

DEPARTMENT OF ECOLOGY
Manchester Environmental Laboratory
7411 Beach Drive East • Port Orchard, Washington 98366-8204

Case Narrative

October 23, 2019

To: Teel, Steve

Project: Olympia Dry Cleaners 2019

Work Order: 1910047

Subject: Volatile Organics Analysis

From: Dolores Montgomery *DM*

Sample Receipt

Enclosed are the VOA results for the samples received by MEL on October 11, 2019. All samples were received in acceptable condition unless noted in Analyst Comments. All samples were prepared and analyzed within holding times unless noted in Analyst Comments.

Analytical Methods

These samples were prepared, analyzed, and verified by MEL according to the submitted chain-of-custody and MEL's procedures. A Sample Correlation Table with batch summary is located in Appendix A. The samples were:

- extracted following a modification of method SW5030B.
- analyzed following a modification of method SW8260D.

Analyst Comments

None noted.

Sample Qualification

The samples were qualified according to MEL's procedures. The table in Appendix B summarizes the manual qualifiers added by MEL. All results reported below the method reporting limit (RL) were automatically qualified as estimates, but not included in Appendix B. The qualifiers are defined in Appendix C.

Sample Verification

All analyses met QC acceptance criteria except as noted in Appendix D. All analytes met linearity requirements unless noted in Appendix E.

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Report for
Volatile Organics Analysis**

Project: Olympia Dry Cleaners 2019

Field ID: Seep-Post

Work Order: 1910047
Project Officer: Teel, Steve
Initial Vol: 5 mL
Final Vol: 5 mL

Lab ID #: 1910047-01
Collected: 10/10/2019
Prep Method: SW5030B
Analysis Method: SW8260D

Batch ID: B19J141
Prepared: 10/18/2019
Analyzed: 10/18/2019
Matrix: Water
Units: ug/L

CAS#	Analyte	Result	Qualifier	RL	MDL
75-34-3	1,1-Dichloroethane	1.00	U	1.00	0.08
75-35-4	1,1-Dichloroethene	1.00	U	1.00	0.13
156-59-2	Cis-1,2-Dichloroethene	2.63		1.00	0.11
127-18-4	Tetrachloroethene	0.65	NJ	1.00	0.13
156-60-5	Trans-1,2-Dichloroethene	1.00	U	1.00	0.11
79-01-6	Trichloroethene	0.62	J	1.00	0.07
75-01-4	Vinyl Chloride	1.00	U	1.00	0.04

Surrogate Recovery:

CAS#	Analyte	Result	Spike Level	% Rec.	% Rec. Limits
2199-69-1	1,2-Dichlorobenzene-D4	10.4	10.0	104	80-120
17060-07-0	1,2-Dichloroethane-D4	10.3	10.0	103	80-120
540-36-3	1,4-Difluorobenzene	9.90	10.0	99	80-120
460-00-4	p-Bromofluorobenzene	9.09	10.0	91	80-120
2037-26-5	Toluene-D8	9.62	10.0	96	80-120

Authorized by: 222

Release Date: 10/23/19

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Report for
Volatile Organics Analysis**

Project: Olympia Dry Cleaners 2019

Field ID: Seep-Post2

Work Order: 1910047
Project Officer: Teel, Steve
Initial Vol: 5 mL
Final Vol: 5 mL

Lab ID #: 1910047-02
Collected: 10/10/2019
Prep Method: SW5030B
Analysis Method: SW8260D

Batch ID: B19J141
Prepared: 10/18/2019
Analyzed: 10/18/2019
Matrix: Water
Units: ug/L

CAS#	Analyte	Result	Qualifier	RL	MDL
75-34-3	1,1-Dichloroethane	1.00	U	1.00	0.08
75-35-4	1,1-Dichloroethene	1.00	U	1.00	0.13
156-59-2	Cis-1,2-Dichloroethene	2.67		1.00	0.11
127-18-4	Tetrachloroethene	0.66	J	1.00	0.13
156-60-5	Trans-1,2-Dichloroethene	1.00	U	1.00	0.11
79-01-6	Trichloroethene	0.55	J	1.00	0.07
75-01-4	Vinyl Chloride	1.00	U	1.00	0.04

Surrogate Recovery:

CAS#	Analyte	Result	Spike Level	% Rec.	% Rec. Limits
2199-69-1	1,2-Dichlorobenzene-D4	10.4	10.0	104	80-120
17060-07-0	1,2-Dichloroethane-D4	10.4	10.0	104	80-120
540-36-3	1,4-Difluorobenzene	10.0	10.0	100	80-120
460-00-4	p-Bromofluorobenzene	8.66	10.0	87	80-120
2037-26-5	Toluene-D8	9.21	10.0	92	80-120

Authorized by: DET

Release Date: 10/23/19

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Report for
Volatile Organics Analysis**

Project: Olympia Dry Cleaners 2019

Field ID: Seep-CB

Work Order: 1910047
Project Officer: Teel, Steve
Initial Vol: 5 mL
Final Vol: 5 mL

Lab ID #: 1910047-03
Collected: 10/10/2019
Prep Method: SW5030B
Analysis Method: SW8260D

Batch ID: B19J141
Prepared: 10/18/2019
Analyzed: 10/18/2019
Matrix: Water
Units: ug/L

CAS#	Analyte	Result	Qualifier	RL	MDL
75-34-3	1,1-Dichloroethane	1.00	U	1.00	0.08
75-35-4	1,1-Dichloroethene	1.00	U	1.00	0.13
156-59-2	Cis-1,2-Dichloroethene	1.00	U	1.00	0.11
127-18-4	Tetrachloroethene	1.00	U	1.00	0.13
156-60-5	Trans-1,2-Dichloroethene	1.00	U	1.00	0.11
79-01-6	Trichloroethene	1.00	U	1.00	0.07
75-01-4	Vinyl Chloride	1.00	U	1.00	0.04

Surrogate Recovery:

CAS#	Analyte	Result	Spike Level	% Rec.	% Rec. Limits
2199-69-1	1,2-Dichlorobenzene-D4	10.4	10.0	104	80-120
17060-07-0	1,2-Dichloroethane-D4	10.7	10.0	107	80-120
540-36-3	1,4-Difluorobenzene	10.2	10.0	102	80-120
460-00-4	p-Bromofluorobenzene	8.67	10.0	87	80-120
2037-26-5	Toluene-D8	9.12	10.0	91	80-120

Authorized by: DEL

Release Date: 10/23/19

**Washington State Department of Ecology
Manchester Environmental Laboratory
Final Report for
Volatile Organics Analysis**

Project: Olympia Dry Cleaners 2019

QC Type : Method Blank

Work Order: Batch QC
Project Officer: Teel, Steve
Initial Vol: 5 mL
Final Vol: 5 mL

Lab ID #: B19J141-BLK1
Prep Method: SW5030B
Analysis Method: SW8260D
Source Field ID: B19J141-BLK1

Batch ID: B19J141
Prepared: 10/18/2019
Analyzed: 10/18/2019
Matrix: Water
Units: ug/L

CAS#	Analyte	Result	Qualifier	RL	MDL
75-34-3	1,1-Dichloroethane	1.00	U	1.00	0.08
75-35-4	1,1-Dichloroethene	1.00	U	1.00	0.13
156-59-2	Cis-1,2-Dichloroethene	1.00	U	1.00	0.11
127-18-4	Tetrachloroethene	1.00	U	1.00	0.13
156-60-5	Trans-1,2-Dichloroethene	1.00	U	1.00	0.11
79-01-6	Trichloroethene	1.00	U	1.00	0.07
75-01-4	Vinyl Chloride	1.00	U	1.00	0.04

Surrogate Recovery:

CAS#	Analyte	Result	Spike Level	% Rec.	% Rec. Limits
2199-69-1	1,2-Dichlorobenzene-D4	10.2	10.0	102	80-120
17060-07-0	1,2-Dichloroethane-D4	10.6	10.0	106	80-120
540-36-3	1,4-Difluorobenzene	10.0	10.0	100	80-120
460-00-4	p-Bromofluorobenzene	9.01	10.0	90	80-120
2037-26-5	Toluene-D8	9.51	10.0	95	80-120

Authorized by:

Release Date: 10/23/19

**Washington State Department of Ecology
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Final Report for
Volatile Organics Analysis**

Project: Olympia Dry Cleaners 2019

QC Type : LCS

**Work Order: Batch QC
Project Officer: Teel, Steve
Initial Vol: 5 mL
Final Vol: 5 mL**

**Lab ID #: B19J141-BS1
Prep Method: SW5030B
Analysis Method: SW8260D
Source Field ID: B19J141-BS1**

**Batch ID: B19J141
Prepared: 10/18/2019
Analyzed: 10/18/2019
Matrix: Water
Units: %**

Analyte	Result	Spike Level	RL	%Rec	%Rec Limits
1,1-Dichloroethane	10.1	10.0	1.00	101	75-125
1,1-Dichloroethene	10.5	10.0	1.00	105	75-125
Cis-1,2-Dichloroethene	9.8	10.0	1.00	98	75-125
Tetrachloroethene	9.4	10.0	1.00	94	75-125
Trans-1,2-Dichloroethene	10.0	10.0	1.00	100	75-125
Trichloroethene	9.4	10.0	1.00	94	75-125
Vinyl Chloride	11.3	10.0	1.00	113	60-140

Surrogate Recovery:

CAS#	Analyte	Result	Spike Level	% Rec.	% Rec. Limits
2199-69-1	1,2-Dichlorobenzene-D4	9.84	10.0	98	80-120
17060-07-0	1,2-Dichloroethane-D4	10.3	10.0	103	80-120
540-36-3	1,4-Difluorobenzene	9.86	10.0	99	80-120
460-00-4	p-Bromofluorobenzene	9.50	10.0	95	80-120
2037-26-5	Toluene-D8	9.62	10.0	96	80-120

Authorized by: Dr

Release Date: 10/23/19

**Washington State Department of Ecology
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Volatile Organics Analysis**

Project: Olympia Dry Cleaners 2019

QC Type : LCS Dup

Work Order: Batch QC
Project Officer: Teel, Steve
Initial Vol: 5 mL
Final Vol: 5 mL

Lab ID #: B19J141-BSD1
Prep Method: SW5030B
Analysis Method: SW8260D
Source Field ID: B19J141-BSD1

Batch ID: B19J141
Prepared: 10/18/2019
Analyzed: 10/18/2019
Matrix: Water
Units: %

Analyte	Sample Result	Spike Level	%Rec	RPD	%Rec Limits	RPD Limit
1,1-Dichloroethane	10.6	10.0	106	5	75-125	30
1,1-Dichloroethene	10.7	10.0	107	2	75-125	30
Cis-1,2-Dichloroethene	10.4	10.0	104	6	75-125	30
Tetrachloroethene	9.6	10.0	96	2	75-125	30
Trans-1,2-Dichloroethene	10.5	10.0	105	5	75-125	30
Trichloroethene	9.5	10.0	95	1	75-125	30
Vinyl Chloride	11.7	10.0	117	3	60-140	40

Surrogate Recovery:

CAS#	Analyte	Result	Spike Level	% Rec.	% Rec. Limits
2199-69-1	1,2-Dichlorobenzene-D4	10.2	10.0	102	80-120
17060-07-0	1,2-Dichloroethane-D4	10.4	10.0	104	80-120
540-36-3	1,4-Difluorobenzene	9.97	10.0	100	80-120
460-00-4	p-Bromofluorobenzene	9.63	10.0	96	80-120
2037-26-5	Toluene-D8	9.82	10.0	98	80-120

Authorized by:

Release Date:

10/23/19

**Washington State Department of Ecology
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Project: Olympia Dry Cleaners 2019

QC Type : Matrix Spike

Work Order: Batch QC
Project Officer: Teel, Steve
Initial Vol: 5 mL
Final Vol: 5 mL

Lab ID #: B19J141-MS1
Prep Method: SW5030B
Analysis Method: SW8260D
Source Field ID: B19J141-MS1
Source Lab ID #: 1910047-03

Batch ID: B19J141
Prepared: 10/18/2019
Analyzed: 10/18/2019
Matrix: Water
Units: %

Analyte	Result	Spike Level	Source Result	%Rec	%Rec Limits
1,1-Dichloroethane	10.7	10.0	0.0	107	70-130
1,1-Dichloroethene	11.1	10.0	0.0	111	70-130
Cis-1,2-Dichloroethene	9.9	10.0	0.0	99	70-130
Tetrachloroethene	9.7	10.0	0.0	97	70-130
Trans-1,2-Dichloroethene	10.6	10.0	0.0	106	70-130
Trichloroethene	9.8	10.0	0.0	98	70-130
Vinyl Chloride	12.2	10.0	0.0	122	60-140

Surrogate Recovery:

CAS#	Analyte	Result	Spike Level	% Rec.	% Rec. Limits
2199-69-1	1,2-Dichlorobenzene-D4	9.94	10.0	99	80-120
17060-07-0	1,2-Dichloroethane-D4	10.3	10.0	103	80-120
540-36-3	1,4-Difluorobenzene	10.1	10.0	101	80-120
460-00-4	p-Bromofluorobenzene	9.72	10.0	97	80-120
2037-26-5	Toluene-D8	9.75	10.0	97	80-120

Authorized by: 032

Release Date: 10/23/19

**Washington State Department of Ecology
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Final Report for
Volatile Organics Analysis**

Project: Olympia Dry Cleaners 2019

QC Type : Matrix Spike Dup

Work Order: Batch QC
Project Officer: Teel, Steve
Initial Vol: 5 mL
Final Vol: 5 mL

Lab ID #: B19J141-MSD1
Prep Method: SW5030B
Analysis Method: SW8260D
Source Field ID: B19J141-MSD1
Source Lab ID #: 1910047-03

Batch ID: B19J141
Prepared: 10/18/2019
Analyzed: 10/19/2019
Matrix: Water
Units: %

Analyte	Sample Result	Spike Level	Source Result	%Rec	RPD	%Rec Limits	RPD Limit
1,1-Dichloroethane	11.1	10.0	0.0	111	3	70-130	30
1,1-Dichloroethene	11.5	10.0	0.0	115	3	70-130	30
Cis-1,2-Dichloroethene	10.3	10.0	0.0	103	4	70-130	30
Tetrachloroethene	10.2	10.0	0.0	102	5	70-130	30
Trans-1,2-Dichloroethene	11.1	10.0	0.0	111	4	70-130	30
Trichloroethene	10.0	10.0	0.0	100	2	70-130	30
Vinyl Chloride	12.7	10.0	0.0	127	4	60-140	40

Surrogate Recovery:

CAS#	Analyte	Result	Spike Level	% Rec.	% Rec. Limits
2199-69-1	1,2-Dichlorobenzene-D4	10.2	10.0	102	80-120
17060-07-0	1,2-Dichloroethane-D4	10.3	10.0	103	80-120
540-36-3	1,4-Difluorobenzene	10.0	10.0	100	80-120
460-00-4	p-Bromofluorobenzene	9.56	10.0	96	80-120
2037-26-5	Toluene-D8	9.73	10.0	97	80-120

Authorized by: 032

Release Date: 10/23/19

Appendix A

Sample Correlation Table

Batch ID: B19J141

Prep Method: SW5030B

Prepared: 10/18/2019

Analysis Method: SW8260D

<u>Field ID</u>	<u>MEL ID</u>
Seep-Post	1910047-01
Seep-Post2	1910047-02
Seep-CB	1910047-03
Blank	B19J141-BLK1
LCS	B19J141-BS1
LCS Dup	B19J141-BSD1
Matrix Spike (Seep-CB)	B19J141-MS1
Matrix Spike Dup (Seep-CB)	B19J141-MSD1

Appendix B Manual Qualification Table

WO: 1910047

Analysis: VOA

Analyte is tentatively identified and associated numerical value represents its approximate concentration;
qualitative criteria exceeded QC limits.

Tetrachloroethene NJ: 1910047-01,

Appendix C

Data Qualifier Definitions

Code	Definition
E	Reported result is an estimate because it exceeds the calibration range.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
NAF	Not analyzed for.
NC	Not calculated.
REJ	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
U	The analyte was not detected at or above the reported sample quantitation limit.
UJ	The analyte was not detected at or above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately measure the analyte in the sample.
bold	The analyte was present in the sample. (Visual aid to locate detected compounds on the analytical report.)

Appendix D

QC Exceptions Report

Lab ID	Analyte	Exception
No QC exceptions reported.		

Appendix E

Initial Calibration Exceptions Report

Calibration ID: B9J2101

Analysis: VOA

LabNumber **Analyte**

QC Exception

No ICAL exceptions.