

Certifications

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Analytical and Quality Control Report

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Report Date: August 17, 2016

Work Order: 16081001



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

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

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

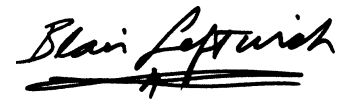
Notes

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

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

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

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

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

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

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Case Narrative

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

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

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

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

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

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

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Analytical Report

Sample: 426114 - Rupture #5 Background

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

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

Sample: 426114 - Rupture #5 Background

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

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

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

Sample: 426114 - Rupture #5 Background

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

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

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

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sample continued ...

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

Sample: 426114 - Rupture #5 Background

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

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

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

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

continued ...

sample 426114 continued ...

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

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

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Sample: 426115 - Rupture #5 Contaminated

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

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

Sample: 426115 - Rupture #5 Contaminated

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

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

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

Sample: 426115 - Rupture #5 Contaminated

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

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

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

Sample: 426115 - Rupture #5 Contaminated

Laboratory: Lubbock

Analysis: Volatiles

QC Batch: 132111

Prep Batch: 111957

Analytical Method: S 8260 C

Date Analyzed: 2016-08-12

Sample Preparation: 2016-08-12

Prep Method: S 5030B

Analyzed By: KB

Prepared By: KB

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

continued ...

sample 426115 continued ...

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

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

Report Date: August 17, 2016
AFE 403828

Work Order: 16081001
EPNG Line 3031 Spike Test

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Lea County, NM

Sample: 426117 - Rupture #6 Background

Laboratory:	Lubbock		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	132076	Date Analyzed:	2016-08-11
Prep Batch:	111922	Sample Preparation:	2016-08-11
		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: 426117 - Rupture #6 Background

Laboratory:	Lubbock		
Analysis:	TPH DRO	Analytical Method:	S 8015 D
QC Batch:	132041	Date Analyzed:	2016-08-10
Prep Batch:	111902	Sample Preparation:	2016-08-10
		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			23.9	mg/Kg	1	25.0	96	58.2 - 150

Sample: 426117 - Rupture #6 Background

Laboratory:	Lubbock		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	132052	Date Analyzed:	2016-08-10
Prep Batch:	111906	Sample Preparation:	2016-08-10
		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)			2.28	mg/Kg	1	2.00	114	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	69.4 - 120

Sample: 426117 - Rupture #6 Background

Laboratory: Lubbock

Analysis: Volatiles

QC Batch: 132111

Prep Batch: 111957

Analytical Method: S 8260 C

Date Analyzed: 2016-08-12

Sample Preparation: 2016-08-12

Prep Method: S 5030B

Analyzed By: KB

Prepared By: KB

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

continued ...

sample 426117 continued ...

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

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

Report Date: August 17, 2016
AFE 403828

Work Order: 16081001
EPNG Line 3031 Spike Test

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Lea County, NM

Sample: 426118 - Rupture #6 Contaminated

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

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

Sample: 426118 - Rupture #6 Contaminated

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

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

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

Sample: 426118 - Rupture #6 Contaminated

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

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

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

Sample: 426118 - Rupture #6 Contaminated

Laboratory: Lubbock

Analysis: Volatiles

QC Batch: 132111

Prep Batch: 111957

Analytical Method: S 8260 C

Date Analyzed: 2016-08-12

Sample Preparation: 2016-08-12

Prep Method: S 5030B

Analyzed By: KB

Prepared By: KB

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

continued ...

sample 426118 continued ...

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

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

Method Blanks

Method Blank (1) QC Batch: 132041

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

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

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

Method Blank (1) QC Batch: 132052

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

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

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

Method Blank (1) QC Batch: 132076

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

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

Method Blank (1) QC Batch: 132111

QC Batch: 132111
Prep Batch: 111957

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

Analyzed By: KB
Prepared By: KB

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

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

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

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 132041
Prep Batch: 111902

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

Analyzed By: HJ
Prepared By: HJ

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

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 132052
Prep Batch: 111906

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

Analyzed By: MT
Prepared By: MT

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

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

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

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

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

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AFE 403828

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Laboratory Control Spike (LCS-1)

QC Batch: 132076
Prep Batch: 111922

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

Analyzed By: RL
Prepared By: RL

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 132111
Prep Batch: 111957

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

Analyzed By: KB
Prepared By: KB

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

continued ...

control spikes continued ...

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

continued ...

control spikes continued ...

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

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

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

continued ...

control spikes continued ...

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

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

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

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Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 426114

QC Batch: 132041
Prep Batch: 111902

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

Analyzed By: HJ
Prepared By: HJ

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

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 426117

QC Batch: 132052
Prep Batch: 111906

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

Analyzed By: MT
Prepared By: MT

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

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

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

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

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

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Matrix Spike (MS-1) Spiked Sample: 426118

QC Batch: 132076
Prep Batch: 111922

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

Analyzed By: RL
Prepared By: RL

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 426118

QC Batch: 132111
Prep Batch: 111957

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

Analyzed By: KB
Prepared By: KB

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

continued ...

matrix spikes continued . . .

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

continued . . .

matrix spikes continued ...

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

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

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

continued ...

matrix spikes continued . . .

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

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

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

Calibration Standards

Standard (CCV-1)

QC Batch: 132041

Date Analyzed: 2016-08-10

Analyzed By: HJ

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

Standard (CCV-2)

QC Batch: 132041

Date Analyzed: 2016-08-10

Analyzed By: HJ

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

Standard (CCV-1)

QC Batch: 132052

Date Analyzed: 2016-08-10

Analyzed By: MT

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

Standard (CCV-2)

QC Batch: 132052

Date Analyzed: 2016-08-10

Analyzed By: MT

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

Standard (ICV-1)

QC Batch: 132076

Date Analyzed: 2016-08-11

Analyzed By: RL

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

Standard (CCV-1)

QC Batch: 132076

Date Analyzed: 2016-08-11

Analyzed By: RL

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

Standard (CCV-1)

QC Batch: 132111

Date Analyzed: 2016-08-12

Analyzed By: KB

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

continued ...

standard continued ...

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

continued ...

standard continued ...

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

Appendix

Report Definitions

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

Laboratory Certifications

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

Standard Flags

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

Report Date: August 17, 2016
AFE 403828

Work Order: 16081001
EPNG Line 3031 Spike Test

Page Number: 35 of 35
Lea County, NM

Attachments

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

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

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

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

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

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

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

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

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

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

Carrier # 25 24008421