1000	96	78 - 119
Toluene-d8			962	µg/Kg	1	1000	96	85 - 116
4-Bromofluorobenzene (4-BFB)			945	µg/Kg	1	1000	94	79 - 119

Method Blank (1) QC Batch: 131954

QC Batch: 131954
Prep Batch: 111821

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-05

Analyzed By: MT
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)			2.31	mg/Kg	1	2.00	116	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.11	mg/Kg	1	2.00	106	69.4 - 120

Method Blank (1) QC Batch: 131966

QC Batch: 131966
Prep Batch: 111833

Date Analyzed: 2016-08-08
QC Preparation: 2016-08-07

Analyzed By: RL
Prepared By: RL

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 131919
Prep Batch: 111788

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-04

Analyzed By: HJ
Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	456	mg/Kg	1	500	<8.47	91	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	450	mg/Kg	1	500	<8.47	90	68.5 - 136	1	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	26.7	27.0	mg/Kg	1	25.0	107	108	58.2 - 150

Laboratory Control Spike (LCS-1)

QC Batch: 131932
Prep Batch: 111805

Date Analyzed: 2016-08-04
QC Preparation: 2016-08-04

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	1040	µg/Kg	1	1000	<9.28	104	78 - 125
Dichlorodifluoromethane		1,2,3,4	805	µg/Kg	1	1000	<9.82	80	29 - 149
Chloromethane (methyl chloride)		1,2,3,4	889	µg/Kg	1	1000	<11.7	89	50 - 136
Vinyl Chloride		1,2,3,4	979	µg/Kg	1	1000	<10.6	98	56 - 135
Bromomethane (methyl bromide)		1,2,3,4	931	µg/Kg	1	1000	<13.5	93	53 - 143
Chloroethane		1,2,3,4	999	µg/Kg	1	1000	<9.16	100	59 - 139
Trichlorofluoromethane		1,2,3,4	1020	µg/Kg	1	1000	<12.4	102	62 - 140
Acetone		1,2,3,4	683	µg/Kg	1	1000	<7.34	68	36 - 164
Iodomethane (methyl iodide)		1,2,3,4	1040	µg/Kg	1	1000	<8.64	104	71 - 131
Carbon Disulfide		1,2,3,4	1040	µg/Kg	1	1000	<9.90	104	63 - 132
Acrylonitrile		1,2,3,4	879	µg/Kg	1	1000	<9.14	88	65 - 134
2-Butanone (MEK)		1,2,3,4	639	µg/Kg	1	1000	<13.4	64	51 - 148

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
4-Methyl-2-pentanone (MIBK)		1,2,3,4	960	µg/Kg	1	1000	<14.1	96	65 - 135
2-Hexanone		1,2,3,4	754	µg/Kg	1	1000	<10.6	75	53 - 145
trans 1,4-Dichloro-2-butene	Qs	Qs 1,2,3,4	1380	µg/Kg	1	1000	<8.49	138	62 - 136
1,1-Dichloroethene		1,2,3,4	1070	µg/Kg	1	1000	<10.4	107	70 - 131
Methylene chloride		1,2,3,4	956	µg/Kg	1	1000	40.7	92	70 - 128
MTBE		1,2,3,4	931	µg/Kg	1	1000	<11.4	93	73 - 125
trans-1,2-Dichloroethene		1,2,3,4	1020	µg/Kg	1	1000	<9.80	102	74 - 125
1,1-Dichloroethane		1,2,3,4	910	µg/Kg	1	1000	<9.82	91	76 - 125
cis-1,2-Dichloroethene		1,2,3,4	986	µg/Kg	1	1000	<9.58	99	77 - 123
2,2-Dichloropropane		1,2,3,4	883	µg/Kg	1	1000	<8.99	88	67 - 133
1,2-Dichloroethane (EDC)		1,2,3,4	820	µg/Kg	1	1000	<9.58	82	73 - 128
Chloroform		1,2,3,4	922	µg/Kg	1	1000	<9.68	92	78 - 123
1,1,1-Trichloroethane		1,2,3,4	936	µg/Kg	1	1000	<10.6	94	73 - 130
1,1-Dichloropropene		1,2,3,4	940	µg/Kg	1	1000	<9.74	94	76 - 125
Benzene		1,2,3,4	964	µg/Kg	1	1000	<10.3	96	77 - 121
Carbon Tetrachloride		1,2,3,4	913	µg/Kg	1	1000	<8.88	91	80 - 120
1,2-Dichloropropane		1,2,3,4	995	µg/Kg	1	1000	<9.48	100	76 - 123
Trichloroethene (TCE)		1,2,3,4	1000	µg/Kg	1	1000	<10.4	100	77 - 123
Dibromomethane (methylene bromide)		1,2,3,4	913	µg/Kg	1	1000	<9.65	91	78 - 125
Bromodichloromethane		1,2,3,4	935	µg/Kg	1	1000	<9.23	94	75 - 127
2-Chloroethyl vinyl ether		1,2,3,4	954	µg/Kg	1	1000	<10.8	95	43 - 149
cis-1,3-Dichloropropene		1,2,3,4	906	µg/Kg	1	1000	<9.76	91	74 - 126
trans-1,3-Dichloropropene		1,2,3,4	920	µg/Kg	1	1000	<9.24	92	71 - 130
Toluene		1,2,3,4	984	µg/Kg	1	1000	<9.74	98	77 - 121
1,1,2-Trichloroethane		1,2,3,4	865	µg/Kg	1	1000	<11.1	86	78 - 121
1,3-Dichloropropane		1,2,3,4	880	µg/Kg	1	1000	<10.4	88	77 - 121
Dibromochloromethane		1,3,4	943	µg/Kg	1	1000	<9.66	94	74 - 126
1,2-Dibromoethane (EDB)		1,2,3,4	901	µg/Kg	1	1000	<10.8	90	78 - 122
Tetrachloroethene (PCE)		1,2,3,4	893	µg/Kg	1	1000	<6.38	89	73 - 128
Chlorobenzene		1,2,3,4	984	µg/Kg	1	1000	<10.5	98	79 - 120
1,1,1,2-Tetrachloroethane		1,2,3,4	965	µg/Kg	1	1000	<10.2	96	78 - 125
Ethylbenzene		1,2,3,4	932	µg/Kg	1	1000	<10.8	93	76 - 122
m,p-Xylene		1,2,3,4	1880	µg/Kg	1	2000	<11.0	94	77 - 124
Bromoform		1,2,3,4	1040	µg/Kg	1	1000	<8.43	104	67 - 132
Styrene		1,2,3,4	941	µg/Kg	1	1000	<9.62	94	76 - 124
o-Xylene		1,2,3,4	945	µg/Kg	1	1000	<11.0	94	77 - 123
1,1,2,2-Tetrachloroethane		1,2,3,4	846	µg/Kg	1	1000	<10.2	85	70 - 124
2-Chlorotoluene		1,2,3,4	910	µg/Kg	1	1000	<11.5	91	75 - 122
1,2,3-Trichloropropane		1,2,3,4	804	µg/Kg	1	1000	<9.22	80	73 - 125
Isopropylbenzene		1,2,3,4	916	µg/Kg	1	1000	<10.2	92	68 - 134
Bromobenzene		1,2,3,4	899	µg/Kg	1	1000	<11.2	90	78 - 121
n-Propylbenzene		1,2,3,4	908	µg/Kg	1	1000	<10.6	91	73 - 125
1,3,5-Trimethylbenzene		1,2,3,4	936	µg/Kg	1	1000	<11.5	94	73 - 124
tert-Butylbenzene		1,2,3,4	957	µg/Kg	1	1000	<10.3	96	73 - 125

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
1,2,4-Trimethylbenzene		1,2,3,4	947	µg/Kg	1	1000	<11.0	95	75 - 123
1,4-Dichlorobenzene (para)		1,2,3,4	1020	µg/Kg	1	1000	<12.0	102	75 - 120
sec-Butylbenzene		1,2,3,4	950	µg/Kg	1	1000	<11.3	95	73 - 126
1,3-Dichlorobenzene (meta)		1,2,3,4	1020	µg/Kg	1	1000	<11.6	102	77 - 121
p-Isopropyltoluene		1,2,3	971	µg/Kg	1	1000	<11.1	97	73 - 127
4-Chlorotoluene		1,2,3,4	895	µg/Kg	1	1000	<11.7	90	72 - 124
1,2-Dichlorobenzene (ortho)		1,2,3,4	988	µg/Kg	1	1000	<12.0	99	78 - 121
n-Butylbenzene		1,2,3,4	948	µg/Kg	1	1000	<11.0	95	70 - 128
1,2-Dibromo-3-chloropropane		1,3,4	949	µg/Kg	1	1000	<9.07	95	61 - 132
1,2,3-Trichlorobenzene		1,2,3,4	1170	µg/Kg	1	1000	<12.6	117	66 - 130
1,2,4-Trichlorobenzene		1,2,3,4	1110	µg/Kg	1	1000	<12.4	111	67 - 129
Naphthalene		1,2,3,4	1140	µg/Kg	1	1000	<10.7	114	62 - 129
Hexachlorobutadiene		1,2,3,4	1030	µg/Kg	1	1000	<17.2	103	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	1060	µg/Kg	1	1000	<9.28	106	78 - 125	2	20
Dichlorodifluoromethane		1,2,3,4	749	µg/Kg	1	1000	<9.82	75	29 - 149	7	20
Chloromethane (methyl chloride)		1,2,3,4	881	µg/Kg	1	1000	<11.7	88	50 - 136	1	20
Vinyl Chloride		1,2,3,4	979	µg/Kg	1	1000	<10.6	98	56 - 135	0	20
Bromomethane (methyl bromide)		1,2,3,4	883	µg/Kg	1	1000	<13.5	88	53 - 143	5	20
Chloroethane		1,2,3,4	899	µg/Kg	1	1000	<9.16	90	59 - 139	10	20
Trichlorofluoromethane		1,2,3,4	879	µg/Kg	1	1000	<12.4	88	62 - 140	15	20
Acetone		1,2,3,4	705	µg/Kg	1	1000	<7.34	70	36 - 164	3	20
Iodomethane (methyl iodide)		1,2,3,4	1020	µg/Kg	1	1000	<8.64	102	71 - 131	2	20
Carbon Disulfide		1,2,3,4	1020	µg/Kg	1	1000	<9.90	102	63 - 132	2	20
Acrylonitrile		1,2,3,4	904	µg/Kg	1	1000	<9.14	90	65 - 134	3	20
2-Butanone (MEK)		1,2,3,4	756	µg/Kg	1	1000	<13.4	76	51 - 148	17	20
4-Methyl-2-pentanone (MIBK)		1,2,3,4	859	µg/Kg	1	1000	<14.1	86	65 - 135	11	20
2-Hexanone		1,2,3,4	836	µg/Kg	1	1000	<10.6	84	53 - 145	10	20
trans 1,4-Dichloro-2-butene	Qs	Qs 1,2,3,4	1450	µg/Kg	1	1000	<8.49	145	62 - 136	5	20
1,1-Dichloroethene		1,2,3,4	1040	µg/Kg	1	1000	<10.4	104	70 - 131	3	20
Methylene chloride		1,2,3,4	965	µg/Kg	1	1000	40.7	92	70 - 128	1	20
MTBE		1,2,3,4	976	µg/Kg	1	1000	<11.4	98	73 - 125	5	20
trans-1,2-Dichloroethene		1,2,3,4	1050	µg/Kg	1	1000	<9.80	105	74 - 125	3	20
1,1-Dichloroethane		1,2,3,4	967	µg/Kg	1	1000	<9.82	97	76 - 125	6	20
cis-1,2-Dichloroethene		1,2,3,4	1030	µg/Kg	1	1000	<9.58	103	77 - 123	4	20
2,2-Dichloropropane		1,2,3,4	945	µg/Kg	1	1000	<8.99	94	67 - 133	7	20
1,2-Dichloroethane (EDC)		1,2,3,4	921	µg/Kg	1	1000	<9.58	92	73 - 128	12	20
Chloroform		1,2,3,4	986	µg/Kg	1	1000	<9.68	99	78 - 123	7	20
1,1,1-Trichloroethane		1,2,3,4	974	µg/Kg	1	1000	<10.6	97	73 - 130	4	20
1,1-Dichloropropene		1,2,3,4	1000	µg/Kg	1	1000	<9.74	100	76 - 125	6	20
Benzene		1,2,3,4	1020	µg/Kg	1	1000	<10.3	102	77 - 121	6	20

continued ...

control spikes continued . . .

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Carbon Tetrachloride		1,2,3,4	976	µg/Kg	1	1000	<8.88	98	80 - 120	7	20
1,2-Dichloropropane		1,2,3,4	1100	µg/Kg	1	1000	<9.48	110	76 - 123	10	20
Trichloroethene (TCE)		1,2,3,4	1020	µg/Kg	1	1000	<10.4	102	77 - 123	2	20
Dibromomethane (methylene bromide)		1,2,3,4	1010	µg/Kg	1	1000	<9.65	101	78 - 125	10	20
Bromodichloromethane		1,2,3,4	1050	µg/Kg	1	1000	<9.23	105	75 - 127	12	20
2-Chloroethyl vinyl ether		1,2,3,4	1090	µg/Kg	1	1000	<10.8	109	43 - 149	13	20
cis-1,3-Dichloropropene		1,2,3,4	1010	µg/Kg	1	1000	<9.76	101	74 - 126	11	20
trans-1,3-Dichloropropene		1,2,3,4	995	µg/Kg	1	1000	<9.24	100	71 - 130	8	20
Toluene		1,2,3,4	1040	µg/Kg	1	1000	<9.74	104	77 - 121	6	20
1,1,2-Trichloroethane		1,2,3,4	970	µg/Kg	1	1000	<11.1	97	78 - 121	11	20
1,3-Dichloropropane		1,2,3,4	992	µg/Kg	1	1000	<10.4	99	77 - 121	12	20
Dibromochloromethane		1,3,4	1040	µg/Kg	1	1000	<9.66	104	74 - 126	10	20
1,2-Dibromoethane (EDB)		1,2,3,4	980	µg/Kg	1	1000	<10.8	98	78 - 122	8	20
Tetrachloroethene (PCE)		1,2,3,4	934	µg/Kg	1	1000	<6.38	93	73 - 128	4	20
Chlorobenzene		1,2,3,4	1060	µg/Kg	1	1000	<10.5	106	79 - 120	7	20
1,1,1,2-Tetrachloroethane		1,2,3,4	1050	µg/Kg	1	1000	<10.2	105	78 - 125	8	20
Ethylbenzene		1,2,3,4	1030	µg/Kg	1	1000	<10.8	103	76 - 122	10	20
m,p-Xylene		1,2,3,4	2080	µg/Kg	1	2000	<11.0	104	77 - 124	10	20
Bromoform		1,2,3,4	1100	µg/Kg	1	1000	<8.43	110	67 - 132	6	20
Styrene		1,2,3,4	1010	µg/Kg	1	1000	<9.62	101	76 - 124	7	20
o-Xylene		1,2,3,4	1060	µg/Kg	1	1000	<11.0	106	77 - 123	12	20
1,1,2,2-Tetrachloroethane		1,2,3,4	930	µg/Kg	1	1000	<10.2	93	70 - 124	9	20
2-Chlorotoluene		1,2,3,4	1020	µg/Kg	1	1000	<11.5	102	75 - 122	11	20
1,2,3-Trichloropropane		1,2,3,4	941	µg/Kg	1	1000	<9.22	94	73 - 125	16	20
Isopropylbenzene		1,2,3,4	1010	µg/Kg	1	1000	<10.2	101	68 - 134	10	20
Bromobenzene		1,2,3,4	1030	µg/Kg	1	1000	<11.2	103	78 - 121	14	20
n-Propylbenzene		1,2,3,4	1020	µg/Kg	1	1000	<10.6	102	73 - 125	12	20
1,3,5-Trimethylbenzene		1,2,3,4	1030	µg/Kg	1	1000	<11.5	103	73 - 124	10	20
tert-Butylbenzene		1,2,3,4	1030	µg/Kg	1	1000	<10.3	103	73 - 125	7	20
1,2,4-Trimethylbenzene		1,2,3,4	1030	µg/Kg	1	1000	<11.0	103	75 - 123	8	20
1,4-Dichlorobenzene (para)		1,2,3,4	1060	µg/Kg	1	1000	<12.0	106	75 - 120	4	20
sec-Butylbenzene		1,2,3,4	1040	µg/Kg	1	1000	<11.3	104	73 - 126	9	20
1,3-Dichlorobenzene (meta)		1,2,3,4	1050	µg/Kg	1	1000	<11.6	105	77 - 121	3	20
p-Isopropyltoluene		1,2,3	1050	µg/Kg	1	1000	<11.1	105	73 - 127	8	20
4-Chlorotoluene		1,2,3,4	1000	µg/Kg	1	1000	<11.7	100	72 - 124	11	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	1050	µg/Kg	1	1000	<12.0	105	78 - 121	6	20
n-Butylbenzene		1,2,3,4	1020	µg/Kg	1	1000	<11.0	102	70 - 128	7	20
1,2-Dibromo-3-chloropropane		1,3,4	981	µg/Kg	1	1000	<9.07	98	61 - 132	3	20
1,2,3-Trichlorobenzene		1,2,3,4	1260	µg/Kg	1	1000	<12.6	126	66 - 130	7	20
1,2,4-Trichlorobenzene		1,2,3,4	1220	µg/Kg	1	1000	<12.4	122	67 - 129	9	20
Naphthalene		1,2,3,4	1220	µg/Kg	1	1000	<10.7	122	62 - 129	7	20
Hexachlorobutadiene		1,2,3,4	1100	µg/Kg	1	1000	<17.2	110	31 - 135	7	20

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

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 18 of 29
Lea County, NM

Surrogate		LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	4	975	967	µg/Kg	1	1000	98	97	78 - 119
Toluene-d8		955	971	µg/Kg	1	1000	96	97	85 - 116
4-Bromofluorobenzene (4-BFB)		934	982	µg/Kg	1	1000	93	98	79 - 119

Laboratory Control Spike (LCS-1)

QC Batch: 131954
Prep Batch: 111821

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-05

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	18.2	mg/Kg	1	20.0	<0.271	91	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	1	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)		2.10	2.11	mg/Kg	1	2.00	105	106	76.4 - 123
4-Bromofluorobenzene (4-BFB)		2.29	2.26	mg/Kg	1	2.00	114	113	69.4 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 131966
Prep Batch: 111833

Date Analyzed: 2016-08-08
QC Preparation: 2016-08-07

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	2490	mg/Kg	5	2500	<157	100	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	2540	mg/Kg	5	2500	<157	102	85 - 115	2	20

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

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 19 of 29
Lea County, NM

Matrix Spikes

Matrix Spike (xMS-1) Spiked Sample: 425785

QC Batch: 131919
Prep Batch: 111788

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-04

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	20.8	82	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	20.8	83	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	54.3	51.6	mg/Kg	1	50	109	103	58.2 - 150

Matrix Spike (MS-1) Spiked Sample: 425807

QC Batch: 131932
Prep Batch: 111805

Date Analyzed: 2016-08-04
QC Preparation: 2016-08-04

Analyzed By: KB
Prepared By: KB

Param			MS			Spike	Matrix		Rec.
	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Bromochloromethane		1,2,3,4	1070	µg/Kg	1	965	<9.28	111	78 - 125
Dichlorodifluoromethane		1,2,3,4	878	µg/Kg	1	965	<9.82	91	29 - 149
Chloromethane (methyl chloride)		1,2,3,4	912	µg/Kg	1	965	<11.7	94	50 - 136
Vinyl Chloride		1,2,3,4	996	µg/Kg	1	965	<10.6	103	56 - 135
Bromomethane (methyl bromide)		1,2,3,4	664	µg/Kg	1	965	<13.5	69	53 - 143
Chloroethane	Qs	Qs	471	µg/Kg	1	965	<9.16	49	59 - 139
Trichlorofluoromethane		1,2,3,4	958	µg/Kg	1	965	<12.4	99	62 - 140
Acetone		1,2,3,4	612	µg/Kg	1	965	<7.34	63	36 - 164
Iodomethane (methyl iodide)		1,2,3,4	1100	µg/Kg	1	965	<8.64	114	71 - 131
Carbon Disulfide		1,2,3,4	1080	µg/Kg	1	965	<9.90	112	63 - 132
Acrylonitrile		1,2,3,4	975	µg/Kg	1	965	<9.14	101	65 - 134
2-Butanone (MEK)		1,2,3,4	680	µg/Kg	1	965	<13.4	70	51 - 148

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	
4-Methyl-2-pentanone (MIBK)		1,2,3,4	768	µg/Kg	1	965	<14.1	80	65 - 135	
2-Hexanone		1,2,3,4	680	µg/Kg	1	965	<10.6	70	53 - 145	
trans 1,4-Dichloro-2-butene		1,2,3,4	932	µg/Kg	1	965	<8.49	96	62 - 136	
1,1-Dichloroethene		1,2,3,4	1140	µg/Kg	1	965	<10.4	118	70 - 131	
Methylene chloride		1,2,3,4	1060	µg/Kg	1	965	32.3	106	70 - 128	
MTBE		1,2,3,4	1010	µg/Kg	1	965	<11.4	105	73 - 125	
trans-1,2-Dichloroethene		1,2,3,4	1120	µg/Kg	1	965	<9.80	116	74 - 125	
1,1-Dichloroethane		1,2,3,4	1080	µg/Kg	1	965	<9.82	112	76 - 125	
cis-1,2-Dichloroethene		1,2,3,4	1090	µg/Kg	1	965	<9.58	113	77 - 123	
2,2-Dichloropropane		1,2,3,4	861	µg/Kg	1	965	<8.99	89	67 - 133	
1,2-Dichloroethane (EDC)		1,2,3,4	979	µg/Kg	1	965	<9.58	101	73 - 128	
Chloroform		1,2,3,4	1090	µg/Kg	1	965	<9.68	113	78 - 123	
1,1,1-Trichloroethane		1,2,3,4	942	µg/Kg	1	965	<10.6	98	73 - 130	
1,1-Dichloropropene		1,2,3,4	1120	µg/Kg	1	965	<9.74	116	76 - 125	
Benzene		1,2,3,4	1090	µg/Kg	1	965	<10.3	113	77 - 121	
Carbon Tetrachloride	Qs	Qs	1,2,3,4	715	µg/Kg	1	965	<8.88	74	80 - 120
1,2-Dichloropropane		1,2,3,4	1120	µg/Kg	1	965	<9.48	116	76 - 123	
Trichloroethene (TCE)		1,2,3,4	1120	µg/Kg	1	965	<10.4	116	77 - 123	
Dibromomethane (methylene bromide)		1,2,3,4	946	µg/Kg	1	965	<9.65	98	78 - 125	
Bromodichloromethane		1,2,3,4	880	µg/Kg	1	965	<9.23	91	75 - 127	
2-Chloroethyl vinyl ether		1,2,3,4	1320	µg/Kg	1	965	<10.8	137	43 - 149	
cis-1,3-Dichloropropene		1,2,3,4	927	µg/Kg	1	965	<9.76	96	74 - 126	
trans-1,3-Dichloropropene		1,2,3,4	879	µg/Kg	1	965	<9.24	91	71 - 130	
Toluene		1,2,3,4	1120	µg/Kg	1	965	<9.74	116	77 - 121	
1,1,2-Trichloroethane		1,2,3,4	949	µg/Kg	1	965	<11.1	98	78 - 121	
1,3-Dichloropropane		1,2,3,4	980	µg/Kg	1	965	<10.4	102	77 - 121	
Dibromochloromethane		1,3,4	732	µg/Kg	1	965	<9.66	76	74 - 126	
1,2-Dibromoethane (EDB)		1,2,3,4	956	µg/Kg	1	965	<10.8	99	78 - 122	
Tetrachloroethene (PCE)		1,2,3,4	1180	µg/Kg	1	965	<6.38	122	73 - 128	
Chlorobenzene		1,2,3,4	1140	µg/Kg	1	965	<10.5	118	79 - 120	
1,1,1,2-Tetrachloroethane		1,2,3,4	920	µg/Kg	1	965	<10.2	95	78 - 125	
Ethylbenzene		1,2,3,4	1160	µg/Kg	1	965	<10.8	120	76 - 122	
m,p-Xylene		1,2,3,4	2380	µg/Kg	1	1930	<11.0	123	77 - 124	
Bromoform	Qs	Qs	1,2,3,4	583	µg/Kg	1	965	<8.43	60	67 - 132
Styrene		1,2,3,4	1090	µg/Kg	1	965	<9.62	113	76 - 124	
o-Xylene	Qs	Qs	1,2,3,4	1190	µg/Kg	1	965	<11.0	123	77 - 123
1,1,2,2-Tetrachloroethane		1,2,3,4	795	µg/Kg	1	965	<10.2	82	70 - 124	
2-Chlorotoluene		1,2,3,4	1100	µg/Kg	1	965	<11.5	114	75 - 122	
1,2,3-Trichloropropane		1,2,3,4	846	µg/Kg	1	965	<9.22	88	73 - 125	
Isopropylbenzene		1,2,3,4	1120	µg/Kg	1	965	<10.2	116	68 - 134	
Bromobenzene		1,2,3,4	985	µg/Kg	1	965	<11.2	102	78 - 121	
n-Propylbenzene		1,2,3,4	1160	µg/Kg	1	965	<10.6	120	73 - 125	
1,3,5-Trimethylbenzene		1,2,3,4	1170	µg/Kg	1	965	<11.5	121	73 - 124	
tert-Butylbenzene	Qs	Qs	1,2,3,4	1220	µg/Kg	1	965	<10.3	126	73 - 125

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
1,2,4-Trimethylbenzene		1,2,3,4	1180	µg/Kg	1	965	<11.0	122	75 - 123
1,4-Dichlorobenzene (para)		1,2,3,4	1140	µg/Kg	1	965	<12.0	118	75 - 120
sec-Butylbenzene	Qs	Qs	1260	µg/Kg	1	965	<11.3	130	73 - 126
1,3-Dichlorobenzene (meta)		1,2,3,4	1160	µg/Kg	1	965	<11.6	120	77 - 121
p-Isopropyltoluene	Qs	Qs	1290	µg/Kg	1	965	<11.1	134	73 - 127
4-Chlorotoluene		1,2,3,4	1090	µg/Kg	1	965	<11.7	113	72 - 124
1,2-Dichlorobenzene (ortho)		1,2,3,4	1070	µg/Kg	1	965	<12.0	111	78 - 121
n-Butylbenzene	Qs	Qs	1310	µg/Kg	1	965	<11.0	136	70 - 128
1,2-Dibromo-3-chloropropane		1,3,4	654	µg/Kg	1	965	<9.07	68	61 - 132
1,2,3-Trichlorobenzene		1,2,3,4	981	µg/Kg	1	965	<12.6	102	66 - 130
1,2,4-Trichlorobenzene		1,2,3,4	1210	µg/Kg	1	965	<12.4	125	67 - 129
Naphthalene		1,2,3,4	803	µg/Kg	1	965	<10.7	83	62 - 129
Hexachlorobutadiene	Qs	Qs	1380	µg/Kg	1	965	<17.2	143	31 - 135

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	Qs	Qs	1260	µg/Kg	1	880	<9.28	143	78 - 125	16	20
Dichlorodifluoromethane		1,2,3,4	860	µg/Kg	1	880	<9.82	98	29 - 149	2	20
Chloromethane (methyl chloride)		1,2,3,4	1020	µg/Kg	1	880	<11.7	116	50 - 136	11	20
Vinyl Chloride		1,2,3,4	1100	µg/Kg	1	880	<10.6	125	56 - 135	10	20
Bromomethane (methyl bromide)		1,2,3,4	648	µg/Kg	1	880	<13.5	74	53 - 143	2	20
Chloroethane	Qs	Qs	484	µg/Kg	1	880	<9.16	55	59 - 139	3	20
Trichlorofluoromethane		1,2,3,4	985	µg/Kg	1	880	<12.4	112	62 - 140	3	20
Acetone		1,2,3,4	645	µg/Kg	1	880	<7.34	73	36 - 164	5	20
Iodomethane (methyl iodide)	Qs	Qs	1310	µg/Kg	1	880	<8.64	149	71 - 131	17	20
Carbon Disulfide	Qs	Qs	1240	µg/Kg	1	880	<9.90	141	63 - 132	14	20
Acrylonitrile		1,2,3,4	996	µg/Kg	1	880	<9.14	113	65 - 134	2	20
2-Butanone (MEK)		1,2,3,4	786	µg/Kg	1	880	<13.4	89	51 - 148	14	20
4-Methyl-2-pentanone (MIBK)	Qr	Qr	961	µg/Kg	1	880	<14.1	109	65 - 135	22	20
2-Hexanone		1,2,3,4	709	µg/Kg	1	880	<10.6	80	53 - 145	4	20
trans 1,4-Dichloro-2-butene		1,2,3,4	1090	µg/Kg	1	880	<8.49	124	62 - 136	16	20
1,1-Dichloroethene	Qs	Qs	1290	µg/Kg	1	880	<10.4	146	70 - 131	12	20
Methylene chloride	Qs	Qs	1200	µg/Kg	1	880	32.3	133	70 - 128	12	20
MTBE		1,2,3,4	1050	µg/Kg	1	880	<11.4	119	73 - 125	4	20
trans-1,2-Dichloroethene	Qs	Qs	1300	µg/Kg	1	880	<9.80	148	74 - 125	15	20
1,1-Dichloroethane	Qs	Qs	1130	µg/Kg	1	880	<9.82	128	76 - 125	4	20
cis-1,2-Dichloroethene	Qs	Qs	1260	µg/Kg	1	880	<9.58	143	77 - 123	14	20
2,2-Dichloropropane		1,2,3,4	884	µg/Kg	1	880	<8.99	100	67 - 133	3	20
1,2-Dichloroethane (EDC)		1,2,3,4	942	µg/Kg	1	880	<9.58	107	73 - 128	4	20
Chloroform	Qs	Qs	1100	µg/Kg	1	880	<9.68	125	78 - 123	1	20
1,1,1-Trichloroethane		1,2,3,4	999	µg/Kg	1	880	<10.6	114	73 - 130	6	20
1,1-Dichloropropene	Qs	Qs	1180	µg/Kg	1	880	<9.74	134	76 - 125	5	20
Benzene	Qs	Qs	1220	µg/Kg	1	880	<10.3	139	77 - 121	11	20

continued ...

matrix spikes continued . . .

Param			MSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec.		RPD	
	F	C	Result	Units					Limit	RPD	Limit	Limit
Carbon Tetrachloride			1,2,3,4	815	µg/Kg	1	880	<8.88	93	80 - 120	13	20
1,2-Dichloropropane	Qs	Qs	1,2,3,4	1240	µg/Kg	1	880	<9.48	141	76 - 123	10	20
Trichloroethene (TCE)	Qs	Qs	1,2,3,4	1320	µg/Kg	1	880	<10.4	150	77 - 123	16	20
Dibromomethane (methylene bromide)			1,2,3,4	1030	µg/Kg	1	880	<9.65	117	78 - 125	8	20
Bromodichloromethane			1,2,3,4	947	µg/Kg	1	880	<9.23	108	75 - 127	7	20
2-Chloroethyl vinyl ether	Qs	Qs	1,2,3,4	1330	µg/Kg	1	880	<10.8	151	43 - 149	1	20
cis-1,3-Dichloropropene			1,2,3,4	1040	µg/Kg	1	880	<9.76	118	74 - 126	12	20
trans-1,3-Dichloropropene			1,2,3,4	962	µg/Kg	1	880	<9.24	109	71 - 130	9	20
Toluene	Qs	Qs	1,2,3,4	1270	µg/Kg	1	880	<9.74	144	77 - 121	13	20
1,1,2-Trichloroethane			1,2,3,4	1000	µg/Kg	1	880	<11.1	114	78 - 121	5	20
1,3-Dichloropropane			1,2,3,4	1020	µg/Kg	1	880	<10.4	116	77 - 121	4	20
Dibromochloromethane			1,3,4	826	µg/Kg	1	880	<9.66	94	74 - 126	12	20
1,2-Dibromoethane (EDB)			1,2,3,4	1020	µg/Kg	1	880	<10.8	116	78 - 122	6	20
Tetrachloroethene (PCE)	Qs	Qs	1,2,3,4	1270	µg/Kg	1	880	<6.38	144	73 - 128	7	20
Chlorobenzene	Qs	Qs	1,2,3,4	1270	µg/Kg	1	880	<10.5	144	79 - 120	11	20
1,1,1,2-Tetrachloroethane			1,2,3,4	1040	µg/Kg	1	880	<10.2	118	78 - 125	12	20
Ethylbenzene	Qs	Qs	1,2,3,4	1250	µg/Kg	1	880	<10.8	142	76 - 122	8	20
m,p-Xylene	Qs	Qs	1,2,3,4	2510	µg/Kg	1	1760	<11.0	143	77 - 124	5	20
Bromoform			1,2,3,4	704	µg/Kg	1	880	<8.43	80	67 - 132	19	20
Styrene	Qs	Qs	1,2,3,4	1210	µg/Kg	1	880	<9.62	138	76 - 124	10	20
o-Xylene	Qs	Qs	1,2,3,4	1240	µg/Kg	1	880	<11.0	141	77 - 123	4	20
1,1,2,2-Tetrachloroethane			1,2,3,4	874	µg/Kg	1	880	<10.2	99	70 - 124	10	20
2-Chlorotoluene	Qs	Qs	1,2,3,4	1250	µg/Kg	1	880	<11.5	142	75 - 122	13	20
1,2,3-Trichloropropane			1,2,3,4	929	µg/Kg	1	880	<9.22	106	73 - 125	9	20
Isopropylbenzene	Qs	Qs	1,2,3,4	1280	µg/Kg	1	880	<10.2	145	68 - 134	13	20
Bromobenzene	Qs	Qs	1,2,3,4	1130	µg/Kg	1	880	<11.2	128	78 - 121	14	20
n-Propylbenzene	Qs	Qs	1,2,3,4	1320	µg/Kg	1	880	<10.6	150	73 - 125	13	20
1,3,5-Trimethylbenzene	Qs	Qs	1,2,3,4	1330	µg/Kg	1	880	<11.5	151	73 - 124	13	20
tert-Butylbenzene	Qs	Qs	1,2,3,4	1360	µg/Kg	1	880	<10.3	154	73 - 125	11	20
1,2,4-Trimethylbenzene	Qs	Qs	1,2,3,4	1330	µg/Kg	1	880	<11.0	151	75 - 123	12	20
1,4-Dichlorobenzene (para)	Qs	Qs	1,2,3,4	1320	µg/Kg	1	880	<12.0	150	75 - 120	15	20
sec-Butylbenzene	Qs	Qs	1,2,3,4	1430	µg/Kg	1	880	<11.3	162	73 - 126	13	20
1,3-Dichlorobenzene (meta)	Qs	Qs	1,2,3,4	1340	µg/Kg	1	880	<11.6	152	77 - 121	14	20
p-Isopropyltoluene	Qs	Qs	1,2,3	1460	µg/Kg	1	880	<11.1	166	73 - 127	12	20
4-Chlorotoluene	Qs	Qs	1,2,3,4	1220	µg/Kg	1	880	<11.7	139	72 - 124	11	20
1,2-Dichlorobenzene (ortho)	Qs	Qs	1,2,3,4	1240	µg/Kg	1	880	<12.0	141	78 - 121	15	20
n-Butylbenzene	Qs	Qs	1,2,3,4	1500	µg/Kg	1	880	<11.0	170	70 - 128	14	20
1,2-Dibromo-3-chloropropane			1,3,4	772	µg/Kg	1	880	<9.07	88	61 - 132	16	20
1,2,3-Trichlorobenzene	Qr,Qs	Qr,Qs	1,2,3,4	1360	µg/Kg	1	880	<12.6	154	66 - 130	32	20
1,2,4-Trichlorobenzene	Qr,Qs	Qr,Qs	1,2,3,4	1480	µg/Kg	1	880	<12.4	168	67 - 129	20	20
Naphthalene	Qr	Qr	1,2,3,4	1110	µg/Kg	1	880	<10.7	126	62 - 129	32	20
Hexachlorobutadiene	Qs	Qs	1,2,3,4	1590	µg/Kg	1	880	<17.2	181	31 - 135	14	20

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

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 23 of 29
Lea County, NM

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Dibromofluoromethane	4	916	801	µg/Kg	1	965	95	91	78 - 119
Toluene-d8		972	825	µg/Kg	1	965	101	94	85 - 116
4-Bromofluorobenzene (4-BFB)		957	807	µg/Kg	1	965	99	92	79 - 119

Matrix Spike (MS-1) Spiked Sample: 425807

QC Batch: 131954
Prep Batch: 111821

Date Analyzed: 2016-08-05
QC Preparation: 2016-08-05

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	15.4	mg/Kg	1	20.0	<0.271	77	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	17.4	mg/Kg	1	20.0	<0.271	87	35.3 - 129	12	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)		2.10	2.10	mg/Kg	1	2	105	105	76.4 - 123
4-Bromofluorobenzene (4-BFB)		2.18	2.30	mg/Kg	1	2	109	115	69.4 - 120

Matrix Spike (MS-1) Spiked Sample: 425807

QC Batch: 131966
Prep Batch: 111833

Date Analyzed: 2016-08-08
QC Preparation: 2016-08-07

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	2690	mg/Kg	5	2500	<157	104	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	2730	mg/Kg	5	2500	<157	105	80 - 120	2	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 131919

Date Analyzed: 2016-08-05

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	448	90	80 - 120	2016-08-05

Standard (CCV-2)

QC Batch: 131919

Date Analyzed: 2016-08-05

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	433	87	80 - 120	2016-08-05

Standard (CCV-1)

QC Batch: 131932

Date Analyzed: 2016-08-04

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	μg/Kg	50.0	50.0	100	80 - 120	2016-08-04
Dichlorodifluoromethane		1,2,3,4	μg/Kg	50.0	50.1	100	80 - 120	2016-08-04
Chloromethane (methyl chloride)		1,2,3,4	μg/Kg	50.0	43.7	87	80 - 120	2016-08-04
Vinyl Chloride		1,2,3,4	μg/Kg	50.0	50.0	100	80 - 120	2016-08-04
Bromomethane (methyl bromide)		1,2,3,4	μg/Kg	50.0	44.6	89	80 - 120	2016-08-04
Chloroethane		1,2,3,4	μg/Kg	50.0	46.6	93	80 - 120	2016-08-04
Trichlorofluoromethane		1,2,3,4	μg/Kg	50.0	51.3	103	80 - 120	2016-08-04
Acetone		1,2,3,4	μg/Kg	50.0	41.2	82	80 - 120	2016-08-04
Iodomethane (methyl iodide)		1,2,3,4	μg/Kg	50.0	49.1	98	80 - 120	2016-08-04
Carbon Disulfide		1,2,3,4	μg/Kg	50.0	48.6	97	80 - 120	2016-08-04
Acrylonitrile		1,2,3,4	μg/Kg	50.0	43.3	87	80 - 120	2016-08-04
2-Butanone (MEK)		1,2,3,4	μg/Kg	50.0	44.9	90	80 - 120	2016-08-04
4-Methyl-2-pentanone (MIBK)		1,2,3,4	μg/Kg	50.0	41.1	82	80 - 120	2016-08-04

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
2-Hexanone		1,2,3,4	µg/Kg	50.0	44.3	89	80 - 120	2016-08-04
trans 1,4-Dichloro-2-butene	Qc	Qc	µg/Kg	50.0	78.4	157	80 - 120	2016-08-04
1,1-Dichloroethene		1,2,3,4	µg/Kg	50.0	47.8	96	80 - 120	2016-08-04
Methylene chloride		1,2,3,4	µg/Kg	50.0	46.8	94	80 - 120	2016-08-04
MTBE		1,2,3,4	µg/Kg	50.0	47.7	95	80 - 120	2016-08-04
trans-1,2-Dichloroethene		1,2,3,4	µg/Kg	50.0	49.4	99	80 - 120	2016-08-04
1,1-Dichloroethane		1,2,3,4	µg/Kg	50.0	47.4	95	80 - 120	2016-08-04
cis-1,2-Dichloroethene		1,2,3,4	µg/Kg	50.0	47.8	96	80 - 120	2016-08-04
2,2-Dichloropropane		1,2,3,4	µg/Kg	50.0	57.3	115	80 - 120	2016-08-04
1,2-Dichloroethane (EDC)		1,2,3,4	µg/Kg	50.0	47.4	95	80 - 120	2016-08-04
Chloroform		1,2,3,4	µg/Kg	50.0	50.5	101	80 - 120	2016-08-04
1,1,1-Trichloroethane		1,2,3,4	µg/Kg	50.0	50.9	102	80 - 120	2016-08-04
1,1-Dichloropropene		1,2,3,4	µg/Kg	50.0	49.6	99	80 - 120	2016-08-04
Benzene		1,2,3,4	µg/Kg	50.0	47.3	95	80 - 120	2016-08-04
Carbon Tetrachloride		1,2,3,4	µg/Kg	50.0	51.1	102	80 - 120	2016-08-04
1,2-Dichloropropane		1,2,3,4	µg/Kg	50.0	50.6	101	80 - 120	2016-08-04
Trichloroethene (TCE)		1,2,3,4	µg/Kg	50.0	46.2	92	80 - 120	2016-08-04
Dibromomethane (methylene bromide)		1,2,3,4	µg/Kg	50.0	48.1	96	80 - 120	2016-08-04
Bromodichloromethane		1,2,3,4	µg/Kg	50.0	53.8	108	80 - 120	2016-08-04
2-Chloroethyl vinyl ether		1,2,3,4	µg/Kg	50.0	57.8	116	80 - 120	2016-08-04
cis-1,3-Dichloropropene		1,2,3,4	µg/Kg	50.0	48.9	98	80 - 120	2016-08-04
trans-1,3-Dichloropropene		1,2,3,4	µg/Kg	50.0	50.9	102	80 - 120	2016-08-04
Toluene		1,2,3,4	µg/Kg	50.0	49.0	98	80 - 120	2016-08-04
1,1,2-Trichloroethane		1,2,3,4	µg/Kg	50.0	46.6	93	80 - 120	2016-08-04
1,3-Dichloropropane		1,2,3,4	µg/Kg	50.0	48.4	97	80 - 120	2016-08-04
Dibromochloromethane		1,3,4	µg/Kg	50.0	51.1	102	80 - 120	2016-08-04
1,2-Dibromoethane (EDB)		1,2,3,4	µg/Kg	50.0	46.6	93	80 - 120	2016-08-04
Tetrachloroethene (PCE)		1,2,3,4	µg/Kg	50.0	44.3	89	80 - 120	2016-08-04
Chlorobenzene		1,2,3,4	µg/Kg	50.0	49.6	99	80 - 120	2016-08-04
1,1,1,2-Tetrachloroethane		1,2,3,4	µg/Kg	50.0	52.8	106	80 - 120	2016-08-04
Ethylbenzene		1,2,3,4	µg/Kg	50.0	50.1	100	80 - 120	2016-08-04
m,p-Xylene		1,2,3,4	µg/Kg	100	103	103	80 - 120	2016-08-04
Bromoform		1,2,3,4	µg/Kg	50.0	54.4	109	80 - 120	2016-08-04
Styrene		1,2,3,4	µg/Kg	50.0	48.6	97	80 - 120	2016-08-04
o-Xylene		1,2,3,4	µg/Kg	50.0	52.5	105	80 - 120	2016-08-04
1,1,2,2-Tetrachloroethane		1,2,3,4	µg/Kg	50.0	44.7	89	80 - 120	2016-08-04
2-Chlorotoluene		1,2,3,4	µg/Kg	50.0	48.7	97	80 - 120	2016-08-04
1,2,3-Trichloropropane		1,2,3,4	µg/Kg	50.0	44.6	89	80 - 120	2016-08-04
Isopropylbenzene		1,2,3,4	µg/Kg	50.0	46.4	93	80 - 120	2016-08-04
Bromobenzene		1,2,3,4	µg/Kg	50.0	48.1	96	80 - 120	2016-08-04
n-Propylbenzene		1,2,3,4	µg/Kg	50.0	47.7	95	80 - 120	2016-08-04
1,3,5-Trimethylbenzene		1,2,3,4	µg/Kg	50.0	48.4	97	80 - 120	2016-08-04
tert-Butylbenzene		1,2,3,4	µg/Kg	50.0	47.4	95	80 - 120	2016-08-04

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
1,2,4-Trimethylbenzene		1,2,3,4	µg/Kg	50.0	50.0	100	80 - 120	2016-08-04
1,4-Dichlorobenzene (para)		1,2,3,4	µg/Kg	50.0	49.1	98	80 - 120	2016-08-04
sec-Butylbenzene		1,2,3,4	µg/Kg	50.0	48.5	97	80 - 120	2016-08-04
1,3-Dichlorobenzene (meta)		1,2,3,4	µg/Kg	50.0	49.4	99	80 - 120	2016-08-04
p-Isopropyltoluene		1,2,3	µg/Kg	50.0	49.4	99	80 - 120	2016-08-04
4-Chlorotoluene		1,2,3,4	µg/Kg	50.0	47.8	96	80 - 120	2016-08-04
1,2-Dichlorobenzene (ortho)		1,2,3,4	µg/Kg	50.0	48.7	97	80 - 120	2016-08-04
n-Butylbenzene		1,2,3,4	µg/Kg	50.0	51.2	102	80 - 120	2016-08-04
1,2-Dibromo-3-chloropropane		1,3,4	µg/Kg	50.0	46.0	92	80 - 120	2016-08-04
1,2,3-Trichlorobenzene		1,2,3,4	µg/Kg	50.0	50.9	102	80 - 120	2016-08-04
1,2,4-Trichlorobenzene		1,2,3,4	µg/Kg	50.0	52.8	106	80 - 120	2016-08-04
Naphthalene		1,2,3,4	µg/Kg	50.0	49.4	99	80 - 120	2016-08-04
Hexachlorobutadiene		1,2,3,4	µg/Kg	50.0	51.8	104	80 - 120	2016-08-04

Standard (CCV-1)

QC Batch: 131954

Date Analyzed: 2016-08-05

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	1.10	110	80 - 120	2016-08-05

Standard (CCV-2)

QC Batch: 131954

Date Analyzed: 2016-08-05

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	0.852	85	80 - 120	2016-08-05

Standard (ICV-1)

QC Batch: 131966

Date Analyzed: 2016-08-08

Analyzed By: RL

Report Date: August 8, 2016
AFE 403828

Work Order: 16080416
EPNG Line 3031 Spike Test

Page Number: 27 of 29
Lea County, NM

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

Standard (CCV-1)

QC Batch: 131966

Date Analyzed: 2016-08-08

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	99.0	99	85 - 115	2016-08-08

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.

ORIGINAL COPY

Summary Report

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

Report Date: August 8, 2016

Work Order: 16080416



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
425806	Rupture #4 Contaminated Soil	soil	2016-08-02	10:45	2016-08-04
425807	Rupture #4 Background Soil	soil	2016-08-02	10:45	2016-08-04

Sample - Field Code	TPH DRO DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
425806 - Rupture #4 Contaminated Soil	<50.0	<4.00
425807 - Rupture #4 Background Soil	<50.0	<4.00

Sample: 425806 - Rupture #4 Contaminated Soil

Param	Flag	Result	Units	RL
Chloride		<250	mg/Kg	50
Bromochloromethane		<20.0	µg/Kg	20
Dichlorodifluoromethane		<20.0	µg/Kg	20
Chloromethane (methyl chloride)		<20.0	µg/Kg	20
Vinyl Chloride		<20.0	µg/Kg	20
Bromomethane (methyl bromide)		<100	µg/Kg	100
Chloroethane		<20.0	µg/Kg	20
Trichlorofluoromethane		<20.0	µg/Kg	20
Acetone		<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)		<100	µg/Kg	100
4-Methyl-2-pentanone (MIBK)	Qr	<100	µg/Kg	100
2-Hexanone		<100	µg/Kg	100

continued ...

sample 425806 continued ...

Param	Flag	Result	Units	RL
trans 1,4-Dichloro-2-butene	Qc	<200	µg/Kg	200
1,1-Dichloroethene		<20.0	µg/Kg	20
Methylene chloride	B	<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		<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

continued ...

sample 425806 continued ...

Param	Flag	Result	Units	RL
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		<100	µg/Kg	100
1,2,3-Trichlorobenzene	Q _r	<100	µg/Kg	100
1,2,4-Trichlorobenzene	Q _r	<100	µg/Kg	100
Naphthalene	Q _r	<100	µg/Kg	100
Hexachlorobutadiene		<100	µg/Kg	100

Sample: 425807 - Rupture #4 Background Soil

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

continued ...

sample 425807 continued ...

Param	Flag	Result	Units	RL
cis-1,3-Dichloropropene		<20.0	µg/Kg	20
trans-1,3-Dichloropropene		<20.0	µg/Kg	20
Toluene	Qs	<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)	Qs	<20.0	µg/Kg	20
Chlorobenzene	Qs	<20.0	µg/Kg	20
1,1,1,2-Tetrachloroethane		<20.0	µg/Kg	20
Ethylbenzene	Qs	<20.0	µg/Kg	20
m,p-Xylene	Qs	<20.0	µg/Kg	20
Bromoform		<20.0	µg/Kg	20
Styrene	Qs	<20.0	µg/Kg	20
o-Xylene	Qs	<20.0	µg/Kg	20
1,1,2,2-Tetrachloroethane		<20.0	µg/Kg	20
2-Chlorotoluene	Qs	<20.0	µg/Kg	20
1,2,3-Trichloropropane		<20.0	µg/Kg	20
Isopropylbenzene	Qs	<20.0	µg/Kg	20
Bromobenzene	Qs	<20.0	µg/Kg	20
n-Propylbenzene	Qs	<20.0	µg/Kg	20
1,3,5-Trimethylbenzene	Qs	<20.0	µg/Kg	20
tert-Butylbenzene	Qs	<20.0	µg/Kg	20
1,2,4-Trimethylbenzene	Qs	<20.0	µg/Kg	20
1,4-Dichlorobenzene (para)	Qs	<20.0	µg/Kg	20
sec-Butylbenzene	Qs	<20.0	µg/Kg	20
1,3-Dichlorobenzene (meta)	Qs	<20.0	µg/Kg	20
p-Isopropyltoluene	Qs	<20.0	µg/Kg	20
4-Chlorotoluene	Qs	<20.0	µg/Kg	20
1,2-Dichlorobenzene (ortho)	Qs	<20.0	µg/Kg	20
n-Butylbenzene	Qs	<20.0	µg/Kg	20
1,2-Dibromo-3-chloropropane		<100	µg/Kg	100
1,2,3-Trichlorobenzene	Qr, Qs	<100	µg/Kg	100
1,2,4-Trichlorobenzene	Qr, Qs	<100	µg/Kg	100
Naphthalene	Qr	<100	µg/Kg	100
Hexachlorobutadiene	Qs	<100	µg/Kg	100