

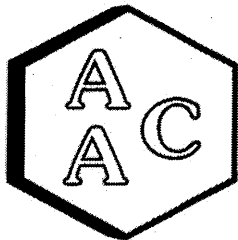
Volatile Organic Compound Analysis Results for Samples Collected in Nuiqsut, Alaska

Sample Location: Nuiqsut Ambient Air Quality Monitoring Station

Date Sample Collected: 5/2/2022

Analysis Conducted by: Atmospheric Analysis & Consulting, Inc.

Analysis Method: EPA Method TO-15



Atmospheric Analysis & Consulting, Inc.

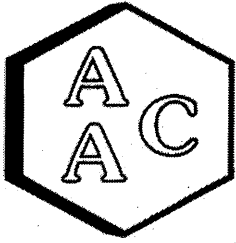
Laboratory Analysis Report

CLIENT : SLR International Corporation
 PROJECT NO : 220988
 MATRIX : AIR
 UNITS : PPB (v/v)

DATE RECEIVED : 05/09/2022
 DATE REPORTED : 05/10/2022
 ANALYST : MB

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

<i>Client ID</i>	NUI			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
<i>AAC ID</i>	220988-31014				
<i>Date Sampled</i>	05/02/2022				
<i>Date Analyzed</i>	05/09/2022				
<i>Can Dilution Factor</i>	1.77				
<i>Compound</i>	Result	Qualifier	Analysis DF		
Chlorodifluoromethane	<SRL	U	1	0.89	0.50
Propene	<SRL	U	1	1.77	1.00
Dichlorodifluoromethane	<SRL	U	1	0.89	0.50
Chloromethane	<SRL	U	1	0.89	0.50
Dichlorotetrafluoroethane	<SRL	U	1	0.89	0.50
Vinyl Chloride	<SRL	U	1	0.89	0.50
Methanol	<SRL	U	1	8.87	5.00
1,3-Butadiene	<SRL	U	1	0.89	0.50
Bromomethane	<SRL	U	1	0.89	0.50
Chloroethane	<SRL	U	1	0.89	0.50
Dichlorofluoromethane	<SRL	U	1	0.89	0.50
Ethanol	<SRL	U	1	3.55	2.00
Vinyl Bromide	<SRL	U	1	0.89	0.50
Acetone	<SRL	U	1	3.55	2.00
Trichlorofluoromethane	<SRL	U	1	0.89	0.50
2-Propanol (IPA)	<SRL	U	1	3.55	2.00
Acrylonitrile	<SRL	U	1	3.55	2.00
1,1-Dichloroethene	<SRL	U	1	0.89	0.50
Methylene Chloride (DCM)	<SRL	U	1	1.77	1.00
Allyl Chloride	<SRL	U	1	1.77	1.00
Carbon Disulfide	<SRL	U	1	3.55	2.00
Trichlorotrifluoroethane	<SRL	U	1	0.89	0.50
trans-1,2-Dichloroethene	<SRL	U	1	0.89	0.50
1,1-Dichloroethane	<SRL	U	1	0.89	0.50
Methyl Tert Butyl Ether (MTBE)	<SRL	U	1	0.89	0.50
Vinyl Acetate	<SRL	U	1	1.77	1.00
2-Butanone (MEK)	<SRL	U	1	1.77	1.00
cis-1,2-Dichloroethene	<SRL	U	1	0.89	0.50
Hexane	<SRL	U	1	0.89	0.50
Chloroform	<SRL	U	1	0.89	0.50
Ethyl Acetate	<SRL	U	1	0.89	0.50
Tetrahydrofuran	<SRL	U	1	0.89	0.50
1,2-Dichloroethane	<SRL	U	1	0.89	0.50
1,1,1-Trichloroethane	<SRL	U	1	0.89	0.50
Benzene	<SRL	U	1	0.89	0.50



Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

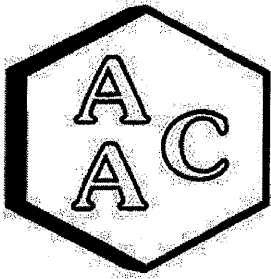
CLIENT : SLR International Corporation
 PROJECT NO : 220988
 MATRIX : AIR
 UNITS : PPB (v/v)

DATE RECEIVED : 05/09/2022
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VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

<i>Client ID</i>		NUI			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
<i>AAC ID</i>		220988-31014				
<i>Date Sampled</i>		05/02/2022				
<i>Date Analyzed</i>		05/09/2022				
<i>Can Dilution Factor</i>		1.77				
<i>Compound</i>	Result	Qualifier	Analysis DF			
Carbon Tetrachloride	<SRL	U	1	0.89	0.50	
Cyclohexane	<SRL	U	1	0.89	0.50	
1,2-Dichloropropane	<SRL	U	1	0.89	0.50	
Bromodichloromethane	<SRL	U	1	0.89	0.50	
1,4-Dioxane	<SRL	U	1	1.77	1.00	
Trichloroethene (TCE)	<SRL	U	1	0.89	0.50	
2,2,4-Trimethylpentane	<SRL	U	1	0.89	0.50	
Heptane	<SRL	U	1	0.89	0.50	
cis-1,3-Dichloropropene	<SRL	U	1	0.89	0.50	
4-Methyl-2-pentanone (MiBK)	<SRL	U	1	0.89	0.50	
trans-1,3-Dichloropropene	<SRL	U	1	0.89	0.50	
1,1,2-Trichloroethane	<SRL	U	1	0.89	0.50	
Toluene	<SRL	U	1	0.89	0.50	
2-Hexanone (MBK)	<SRL	U	1	1.77	1.00	
Dibromochloromethane	<SRL	U	1	0.89	0.50	
1,2-Dibromoethane	<SRL	U	1	0.89	0.50	
Tetrachloroethene (PCE)	<SRL	U	1	0.89	0.50	
Chlorobenzene	<SRL	U	1	0.89	0.50	
Ethylbenzene	<SRL	U	1	0.89	0.50	
m & p-Xylene	<SRL	U	1	1.77	1.00	
Bromoform	<SRL	U	1	0.89	0.50	
Styrene	<SRL	U	1	0.89	0.50	
1,1,2,2-Tetrachloroethane	<SRL	U	1	0.89	0.50	
o-Xylene	<SRL	U	1	0.89	0.50	
4-Ethyltoluene	<SRL	U	1	0.89	0.50	
1,3,5-Trimethylbenzene	<SRL	U	1	0.89	0.50	
1,2,4-Trimethylbenzene	<SRL	U	1	0.89	0.50	
Benzyl Chloride (a-Chlorotoluene)	<SRL	U	1	0.89	0.50	
1,3-Dichlorobenzene	<SRL	U	1	0.89	0.50	
1,4-Dichlorobenzene	<SRL	U	1	0.89	0.50	
1,2-Dichlorobenzene	<SRL	U	1	0.89	0.50	
1,2,4-Trichlorobenzene	<SRL	U	1	0.89	0.50	
Hexachlorobutadiene	<SRL	U	1	0.89	0.50	
BFB-Surrogate Std. % Recovery		89%			70-130%	

U - Compound was not detected at or above the SRL.



Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL / QUALITY ASSURANCE REPORT

ANALYSIS DATE : 05/09/2022
 MATRIX : High Purity N₂
 UNITS : PPB (v/v)

INSTRUMENT ID : GC/MS-04
 CALIBRATION STD ID : MS1-030122-01
 ANALYST : MB

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15 Continuing Calibration Verification of the 03/29/2022 Calibration

Analyte Compounds	Source ¹	CCV ²	% Recovery ³	
4-BFB (surrogate standard)	9.80	10.14	103	
Chlorodifluoromethane	10.40	13.12	126	
Propene	10.60	13.68	129	
Dichlorodifluoromethane	10.40	11.08	107	
Dimethyl Ether	10.20	12.44	122	
Chloromethane	10.40	12.87	124	
Dichlorotetrafluoroethane	10.30	10.59	103	
Vinyl Chloride	10.50	11.80	112	
Acetaldehyde	21.10	23.30	110	
Methanol	18.80	16.39	87	
1,3-Butadiene	HR	10.60	14.01	132
Bromomethane	10.40	9.15	88	
Chloroethane	10.30	9.40	91	
Dichlorofluoromethane	10.20	8.70	85	
Ethanol	11.20	10.35	92	
Vinyl Bromide	10.10	8.27	82	
Acrolein	11.10	12.07	109	
Acetone	10.60	11.48	108	
Trichlorofluoromethane	10.50	9.22	88	
2-Propanol (IPA)	11.00	11.02	100	
Acrylonitrile	11.20	12.44	111	
1,1-Dichloroethene	10.40	10.01	96	
Methylene Chloride (DCM)	10.50	10.10	96	
TertButanol (TBA)	11.10	10.04	90	
Allyl Chloride	10.20	12.60	124	
Carbon Disulfide	10.50	10.21	97	
Trichlorotrifluoroethane	10.40	9.93	95	
trans-1,2-Dichloroethene	10.60	10.50	99	
1,1-Dichloroethane	10.50	11.39	108	
Methyl Tert Butyl Ether (MTBE)	10.50	10.94	104	
Vinyl Acetate	HR	11.00	14.42	131
2-Butanone (MEK)	10.60	10.05	95	
cis-1,2-Dichloroethene	10.50	10.55	100	
Hexane	10.70	10.03	94	
Chloroform	10.60	10.86	102	
Ethyl Acetate	10.60	12.46	118	
Tetrahydrofuran	10.20	10.15	100	
1,2-Dichloroethane	10.50	11.98	114	
1,1,1-Trichloroethane	10.40	10.36	100	
Benzene	10.60	9.92	94	
Carbon Tetrachloride	10.20	10.07	99	
Cyclohexane	10.50	10.51	100	

Analyte Compounds (Continued)	Source ¹	CCV ²	% Recovery ³
1,2-Dichloropropane	10.50	10.83	103
Bromodichloromethane	10.40	9.88	95
1,4-Dioxane	10.40	7.46	72
Trichloroethene (TCE)	10.40	9.40	90
2,2,4-Trimethylpentane	10.00	11.29	113
Methyl Methacrylate	11.00	10.14	92
Heptane	10.50	9.61	92
cis-1,3-Dichloropropene	10.40	9.82	94
4-Methyl-2-pentanone (MiBK)	10.40	10.37	100
trans-1,3-Dichloropropene	10.50	10.24	98
1,1,2-Trichloroethane	10.50	9.47	90
Toluene	10.60	9.67	91
2-Hexanone (MBK)	10.50	10.11	96
Dibromochloromethane	10.30	9.22	90
1,2-Dibromoethane	10.60	9.51	90
Tetrachloroethene (PCE)	10.40	8.54	82
Chlorobenzene	10.60	9.83	93
Ethylbenzene	10.50	10.09	96
m & p-Xylene	21.00	21.33	102
Bromoform	10.50	9.82	94
Styrene	10.50	11.08	106
1,1,2,2-Tetrachloroethane	10.50	10.69	102
o-Xylene	10.50	11.04	105
1,2,3-Trichloropropane	11.00	11.62	106
Isopropylbenzene (Cumene)	10.30	10.93	106
α-Pinene	10.70	10.96	102
2-Chlorotoluene	10.30	10.57	103
n-Propylbenzene	10.10	10.73	106
4-Ethyltoluene	10.30	11.07	107
1,3,5-Trimethylbenzene	10.30	10.75	104
β-Pinene	11.00	11.27	102
1,2,4-Trimethylbenzene	10.30	11.44	111
Benzyl Chloride (a-Chlorotoluene)	10.40	10.04	97
1,3-Dichlorobenzene	10.40	10.82	104
1,4-Dichlorobenzene	10.30	10.78	105
Sec-ButylBenzene	10.10	11.14	110
1,2-Dichlorobenzene	10.60	11.00	104
n-ButylBenzene	10.20	10.96	107
1,2-Dibromo-3-Chloropropane	10.10	9.08	90
1,2,4-Trichlorobenzene	11.00	9.67	88
Naphthalene	11.50	9.92	86
Hexachlorobutadiene	11.00	10.29	94

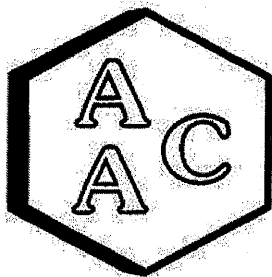
¹ Concentration of analyte compound in certified source standard.

² Measured result from daily Continuing Calibration Verification (CCV).

³ The acceptable range for analyte recovery is 100±30%.

HR - Recovery for this compound was high. Results should be considered biased high.





Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL / QUALITY ASSURANCE REPORT

ANALYSIS DATE : 05/09/2022

MATRIX : High Purity N₂

UNITS : PPB (v/v)

INSTRUMENT ID : GC/MS-04

CALIBRATION STD ID : MS1-030122-01

ANALYST : MB

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Laboratory Control Spike Analysis

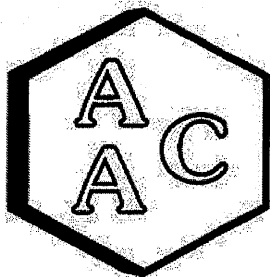
<i>System Monitoring Compounds</i>	<i>Sample Concentration</i>	<i>Spike Added</i>	<i>LCS¹ Recovery</i>	<i>LCSD¹ Recovery</i>	<i>LCS¹ % Recovery²</i>	<i>LCSD¹ % Recovery²</i>	<i>RPD³</i>
4-BFB (surrogate standard)	0.0	9.80	10.14	10.03	103	102	1.1
1,1-Dichloroethene	0.0	10.40	10.01	10.24	96	98	2.3
Methylene Chloride (DCM)	0.0	10.50	10.10	10.07	96	96	0.3
Benzene	0.0	10.60	9.92	9.97	94	94	0.5
Trichloroethene (TCE)	0.0	10.40	9.40	9.48	90	91	0.8
Toluene	0.0	10.60	9.67	9.67	91	91	0.0
Tetrachloroethene (PCE)	0.0	10.40	8.54	8.62	82	83	0.9
Chlorobenzene	0.0	10.60	9.83	9.93	93	94	1.0
Ethylbenzene	0.0	10.50	10.09	10.20	96	97	1.1
m & p-Xylene	0.0	21.00	21.33	21.58	102	103	1.2
o-Xylene	0.0	10.50	11.04	11.18	105	106	1.3

¹ Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

² The acceptable range for analyte recovery is 100±30%.

³ Relative Percent Difference (RPD) between LCS recovery and LCSD recovery (acceptable range is <25%).





Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL / QUALITY ASSURANCE REPORT

ANALYSIS DATE : 05/09/2022
 MATRIX : High Purity He or N₂
 UNITS : PPB (v/v)

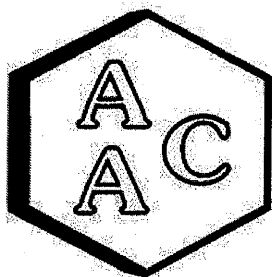
INSTRUMENT ID : GC/MS-04
 ANALYST : MB

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15 Method Blank Analysis

Analyte Compounds	MB 050922	Reporting Limit (RL)
4-BFB (surrogate standard)	89%	100±30%
Chlorodifluoromethane	<RL	0.5
Propene	<RL	1.0
Dichlorodifluoromethane	<RL	0.5
Dimethyl Ether	<RL	0.5
Chloromethane	<RL	0.5
Dichlorotetrafluoroethane	<RL	0.5
Vinyl Chloride	<RL	0.5
Acetaldehyde	<RL	5.0
Methanol	<RL	5.0
1,3-Butadiene	<RL	0.5
Bromomethane	<RL	0.5
Chloroethane	<RL	0.5
Dichlorofluoromethane	<RL	0.5
Ethanol	<RL	2.0
Vinyl Bromide	<RL	0.5
Acrolein	<RL	1.0
Acetone	<RL	2.0
Trichlorofluoromethane	<RL	0.5
2-Propanol (IPA)	<RL	2.0
Acrylonitrile	<RL	2.0
1,1-Dichloroethene	<RL	0.5
Methylene Chloride (DCM)	<RL	1.0
TertButanol (TBA)	<RL	0.5
Allyl Chloride	<RL	1.0
Carbon Disulfide	<RL	2.0
Trichlorotrifluoroethane	<RL	0.5
trans-1,2-Dichloroethene	<RL	0.5
1,1-Dichloroethane	<RL	0.5
Methyl Tert Butyl Ether (MTBE)	<RL	0.5
Vinyl Acetate	<RL	1.0
2-Butanone (MEK)	<RL	1.0
cis-1,2-Dichloroethene	<RL	0.5
Hexane	<RL	0.5
Chloroform	<RL	0.5
Ethyl Acetate	<RL	0.5
Tetrahydrofuran	<RL	0.5
1,2-Dichloroethane	<RL	0.5
1,1,1-Trichloroethane	<RL	0.5
Benzene	<RL	0.5
Carbon Tetrachloride	<RL	0.5
Cyclohexane	<RL	0.5

Analyte Compounds (Continued)	MB 050922	Reporting Limit (RL)
1,2-Dichloropropane	<RL	0.5
Bromodichloromethane	<RL	0.5
1,4-Dioxane	<RL	1.0
Trichloroethene (TCE)	<RL	0.5
2,2,4-Trimethylpentane	<RL	0.5
Methyl Methacrylate	<RL	0.5
Heptane	<RL	0.5
cis-1,3-Dichloropropene	<RL	0.5
4-Methyl-2-pentanone (MiBK)	<RL	0.5
trans-1,3-Dichloropropene	<RL	0.5
1,1,2-Trichloroethane	<RL	0.5
Toluene	<RL	0.5
2-Hexanone (MBK)	<RL	1.0
Dibromochloromethane	<RL	0.5
1,2-Dibromoethane	<RL	0.5
Tetrachloroethene (PCE)	<RL	0.5
Chlorobenzene	<RL	0.5
Ethylbenzene	<RL	0.5
m & p-Xylene	<RL	1.0
Bromoform	<RL	0.5
Styrene	<RL	0.5
1,1,2,2-Tetrachloroethane	<RL	0.5
o-Xylene	<RL	0.5
1,2,3-Trichloropropane	<RL	0.5
Isopropylbenzene (Cumene)	<RL	0.5
α-Pinene	<RL	0.5
2-Chlorotoluene	<RL	0.5
n-Propylbenzene	<RL	0.5
4-Ethyltoluene	<RL	0.5
1,3,5-Trimethylbenzene	<RL	0.5
β-Pinene	<RL	0.5
1,2,4-Trimethylbenzene	<RL	0.5
Benzyl Chloride (α-Chlorotoluene)	<RL	0.5
1,3-Dichlorobenzene	<RL	0.5
1,4-Dichlorobenzene	<RL	0.5
Sec-ButylBenzene	<RL	0.5
1,2-Dichlorobenzene	<RL	0.5
n-ButylBenzene	<RL	0.5
1,2-Dibromo-3-Chloropropane	<RL	0.5
1,2,4-Trichlorobenzene	<RL	0.5
Naphthalene	<RL	1.0
Hexachlorobutadiene	<RL	0.5





Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL / QUALITY ASSURANCE REPORT

ANALYSIS DATE : 05/09/2022

MATRIX : Air

UNITS : PPB (v/v)

INSTRUMENT ID : GC/MS-04

ANALYST : MB

DILUTION FACTOR¹ : x1.77

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Duplicate Analysis of AAC Sample ID: 220988-31014

Analyte Compounds	Sample	Duplicate	RPD ²
4-BFB (surrogate standard)	8.89	8.79	1.1
Chlorodifluoromethane	<SRL	<SRL	NA
Propene	J 1.79	1.58	12.6
Dichlorodifluoromethane	<SRL	<SRL	NA
Dimethyl Ether	<SRL	<SRL	NA
Chloromethane	<SRL	<SRL	NA
Dichlorotetrafluoroethane	<SRL	<SRL	NA
Vinyl Chloride	<SRL	<SRL	NA
Acetaldehyde	<SRL	<SRL	NA
Methanol	<SRL	<SRL	NA
1,3-Butadiene	<SRL	<SRL	NA
Bromomethane	<SRL	<SRL	NA
Chloroethane	<SRL	<SRL	NA
Dichlorofluoromethane	<SRL	<SRL	NA
Ethanol	<SRL	<SRL	NA
Vinyl Bromide	<SRL	<SRL	NA
Acrolein	<SRL	<SRL	NA
Acetone	<SRL	<SRL	NA
Trichlorofluoromethane	<SRL	<SRL	NA
2-Propanol (IPA)	<SRL	<SRL	NA
Acrylonitrile	<SRL	<SRL	NA
1,1-Dichloroethene	<SRL	<SRL	NA
Methylene Chloride (DCM)	<SRL	<SRL	NA
TertButanol (TBA)	<SRL	<SRL	NA
Allyl Chloride	<SRL	<SRL	NA
Carbon Disulfide	<SRL	<SRL	NA
Trichlorotrifluoroethane	<SRL	<SRL	NA
trans-1,2-Dichloroethene	<SRL	<SRL	NA
1,1-Dichloroethane	<SRL	<SRL	NA
Methyl Tert Butyl Ether (MTBE)	<SRL	<SRL	NA
Vinyl Acetate	<SRL	<SRL	NA
2-Butanone (MEK)	<SRL	<SRL	NA
cis-1,2-Dichloroethene	<SRL	<SRL	NA
Hexane	<SRL	<SRL	NA
Chloroform	<SRL	<SRL	NA
Ethyl Acetate	<SRL	<SRL	NA
Tetrahydrofuran	<SRL	<SRL	NA
1,2-Dichloroethane	<SRL	<SRL	NA
1,1,1-Trichloroethane	<SRL	<SRL	NA
Benzene	<SRL	<SRL	NA
Carbon Tetrachloride	<SRL	<SRL	NA
Cyclohexane	<SRL	<SRL	NA

Analyte Compounds (Continued)	Sample	Duplicate	RPD ²
1,2-Dichloropropane	<SRL	<SRL	NA
Bromodichloromethane	<SRL	<SRL	NA
1,4-Dioxane	<SRL	<SRL	NA
Trichloroethene (TCE)	<SRL	<SRL	NA
2,2,4-Trimethylpentane	<SRL	<SRL	NA
Methyl Methacrylate	<SRL	<SRL	NA
Heptane	<SRL	<SRL	NA
cis-1,3-Dichloropropene	<SRL	<SRL	NA
4-Methyl-2-pentanone (MiBK)	<SRL	<SRL	NA
trans-1,3-Dichloropropene	<SRL	<SRL	NA
1,1,2-Trichloroethane	<SRL	<SRL	NA
Toluene	<SRL	<SRL	NA
2-Hexanone (MBK)	<SRL	<SRL	NA
Dibromochloromethane	<SRL	<SRL	NA
1,2-Dibromoethane	<SRL	<SRL	NA
Tetrachloroethene (PCE)	<SRL	<SRL	NA
Chlorobenzene	<SRL	<SRL	NA
Ethylbenzene	<SRL	<SRL	NA
m & p-Xylene	<SRL	<SRL	NA
Bromoform	<SRL	<SRL	NA
Styrene	<SRL	<SRL	NA
1,1,2,2-Tetrachloroethane	<SRL	<SRL	NA
o-Xylene	<SRL	<SRL	NA
1,2,3-Trichloropropane	<SRL	<SRL	NA
Isopropylbenzene (Cumene)	<SRL	<SRL	NA
α-Pinene	<SRL	<SRL	NA
2-Chlorotoluene	<SRL	<SRL	NA
n-Propylbenzene	<SRL	<SRL	NA
4-Ethyltoluene	<SRL	<SRL	NA
1,3,5-Trimethylbenzene	<SRL	<SRL	NA
β-Pinene	<SRL	<SRL	NA
1,2,4-Trimethylbenzene	<SRL	<SRL	NA
Benzyl Chloride (α-Chlorotoluene)	<SRL	<SRL	NA
1,3-Dichlorobenzene	<SRL	<SRL	NA
1,4-Dichlorobenzene	<SRL	<SRL	NA
Sec-ButylBenzene	<SRL	<SRL	NA
1,2-Dichlorobenzene	<SRL	<SRL	NA
n-ButylBenzene	<SRL	<SRL	NA
1,2-Dibromo-3-Chloropropane	<SRL	<SRL	NA
1,2,4-Trichlorobenzene	<SRL	<SRL	NA
Naphthalene	<SRL	<SRL	NA
Hexachlorobutadiene	<SRL	<SRL	NA

¹ Dilution factor is the product of the Canister Dilution Factor and the Analysis Dilution Factor.

² Relative Percent Difference (RPD) between Sample analysis and Duplicate analysis (acceptable range is <25%).

SRL - Sample Reporting Limit (minimum)

J - Estimated value between the detection limit and the minimum reporting limit, shown for duplication purposes only.

