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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 18, 2016

Work Order: 16081207

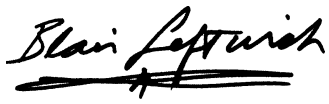
Project Location: Lea County, NM
Project Name: EPNG Line 3031 Spike Test
Project Number: AFE 403828

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
426311	Rupture #7 Background	soil	2016-08-09	10:00	2016-08-11
426312	Rupture #7 Contaiminated	soil	2016-08-09	10:00	2016-08-11
426314	Rupture #8 Background	soil	2016-08-11	09:30	2016-08-11
426315	Rupture #8 Contaiminated	soil	2016-08-11	09:30	2016-08-11

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.



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

Report Contents

Case Narrative

Samples for project EPNG Line 3031 Spike Test were received by TraceAnalysis, Inc. on 2016-08-11 and assigned to work order 16081207. Samples for work order 16081207 were received intact at a temperature of 29.0 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	111992	2016-08-15 at 13:30	132150	2016-08-16 at 15:00
TPH DRO	S 8015 D	111953	2016-08-12 at 13:00	132108	2016-08-15 at 11:40
TPH GRO	S 8015 D	111948	2016-08-12 at 16:15	132102	2016-08-12 at 16:15
Volatiles	S 8260 C	111989	2016-08-15 at 12:00	132145	2016-08-15 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 16081207 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: 426311 - Rupture #7 Background

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	132150	Date Analyzed:	2016-08-16	Analyzed By:	CF
Prep Batch:	111992	Sample Preparation:	2016-08-15	Prepared By:	CF

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

Sample: 426311 - Rupture #7 Background

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132108	Date Analyzed:	2016-08-15	Analyzed By:	HJ
Prep Batch:	111953	Sample Preparation:	2016-08-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL 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			27.5	mg/Kg	1	25.0	110	58.2 - 150

Sample: 426311 - Rupture #7 Background

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132102	Date Analyzed:	2016-08-12	Analyzed By:	MT
Prep Batch:	111948	Sample Preparation:	2016-08-12	Prepared By:	MT

Parameter	Flag	Cert	Result	RL 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)			2.43	mg/Kg	1	2.00	122	76.4 - 123

continued ...

sample continued . . .

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			2.29	mg/Kg	1	2.00	114	69.4 - 120

Sample: 426311 - Rupture #7 Background

Laboratory:	Lubbock				
Analysis:	Volatiles	Analytical Method:	S 8260 C	Prep Method:	S 5030B
QC Batch:	132145	Date Analyzed:	2016-08-15	Analyzed By:	KB
Prep Batch:	111989	Sample Preparation:	2016-08-15	Prepared By:	KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	Qr,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)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Vinyl Chloride	Qr,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	Qc,U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acrylonitrile	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Butanone (MEK)	Qc,Qr,U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	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	U	1,2,3,4	<200	µg/Kg	1	200
1,1-Dichloroethene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	B,Jb,Qr	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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2,2-Dichloropropane	Qr,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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloropropene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Carbon Tetrachloride	Qr,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)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromomethane (methylene bromide)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromodichloromethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0

continued . . .

sample 426311 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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,3-Dichloropropene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Toluene	Qr	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2-Trichloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichloropropane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromochloromethane	Qr,U	1,3,4	<20.0	µg/Kg	1	20.0
1,2-Dibromoethane (EDB)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Tetrachloroethene (PCE)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Chlorobenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,1,2-Tetrachloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Ethylbenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
m,p-Xylene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromoform	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Styrene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
o-Xylene	Qr,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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,3-Trichloropropane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Isopropylbenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromobenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Propylbenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3,5-Trimethylbenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
tert-Butylbenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2,4-Trimethylbenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,4-Dichlorobenzene (para)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
sec-Butylbenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichlorobenzene (meta)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
p-Isopropyltoluene	Qr,U	1,2,3	<20.0	µg/Kg	1	20.0
4-Chlorotoluene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dichlorobenzene (ortho)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
n-Butylbenzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,2-Dibromo-3-chloropropane	Qr,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	Qr,U	1,2,3,4	<100	µg/Kg	1	100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	804	µg/Kg	1	880	91	78 - 119
Toluene-d8			834	µg/Kg	1	880	95	85 - 116
4-Bromofluorobenzene (4-BFB)			802	µg/Kg	1	880	91	79 - 119

Sample: 426312 - Rupture #7 Contaiminated

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	132150	Date Analyzed:	2016-08-16	Analyzed By:	CF
Prep Batch:	111992	Sample Preparation:	2016-08-15	Prepared By:	CF

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

Sample: 426312 - Rupture #7 Contaiminated

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132108	Date Analyzed:	2016-08-15	Analyzed By:	HJ
Prep Batch:	111953	Sample Preparation:	2016-08-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL 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			24.4	mg/Kg	1	25.0	98	58.2 - 150

Sample: 426312 - Rupture #7 Contaiminated

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132102	Date Analyzed:	2016-08-12	Analyzed By:	MT
Prep Batch:	111948	Sample Preparation:	2016-08-12	Prepared By:	MT

Parameter	Flag	Cert	Result	RL 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)			2.00	mg/Kg	1	2.00	100	76.4 - 123
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	69.4 - 120

Sample: 426312 - Rupture #7 Containated

Laboratory:	Lubbock				
Analysis:	Volatiles	Analytical Method:	S 8260 C	Prep Method:	S 5030B
QC Batch:	132145	Date Analyzed:	2016-08-15	Analyzed By:	KB
Prep Batch:	111989	Sample Preparation:	2016-08-15	Prepared By:	KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	Qr,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)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Vinyl Chloride	Qr,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	Qc,U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acrylonitrile	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Butanone (MEK)	Qc,Qr,U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	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	U	1,2,3,4	<200	µg/Kg	1	200
1,1-Dichloroethene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	B,Jb,Qr	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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2,2-Dichloropropane	Qr,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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloropropene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Carbon Tetrachloride	Qr,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)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromomethane (methylene bromide)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromodichloromethane	Qr,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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,3-Dichloropropene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Toluene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2-Trichloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichloropropane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromochloromethane	Qr,U	1,3,4	<20.0	µg/Kg	1	20.0

continued ...

sample 426312 continued ...

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	878	µg/Kg	1	970	90	78 - 119
Toluene-d8			922	µg/Kg	1	970	95	85 - 116
4-Bromofluorobenzene (4-BFB)			877	µg/Kg	1	970	90	79 - 119

Sample: 426314 - Rupture #8 Background

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	132150	Date Analyzed:	2016-08-16	Analyzed By:	CF
Prep Batch:	111992	Sample Preparation:	2016-08-15	Prepared By:	CF

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

Sample: 426314 - Rupture #8 Background

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132108	Date Analyzed:	2016-08-15	Analyzed By:	HJ
Prep Batch:	111953	Sample Preparation:	2016-08-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL 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			23.1	mg/Kg	1	25.0	92	58.2 - 150

Sample: 426314 - Rupture #8 Background

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132102	Date Analyzed:	2016-08-12	Analyzed By:	MT
Prep Batch:	111948	Sample Preparation:	2016-08-12	Prepared By:	MT

Parameter	Flag	Cert	Result	RL 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)			2.37	mg/Kg	1	2.00	118	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.26	mg/Kg	1	2.00	113	69.4 - 120

Sample: 426314 - Rupture #8 Background

Laboratory:	Lubbock				
Analysis:	Volatiles	Analytical Method:	S 8260 C	Prep Method:	S 5030B
QC Batch:	132145	Date Analyzed:	2016-08-15	Analyzed By:	KB
Prep Batch:	111989	Sample Preparation:	2016-08-15	Prepared By:	KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	Qr,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)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Vinyl Chloride	Qr,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	Qc,U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acrylonitrile	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Butanone (MEK)	Qc,Qr,U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	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	U	1,2,3,4	<200	µg/Kg	1	200
1,1-Dichloroethene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	B,Jb,Qr	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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2,2-Dichloropropane	Qr,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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloropropene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Carbon Tetrachloride	Qr,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)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromomethane (methylene bromide)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromodichloromethane	Qr,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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,3-Dichloropropene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Toluene	Qr	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2-Trichloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichloropropane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromochloromethane	Qr,U	1,3,4	<20.0	µg/Kg	1	20.0

continued . . .

sample 426314 continued ...

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	782	µg/Kg	1	850	92	78 - 119
Toluene-d8			803	µg/Kg	1	850	94	85 - 116
4-Bromofluorobenzene (4-BFB)			778	µg/Kg	1	850	92	79 - 119

Sample: 426315 - Rupture #8 Contaiminated

Laboratory:	Lubbock				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	132150	Date Analyzed:	2016-08-16	Analyzed By:	CF
Prep Batch:	111992	Sample Preparation:	2016-08-15	Prepared By:	CF

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

Sample: 426315 - Rupture #8 Contaiminated

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132108	Date Analyzed:	2016-08-15	Analyzed By:	HJ
Prep Batch:	111953	Sample Preparation:	2016-08-12	Prepared By:	HJ

Parameter	Flag	Cert	Result	RL 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			23.6	mg/Kg	1	25.0	94	58.2 - 150

Sample: 426315 - Rupture #8 Contaiminated

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132102	Date Analyzed:	2016-08-12	Analyzed By:	MT
Prep Batch:	111948	Sample Preparation:	2016-08-12	Prepared By:	MT

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	69.4 - 120

Sample: 426315 - Rupture #8 Containated

Laboratory:	Lubbock				
Analysis:	Volatiles	Analytical Method:	S 8260 C	Prep Method:	S 5030B
QC Batch:	132145	Date Analyzed:	2016-08-15	Analyzed By:	KB
Prep Batch:	111989	Sample Preparation:	2016-08-15	Prepared By:	KB

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Bromochloromethane	Qr,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)	U	1,2,3,4	<20.0	µg/Kg	1	20.0
Vinyl Chloride	Qr,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	Qc,U	1,2,3,4	<200	µg/Kg	1	200
Iodomethane (methyl iodide)	Qr,U	1,2,3,4	<100	µg/Kg	1	100
Carbon Disulfide	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Acrylonitrile	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2-Butanone (MEK)	Qc,Qr,U	1,2,3,4	<100	µg/Kg	1	100
4-Methyl-2-pentanone (MIBK)	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	U	1,2,3,4	<200	µg/Kg	1	200
1,1-Dichloroethene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Methylene chloride	B,Jb,Qr	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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
cis-1,2-Dichloroethene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
2,2-Dichloropropane	Qr,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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1-Dichloropropene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Benzene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Carbon Tetrachloride	Qr,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)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromomethane (methylene bromide)	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Bromodichloromethane	Qr,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	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
trans-1,3-Dichloropropene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Toluene	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,1,2-Trichloroethane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
1,3-Dichloropropane	Qr,U	1,2,3,4	<20.0	µg/Kg	1	20.0
Dibromochloromethane	Qr,U	1,3,4	<20.0	µg/Kg	1	20.0

continued ...

sample 426315 continued . . .

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		4	834	µg/Kg	1	930	90	78 - 119
Toluene-d8			874	µg/Kg	1	930	94	85 - 116
4-Bromofluorobenzene (4-BFB)			808	µg/Kg	1	930	87	79 - 119

Method Blanks

Method Blank (1) QC Batch: 132102

QC Batch: 132102 | Date Analyzed: 2016-08-12 | Analyzed By: MT
Prep Batch: 111948 | QC Preparation: 2016-08-12 | 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)			2.25	mg/Kg	1	2.00	112	76.4 - 123
4-Bromofluorobenzene (4-BFB)			2.15	mg/Kg	1	2.00	108	69.4 - 120

Method Blank (1) QC Batch: 132108

QC Batch: 132108 | Date Analyzed: 2016-08-15 | Analyzed By: HJ
Prep Batch: 111953 | QC Preparation: 2016-08-12 | 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			19.9	mg/Kg	1	25.0	80	58.2 - 150

Method Blank (1) QC Batch: 132145

QC Batch: 132145 | Date Analyzed: 2016-08-15 | Analyzed By: KB
Prep Batch: 111989 | QC Preparation: 2016-08-15 | 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

continued . . .

method blank continued ...

Parameter		Flag	Cert	MDL Result	Units	RL
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	1,2,3,4	30.7	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
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

continued ...

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
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	940	µg/Kg	1	1000	94	78 - 119
Toluene-d8			959	µg/Kg	1	1000	96	85 - 116
4-Bromofluorobenzene (4-BFB)			936	µg/Kg	1	1000	94	79 - 119

Method Blank (1) QC Batch: 132150

QC Batch: 132150 | Date Analyzed: 2016-08-16 | Analyzed By: CF
Prep Batch: 111992 | QC Preparation: 2016-08-15 | 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: 132102 | Date Analyzed: 2016-08-12 | Analyzed By: MT
Prep Batch: 111948 | QC Preparation: 2016-08-12 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	17.0	mg/Kg	1	20.0	<0.271	85	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	18.2	mg/Kg	1	20.0	<0.271	91	64.2 - 120	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
Trifluorotoluene (TFT)	2.08	2.22	mg/Kg	1	2.00	104	111	76.4 - 123
4-Bromofluorobenzene (4-BFB)	2.28	2.24	mg/Kg	1	2.00	114	112	69.4 - 120

Laboratory Control Spike (LCS-1)

QC Batch: 132108 | Date Analyzed: 2016-08-15 | Analyzed By: HJ
Prep Batch: 111953 | QC Preparation: 2016-08-12 | Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	241	mg/Kg	1	250	<8.47	96	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	231	mg/Kg	1	250	<8.47	92	68.5 - 136	4	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	14.1	12.9	mg/Kg	1	20.0	70	64	58.2 - 150

Laboratory Control Spike (LCS-1)

QC Batch: 132145 | Date Analyzed: 2016-08-15 | Analyzed By: KB
Prep Batch: 111989 | QC Preparation: 2016-08-15 | Prepared By: KB

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Bromochloromethane		1,2,3,4	1010	µg/Kg	1	1000	<9.28	101	78 - 125
Dichlorodifluoromethane		1,2,3,4	583	µg/Kg	1	1000	<9.82	58	29 - 149
Chloromethane (methyl chloride)		1,2,3,4	884	µg/Kg	1	1000	<11.7	88	50 - 136
Vinyl Chloride		1,2,3,4	853	µg/Kg	1	1000	<10.6	85	56 - 135
Bromomethane (methyl bromide)		1,2,3,4	927	µg/Kg	1	1000	<13.5	93	53 - 143
Chloroethane		1,2,3,4	930	µg/Kg	1	1000	<9.16	93	59 - 139
Trichlorofluoromethane		1,2,3,4	870	µg/Kg	1	1000	<12.4	87	62 - 140
Acetone		1,2,3,4	674	µg/Kg	1	1000	<7.34	67	36 - 164
Iodomethane (methyl iodide)		1,2,3,4	1000	µg/Kg	1	1000	<8.64	100	71 - 131
Carbon Disulfide		1,2,3,4	970	µg/Kg	1	1000	<9.90	97	63 - 132
Acrylonitrile		1,2,3,4	855	µg/Kg	1	1000	<9.14	86	65 - 134
2-Butanone (MEK)		1,2,3,4	604	µg/Kg	1	1000	<13.4	60	51 - 148
4-Methyl-2-pentanone (MIBK)		1,2,3,4	907	µg/Kg	1	1000	<14.1	91	65 - 135
2-Hexanone		1,2,3,4	680	µg/Kg	1	1000	<10.6	68	53 - 145
trans 1,4-Dichloro-2-butene		1,2,3,4	790	µg/Kg	1	1000	<8.49	79	62 - 136
1,1-Dichloroethene		1,2,3,4	1000	µg/Kg	1	1000	<10.4	100	70 - 131
Methylene chloride		1,2,3,4	971	µg/Kg	1	1000	30.7	94	70 - 128
MTBE		1,2,3,4	924	µg/Kg	1	1000	<11.4	92	73 - 125
trans-1,2-Dichloroethene		1,2,3,4	1010	µg/Kg	1	1000	<9.80	101	74 - 125
1,1-Dichloroethane		1,2,3,4	939	µg/Kg	1	1000	<9.82	94	76 - 125
cis-1,2-Dichloroethene		1,2,3,4	1020	µg/Kg	1	1000	<9.58	102	77 - 123
2,2-Dichloropropane		1,2,3,4	770	µg/Kg	1	1000	<8.99	77	67 - 133
1,2-Dichloroethane (EDC)		1,2,3,4	840	µg/Kg	1	1000	<9.58	84	73 - 128
Chloroform		1,2,3,4	961	µg/Kg	1	1000	<9.68	96	78 - 123
1,1,1-Trichloroethane		1,2,3,4	927	µg/Kg	1	1000	<10.6	93	73 - 130
1,1-Dichloropropene		1,2,3,4	964	µg/Kg	1	1000	<9.74	96	76 - 125
Benzene		1,2,3,4	1100	µg/Kg	1	1000	<10.3	110	77 - 121
Carbon Tetrachloride		1,2,3,4	891	µg/Kg	1	1000	<8.88	89	80 - 120
1,2-Dichloropropane		1,2,3,4	1020	µg/Kg	1	1000	<9.48	102	76 - 123
Trichloroethene (TCE)		1,2,3,4	1030	µg/Kg	1	1000	<10.4	103	77 - 123
Dibromomethane (methylene bromide)		1,2,3,4	922	µg/Kg	1	1000	<9.65	92	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	958	µg/Kg	1	1000	<10.8	96	43 - 149
cis-1,3-Dichloropropene		1,2,3,4	864	µg/Kg	1	1000	<9.76	86	74 - 126
trans-1,3-Dichloropropene		1,2,3,4	797	µg/Kg	1	1000	<9.24	80	71 - 130
Toluene	Qs	Qs 1,2,3,4	1380	µg/Kg	1	1000	<9.74	138	77 - 121
1,1,2-Trichloroethane		1,2,3,4	857	µg/Kg	1	1000	<11.1	86	78 - 121
1,3-Dichloropropane		1,2,3,4	843	µg/Kg	1	1000	<10.4	84	77 - 121
Dibromochloromethane		1,3,4	844	µg/Kg	1	1000	<9.66	84	74 - 126
1,2-Dibromoethane (EDB)		1,2,3,4	868	µg/Kg	1	1000	<10.8	87	78 - 122

continued . . .

control spikes continued . . .

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Tetrachloroethene (PCE)		1,2,3,4	864	µg/Kg	1	1000	<6.38	86	73 - 128
Chlorobenzene		1,2,3,4	969	µg/Kg	1	1000	<10.5	97	79 - 120
1,1,1,2-Tetrachloroethane		1,2,3,4	922	µg/Kg	1	1000	<10.2	92	78 - 125
Ethylbenzene		1,2,3,4	948	µg/Kg	1	1000	<10.8	95	76 - 122
m,p-Xylene		1,2,3,4	1960	µg/Kg	1	2000	<11.0	98	77 - 124
Bromoform		1,2,3,4	826	µg/Kg	1	1000	<8.43	83	67 - 132
Styrene		1,2,3,4	906	µg/Kg	1	1000	<9.62	91	76 - 124
o-Xylene		1,2,3,4	1000	µg/Kg	1	1000	<11.0	100	77 - 123
1,1,2,2-Tetrachloroethane		1,2,3,4	816	µg/Kg	1	1000	<10.2	82	70 - 124
2-Chlorotoluene		1,2,3,4	901	µg/Kg	1	1000	<11.5	90	75 - 122
1,2,3-Trichloropropane		1,2,3,4	781	µg/Kg	1	1000	<9.22	78	73 - 125
Isopropylbenzene		1,2,3,4	916	µg/Kg	1	1000	<10.2	92	68 - 134
Bromobenzene		1,2,3,4	861	µg/Kg	1	1000	<11.2	86	78 - 121
n-Propylbenzene		1,2,3,4	905	µg/Kg	1	1000	<10.6	90	73 - 125
1,3,5-Trimethylbenzene		1,2,3,4	938	µg/Kg	1	1000	<11.5	94	73 - 124
tert-Butylbenzene		1,2,3,4	938	µg/Kg	1	1000	<10.3	94	73 - 125
1,2,4-Trimethylbenzene		1,2,3,4	974	µg/Kg	1	1000	<11.0	97	75 - 123
1,4-Dichlorobenzene (para)		1,2,3,4	976	µg/Kg	1	1000	<12.0	98	75 - 120
sec-Butylbenzene		1,2,3,4	929	µg/Kg	1	1000	<11.3	93	73 - 126
1,3-Dichlorobenzene (meta)		1,2,3,4	975	µg/Kg	1	1000	<11.6	98	77 - 121
p-Isopropyltoluene		1,2,3	940	µg/Kg	1	1000	<11.1	94	73 - 127
4-Chlorotoluene		1,2,3,4	883	µg/Kg	1	1000	<11.7	88	72 - 124
1,2-Dichlorobenzene (ortho)		1,2,3,4	965	µg/Kg	1	1000	<12.0	96	78 - 121
n-Butylbenzene		1,2,3,4	907	µg/Kg	1	1000	<11.0	91	70 - 128
1,2-Dibromo-3-chloropropane		1,3,4	750	µg/Kg	1	1000	<9.07	75	61 - 132
1,2,3-Trichlorobenzene		1,2,3,4	981	µg/Kg	1	1000	<12.6	98	66 - 130
1,2,4-Trichlorobenzene		1,2,3,4	1010	µg/Kg	1	1000	<12.4	101	67 - 129
Naphthalene		1,2,3,4	1110	µg/Kg	1	1000	<10.7	111	62 - 129
Hexachlorobutadiene		1,2,3,4	911	µg/Kg	1	1000	<17.2	91	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	1070	µg/Kg	1	1000	<9.28	107	78 - 125	6	20
Dichlorodifluoromethane		1,2,3,4	613	µg/Kg	1	1000	<9.82	61	29 - 149	5	20
Chloromethane (methyl chloride)		1,2,3,4	854	µg/Kg	1	1000	<11.7	85	50 - 136	3	20
Vinyl Chloride		1,2,3,4	903	µg/Kg	1	1000	<10.6	90	56 - 135	6	20
Bromomethane (methyl bromide)		1,2,3,4	958	µg/Kg	1	1000	<13.5	96	53 - 143	3	20
Chloroethane		1,2,3,4	954	µg/Kg	1	1000	<9.16	95	59 - 139	2	20
Trichlorofluoromethane		1,2,3,4	884	µg/Kg	1	1000	<12.4	88	62 - 140	2	20
Acetone		1,2,3,4	681	µg/Kg	1	1000	<7.34	68	36 - 164	1	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	990	µg/Kg	1	1000	<9.90	99	63 - 132	2	20
Acrylonitrile		1,2,3,4	862	µg/Kg	1	1000	<9.14	86	65 - 134	1	20

continued . . .

control spikes continued . . .

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
2-Butanone (MEK)	Qr	Qr 1,2,3,4	756	µg/Kg	1	1000	<13.4	76	51 - 148	22	20
4-Methyl-2-pentanone (MIBK)		1,2,3,4	853	µg/Kg	1	1000	<14.1	85	65 - 135	6	20
2-Hexanone		1,2,3,4	700	µg/Kg	1	1000	<10.6	70	53 - 145	3	20
trans 1,4-Dichloro-2-butene		1,2,3,4	747	µg/Kg	1	1000	<8.49	75	62 - 136	6	20
1,1-Dichloroethene		1,2,3,4	1020	µg/Kg	1	1000	<10.4	102	70 - 131	2	20
Methylene chloride		1,2,3,4	965	µg/Kg	1	1000	30.7	93	70 - 128	1	20
MTBE		1,2,3,4	925	µg/Kg	1	1000	<11.4	92	73 - 125	0	20
trans-1,2-Dichloroethene		1,2,3,4	1050	µg/Kg	1	1000	<9.80	105	74 - 125	4	20
1,1-Dichloroethane		1,2,3,4	964	µg/Kg	1	1000	<9.82	96	76 - 125	3	20
cis-1,2-Dichloroethene		1,2,3,4	1030	µg/Kg	1	1000	<9.58	103	77 - 123	1	20
2,2-Dichloropropane		1,2,3,4	755	µg/Kg	1	1000	<8.99	76	67 - 133	2	20
1,2-Dichloroethane (EDC)		1,2,3,4	838	µg/Kg	1	1000	<9.58	84	73 - 128	0	20
Chloroform		1,2,3,4	979	µg/Kg	1	1000	<9.68	98	78 - 123	2	20
1,1,1-Trichloroethane		1,2,3,4	954	µg/Kg	1	1000	<10.6	95	73 - 130	3	20
1,1-Dichloropropene		1,2,3,4	976	µg/Kg	1	1000	<9.74	98	76 - 125	1	20
Benzene		1,2,3,4	1000	µg/Kg	1	1000	<10.3	100	77 - 121	10	20
Carbon Tetrachloride		1,2,3,4	913	µg/Kg	1	1000	<8.88	91	80 - 120	2	20
1,2-Dichloropropane		1,2,3,4	1020	µg/Kg	1	1000	<9.48	102	76 - 123	0	20
Trichloroethene (TCE)		1,2,3,4	1050	µg/Kg	1	1000	<10.4	105	77 - 123	2	20
Dibromomethane (methylene bromide)		1,2,3,4	924	µg/Kg	1	1000	<9.65	92	78 - 125	0	20
Bromodichloromethane		1,2,3,4	948	µg/Kg	1	1000	<9.23	95	75 - 127	1	20
2-Chloroethyl vinyl ether		1,2,3,4	936	µg/Kg	1	1000	<10.8	94	43 - 149	2	20
cis-1,3-Dichloropropene		1,2,3,4	880	µg/Kg	1	1000	<9.76	88	74 - 126	2	20
trans-1,3-Dichloropropene		1,2,3,4	812	µg/Kg	1	1000	<9.24	81	71 - 130	2	20
Toluene	Qr	Qr 1,2,3,4	1060	µg/Kg	1	1000	<9.74	106	77 - 121	26	20
1,1,2-Trichloroethane		1,2,3,4	861	µg/Kg	1	1000	<11.1	86	78 - 121	0	20
1,3-Dichloropropane		1,2,3,4	849	µg/Kg	1	1000	<10.4	85	77 - 121	1	20
Dibromochloromethane		1,3,4	862	µg/Kg	1	1000	<9.66	86	74 - 126	2	20
1,2-Dibromoethane (EDB)		1,2,3,4	872	µg/Kg	1	1000	<10.8	87	78 - 122	0	20
Tetrachloroethene (PCE)		1,2,3,4	901	µg/Kg	1	1000	<6.38	90	73 - 128	4	20
Chlorobenzene		1,2,3,4	976	µg/Kg	1	1000	<10.5	98	79 - 120	1	20
1,1,1,2-Tetrachloroethane		1,2,3,4	934	µg/Kg	1	1000	<10.2	93	78 - 125	1	20
Ethylbenzene		1,2,3,4	940	µg/Kg	1	1000	<10.8	94	76 - 122	1	20
m,p-Xylene		1,2,3,4	1880	µg/Kg	1	2000	<11.0	94	77 - 124	4	20
Bromoform		1,2,3,4	877	µg/Kg	1	1000	<8.43	88	67 - 132	6	20
Styrene		1,2,3,4	918	µg/Kg	1	1000	<9.62	92	76 - 124	1	20
o-Xylene		1,2,3,4	952	µg/Kg	1	1000	<11.0	95	77 - 123	5	20
1,1,2,2-Tetrachloroethane		1,2,3,4	820	µg/Kg	1	1000	<10.2	82	70 - 124	0	20
2-Chlorotoluene		1,2,3,4	924	µg/Kg	1	1000	<11.5	92	75 - 122	2	20
1,2,3-Trichloropropane		1,2,3,4	804	µg/Kg	1	1000	<9.22	80	73 - 125	3	20
Isopropylbenzene		1,2,3,4	944	µg/Kg	1	1000	<10.2	94	68 - 134	3	20
Bromobenzene		1,2,3,4	885	µg/Kg	1	1000	<11.2	88	78 - 121	3	20
n-Propylbenzene		1,2,3,4	928	µg/Kg	1	1000	<10.6	93	73 - 125	2	20
1,3,5-Trimethylbenzene		1,2,3,4	954	µg/Kg	1	1000	<11.5	95	73 - 124	2	20

continued . . .

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
tert-Butylbenzene		1,2,3,4	969	µg/Kg	1	1000	<10.3	97	73 - 125	3	20
1,2,4-Trimethylbenzene		1,2,3,4	956	µg/Kg	1	1000	<11.0	96	75 - 123	2	20
1,4-Dichlorobenzene (para)		1,2,3,4	1000	µg/Kg	1	1000	<12.0	100	75 - 120	2	20
sec-Butylbenzene		1,2,3,4	960	µg/Kg	1	1000	<11.3	96	73 - 126	3	20
1,3-Dichlorobenzene (meta)		1,2,3,4	985	µg/Kg	1	1000	<11.6	98	77 - 121	1	20
p-Isopropyltoluene		1,2,3	965	µg/Kg	1	1000	<11.1	96	73 - 127	3	20
4-Chlorotoluene		1,2,3,4	900	µg/Kg	1	1000	<11.7	90	72 - 124	2	20
1,2-Dichlorobenzene (ortho)		1,2,3,4	978	µg/Kg	1	1000	<12.0	98	78 - 121	1	20
n-Butylbenzene		1,2,3,4	944	µg/Kg	1	1000	<11.0	94	70 - 128	4	20
1,2-Dibromo-3-chloropropane		1,3,4	776	µg/Kg	1	1000	<9.07	78	61 - 132	3	20
1,2,3-Trichlorobenzene		1,2,3,4	1170	µg/Kg	1	1000	<12.6	117	66 - 130	18	20
1,2,4-Trichlorobenzene		1,2,3,4	1090	µg/Kg	1	1000	<12.4	109	67 - 129	8	20
Naphthalene		1,2,3,4	1150	µg/Kg	1	1000	<10.7	115	62 - 129	4	20
Hexachlorobutadiene		1,2,3,4	1020	µg/Kg	1	1000	<17.2	102	31 - 135	11	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	4	962	978	µg/Kg	1	1000	96	98	78 - 119
Toluene-d8		934	938	µg/Kg	1	1000	93	94	85 - 116
4-Bromofluorobenzene (4-BFB)		945	929	µg/Kg	1	1000	94	93	79 - 119

Laboratory Control Spike (LCS-1)

QC Batch:	132150	Date Analyzed:	2016-08-16	Analyzed By:	CF
Prep Batch:	111992	QC Preparation:	2016-08-15	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	2570	mg/Kg	5	2500	<157	103	85 - 115	0	20

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

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 426311

QC Batch: 132102 | Date Analyzed: 2016-08-12 | Analyzed By: MT
Prep Batch: 111948 | QC Preparation: 2016-08-12 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1,2,3	16.0	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	18.0	mg/Kg	1	20.0	<0.271	90	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)	2.18	2.21	mg/Kg	1	2	109	110	76.4 - 123
4-Bromofluorobenzene (4-BFB)	2.37	2.59	mg/Kg	1	2	118	130	69.4 - 120

Matrix Spike (MS-1) Spiked Sample: 426216

QC Batch: 132108 | Date Analyzed: 2016-08-15 | Analyzed By: HJ
Prep Batch: 111953 | QC Preparation: 2016-08-12 | Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	459	mg/Kg	1	500	<8.47	92	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	464	mg/Kg	1	500	<8.47	93	49.3 - 138	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	27.2	27.3	mg/Kg	1	25	109	109	58.2 - 150

Matrix Spike (MS-1) Spiked Sample: 426388

QC Batch: 132145 | Date Analyzed: 2016-08-15 | Analyzed By: KB
Prep Batch: 111989 | QC Preparation: 2016-08-15 | Prepared By: KB

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Bromochloromethane	Qs	Qs	1,2,3,4	1100	µg/Kg	1	870	<9.28	126	78 - 125
Dichlorodifluoromethane			1,2,3,4	631	µg/Kg	1	870	<9.82	72	29 - 149
Chloromethane (methyl chloride)			1,2,3,4	837	µg/Kg	1	870	<11.7	96	50 - 136
Vinyl Chloride			1,2,3,4	874	µg/Kg	1	870	<10.6	100	56 - 135
Bromomethane (methyl bromide)			1,2,3,4	637	µg/Kg	1	870	<13.5	73	53 - 143
Chloroethane	Qs	Qs	1,2,3,4	462	µg/Kg	1	870	<9.16	53	59 - 139
Trichlorofluoromethane			1,2,3,4	819	µg/Kg	1	870	<12.4	94	62 - 140
Acetone			1,2,3,4	694	µg/Kg	1	870	<7.34	80	36 - 164
Iodomethane (methyl iodide)			1,2,3,4	1040	µg/Kg	1	870	<8.64	120	71 - 131
Carbon Disulfide			1,2,3,4	894	µg/Kg	1	870	<9.90	103	63 - 132
Acrylonitrile			1,2,3,4	897	µg/Kg	1	870	<9.14	103	65 - 134
2-Butanone (MEK)			1,2,3,4	756	µg/Kg	1	870	<13.4	87	51 - 148
4-Methyl-2-pentanone (MIBK)			1,2,3,4	868	µg/Kg	1	870	<14.1	100	65 - 135
2-Hexanone			1,2,3,4	721	µg/Kg	1	870	<10.6	83	53 - 145
trans 1,4-Dichloro-2-butene	Qs	Qs	1,2,3,4	528	µg/Kg	1	870	<8.49	61	62 - 136
1,1-Dichloroethene			1,2,3,4	1060	µg/Kg	1	870	<10.4	122	70 - 131
Methylene chloride			1,2,3,4	982	µg/Kg	1	870	12.2	111	70 - 128
MTBE			1,2,3,4	929	µg/Kg	1	870	<11.4	107	73 - 125
trans-1,2-Dichloroethene			1,2,3,4	1060	µg/Kg	1	870	<9.80	122	74 - 125
1,1-Dichloroethane			1,2,3,4	971	µg/Kg	1	870	<9.82	112	76 - 125
cis-1,2-Dichloroethene			1,2,3,4	1050	µg/Kg	1	870	<9.58	121	77 - 123
2,2-Dichloropropane	Qs	Qs	1,2,3,4	567	µg/Kg	1	870	<8.99	65	67 - 133
1,2-Dichloroethane (EDC)			1,2,3,4	844	µg/Kg	1	870	<9.58	97	73 - 128
Chloroform			1,2,3,4	982	µg/Kg	1	870	<9.68	113	78 - 123
1,1,1-Trichloroethane			1,2,3,4	806	µg/Kg	1	870	<10.6	93	73 - 130
1,1-Dichloropropene			1,2,3,4	1020	µg/Kg	1	870	<9.74	117	76 - 125
Benzene			1,2,3,4	1030	µg/Kg	1	870	<10.3	118	77 - 121
Carbon Tetrachloride	Qs	Qs	1,2,3,4	613	µg/Kg	1	870	<8.88	70	80 - 120
1,2-Dichloropropane			1,2,3,4	1060	µg/Kg	1	870	<9.48	122	76 - 123
Trichloroethene (TCE)	Qs	Qs	1,2,3,4	1790	µg/Kg	1	870	<10.4	206	77 - 123
Dibromomethane (methylene bromide)			1,2,3,4	891	µg/Kg	1	870	<9.65	102	78 - 125
Bromodichloromethane			1,2,3,4	763	µg/Kg	1	870	<9.23	88	75 - 127
2-Chloroethyl vinyl ether			1,2,3,4	1190	µg/Kg	1	870	<10.8	137	43 - 149
cis-1,3-Dichloropropene			1,2,3,4	815	µg/Kg	1	870	<9.76	94	74 - 126
trans-1,3-Dichloropropene			1,2,3,4	757	µg/Kg	1	870	<9.24	87	71 - 130
Toluene	Qs	Qs	1,2,3,4	1070	µg/Kg	1	870	<9.74	123	77 - 121
1,1,2-Trichloroethane			1,2,3,4	813	µg/Kg	1	870	<11.1	93	78 - 121
1,3-Dichloropropane			1,2,3,4	832	µg/Kg	1	870	<10.4	96	77 - 121
Dibromochloromethane	Qs	Qs	1,3,4	606	µg/Kg	1	870	<9.66	70	74 - 126
1,2-Dibromoethane (EDB)			1,2,3,4	848	µg/Kg	1	870	<10.8	97	78 - 122

continued ...

matrix spikes continued . . .

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Tetrachloroethene (PCE)	Qs	Qs	1,2,3,4	1740	µg/Kg	1	870	<6.38	200	73 - 128
Chlorobenzene			1,2,3,4	1000	µg/Kg	1	870	<10.5	115	79 - 120
1,1,1,2-Tetrachloroethane			1,2,3,4	765	µg/Kg	1	870	<10.2	88	78 - 125
Ethylbenzene			1,2,3,4	956	µg/Kg	1	870	<10.8	110	76 - 122
m,p-Xylene			1,2,3,4	1910	µg/Kg	1	1740	<11.0	110	77 - 124
Bromoform	Qs	Qs	1,2,3,4	472	µg/Kg	1	870	<8.43	54	67 - 132
Styrene			1,2,3,4	948	µg/Kg	1	870	<9.62	109	76 - 124
o-Xylene			1,2,3,4	957	µg/Kg	1	870	<11.0	110	77 - 123
1,1,2,2-Tetrachloroethane	Qs	Qs	1,2,3,4	92.0	µg/Kg	1	870	<10.2	10	70 - 124
2-Chlorotoluene			1,2,3,4	912	µg/Kg	1	870	<11.5	105	75 - 122
1,2,3-Trichloropropane			1,2,3,4	706	µg/Kg	1	870	<9.22	81	73 - 125
Isopropylbenzene			1,2,3,4	927	µg/Kg	1	870	<10.2	106	68 - 134
Bromobenzene			1,2,3,4	805	µg/Kg	1	870	<11.2	92	78 - 121
n-Propylbenzene			1,2,3,4	941	µg/Kg	1	870	<10.6	108	73 - 125
1,3,5-Trimethylbenzene			1,2,3,4	966	µg/Kg	1	870	<11.5	111	73 - 124
tert-Butylbenzene			1,2,3,4	1000	µg/Kg	1	870	<10.3	115	73 - 125
1,2,4-Trimethylbenzene			1,2,3,4	984	µg/Kg	1	870	<11.0	113	75 - 123
1,4-Dichlorobenzene (para)			1,2,3,4	1010	µg/Kg	1	870	<12.0	116	75 - 120
sec-Butylbenzene			1,2,3,4	1030	µg/Kg	1	870	<11.3	118	73 - 126
1,3-Dichlorobenzene (meta)			1,2,3,4	1010	µg/Kg	1	870	<11.6	116	77 - 121
p-Isopropyltoluene			1,2,3	1070	µg/Kg	1	870	<11.1	123	73 - 127
4-Chlorotoluene			1,2,3,4	897	µg/Kg	1	870	<11.7	103	72 - 124
1,2-Dichlorobenzene (ortho)			1,2,3,4	947	µg/Kg	1	870	<12.0	109	78 - 121
n-Butylbenzene			1,2,3,4	1060	µg/Kg	1	870	<11.0	122	70 - 128
1,2-Dibromo-3-chloropropane	Qs	Qs	1,3,4	509	µg/Kg	1	870	<9.07	58	61 - 132
1,2,3-Trichlorobenzene			1,2,3,4	950	µg/Kg	1	870	<12.6	109	66 - 130
1,2,4-Trichlorobenzene			1,2,3,4	1100	µg/Kg	1	870	<12.4	126	67 - 129
Naphthalene			1,2,3,4	818	µg/Kg	1	870	<10.7	94	62 - 129
Hexachlorobutadiene			1,2,3,4	1120	µg/Kg	1	870	<17.2	129	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	Qr,Qs	Qr,Qs	1,2,3,4	1360	µg/Kg	1	990	<9.28	137	78 - 125	21	20
Dichlorodifluoromethane			1,2,3,4	732	µg/Kg	1	990	<9.82	74	29 - 149	15	20
Chloromethane (methyl chloride)			1,2,3,4	999	µg/Kg	1	990	<11.7	101	50 - 136	18	20
Vinyl Chloride	Qr	Qr	1,2,3,4	1090	µg/Kg	1	990	<10.6	110	56 - 135	22	20
Bromomethane (methyl bromide)			1,2,3,4	718	µg/Kg	1	990	<13.5	72	53 - 143	12	20
Chloroethane	Qs	Qs	1,2,3,4	501	µg/Kg	1	990	<9.16	51	59 - 139	8	20
Trichlorofluoromethane			1,2,3,4	988	µg/Kg	1	990	<12.4	100	62 - 140	19	20
Acetone			1,2,3,4	812	µg/Kg	1	990	<7.34	82	36 - 164	16	20
Iodomethane (methyl iodide)	Qr,Qs	Qr,Qs	1,2,3,4	1300	µg/Kg	1	990	<8.64	131	71 - 131	22	20
Carbon Disulfide	Qr	Qr	1,2,3,4	1130	µg/Kg	1	990	<9.90	114	63 - 132	23	20
Acrylonitrile	Qr	Qr	1,2,3,4	1120	µg/Kg	1	990	<9.14	113	65 - 134	22	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	815	µg/Kg	1	990	<13.4	82	51 - 148	8	20
4-Methyl-2-pentanone (MIBK)			1,2,3,4	1060	µg/Kg	1	990	<14.1	107	65 - 135	20	20
2-Hexanone			1,2,3,4	854	µg/Kg	1	990	<10.6	86	53 - 145	17	20
trans 1,4-Dichloro-2-butene			1,2,3,4	642	µg/Kg	1	990	<8.49	65	62 - 136	20	20
1,1-Dichloroethene	Qr,Qs	Qr,Qs	1,2,3,4	1330	µg/Kg	1	990	<10.4	134	70 - 131	23	20
Methylene chloride	Qr	Qr	1,2,3,4	1210	µg/Kg	1	990	12.2	121	70 - 128	21	20
MTBE			1,2,3,4	1130	µg/Kg	1	990	<11.4	114	73 - 125	20	20
trans-1,2-Dichloroethene	Qr,Qs	Qr,Qs	1,2,3,4	1340	µg/Kg	1	990	<9.80	135	74 - 125	23	20
1,1-Dichloroethane	Qr	Qr	1,2,3,4	1210	µg/Kg	1	990	<9.82	122	76 - 125	22	20
cis-1,2-Dichloroethene	Qr,Qs	Qr,Qs	1,2,3,4	1300	µg/Kg	1	990	<9.58	131	77 - 123	21	20
2,2-Dichloropropane	Qr	Qr	1,2,3,4	722	µg/Kg	1	990	<8.99	73	67 - 133	24	20
1,2-Dichloroethane (EDC)			1,2,3,4	1000	µg/Kg	1	990	<9.58	101	73 - 128	17	20
Chloroform			1,2,3,4	1200	µg/Kg	1	990	<9.68	121	78 - 123	20	20
1,1,1-Trichloroethane	Qr	Qr	1,2,3,4	1040	µg/Kg	1	990	<10.6	105	73 - 130	25	20
1,1-Dichloropropene	Qr,Qs	Qr,Qs	1,2,3,4	1250	µg/Kg	1	990	<9.74	126	76 - 125	20	20
Benzene	Qr,Qs	Qr,Qs	1,2,3,4	1280	µg/Kg	1	990	<10.3	129	77 - 121	22	20
Carbon Tetrachloride	Qr	Qr	1,2,3,4	839	µg/Kg	1	990	<8.88	85	80 - 120	31	20
1,2-Dichloropropane	Qs	Qs	1,2,3,4	1290	µg/Kg	1	990	<9.48	130	76 - 123	20	20
Trichloroethene (TCE)	Qr,Qs	Qr,Qs	1,2,3,4	2250	µg/Kg	1	990	<10.4	227	77 - 123	23	20
Dibromomethane (methylene bromide)	Qr	Qr	1,2,3,4	1090	µg/Kg	1	990	<9.65	110	78 - 125	20	20
Bromodichloromethane	Qr	Qr	1,2,3,4	988	µg/Kg	1	990	<9.23	100	75 - 127	26	20
2-Chloroethyl vinyl ether			1,2,3,4	1440	µg/Kg	1	990	<10.8	145	43 - 149	19	20
cis-1,3-Dichloropropene	Qr	Qr	1,2,3,4	1030	µg/Kg	1	990	<9.76	104	74 - 126	23	20
trans-1,3-Dichloropropene	Qr	Qr	1,2,3,4	948	µg/Kg	1	990	<9.24	96	71 - 130	22	20
Toluene	Qr,Qs	Qr,Qs	1,2,3,4	1330	µg/Kg	1	990	<9.74	134	77 - 121	22	20
1,1,2-Trichloroethane	Qr	Qr	1,2,3,4	1020	µg/Kg	1	990	<11.1	103	78 - 121	23	20
1,3-Dichloropropane	Qr	Qr	1,2,3,4	1020	µg/Kg	1	990	<10.4	103	77 - 121	20	20
Dibromochloromethane	Qr	Qr	1,3,4	784	µg/Kg	1	990	<9.66	79	74 - 126	26	20
1,2-Dibromoethane (EDB)	Qr	Qr	1,2,3,4	1060	µg/Kg	1	990	<10.8	107	78 - 122	22	20
Tetrachloroethene (PCE)	Qr,Qs	Qr,Qs	1,2,3,4	2180	µg/Kg	1	990	<6.38	220	73 - 128	22	20
Chlorobenzene	Qr,Qs	Qr,Qs	1,2,3,4	1270	µg/Kg	1	990	<10.5	128	79 - 120	24	20
1,1,1,2-Tetrachloroethane	Qr	Qr	1,2,3,4	979	µg/Kg	1	990	<10.2	99	78 - 125	24	20
Ethylbenzene	Qr	Qr	1,2,3,4	1180	µg/Kg	1	990	<10.8	119	76 - 122	21	20
m,p-Xylene	Qr	Qr	1,2,3,4	2370	µg/Kg	1	1980	<11.0	120	77 - 124	22	20
Bromoform	Qr,Qs	Qr,Qs	1,2,3,4	647	µg/Kg	1	990	<8.43	65	67 - 132	31	20
Styrene	Qr	Qr	1,2,3,4	1180	µg/Kg	1	990	<9.62	119	76 - 124	22	20
o-Xylene	Qr	Qr	1,2,3,4	1180	µg/Kg	1	990	<11.0	119	77 - 123	21	20
1,1,2,2-Tetrachloroethane	Qs	Qs	1,2,3,4	104	µg/Kg	1	990	<10.2	10	70 - 124	12	20
2-Chlorotoluene	Qr	Qr	1,2,3,4	1190	µg/Kg	1	990	<11.5	120	75 - 122	26	20
1,2,3-Trichloropropane	Qr	Qr	1,2,3,4	897	µg/Kg	1	990	<9.22	91	73 - 125	24	20
Isopropylbenzene	Qr	Qr	1,2,3,4	1220	µg/Kg	1	990	<10.2	123	68 - 134	27	20
Bromobenzene	Qr	Qr	1,2,3,4	1060	µg/Kg	1	990	<11.2	107	78 - 121	27	20
n-Propylbenzene	Qr,Qs	Qr,Qs	1,2,3,4	1240	µg/Kg	1	990	<10.6	125	73 - 125	27	20
1,3,5-Trimethylbenzene	Qr,Qs	Qr,Qs	1,2,3,4	1260	µg/Kg	1	990	<11.5	127	73 - 124	26	20

continued . . .

matrix spikes continued . . .

Param		F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
tert-Butylbenzene	Qr,Qs	Qr,Qs	1,2,3,4	1320	µg/Kg	1	990	<10.3	133	73 - 125	28	20
1,2,4-Trimethylbenzene	Qr,Qs	Qr,Qs	1,2,3,4	1290	µg/Kg	1	990	<11.0	130	75 - 123	27	20
1,4-Dichlorobenzene (para)	Qr,Qs	Qr,Qs	1,2,3,4	1310	µg/Kg	1	990	<12.0	132	75 - 120	26	20
sec-Butylbenzene	Qr,Qs	Qr,Qs	1,2,3,4	1370	µg/Kg	1	990	<11.3	138	73 - 126	28	20
1,3-Dichlorobenzene (meta)	Qr,Qs	Qr,Qs	1,2,3,4	1330	µg/Kg	1	990	<11.6	134	77 - 121	27	20
p-Isopropyltoluene	Qr,Qs	Qr,Qs	1,2,3	1410	µg/Kg	1	990	<11.1	142	73 - 127	27	20
4-Chlorotoluene	Qr	Qr	1,2,3,4	1160	µg/Kg	1	990	<11.7	117	72 - 124	26	20
1,2-Dichlorobenzene (ortho)	Qr,Qs	Qr,Qs	1,2,3,4	1230	µg/Kg	1	990	<12.0	124	78 - 121	26	20
n-Butylbenzene	Qr,Qs	Qr,Qs	1,2,3,4	1420	µg/Kg	1	990	<11.0	143	70 - 128	29	20
1,2-Dibromo-3-chloropropane	Qr	Qr	1,3,4	666	µg/Kg	1	990	<9.07	67	61 - 132	27	20
1,2,3-Trichlorobenzene	Qr,Qs	Qr,Qs	1,2,3,4	1380	µg/Kg	1	990	<12.6	139	66 - 130	37	20
1,2,4-Trichlorobenzene	Qr,Qs	Qr,Qs	1,2,3,4	1510	µg/Kg	1	990	<12.4	152	67 - 129	31	20
Naphthalene	Qr	Qr	1,2,3,4	1150	µg/Kg	1	990	<10.7	116	62 - 129	34	20
Hexachlorobutadiene	Qr,Qs	Qr,Qs	1,2,3,4	1560	µg/Kg	1	990	<17.2	158	31 - 135	33	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	805	906	µg/Kg	1	870	92	92	78 - 119
Toluene-d8		809	906	µg/Kg	1	870	93	92	85 - 116
4-Bromofluorobenzene (4-BFB)		811	879	µg/Kg	1	870	93	89	79 - 119

Matrix Spike (MS-1) Spiked Sample: 426318

QC Batch: 132150 | Date Analyzed: 2016-08-16 | Analyzed By: CF
Prep Batch: 111992 | QC Preparation: 2016-08-15 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	4100	mg/Kg	5	2500	1714	95	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	4100	mg/Kg	5	2500	1714	95	80 - 120	0	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: 132102 | Date Analyzed: 2016-08-12 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/Kg	1.00	1.04	104	80 - 120	2016-08-12

Standard (CCV-2)

QC Batch: 132102 | Date Analyzed: 2016-08-12 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/Kg	1.00	0.795	80	80 - 120	2016-08-12

Standard (CCV-3)

QC Batch: 132102 | Date Analyzed: 2016-08-12 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1,2,3	mg/Kg	1.00	1.02	102	80 - 120	2016-08-12

Standard (CCV-1)

QC Batch: 132108 | Date Analyzed: 2016-08-15 | 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	250	234	94	80 - 120	2016-08-15

Standard (CCV-2)

QC Batch: 132108 Date Analyzed: 2016-08-15 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	250	250	100	80 - 120	2016-08-15

Standard (CCV-1)

QC Batch: 132145 Date Analyzed: 2016-08-15 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	52.6	105	80 - 120	2016-08-15
Dichlorodifluoromethane	Qc	Qc	1,2,3,4	µg/Kg	50.0	31.5	63	80 - 120	2016-08-15
Chloromethane (methyl chloride)			1,2,3,4	µg/Kg	50.0	41.9	84	80 - 120	2016-08-15
Vinyl Chloride			1,2,3,4	µg/Kg	50.0	42.8	86	80 - 120	2016-08-15
Bromomethane (methyl bromide)			1,2,3,4	µg/Kg	50.0	46.4	93	80 - 120	2016-08-15
Chloroethane			1,2,3,4	µg/Kg	50.0	46.2	92	80 - 120	2016-08-15
Trichlorofluoromethane			1,2,3,4	µg/Kg	50.0	45.3	91	80 - 120	2016-08-15
Acetone	Qc	Qc	1,2,3,4	µg/Kg	50.0	29.6	59	80 - 120	2016-08-15
Iodomethane (methyl iodide)			1,2,3,4	µg/Kg	50.0	49.7	99	80 - 120	2016-08-15
Carbon Disulfide			1,2,3,4	µg/Kg	50.0	48.6	97	80 - 120	2016-08-15
Acrylonitrile			1,2,3,4	µg/Kg	50.0	43.3	87	80 - 120	2016-08-15
2-Butanone (MEK)	Qc	Qc	1,2,3,4	µg/Kg	50.0	38.5	77	80 - 120	2016-08-15
4-Methyl-2-pentanone (MIBK)			1,2,3,4	µg/Kg	50.0	45.6	91	80 - 120	2016-08-15
2-Hexanone	Qc	Qc	1,2,3,4	µg/Kg	50.0	35.9	72	80 - 120	2016-08-15
trans 1,4-Dichloro-2-butene			1,2,3,4	µg/Kg	50.0	42.8	86	80 - 120	2016-08-15
1,1-Dichloroethene			1,2,3,4	µg/Kg	50.0	50.5	101	80 - 120	2016-08-15
Methylene chloride			1,2,3,4	µg/Kg	50.0	47.8	96	80 - 120	2016-08-15
MTBE			1,2,3,4	µg/Kg	50.0	47.8	96	80 - 120	2016-08-15
trans-1,2-Dichloroethene			1,2,3,4	µg/Kg	50.0	51.7	103	80 - 120	2016-08-15
1,1-Dichloroethane			1,2,3,4	µg/Kg	50.0	48.2	96	80 - 120	2016-08-15
cis-1,2-Dichloroethene			1,2,3,4	µg/Kg	50.0	50.6	101	80 - 120	2016-08-15
2,2-Dichloropropane			1,2,3,4	µg/Kg	50.0	46.9	94	80 - 120	2016-08-15
1,2-Dichloroethane (EDC)			1,2,3,4	µg/Kg	50.0	45.5	91	80 - 120	2016-08-15
Chloroform			1,2,3,4	µg/Kg	50.0	50.2	100	80 - 120	2016-08-15
1,1,1-Trichloroethane			1,2,3,4	µg/Kg	50.0	50.5	101	80 - 120	2016-08-15
1,1-Dichloropropene			1,2,3,4	µg/Kg	50.0	49.7	99	80 - 120	2016-08-15
Benzene			1,2,3,4	µg/Kg	50.0	49.9	100	80 - 120	2016-08-15
Carbon Tetrachloride			1,2,3,4	µg/Kg	50.0	48.3	97	80 - 120	2016-08-15
1,2-Dichloropropane			1,2,3,4	µg/Kg	50.0	50.4	101	80 - 120	2016-08-15

continued . . .

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Trichloroethene (TCE)		1,2,3,4	µg/Kg	50.0	51.2	102	80 - 120	2016-08-15
Dibromomethane (methylene bromide)		1,2,3,4	µg/Kg	50.0	47.3	95	80 - 120	2016-08-15
Bromodichloromethane		1,2,3,4	µg/Kg	50.0	49.6	99	80 - 120	2016-08-15
2-Chloroethyl vinyl ether		1,2,3,4	µg/Kg	50.0	45.6	91	80 - 120	2016-08-15
cis-1,3-Dichloropropene		1,2,3,4	µg/Kg	50.0	45.1	90	80 - 120	2016-08-15
trans-1,3-Dichloropropene		1,2,3,4	µg/Kg	50.0	43.9	88	80 - 120	2016-08-15
Toluene		1,2,3,4	µg/Kg	50.0	51.4	103	80 - 120	2016-08-15
1,1,2-Trichloroethane		1,2,3,4	µg/Kg	50.0	44.3	89	80 - 120	2016-08-15
1,3-Dichloropropane		1,2,3,4	µg/Kg	50.0	44.4	89	80 - 120	2016-08-15
Dibromochloromethane		1,3,4	µg/Kg	50.0	45.4	91	80 - 120	2016-08-15
1,2-Dibromoethane (EDB)		1,2,3,4	µg/Kg	50.0	44.9	90	80 - 120	2016-08-15
Tetrachloroethene (PCE)		1,2,3,4	µg/Kg	50.0	44.4	89	80 - 120	2016-08-15
Chlorobenzene		1,2,3,4	µg/Kg	50.0	49.3	99	80 - 120	2016-08-15
1,1,1,2-Tetrachloroethane		1,2,3,4	µg/Kg	50.0	47.3	95	80 - 120	2016-08-15
Ethylbenzene		1,2,3,4	µg/Kg	50.0	47.6	95	80 - 120	2016-08-15
m,p-Xylene		1,2,3,4	µg/Kg	100	96.5	96	80 - 120	2016-08-15
Bromoform		1,2,3,4	µg/Kg	50.0	45.8	92	80 - 120	2016-08-15
Styrene		1,2,3,4	µg/Kg	50.0	46.8	94	80 - 120	2016-08-15
o-Xylene		1,2,3,4	µg/Kg	50.0	48.8	98	80 - 120	2016-08-15
1,1,2,2-Tetrachloroethane		1,2,3,4	µg/Kg	50.0	42.4	85	80 - 120	2016-08-15
2-Chlorotoluene		1,2,3,4	µg/Kg	50.0	47.1	94	80 - 120	2016-08-15
1,2,3-Trichloropropane		1,2,3,4	µg/Kg	50.0	41.4	83	80 - 120	2016-08-15
Isopropylbenzene		1,2,3,4	µg/Kg	50.0	46.8	94	80 - 120	2016-08-15
Bromobenzene		1,2,3,4	µg/Kg	50.0	44.6	89	80 - 120	2016-08-15
n-Propylbenzene		1,2,3,4	µg/Kg	50.0	46.7	93	80 - 120	2016-08-15
1,3,5-Trimethylbenzene		1,2,3,4	µg/Kg	50.0	48.1	96	80 - 120	2016-08-15
tert-Butylbenzene		1,2,3,4	µg/Kg	50.0	48.0	96	80 - 120	2016-08-15
1,2,4-Trimethylbenzene		1,2,3,4	µg/Kg	50.0	47.8	96	80 - 120	2016-08-15
1,4-Dichlorobenzene (para)		1,2,3,4	µg/Kg	50.0	49.9	100	80 - 120	2016-08-15
sec-Butylbenzene		1,2,3,4	µg/Kg	50.0	48.1	96	80 - 120	2016-08-15
1,3-Dichlorobenzene (meta)		1,2,3,4	µg/Kg	50.0	49.1	98	80 - 120	2016-08-15
p-Isopropyltoluene		1,2,3	µg/Kg	50.0	48.1	96	80 - 120	2016-08-15
4-Chlorotoluene		1,2,3,4	µg/Kg	50.0	45.5	91	80 - 120	2016-08-15
1,2-Dichlorobenzene (ortho)		1,2,3,4	µg/Kg	50.0	49.1	98	80 - 120	2016-08-15
n-Butylbenzene		1,2,3,4	µg/Kg	50.0	47.4	95	80 - 120	2016-08-15
1,2-Dibromo-3-chloropropane		1,3,4	µg/Kg	50.0	41.1	82	80 - 120	2016-08-15
1,2,3-Trichlorobenzene		1,2,3,4	µg/Kg	50.0	53.2	106	80 - 120	2016-08-15
1,2,4-Trichlorobenzene		1,2,3,4	µg/Kg	50.0	53.8	108	80 - 120	2016-08-15
Naphthalene		1,2,3,4	µg/Kg	50.0	51.2	102	80 - 120	2016-08-15
Hexachlorobutadiene		1,2,3,4	µg/Kg	50.0	50.5	101	80 - 120	2016-08-15

Standard (ICV-1)

QC Batch: 132150 Date Analyzed: 2016-08-16 Analyzed By: CF

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/Kg	100	100	100	85 - 115	2016-08-16

Standard (CCV-1)

QC Batch: 132150 Date Analyzed: 2016-08-16 Analyzed By: CF

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/Kg	100	100	100	85 - 115	2016-08-16

Appendix

Report Definitions

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

Laboratory Certifications

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

Standard Flags

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

Attachments

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

LAB Order ID # 481207

Page 1 of 1

TraceAnalysis, Inc.

email: lab@traceanalysis.com

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

5002 Basin Street, Suite A1
Midland, Texas 79703
Tel (432) 689-6301
Fax (432) 689-6313

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 Mayes Rd., Ste 100
Carrollton, Texas 75006
Tel (972) 242-7750

Brandon & Clark
3403 Industrial Blvd.
Hobbs, NM 88240
Tel (575) 392-7561
Fax (575) 392-4508

Company Name: Kinder Morgan
Phone #: (719) 505-5255
Address: (Street, City, Zip) 2 North Nevada Ave., Colorado Springs, CO 80903
Fax #:
Contact Person: Mary Martino
E-mail: mary_martino@kindermorgan.com
Invoice to:
(If different from above)
Project #: AFE 403828
Project Name: EPNG Line 3031 Spike Test
Project Location (including state): Lea County, NM
Sampler Signature: Elisabeth Westcott

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
486311	Rupture #7 background	1			X								X	8/9/16	10:00am
312	Rupture #7 contaminated	1			X								X	8/9/16	10:00am
313	Rupture #7 release	1	250mL	X									X	8/9/16	10:00am
	Rupture #7 release	9	40mL	X				X						8/9/16	10:00am
314	Rupture #8 background	1			X								X	8/11/16	9:30am
315	Rupture #8 contaminated	1			X								X	8/11/16	9:30am
316	Rupture #8 release	1	250mL	X									X	8/11/16	9:30am
	Rupture #8 release	9	40mL	X				X						8/11/16	9:30am
317	3rd party damage background	1			X								X	8/11/16	10:15am
318	3rd party damage trench	1			X								X	8/11/16	10:15am

ANALYSIS REQUEST (Circle or Specify Method No.)	Turn Around Time if different from standard	Hold
MTBE 8021 / 602 / 8260 / 624		
BTEX 8021 / 602 / 8260 / 624		
TPH 418.1 / TX1005 / TX1005 Ext(C35)		
TPH 8015 GRO / (DRO) / TVHC		
PAH 8270 / 625		
Total Metals Ag As Ba Cd Cr Pb Se Hg 6010/200.7		
TCLP Metals Ag As Ba Cd Cr Pb Se Hg		
TCLP Volatiles		
TCLP Semi Volatiles		
TCLP Pesticides		
RCI		
GC/MS Vol. 8260 / 624		
GC/MS Semi. Vol. 8270 / 625		
PCB's 8082 / 608		
Pesticides 8081 / 608		
BOD, TSS, pH		
Moisture Content		
Cl, F, SO_4, NO_3-N, NO_2-N, PO_4-P, Alkalinity		
Na, Ca, Mg, K, TDS, EC		

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	
Elisabeth Westcott	KM	8/11/16	10:50am	Jesse Valenzuela	Brandon Clark	8/11/16	10:50	INST ____ OBS 29 °C COR ____ °C
								INST ____ OBS ____ °C COR ____ °C
				Brenda Ward	TA Midland	8/12/16	8:55	INST P2 OBS 3.8 °C COR 4.2 °C

LAB USE ONLY
Intact Y N
Headspace Y N NA
Log-in-Review

REMARKS:
Email results to:
mary_martino@kindermorgan.com
glen_thompson@kindermorgan.com
elisabeth_westcott@kindermorgan.com

- [ ] Dry Weight Basis Required
- [ ] TRRP Report Required
- [ ] Check If Special Reporting Limits Are Needed

Carrier # 25 ZU008420

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Revision 1, 09/15/15

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