

January 29, 2024



Revised Report, Rev. 3-2

Submitted by:

Joe Sears, Ph.D.; Laboratory Technical Manager
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2710 N. 20th Avenue
Pasco, WA 99301
Laboratory Work Order W305171

Prepared for:

Dr. Byron Jones
Kansas State University
245 Levee Drive
Manhattan, KS 66502

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Kansas State University
245 Levee Drive
Manhattan, KS 66502
Attn: Dr. Byron Jones

December 05, 2023

Revised Report; Rev 3. – Rev.2 issued December 5, 2023

This report has been revised to eliminate reporting doubles, fix CAS#s and MW of analytes.

Revised Report; Rev 2. – Rev.1 issued November 17, 2023

This report has been revised to correct the samples names issued on the original Chain of Custody.

Revised Report; Rev. 1 – Original Issued on September 19, 2023

This report has been revised to correct the following (all corrections pertain to the full list TO-17 analyses – the organic acids reports are unchanged):

- 1) The calculation of the Reporting Limit for those results having units of ppbv in the full list TO-17 analyses. Some of the reporting limits for the tentatively identified compounds in the original report may have been in error.*
- 2) Revised the Electronic Data Deliverable to change the reporting units of $\mu\text{g}/\text{m}^3$ to $\mu\text{g}/\text{tube}$ and the $\mu\text{g}/\text{tube}$ units to $\mu\text{g}/\text{m}^3$ and to incorporate any result changes that may have been affected by item 3, below.*
- 3) The calculated result for all samples for the $\mu\text{g}/\text{m}^3$ results were based on an estimated MDL reporting limit rather than the lowest calibration point. This may have resulted in some analytes in the samples being reported at levels less than the actual reporting limit.*

Subject: Analysis of 34 samples for Volatile Organic Compounds by EPA Method TO-17

The following is the report for the analysis of 34 samples received at Columbia Basin Analytical Laboratory on May 23, 2023 for volatile organic compounds. The samples were assigned a Columbia Basin Analytical Laboratories login order number of W305171. This report consists of the results of the analyses for the 34 samples, three Quality Control Reports from the three sample prep batches, a copy of the chain of custody, and a copy of the chromatogram for each sample analysis. Also included are the results from a supplemental reprocessing of the data sets for the organic acids using a calibration curve prepared on September 15, 2023.

General Set Comments

Columbia Basin Analytical Laboratories received 34 samples on 05/23/23 to be tested for Volatile Organic Compounds by EPA Compendium Method TO-17. These were Air and Emission samples, therefore, no dry weight determinations were conducted and no dry weight corrections were made to the final data reports. Sample results for the primary TO-17 analyses are reported in units of parts per billion volume (ppbv) and nanograms per tube (ng/tube). An EDD file will be provided separately that will also include the results in units of $\mu\text{g}/\text{m}^3$. A volume of 1-liter was applied to all Field Blank and Shipping Blank samples to facilitate a calculation of ppbv and $\mu\text{g}/\text{m}^3$ results.

Sample W305171-09 (MJ-II 315C – 5ppmw-Ozone Out-9) was received with a broken thermal desorption tube inside its shipping container. The results for this sample have been reported as less than the reporting limit.

Analysis Comments

The samples were removed from the shipping/storage containers and sealed with a special end cap that enables interfacing to the Markes TD100-xr thermal desorption instrument. The Markes TDU system is interfaced to an Agilent 6890N gas chromatograph with a 5973N mass spectrometer. The capillary column was a Restek Rtx-1, 60m x 0.32mmid x 1.0 μ film using helium as the carrier gas. The interface between the TDU unit and the gas chromatograph was maintained at 150°C. The mass spectrometer ion source and quadrupole rods were maintained at a temperature of 230°C and 150°C, respectively.

Sample batches consisted of 10 samples in the initial batch and 12 samples each for the 2nd and 3rd batches. Each batch included a Laboratory Control Sample (BS1), Laboratory Control Sample Duplicate (BSD1), Matrix Reporting Limits (MRL1) spike, and a Matrix Blank (BLK1). All instrument batches were preceded and ended with a Calibration Verification standard (CV) and a Calibration Blank (CB). A CV and CB were run after every 10 analyses. All samples in the instrument batches were followed with a TDU tube blank to ensure no carryover from one sample to the next. Note that the CCV2 and CB2 in the first batch failed to run. Their results are not included in the QC report for samples 01-10.

The results include a report of the Tentatively Identified Compounds (TICs) from each sample. TICs are analytes present in the chromatogram that are not part of the calibrated list of compounds. They have been identified by performing an initial automated search of the data using the mass spectral processing software. The TIC search criteria were set to find the 30 most intense chromatographic peaks that were not part of the calibrated target list. The identified peaks must be greater than 5% of the nearest internal standard's total ion current. Each identified peak was then searched against the NIST 2020 mass spectral library for the top 5 spectral matches. Generally, only those matches greater than an 80% fit factor were considered as possible candidates for compound identification, however, some candidates with lower fit factors were considered after manual review of each library search. The manual review takes into account possible coelution of compounds which result in mixed spectra, the position of the analyte in the chromatogram, and the mass range of the experiment vs. the mass range of library spectrum. The estimated concentration of each TIC is based on the TIC's total ion current response vs. that of the nearest internal standard.

The organic acids are reported as both TICs and as calibrated compounds. The data review and TIC searches were completed prior to running the organic acids calibration curves. The data reported for the organic acids as a separate report is considered more accurate for concentrations than those reported as TICs. Several of the organic acids in the sample exceeded the range of the calibration curves (2.0 – 200 ng per injection) and were 'E' flagged.

Data Anomalies and/or Changes from the Original Automated Method Processing

Some of the chromatographic peaks were manually integrated to correct errors in baseline assignments or peak splitting by the automatic data processing method. Copies of the automated vs. manually integrated peaks can be made available upon request.

Benzene is known to be problematic as a result of its formation at the high temperatures used in the desorption from Tenax. This is the result of oxidation processes involving residual oxygen and/or water or thermal breakdown of the Tenax. Typical background levels of benzene in the sample data sets from oxidation of the Tenax is generally between 4 and 10 ppbv, however, levels may be higher depending on individual TDU tubes. Although benzene has been reported in the data set, caution should be used when interpreting the results.

Three compounds in the TO-17 group had calibrations with R² coefficients that were less than the minimum required by CBAL's QC protocol. These were Bromomethane (R²=0.960), Ethanol (R²=0.984) and Acetone (R²=0.971).

General Lab Comments

The results provided in this report relate only to the items tested and as received. Samples were received in acceptable conditions unless otherwise noted in the comments above. Sample results have not been Dry Weight corrected. Information provided by the customer can affect validity of result. This test report shall not be reproduced, except in full, without written approval of Columbia Basin Analytical Laboratories.

I certify that this report complies with the Columbia Basin Analytical Laboratory Quality Assurance Program and that all Quality Assurance measures were implemented and adhered to in the analysis of this sample set. Release of the data contained in this laboratory report has been authorized by the Laboratory Director or a designee as verified by the following signature.



12/05/23

Joe Sears, Ph.D., RJ Lee Group Consultant

If you have any questions, please feel free to contact Joe Sears at jsears@rjleegroup.com or at 509-792-1955.

This report has been reviewed and by the following individual:

01/29/24

Project Director, JJ Furlong



LABORATORY REPORT
EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673635

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23

Revised Report, Rev. 3 - 01/29/24

PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Shipping Blank - 673935	W305171-01	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.50	10.0		2.6	52.9	
Shipping Blank - 673935	W305171-01	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Shipping Blank - 673935	W305171-01	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.53	< 0.53		1.9	< 1.9	
Shipping Blank - 673935	W305171-01	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.53	< 0.53		2.1	< 2.1	
Shipping Blank - 673935	W305171-01	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Shipping Blank - 673935	W305171-01	Hexane	110-54-3	86.18	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Shipping Blank - 673935	W305171-01	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.52	< 0.52		1.5	< 1.5	
Shipping Blank - 673935	W305171-01	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Shipping Blank - 673935	W305171-01	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.52	< 0.52		1.9	< 1.9	
Shipping Blank - 673935	W305171-01	Chloroform	67-66-3	119.38	<i>T</i>	0.52	< 0.52		2.5	< 2.5	
Shipping Blank - 673935	W305171-01	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.53	< 0.53		1.6	< 1.6	
Shipping Blank - 673935	W305171-01	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.48	< 0.48		2.6	< 2.6	
Shipping Blank - 673935	W305171-01	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.50	10.2	102	2.1	43.0	
Shipping Blank - 673935	W305171-01	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.50	10.0		2.3	46.7	
Shipping Blank - 673935	W305171-01	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Shipping Blank - 673935	W305171-01	Cyclohexane	110-82-7	84.16	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Shipping Blank - 673935	W305171-01	Benzene	71-43-2	78.11	<i>T</i>	0.52	< 0.52		1.6	< 1.6	
Shipping Blank - 673935	W305171-01	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.52	< 0.52		3.3	< 3.3	
Shipping Blank - 673935	W305171-01	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.51	< 0.51		2.4	< 2.4	
Shipping Blank - 673935	W305171-01	Heptane	142-82-5	100.2	<i>T</i>	0.53	< 0.53		2.2	< 2.2	
Shipping Blank - 673935	W305171-01	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.53	< 0.53		2.4	< 2.4	
Shipping Blank - 673935	W305171-01	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.51	< 0.51		2.7	< 2.7	
Shipping Blank - 673935	W305171-01	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.53	< 0.53		3.6	< 3.6	
Shipping Blank - 673935	W305171-01	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.53	< 0.53		2.2	< 2.2	
Shipping Blank - 673935	W305171-01	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.54	< 0.54		2.0	< 2.0	
Shipping Blank - 673935	W305171-01	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.51	< 0.51		2.1	< 2.1	
Shipping Blank - 673935	W305171-01	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.52	< 0.52		2.3	< 2.3	
Shipping Blank - 673935	W305171-01	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.50	9.97	99.7	2.1	40.9	



LABORATORY REPORT
EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673635

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23

Revised Report, Rev. 3 - 01/29/24

PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Shipping Blank - 673935	W305171-01	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.53	< 0.53		2.4	< 2.4	
Shipping Blank - 673935	W305171-01	Toluene	108-88-3	92.14	T	0.52	< 0.52		1.9	< 1.9	
Shipping Blank - 673935	W305171-01	1,1,2-Trichloroethane	79-00-5	133.4	T	0.52	< 0.52		2.8	< 2.8	
Shipping Blank - 673935	W305171-01	2-Hexanone	591-78-6	110.16	T	0.52	< 0.52		2.3	< 2.3	
Shipping Blank - 673935	W305171-01	Dibromochloromethane	124-48-1	208.28	T	0.54	< 0.54		4.6	< 4.6	
Shipping Blank - 673935	W305171-01	1,2-Dibromoethane	106-93-4	187.86	T	0.52	< 0.52		4.0	< 4.0	
Shipping Blank - 673935	W305171-01	Tetrachloroethylene	95-47-6	106.16	T	0.50	< 0.50		2.2	< 2.2	
Shipping Blank - 673935	W305171-01	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.50	10.0		2.4	48.1	
Shipping Blank - 673935	W305171-01	Chlorobenzene	108-90-7	112.56	T	0.51	< 0.51		2.4	< 2.4	
Shipping Blank - 673935	W305171-01	Ethyl Benzene	100-41-4	106.16	T	0.52	< 0.52		2.2	< 2.2	
Shipping Blank - 673935	W305171-01	m,p-Xylene	8-88-3/106-42	106.16	T	1.0	< 1.0		4.5	< 4.5	
Shipping Blank - 673935	W305171-01	Nonane	111-84-2	128.26	T	0.52	< 0.52		2.7	< 2.7	
Shipping Blank - 673935	W305171-01	Bromoform	75-25-2	252.73	T	0.53	< 0.53		5.4	< 5.4	
Shipping Blank - 673935	W305171-01	Styrene	100-42-5	104.15	T	0.51	< 0.51		2.2	< 2.2	
Shipping Blank - 673935	W305171-01	o-Xylene	95-47-6	106.16	T	0.54	< 0.54		2.4	< 2.4	
Shipping Blank - 673935	W305171-01	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.52	< 0.52		3.6	< 3.6	
Shipping Blank - 673935	W305171-01	Cumene	98-82-8	120.19	T	0.53	< 0.53		2.6	< 2.6	
Shipping Blank - 673935	W305171-01	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.50	9.92	99.2	3.6	71.0	
Shipping Blank - 673935	W305171-01	n-Propylbenzene	103-65-1	120.19	T	0.52	< 0.52		2.6	< 2.6	
Shipping Blank - 673935	W305171-01	2-Chlorotoluene	95-49-8	126.59	T	0.52	< 0.52		2.7	< 2.7	
Shipping Blank - 673935	W305171-01	4-Ethyltoluene	622-96-8	120.19	T	0.54	< 0.54		2.7	< 2.7	
Shipping Blank - 673935	W305171-01	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.53	< 0.53		2.6	< 2.6	
Shipping Blank - 673935	W305171-01	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.53	< 0.53		2.6	< 2.6	
Shipping Blank - 673935	W305171-01	1,3-Dichlorobenzene	541-73-1	147.01	T	0.53	< 0.53		3.2	< 3.2	
Shipping Blank - 673935	W305171-01	1,4-Dichlorobenzene	106-46-7	147.01	T	0.52	< 0.52		3.1	< 3.1	
Shipping Blank - 673935	W305171-01	Benzyl chloride	100-44-7	126.58	T	0.52	< 0.52		2.7	< 2.7	
Shipping Blank - 673935	W305171-01	1,2-Dichlorobenzene	95-50-1	147.01	T	0.52	< 0.52		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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Client: Kansas State University
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Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23

Revised Report, Rev. 3 - 01/29/24

PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS#	MW							Q-FIT
Shipping Blank - 673935	W305171-01	Acetone	67-64-1	58	TIC	0.50	0.824		1.2	1.96	64
Shipping Blank - 673935	W305171-01	Methane, dichloro-	75-09-2	84	TIC	0.50	15.8		1.7	54.2	96
Shipping Blank - 673935	W305171-01	Benzoic acid	65-85-0	122	TIC	0.50	0.614		2.5	3.06	96
Shipping Blank - 673935	W305171-01	Phthalic anhydride	85-44-9	148	TIC	0.50	0.558		3.0	3.38	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m³ = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube
673923

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
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Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Field Blank - 672923	W305171-02	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.50	10.0		2.6	52.9	
Field Blank - 672923	W305171-02	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Field Blank - 672923	W305171-02	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.53	< 0.53		1.9	< 1.9	
Field Blank - 672923	W305171-02	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.53	< 0.53		2.1	< 2.1	
Field Blank - 672923	W305171-02	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Field Blank - 672923	W305171-02	Hexane	110-54-3	86.18	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Field Blank - 672923	W305171-02	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.52	< 0.52		1.5	< 1.5	
Field Blank - 672923	W305171-02	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Field Blank - 672923	W305171-02	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.52	< 0.52		1.9	< 1.9	
Field Blank - 672923	W305171-02	Chloroform	67-66-3	119.38	<i>T</i>	0.52	< 0.52		2.5	< 2.5	
Field Blank - 672923	W305171-02	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.53	< 0.53		1.6	< 1.6	
Field Blank - 672923	W305171-02	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.48	< 0.48		2.6	< 2.6	
Field Blank - 672923	W305171-02	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.50	10.3	103	2.1	43.2	
Field Blank - 672923	W305171-02	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.50	10.0		2.3	46.7	
Field Blank - 672923	W305171-02	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Field Blank - 672923	W305171-02	Cyclohexane	110-82-7	84.16	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Field Blank - 672923	W305171-02	Benzene	71-43-2	78.11	<i>T</i>	0.52	< 0.52		1.6	< 1.6	
Field Blank - 672923	W305171-02	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.52	< 0.52		3.3	< 3.3	
Field Blank - 672923	W305171-02	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.51	< 0.51		2.4	< 2.4	
Field Blank - 672923	W305171-02	Heptane	142-82-5	100.2	<i>T</i>	0.53	< 0.53		2.2	< 2.2	
Field Blank - 672923	W305171-02	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.53	< 0.53		2.4	< 2.4	
Field Blank - 672923	W305171-02	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.51	< 0.51		2.7	< 2.7	
Field Blank - 672923	W305171-02	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.53	< 0.53		3.6	< 3.6	
Field Blank - 672923	W305171-02	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.53	< 0.53		2.2	< 2.2	
Field Blank - 672923	W305171-02	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.54	< 0.54		2.0	< 2.0	
Field Blank - 672923	W305171-02	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.51	< 0.51		2.1	< 2.1	
Field Blank - 672923	W305171-02	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.52	< 0.52		2.3	< 2.3	
Field Blank - 672923	W305171-02	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.50	10.1	101	2.1	41.3	



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube
673923

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Field Blank - 672923	W305171-02	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.53	< 0.53		2.4	< 2.4	
Field Blank - 672923	W305171-02	Toluene	108-88-3	92.14	T	0.52	< 0.52		1.9	< 1.9	
Field Blank - 672923	W305171-02	1,1,2-Trichloroethane	79-00-5	133.4	T	0.52	< 0.52		2.8	< 2.8	
Field Blank - 672923	W305171-02	2-Hexanone	591-78-6	110.16	T	0.52	< 0.52		2.3	< 2.3	
Field Blank - 672923	W305171-02	Dibromochloromethane	124-48-1	208.28	T	0.54	< 0.54		4.6	< 4.6	
Field Blank - 672923	W305171-02	1,2-Dibromoethane	106-93-4	187.86	T	0.52	< 0.52		4.0	< 4.0	
Field Blank - 672923	W305171-02	Tetrachloroethylene	95-47-6	106.16	T	0.50	< 0.50		2.2	< 2.2	
Field Blank - 672923	W305171-02	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.50	10.0		2.4	48.1	
Field Blank - 672923	W305171-02	Chlorobenzene	108-90-7	112.56	T	0.51	< 0.51		2.4	< 2.4	
Field Blank - 672923	W305171-02	Ethyl Benzene	100-41-4	106.16	T	0.52	< 0.52		2.2	< 2.2	
Field Blank - 672923	W305171-02	m,p-Xylene	8-88-3/106-42	106.16	T	1.0	< 1.0		4.5	< 4.5	
Field Blank - 672923	W305171-02	Nonane	111-84-2	128.26	T	0.52	< 0.52		2.7	< 2.7	
Field Blank - 672923	W305171-02	Bromoform	75-25-2	252.73	T	0.53	< 0.53		5.4	< 5.4	
Field Blank - 672923	W305171-02	Styrene	100-42-5	104.15	T	0.51	< 0.51		2.2	< 2.2	
Field Blank - 672923	W305171-02	o-Xylene	95-47-6	106.16	T	0.54	< 0.54		2.4	< 2.4	
Field Blank - 672923	W305171-02	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.52	< 0.52		3.6	< 3.6	
Field Blank - 672923	W305171-02	Cumene	98-82-8	120.19	T	0.53	< 0.53		2.6	< 2.6	
Field Blank - 672923	W305171-02	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.50	9.91	99.1	3.6	71.0	
Field Blank - 672923	W305171-02	n-Propylbenzene	103-65-1	120.19	T	0.52	< 0.52		2.6	< 2.6	
Field Blank - 672923	W305171-02	2-Chlorotoluene	95-49-8	126.59	T	0.52	< 0.52		2.7	< 2.7	
Field Blank - 672923	W305171-02	4-Ethyltoluene	622-96-8	120.19	T	0.54	< 0.54		2.7	< 2.7	
Field Blank - 672923	W305171-02	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.53	< 0.53		2.6	< 2.6	
Field Blank - 672923	W305171-02	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.53	< 0.53		2.6	< 2.6	
Field Blank - 672923	W305171-02	1,3-Dichlorobenzene	541-73-1	147.01	T	0.53	< 0.53		3.2	< 3.2	
Field Blank - 672923	W305171-02	1,4-Dichlorobenzene	106-46-7	147.01	T	0.52	< 0.52		3.1	< 3.1	
Field Blank - 672923	W305171-02	Benzyl chloride	100-44-7	126.58	T	0.52	< 0.52		2.7	< 2.7	
Field Blank - 672923	W305171-02	1,2-Dichlorobenzene	95-50-1	147.01	T	0.52	< 0.52		3.1	< 3.1	



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Client: Kansas State University
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 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS#	MW							Q-FIT
Field Blank - 672923	W305171-02	Hydrogen isocyanate	75-13-8	43	TIC	0.50	0.925		0.88	1.63	4
Field Blank - 672923	W305171-02	Acetone	67-64-1	58	TIC	0.50	1.35		1.2	3.21	7
Field Blank - 672923	W305171-02	Pentane	109-66-0	72	TIC	0.50	0.519		1.5	1.53	72
Field Blank - 672923	W305171-02	Methane, dichloro-	75-09-2	84	TIC	0.50	24.7		1.7	85.0	96
Field Blank - 672923	W305171-02	Benzaldehyde	100-52-7	106	TIC	0.50	0.666		2.2	2.89	96
Field Blank - 672923	W305171-02	Acetophenone	98-86-2	120	TIC	0.50	0.796		2.5	3.91	97
Field Blank - 672923	W305171-02	Benzoic acid	65-85-0	122	TIC	0.50	3.54		2.5	17.7	97
Field Blank - 672923	W305171-02	Phthalic anhydride	85-44-9	148	TIC	0.50	0.616		3.0	3.73	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m³ = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis

Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

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673924

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.950

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300 C - Pack Out - 673924	W305171-03	Bromochloromethane	74-97-5	129.39	Int. Std	0.26	5.13		2.6	52.9	
Baseline - 300 C - Pack Out - 673924	W305171-03	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.27	< 0.27		2.1	< 2.1	
Baseline - 300 C - Pack Out - 673924	W305171-03	Methyl-t-butyl ether	1634-04-4	88.15	T	0.27	< 0.27		1.9	< 1.9	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,1-Dichloroethane	75-34-3	98.96	T	0.27	< 0.27		2.1	< 2.1	
Baseline - 300 C - Pack Out - 673924	W305171-03	Vinyl acetate	108-05-4	86.09	T	0.27	< 0.27		1.8	< 1.8	
Baseline - 300 C - Pack Out - 673924	W305171-03	Hexane	110-54-3	86.18	T	0.27	< 0.27		1.8	< 1.8	
Baseline - 300 C - Pack Out - 673924	W305171-03	2-Butanone (MEK)	78-93-3	72.11	T	0.27	2.61		1.5	15.0	
Baseline - 300 C - Pack Out - 673924	W305171-03	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.27	< 0.27		2.1	< 2.1	
Baseline - 300 C - Pack Out - 673924	W305171-03	Ethyl acetate	141-78-6	88.11	T	0.27	< 0.27		1.9	< 1.9	
Baseline - 300 C - Pack Out - 673924	W305171-03	Chloroform	67-66-3	119.38	T	0.27	< 0.27		2.5	< 2.5	
Baseline - 300 C - Pack Out - 673924	W305171-03	Tetrahydrofuran	109-99-9	72.11	T	0.27	< 0.27		1.6	< 1.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,1,1-Trichloroethane	71-55-6	133.4	T	0.25	< 0.25		2.6	< 2.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.26	5.39	105	2.1	44.3	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.26	5.13		2.3	46.7	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,2-Dichloroethane	107-06-2	98.96	T	0.27	< 0.27		2.1	< 2.1	
Baseline - 300 C - Pack Out - 673924	W305171-03	Cyclohexane	110-82-7	84.16	T	0.27	< 0.27		1.8	< 1.8	
Baseline - 300 C - Pack Out - 673924	W305171-03	Benzene	71-43-2	78.11	T	0.26	< 0.26		1.6	< 1.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	Carbon tetrachloride	56-23-5	153.82	T	0.27	< 0.27		3.3	< 3.3	
Baseline - 300 C - Pack Out - 673924	W305171-03	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.26	< 0.26		2.4	< 2.4	
Baseline - 300 C - Pack Out - 673924	W305171-03	Heptane	142-82-5	100.2	T	0.27	< 0.27		2.2	< 2.2	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,2-Dichloropropane	78-87-5	112.99	T	0.27	< 0.27		2.4	< 2.4	
Baseline - 300 C - Pack Out - 673924	W305171-03	Trichlorethylene (TCE)	79-01-6	131.39	T	0.26	< 0.26		2.7	< 2.7	
Baseline - 300 C - Pack Out - 673924	W305171-03	Bromodichloromethane	75-27-4	163.8	T	0.27	< 0.27		3.6	< 3.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	Methyl methacrylate	80-62-6	100.12	T	0.27	< 0.27		2.2	< 2.2	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,4-Dioxane	123-91-1	88.11	T	0.28	< 0.28		2.0	< 2.0	
Baseline - 300 C - Pack Out - 673924	W305171-03	4-Methyl-2-pentanone	108-10-1	100.16	T	0.26	< 0.26		2.1	< 2.1	
Baseline - 300 C - Pack Out - 673924	W305171-03	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.26	< 0.26		2.3	< 2.3	
Baseline - 300 C - Pack Out - 673924	W305171-03	Toluene-d8	2037-26-5	100.21	Surr	0.26	5.11	99.6	2.1	40.8	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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673924

Client: Kansas State University
 Address: 245 Levee Drive
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 Attention: Dr. Byron Jones
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Air & Emissions
Volume 1.950

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300 C - Pack Out - 673924	W305171-03	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.27	< 0.27		2.4	< 2.4	
Baseline - 300 C - Pack Out - 673924	W305171-03	Toluene	108-88-3	92.14	T	0.26	< 0.26		1.9	< 1.9	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,1,2-Trichloroethane	79-00-5	133.4	T	0.27	< 0.27		2.8	< 2.8	
Baseline - 300 C - Pack Out - 673924	W305171-03	2-Hexanone	591-78-6	110.16	T	0.27	< 0.27		2.3	< 2.3	
Baseline - 300 C - Pack Out - 673924	W305171-03	Dibromochloromethane	124-48-1	208.28	T	0.28	< 0.28		4.6	< 4.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,2-Dibromoethane	106-93-4	187.86	T	0.27	< 0.27		4.0	< 4.0	
Baseline - 300 C - Pack Out - 673924	W305171-03	Tetrachloroethylene	95-47-6	106.16	T	0.26	< 0.26		2.2	< 2.2	
Baseline - 300 C - Pack Out - 673924	W305171-03	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.26	5.13		2.4	48.1	
Baseline - 300 C - Pack Out - 673924	W305171-03	Chlorobenzene	108-90-7	112.56	T	0.26	< 0.26		2.4	< 2.4	
Baseline - 300 C - Pack Out - 673924	W305171-03	Ethyl Benzene	100-41-4	106.16	T	0.27	< 0.27		2.2	< 2.2	
Baseline - 300 C - Pack Out - 673924	W305171-03	m,p-Xylene	8-88-3/106-42	106.16	T	0.53	< 0.53		4.5	< 4.5	
Baseline - 300 C - Pack Out - 673924	W305171-03	Nonane	111-84-2	128.26	T	0.27	< 0.27		2.7	< 2.7	
Baseline - 300 C - Pack Out - 673924	W305171-03	Bromoform	75-25-2	252.73	T	0.27	< 0.27		5.4	< 5.4	
Baseline - 300 C - Pack Out - 673924	W305171-03	Styrene	100-42-5	104.15	T	0.26	< 0.26		2.2	< 2.2	
Baseline - 300 C - Pack Out - 673924	W305171-03	o-Xylene	95-47-6	106.16	T	0.28	< 0.28		2.4	< 2.4	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.27	< 0.27		3.6	< 3.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	Cumene	98-82-8	120.19	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.26	5.07	98.8	3.6	70.7	
Baseline - 300 C - Pack Out - 673924	W305171-03	n-Propylbenzene	103-65-1	120.19	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	2-Chlorotoluene	95-49-8	126.59	T	0.27	< 0.27		2.7	< 2.7	
Baseline - 300 C - Pack Out - 673924	W305171-03	4-Ethyltoluene	622-96-8	120.19	T	0.28	< 0.28		2.7	< 2.7	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,3-Dichlorobenzene	541-73-1	147.01	T	0.27	< 0.27		3.2	< 3.2	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,4-Dichlorobenzene	106-46-7	147.01	T	0.27	< 0.27		3.1	< 3.1	
Baseline - 300 C - Pack Out - 673924	W305171-03	Benzyl chloride	100-44-7	126.58	T	0.27	< 0.27		2.7	< 2.7	
Baseline - 300 C - Pack Out - 673924	W305171-03	1,2-Dichlorobenzene	95-50-1	147.01	T	0.27	< 0.27		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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Air & Emissions
Volume 1.950

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
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 PO#: 0
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Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Baseline - 300 C - Pack Out - 673924	W305171-03	Acetone	67-64-1	58	TIC	0.26	0.982		1.2	4.54	72
Baseline - 300 C - Pack Out - 673924	W305171-03	Methane, dichloro-	75-09-2	84	TIC	0.26	1.72		1.7	11.5	95
Baseline - 300 C - Pack Out - 673924	W305171-03	Butanal	123-72-8	72	TIC	0.26	0.540		1.5	3.10	94
Baseline - 300 C - Pack Out - 673924	W305171-03	Hexanal	66-25-1	100	TIC	0.26	0.277		2.0	2.21	95
Baseline - 300 C - Pack Out - 673924	W305171-03	Nonanal	124-19-6	142	TIC	0.26	0.274		2.9	3.11	91

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673916

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 2.700

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300 C - Ozone In - 673916	W305171-04	Bromochloromethane	74-97-5	129.39	Int. Std	0.19	3.70		2.6	52.9	
Baseline - 300 C - Ozone In - 673916	W305171-04	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.19	< 0.19		2.1	< 2.1	
Baseline - 300 C - Ozone In - 673916	W305171-04	Methyl-t-butyl ether	1634-04-4	88.15	T	0.20	< 0.20		1.9	< 1.9	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,1-Dichloroethane	75-34-3	98.96	T	0.20	< 0.20		2.1	< 2.1	
Baseline - 300 C - Ozone In - 673916	W305171-04	Vinyl acetate	108-05-4	86.09	T	0.19	< 0.19		1.8	< 1.8	
Baseline - 300 C - Ozone In - 673916	W305171-04	Hexane	110-54-3	86.18	T	0.19	< 0.19		1.8	< 1.8	
Baseline - 300 C - Ozone In - 673916	W305171-04	2-Butanone (MEK)	78-93-3	72.11	T	0.19	0.585		1.5	4.66	
Baseline - 300 C - Ozone In - 673916	W305171-04	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.19	< 0.19		2.1	< 2.1	
Baseline - 300 C - Ozone In - 673916	W305171-04	Ethyl acetate	141-78-6	88.11	T	0.19	< 0.19		1.9	< 1.9	
Baseline - 300 C - Ozone In - 673916	W305171-04	Chloroform	67-66-3	119.38	T	0.19	< 0.19		2.5	< 2.5	
Baseline - 300 C - Ozone In - 673916	W305171-04	Tetrahydrofuran	109-99-9	72.11	T	0.20	< 0.20		1.6	< 1.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,1,1-Trichloroethane	71-55-6	133.4	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.19	3.76	101	2.1	42.7	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.19	3.70		2.3	46.7	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,2-Dichloroethane	107-06-2	98.96	T	0.19	< 0.19		2.1	< 2.1	
Baseline - 300 C - Ozone In - 673916	W305171-04	Cyclohexane	110-82-7	84.16	T	0.19	< 0.19		1.8	< 1.8	
Baseline - 300 C - Ozone In - 673916	W305171-04	Benzene	71-43-2	78.11	T	0.19	< 0.19		1.6	< 1.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	Carbon tetrachloride	56-23-5	153.82	T	0.19	< 0.19		3.3	< 3.3	
Baseline - 300 C - Ozone In - 673916	W305171-04	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.19	< 0.19		2.4	< 2.4	
Baseline - 300 C - Ozone In - 673916	W305171-04	Heptane	142-82-5	100.2	T	0.20	< 0.20		2.2	< 2.2	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,2-Dichloropropane	78-87-5	112.99	T	0.19	< 0.19		2.4	< 2.4	
Baseline - 300 C - Ozone In - 673916	W305171-04	Trichlorethylene (TCE)	79-01-6	131.39	T	0.19	< 0.19		2.7	< 2.7	
Baseline - 300 C - Ozone In - 673916	W305171-04	Bromodichloromethane	75-27-4	163.8	T	0.20	< 0.20		3.6	< 3.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	Methyl methacrylate	80-62-6	100.12	T	0.20	< 0.20		2.2	< 2.2	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,4-Dioxane	123-91-1	88.11	T	0.20	< 0.20		2.0	< 2.0	
Baseline - 300 C - Ozone In - 673916	W305171-04	4-Methyl-2-pentanone	108-10-1	100.16	T	0.19	< 0.19		2.1	< 2.1	
Baseline - 300 C - Ozone In - 673916	W305171-04	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.19	< 0.19		2.3	< 2.3	
Baseline - 300 C - Ozone In - 673916	W305171-04	Toluene-d8	2037-26-5	100.21	Surr	0.19	3.68	99.4	2.1	40.8	



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Air & Emissions
Volume 2.700

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300 C - Ozone In - 673916	W305171-04	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.20	< 0.20		2.4	< 2.4	
Baseline - 300 C - Ozone In - 673916	W305171-04	Toluene	108-88-3	92.14	T	0.19	< 0.19		1.9	< 1.9	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,1,2-Trichloroethane	79-00-5	133.4	T	0.19	< 0.19		2.8	< 2.8	
Baseline - 300 C - Ozone In - 673916	W305171-04	2-Hexanone	591-78-6	110.16	T	0.19	< 0.19		2.3	< 2.3	
Baseline - 300 C - Ozone In - 673916	W305171-04	Dibromochloromethane	124-48-1	208.28	T	0.20	< 0.20		4.6	< 4.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,2-Dibromoethane	106-93-4	187.86	T	0.19	< 0.19		4.0	< 4.0	
Baseline - 300 C - Ozone In - 673916	W305171-04	Tetrachloroethylene	95-47-6	106.16	T	0.19	< 0.19		2.2	< 2.2	
Baseline - 300 C - Ozone In - 673916	W305171-04	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.19	3.70		2.4	48.1	
Baseline - 300 C - Ozone In - 673916	W305171-04	Chlorobenzene	108-90-7	112.56	T	0.19	< 0.19		2.4	< 2.4	
Baseline - 300 C - Ozone In - 673916	W305171-04	Ethyl Benzene	100-41-4	106.16	T	0.19	< 0.19		2.2	< 2.2	
Baseline - 300 C - Ozone In - 673916	W305171-04	m,p-Xylene	8-88-3/106-42	106.16	T	0.38	< 0.38		4.5	< 4.5	
Baseline - 300 C - Ozone In - 673916	W305171-04	Nonane	111-84-2	128.26	T	0.19	< 0.19		2.7	< 2.7	
Baseline - 300 C - Ozone In - 673916	W305171-04	Bromoform	75-25-2	252.73	T	0.20	< 0.20		5.4	< 5.4	
Baseline - 300 C - Ozone In - 673916	W305171-04	Styrene	100-42-5	104.15	T	0.19	< 0.19		2.2	< 2.2	
Baseline - 300 C - Ozone In - 673916	W305171-04	o-Xylene	95-47-6	106.16	T	0.20	< 0.20		2.4	< 2.4	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.19	< 0.19		3.6	< 3.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	Cumene	98-82-8	120.19	T	0.19	< 0.19		2.6	< 2.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.19	3.73	101	3.6	72.2	
Baseline - 300 C - Ozone In - 673916	W305171-04	n-Propylbenzene	103-65-1	120.19	T	0.19	< 0.19		2.6	< 2.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	2-Chlorotoluene	95-49-8	126.59	T	0.19	< 0.19		2.7	< 2.7	
Baseline - 300 C - Ozone In - 673916	W305171-04	4-Ethyltoluene	622-96-8	120.19	T	0.20	< 0.20		2.7	< 2.7	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.20	< 0.20		2.6	< 2.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.20	< 0.20		2.6	< 2.6	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,3-Dichlorobenzene	541-73-1	147.01	T	0.20	< 0.20		3.2	< 3.2	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,4-Dichlorobenzene	106-46-7	147.01	T	0.19	< 0.19		3.1	< 3.1	
Baseline - 300 C - Ozone In - 673916	W305171-04	Benzyl chloride	100-44-7	126.58	T	0.19	< 0.19		2.7	< 2.7	
Baseline - 300 C - Ozone In - 673916	W305171-04	1,2-Dichlorobenzene	95-50-1	147.01	T	0.19	< 0.19		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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673916

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 2.700

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds		MW							Q-FIT
Baseline - 300 C - Ozone In - 673916	W305171-04	Acetone	67-64-1	58	TIC	0.19	0.638		1.2	4.09	72
Baseline - 300 C - Ozone In - 673916	W305171-04	Methane, dichloro-	75-09-2	84	TIC	0.19	2.81		1.7	26.1	96
Baseline - 300 C - Ozone In - 673916	W305171-04	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.19	0.277		2.1	3.12	90
Baseline - 300 C - Ozone In - 673916	W305171-04	Benzaldehyde	100-52-7	106	TIC	0.19	0.209		2.2	2.45	96
Baseline - 300 C - Ozone In - 673916	W305171-04	Phthalic anhydride	85-44-9	148	TIC	0.19	0.505		3.0	8.26	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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 ug/Kg = micrograms per kilogram

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 ND = Not detected. Qualitative analysis
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Qualifiers

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 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
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N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
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 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

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463626

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.800

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300 C - Ozone Out - 463626	W305171-05	Bromochloromethane	74-97-5	129.39	Int. Std	0.28	5.56		2.6	52.9	
Baseline - 300 C - Ozone Out - 463626	W305171-05	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.29	< 0.29		2.1	< 2.1	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Methyl-t-butyl ether	1634-04-4	88.15	T	0.29	< 0.29		1.9	< 1.9	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,1-Dichloroethane	75-34-3	98.96	T	0.29	< 0.29		2.1	< 2.1	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Vinyl acetate	108-05-4	86.09	T	0.29	< 0.29		1.8	< 1.8	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Hexane	110-54-3	86.18	T	0.29	< 0.29		1.8	< 1.8	
Baseline - 300 C - Ozone Out - 463626	W305171-05	2-Butanone (MEK)	78-93-3	72.11	T	0.29	2.22		1.5	11.8	
Baseline - 300 C - Ozone Out - 463626	W305171-05	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.29	< 0.29		2.1	< 2.1	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Ethyl acetate	141-78-6	88.11	T	0.29	< 0.29		1.9	< 1.9	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Chloroform	67-66-3	119.38	T	0.29	< 0.29		2.5	< 2.5	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Tetrahydrofuran	109-99-9	72.11	T	0.30	< 0.30		1.6	< 1.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,1,1-Trichloroethane	71-55-6	133.4	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.28	5.60	101	2.1	42.5	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.28	5.56		2.3	46.7	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,2-Dichloroethane	107-06-2	98.96	T	0.29	< 0.29		2.1	< 2.1	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Cyclohexane	110-82-7	84.16	T	0.29	< 0.29		1.8	< 1.8	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Benzene	71-43-2	78.11	T	0.29	< 0.29		1.6	< 1.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Carbon tetrachloride	56-23-5	153.82	T	0.29	< 0.29		3.3	< 3.3	
Baseline - 300 C - Ozone Out - 463626	W305171-05	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.28	< 0.28		2.4	< 2.4	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Heptane	142-82-5	100.2	T	0.29	< 0.29		2.2	< 2.2	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,2-Dichloropropane	78-87-5	112.99	T	0.29	< 0.29		2.4	< 2.4	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Trichlorethylene (TCE)	79-01-6	131.39	T	0.28	< 0.28		2.7	< 2.7	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Bromodichloromethane	75-27-4	163.8	T	0.30	< 0.30		3.6	< 3.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Methyl methacrylate	80-62-6	100.12	T	0.30	< 0.30		2.2	< 2.2	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,4-Dioxane	123-91-1	88.11	T	0.30	< 0.30		2.0	< 2.0	
Baseline - 300 C - Ozone Out - 463626	W305171-05	4-Methyl-2-pentanone	108-10-1	100.16	T	0.28	< 0.28		2.1	< 2.1	
Baseline - 300 C - Ozone Out - 463626	W305171-05	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.29	< 0.29		2.3	< 2.3	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Toluene-d8	2037-26-5	100.21	Surr	0.28	5.55	99.9	2.1	41.0	



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Air & Emissions
Volume 1.800

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
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 Sampling Date: 05/16/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300 C - Ozone Out - 463626	W305171-05	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.29	< 0.29		2.4	< 2.4	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Toluene	108-88-3	92.14	T	0.29	0.744		1.9	5.05	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,1,2-Trichloroethane	79-00-5	133.4	T	0.29	< 0.29		2.8	< 2.8	
Baseline - 300 C - Ozone Out - 463626	W305171-05	2-Hexanone	591-78-6	110.16	T	0.29	< 0.29		2.3	< 2.3	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Dibromochloromethane	124-48-1	208.28	T	0.30	< 0.30		4.6	< 4.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,2-Dibromoethane	106-93-4	187.86	T	0.29	< 0.29		4.0	< 4.0	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Tetrachloroethylene	95-47-6	106.16	T	0.28	< 0.28		2.2	< 2.2	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.28	5.56		2.4	48.1	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Chlorobenzene	108-90-7	112.56	T	0.28	< 0.28		2.4	< 2.4	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Ethyl Benzene	100-41-4	106.16	T	0.29	< 0.29		2.2	< 2.2	
Baseline - 300 C - Ozone Out - 463626	W305171-05	m,p-Xylene	8-88-3/106-42	106.16	T	0.57	< 0.57		4.5	< 4.5	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Nonane	111-84-2	128.26	T	0.29	< 0.29		2.7	< 2.7	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Bromoform	75-25-2	252.73	T	0.29	< 0.29		5.4	< 5.4	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Styrene	100-42-5	104.15	T	0.28	< 0.28		2.2	< 2.2	
Baseline - 300 C - Ozone Out - 463626	W305171-05	o-Xylene	95-47-6	106.16	T	0.30	< 0.30		2.4	< 2.4	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.29	< 0.29		3.6	< 3.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Cumene	98-82-8	120.19	T	0.29	< 0.29		2.6	< 2.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.28	5.51	99.2	3.6	71.0	
Baseline - 300 C - Ozone Out - 463626	W305171-05	n-Propylbenzene	103-65-1	120.19	T	0.29	< 0.29		2.6	< 2.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	2-Chlorotoluene	95-49-8	126.59	T	0.29	< 0.29		2.7	< 2.7	
Baseline - 300 C - Ozone Out - 463626	W305171-05	4-Ethyltoluene	622-96-8	120.19	T	0.30	< 0.30		2.7	< 2.7	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.30	< 0.30		2.6	< 2.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.30	< 0.30		2.6	< 2.6	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,3-Dichlorobenzene	541-73-1	147.01	T	0.30	< 0.30		3.2	< 3.2	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,4-Dichlorobenzene	106-46-7	147.01	T	0.29	< 0.29		3.1	< 3.1	
Baseline - 300 C - Ozone Out - 463626	W305171-05	Benzyl chloride	100-44-7	126.58	T	0.29	< 0.29		2.7	< 2.7	
Baseline - 300 C - Ozone Out - 463626	W305171-05	1,2-Dichlorobenzene	95-50-1	147.01	T	0.29	< 0.29		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463626

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.800

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS		Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG		Number	MW							
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Baseline - 300 C - Ozone Out - 463626	W305171-05	Acetonitrile	75-05-8	41	TIC	0.28	0.541		0.84	1.63	53
Baseline - 300 C - Ozone Out - 463626	W305171-05	Acetone	67-64-1	58	TIC	0.28	0.974		1.2	4.16	50
Baseline - 300 C - Ozone Out - 463626	W305171-05	Pentane	109-66-0	72	TIC	0.28	0.572		1.5	3.03	78
Baseline - 300 C - Ozone Out - 463626	W305171-05	Methane, dichloro-	75-09-2	84	TIC	0.28	35.2		1.7	218	97
Baseline - 300 C - Ozone Out - 463626	W305171-05	Cyclopentane	287-92-3	70	TIC	0.28	0.903		1.4	4.65	86
Baseline - 300 C - Ozone Out - 463626	W305171-05	2,3-Butanedione	431-03-8	86	TIC	0.28	0.464		1.8	2.94	47
Baseline - 300 C - Ozone Out - 463626	W305171-05	Butanal	123-72-8	72	TIC	0.28	0.555		1.5	2.94	76
Baseline - 300 C - Ozone Out - 463626	W305171-05	Hexanal	66-25-1	100	TIC	0.28	0.605		2.0	4.46	91
Baseline - 300 C - Ozone Out - 463626	W305171-05	Furan	110-00-9	68	TIC	0.28	0.592		1.4	2.96	64
Baseline - 300 C - Ozone Out - 463626	W305171-05	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.28	1.14		2.7	11.0	83
Baseline - 300 C - Ozone Out - 463626	W305171-05	Nonanal	124-19-6	142	TIC	0.28	0.643		2.9	6.72	91
Baseline - 300 C - Ozone Out - 463626	W305171-05	Phthalic anhydride	85-44-9	148	TIC	0.28	0.541		3.0	5.90	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673917

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.950

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300 C - Ambient - 673917	W305171-06	Bromochloromethane	74-97-5	129.39	Int. Std	0.26	5.13		2.6	52.9	
Baseline - 300 C - Ambient - 673917	W305171-06	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.27	< 0.27		2.1	< 2.1	
Baseline - 300 C - Ambient - 673917	W305171-06	Methyl-t-butyl ether	1634-04-4	88.15	T	0.27	< 0.27		1.9	< 1.9	
Baseline - 300 C - Ambient - 673917	W305171-06	1,1-Dichloroethane	75-34-3	98.96	T	0.27	< 0.27		2.1	< 2.1	
Baseline - 300 C - Ambient - 673917	W305171-06	Vinyl acetate	108-05-4	86.09	T	0.27	< 0.27		1.8	< 1.8	
Baseline - 300 C - Ambient - 673917	W305171-06	Hexane	110-54-3	86.18	T	0.27	< 0.27		1.8	< 1.8	
Baseline - 300 C - Ambient - 673917	W305171-06	2-Butanone (MEK)	78-93-3	72.11	T	0.27	0.523		1.5	3.01	
Baseline - 300 C - Ambient - 673917	W305171-06	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.27	< 0.27		2.1	< 2.1	
Baseline - 300 C - Ambient - 673917	W305171-06	Ethyl acetate	141-78-6	88.11	T	0.27	< 0.27		1.9	< 1.9	
Baseline - 300 C - Ambient - 673917	W305171-06	Chloroform	67-66-3	119.38	T	0.27	< 0.27		2.5	< 2.5	
Baseline - 300 C - Ambient - 673917	W305171-06	Tetrahydrofuran	109-99-9	72.11	T	0.27	< 0.27		1.6	< 1.6	
Baseline - 300 C - Ambient - 673917	W305171-06	1,1,1-Trichloroethane	71-55-6	133.4	T	0.25	< 0.25		2.6	< 2.6	
Baseline - 300 C - Ambient - 673917	W305171-06	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.26	5.07	98.9	2.1	41.7	
Baseline - 300 C - Ambient - 673917	W305171-06	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.26	5.13		2.3	46.7	
Baseline - 300 C - Ambient - 673917	W305171-06	1,2-Dichloroethane	107-06-2	98.96	T	0.27	< 0.27		2.1	< 2.1	
Baseline - 300 C - Ambient - 673917	W305171-06	Cyclohexane	110-82-7	84.16	T	0.27	< 0.27		1.8	< 1.8	
Baseline - 300 C - Ambient - 673917	W305171-06	Benzene	71-43-2	78.11	T	0.26	< 0.26		1.6	< 1.6	
Baseline - 300 C - Ambient - 673917	W305171-06	Carbon tetrachloride	56-23-5	153.82	T	0.27	< 0.27		3.3	< 3.3	
Baseline - 300 C - Ambient - 673917	W305171-06	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.26	< 0.26		2.4	< 2.4	
Baseline - 300 C - Ambient - 673917	W305171-06	Heptane	142-82-5	100.2	T	0.27	< 0.27		2.2	< 2.2	
Baseline - 300 C - Ambient - 673917	W305171-06	1,2-Dichloropropane	78-87-5	112.99	T	0.27	< 0.27		2.4	< 2.4	
Baseline - 300 C - Ambient - 673917	W305171-06	Trichlorethylene (TCE)	79-01-6	131.39	T	0.26	< 0.26		2.7	< 2.7	
Baseline - 300 C - Ambient - 673917	W305171-06	Bromodichloromethane	75-27-4	163.8	T	0.27	< 0.27		3.6	< 3.6	
Baseline - 300 C - Ambient - 673917	W305171-06	Methyl methacrylate	80-62-6	100.12	T	0.27	< 0.27		2.2	< 2.2	
Baseline - 300 C - Ambient - 673917	W305171-06	1,4-Dioxane	123-91-1	88.11	T	0.28	< 0.28		2.0	< 2.0	
Baseline - 300 C - Ambient - 673917	W305171-06	4-Methyl-2-pentanone	108-10-1	100.16	T	0.26	< 0.26		2.1	< 2.1	
Baseline - 300 C - Ambient - 673917	W305171-06	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.26	< 0.26		2.3	< 2.3	
Baseline - 300 C - Ambient - 673917	W305171-06	Toluene-d8	2037-26-5	100.21	Surr	0.26	5.18	101	2.1	41.4	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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Tenax

673917

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.950

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300 C - Ambient - 673917	W305171-06	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.27	< 0.27		2.4	< 2.4	
Baseline - 300 C - Ambient - 673917	W305171-06	Toluene	108-88-3	92.14	T	0.26	< 0.26		1.9	< 1.9	
Baseline - 300 C - Ambient - 673917	W305171-06	1,1,2-Trichloroethane	79-00-5	133.4	T	0.27	< 0.27		2.8	< 2.8	
Baseline - 300 C - Ambient - 673917	W305171-06	2-Hexanone	591-78-6	110.16	T	0.27	< 0.27		2.3	< 2.3	
Baseline - 300 C - Ambient - 673917	W305171-06	Dibromochloromethane	124-48-1	208.28	T	0.28	< 0.28		4.6	< 4.6	
Baseline - 300 C - Ambient - 673917	W305171-06	1,2-Dibromoethane	106-93-4	187.86	T	0.27	< 0.27		4.0	< 4.0	
Baseline - 300 C - Ambient - 673917	W305171-06	Tetrachloroethylene	95-47-6	106.16	T	0.26	< 0.26		2.2	< 2.2	
Baseline - 300 C - Ambient - 673917	W305171-06	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.26	5.13		2.4	48.1	
Baseline - 300 C - Ambient - 673917	W305171-06	Chlorobenzene	108-90-7	112.56	T	0.26	< 0.26		2.4	< 2.4	
Baseline - 300 C - Ambient - 673917	W305171-06	Ethyl Benzene	100-41-4	106.16	T	0.27	< 0.27		2.2	< 2.2	
Baseline - 300 C - Ambient - 673917	W305171-06	m,p-Xylene	8-88-3/106-42	106.16	T	0.53	< 0.53		4.5	< 4.5	
Baseline - 300 C - Ambient - 673917	W305171-06	Nonane	111-84-2	128.26	T	0.27	< 0.27		2.7	< 2.7	
Baseline - 300 C - Ambient - 673917	W305171-06	Bromoform	75-25-2	252.73	T	0.27	< 0.27		5.4	< 5.4	
Baseline - 300 C - Ambient - 673917	W305171-06	Styrene	100-42-5	104.15	T	0.26	< 0.26		2.2	< 2.2	
Baseline - 300 C - Ambient - 673917	W305171-06	o-Xylene	95-47-6	106.16	T	0.28	< 0.28		2.4	< 2.4	
Baseline - 300 C - Ambient - 673917	W305171-06	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.27	< 0.27		3.6	< 3.6	
Baseline - 300 C - Ambient - 673917	W305171-06	Cumene	98-82-8	120.19	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Ambient - 673917	W305171-06	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.26	5.11	100	3.6	71.3	
Baseline - 300 C - Ambient - 673917	W305171-06	n-Propylbenzene	103-65-1	120.19	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Ambient - 673917	W305171-06	2-Chlorotoluene	95-49-8	126.59	T	0.27	< 0.27		2.7	< 2.7	
Baseline - 300 C - Ambient - 673917	W305171-06	4-Ethyltoluene	622-96-8	120.19	T	0.28	< 0.28		2.7	< 2.7	
Baseline - 300 C - Ambient - 673917	W305171-06	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Ambient - 673917	W305171-06	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.27	< 0.27		2.6	< 2.6	
Baseline - 300 C - Ambient - 673917	W305171-06	1,3-Dichlorobenzene	541-73-1	147.01	T	0.27	< 0.27		3.2	< 3.2	
Baseline - 300 C - Ambient - 673917	W305171-06	1,4-Dichlorobenzene	106-46-7	147.01	T	0.27	< 0.27		3.1	< 3.1	
Baseline - 300 C - Ambient - 673917	W305171-06	Benzyl chloride	100-44-7	126.58	T	0.27	< 0.27		2.7	< 2.7	
Baseline - 300 C - Ambient - 673917	W305171-06	1,2-Dichlorobenzene	95-50-1	147.01	T	0.27	< 0.27		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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2710 North 20th Avenue, Pasco WA 99301

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673917

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Air & Emissions
Volume 1.950

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Baseline - 300 C - Ambient - 673917	W305171-06	Acetone	67-64-1	58	TIC	0.26	0.894		1.2	4.14	64
Baseline - 300 C - Ambient - 673917	W305171-06	Methane, dichloro-	75-09-2	84	TIC	0.26	8.89		1.7	59.6	96
Baseline - 300 C - Ambient - 673917	W305171-06	1-Butanol	71-36-3	74	TIC	0.26	0.367		1.5	2.17	78
Baseline - 300 C - Ambient - 673917	W305171-06	2-Pinene	80-56-8	136	TIC	0.26	0.497		2.8	5.39	97
Baseline - 300 C - Ambient - 673917	W305171-06	Benzaldehyde	100-52-7	106	TIC	0.26	0.573		2.2	4.84	97
Baseline - 300 C - Ambient - 673917	W305171-06	.beta.-Pinene	127-91-3	136	TIC	0.26	0.749		2.8	8.13	97
Baseline - 300 C - Ambient - 673917	W305171-06	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.26	0.353		2.7	3.66	78
Baseline - 300 C - Ambient - 673917	W305171-06	Acetophenone	98-86-2	120	TIC	0.26	0.382		2.5	3.66	95
Baseline - 300 C - Ambient - 673917	W305171-06	Undecane	1120-21-4	156	TIC	0.26	0.427		3.2	5.32	95
Baseline - 300 C - Ambient - 673917	W305171-06	Nonanal	124-19-6	142	TIC	0.26	0.310		2.9	3.52	91
Baseline - 300 C - Ambient - 673917	W305171-06	Benzoic acid	65-85-0	122	TIC	0.26	1.41		2.5	13.7	97
Baseline - 300 C - Ambient - 673917	W305171-06	Dodecane	112-40-3	170	TIC	0.26	0.413		3.5	5.60	94
Baseline - 300 C - Ambient - 673917	W305171-06	Tridecane	629-50-5	184	TIC	0.26	0.385		3.8	5.65	95
Baseline - 300 C - Ambient - 673917	W305171-06	Phthalic anhydride	85-44-9	148	TIC	0.26	0.412		3.0	4.87	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673912

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Bromochloromethane	74-97-5	129.39	Int. Std	0.16	3.17		2.6	52.9	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Methyl-t-butyl ether	1634-04-4	88.15	T	0.17	< 0.17		1.9	< 1.9	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,1-Dichloroethane	75-34-3	98.96	T	0.17	< 0.17		2.1	< 2.1	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2-Butanone (MEK)	78-93-3	72.11	T	0.17	7.35		1.5	68.3	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.16	< 0.16		2.1	< 2.1	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Chloroform	67-66-3	119.38	T	0.16	< 0.16		2.5	< 2.5	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Tetrahydrofuran	109-99-9	72.11	T	0.17	< 0.17		1.6	< 1.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,1,1-Trichloroethane	71-55-6	133.4	T	0.15	< 0.15		2.6	< 2.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.16	3.33	105	2.1	44.2	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.16	3.17		2.3	46.7	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Benzene	71-43-2	78.11	T	0.16	< 0.16		1.6	< 1.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.16	< 0.16		2.4	< 2.4	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Heptane	142-82-5	100.2	T	0.17	< 0.17		2.2	< 2.2	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,2-Dichloropropane	78-87-5	112.99	T	0.17	< 0.17		2.4	< 2.4	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Trichlorethylene (TCE)	79-01-6	131.39	T	0.16	< 0.16		2.7	< 2.7	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Bromodichloromethane	75-27-4	163.8	T	0.17	< 0.17		3.6	< 3.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Methyl methacrylate	80-62-6	100.12	T	0.17	< 0.17		2.2	< 2.2	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,4-Dioxane	123-91-1	88.11	T	0.17	< 0.17		2.0	< 2.0	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	4-Methyl-2-pentanone	108-10-1	100.16	T	0.16	< 0.16		2.1	< 2.1	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.16	< 0.16		2.3	< 2.3	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Toluene-d8	2037-26-5	100.21	Surr	0.16	3.16	99.6	2.1	40.8	



LABORATORY REPORT

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Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.17	< 0.17		2.4	< 2.4	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Toluene	108-88-3	92.14	T	0.16	< 0.16		1.9	< 1.9	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,1,2-Trichloroethane	79-00-5	133.4	T	0.16	< 0.16		2.8	< 2.8	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2-Hexanone	591-78-6	110.16	T	0.16	0.965		2.3	13.7	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Dibromochloromethane	124-48-1	208.28	T	0.17	< 0.17		4.6	< 4.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,2-Dibromoethane	106-93-4	187.86	T	0.16	< 0.16		4.0	< 4.0	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Tetrachloroethylene	95-47-6	106.16	T	0.16	< 0.16		2.2	< 2.2	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.16	3.17		2.4	48.1	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Chlorobenzene	108-90-7	112.56	T	0.16	< 0.16		2.4	< 2.4	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Ethyl Benzene	100-41-4	106.16	T	0.16	< 0.16		2.2	< 2.2	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	m,p-Xylene	8-88-3/106-42	106.16	T	0.33	< 0.33		4.5	< 4.5	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Nonane	111-84-2	128.26	T	0.16	0.260		2.7	4.30	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Bromoform	75-25-2	252.73	T	0.17	< 0.17		5.4	< 5.4	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Styrene	100-42-5	104.15	T	0.16	< 0.16		2.2	< 2.2	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	o-Xylene	95-47-6	106.16	T	0.17	< 0.17		2.4	< 2.4	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.16	< 0.16		3.6	< 3.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Cumene	98-82-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.16	3.19	100	3.6	71.9	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	4-Ethyltoluene	622-96-8	120.19	T	0.17	< 0.17		2.7	< 2.7	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,3-Dichlorobenzene	541-73-1	147.01	T	0.17	< 0.17		3.2	< 3.2	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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673912

Client: Kansas State University
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Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Client Project: Air Sampling

Sample ID		Analyte	CAS		Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG		Number	MW							
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Acetone	67-64-1	58	TIC	0.16	0.526		1.2	3.93	9
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Methane, dichloro-	75-09-2	84.000	TIC	0.16	2.35		1.7	25.4	96
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2-Propenal, 2-methyl-	78-85-3	70.000	TIC	0.16	0.288		1.4	2.60	91
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Butanal	123-72-8	72.000	TIC	0.16	1.38		1.5	12.8	94
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2-Pentanone	107-87-9	86.000	TIC	0.16	0.292		1.8	3.24	52
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Pentanal	110-62-3	86.000	TIC	0.16	0.835		1.8	9.25	91
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Hexanal	66-25-1	100.000	TIC	0.16	1.17		2.0	15.1	91
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Furan	110-00-9	68.000	TIC	0.16	1.22		1.4	10.7	64
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2-Heptanone	110-43-0	114.000	TIC	0.16	0.269		2.3	3.95	87
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2(3H)-Furanone, dihydro-5-methyl-	108-29-2	100.000	TIC	0.16	0.493		2.0	6.36	90
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Hexanoic acid, 2-methyl-	4536-23-6	130.000	TIC	0.16	0.442		2.7	7.40	87
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	p-Cresol	106-44-5	108.000	TIC	0.16	0.721		2.2	10.0	97
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Acetophenone	98-86-2	120.000	TIC	0.16	0.259		2.5	4.01	95
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	Nonanal	124-19-6	142.000	TIC	0.16	0.284		2.9	5.20	91
MJ-II 315 C - 5ppmW - Pack Out - 673912	W305171-07	2(3H)-Furanone, dihydro-5-propyl-	105-21-5	128.000	TIC	0.16	0.537		2.6	8.86	83

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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Client: Kansas State University
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Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Bromochloromethane	74-97-5	129.39	Int. Std	0.18	3.51		2.6	52.9	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,1-Dichloroethane	75-34-3	98.96	T	0.19	< 0.19		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Vinyl acetate	108-05-4	86.09	T	0.18	< 0.18		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Hexane	110-54-3	86.18	T	0.18	< 0.18		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	2-Butanone (MEK)	78-93-3	72.11	T	0.18	2.15		1.5	18.1	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Ethyl acetate	141-78-6	88.11	T	0.18	< 0.18		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Chloroform	67-66-3	119.38	T	0.18	< 0.18		2.5	< 2.5	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Tetrahydrofuran	109-99-9	72.11	T	0.19	< 0.19		1.6	< 1.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,1,1-Trichloroethane	71-55-6	133.4	T	0.17	< 0.17		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.18	3.80	108	2.1	45.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.18	3.51		2.3	46.7	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,2-Dichloroethane	107-06-2	98.96	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Cyclohexane	110-82-7	84.16	T	0.18	< 0.18		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Benzene	71-43-2	78.11	T	0.18	< 0.18		1.6	< 1.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Carbon tetrachloride	56-23-5	153.82	T	0.18	< 0.18		3.3	< 3.3	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Heptane	142-82-5	100.2	T	0.19	< 0.19		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Trichlorethylene (TCE)	79-01-6	131.39	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Bromodichloromethane	75-27-4	163.8	T	0.19	< 0.19		3.6	< 3.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Methyl methacrylate	80-62-6	100.12	T	0.19	< 0.19		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,4-Dioxane	123-91-1	88.11	T	0.19	< 0.19		2.0	< 2.0	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	4-Methyl-2-pentanone	108-10-1	100.16	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.18	< 0.18		2.3	< 2.3	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Toluene-d8	2037-26-5	100.21	Surr	0.18	3.53	101	2.1	41.3	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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463623

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.19	< 0.19		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Toluene	108-88-3	92.14	T	0.18	< 0.18		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,1,2-Trichloroethane	79-00-5	133.4	T	0.18	< 0.18		2.8	< 2.8	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	2-Hexanone	591-78-6	110.16	T	0.18	0.453		2.3	5.81	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Dibromochloromethane	124-48-1	208.28	T	0.19	< 0.19		4.6	< 4.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,2-Dibromoethane	106-93-4	187.86	T	0.18	< 0.18		4.0	< 4.0	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Tetrachloroethylene	95-47-6	106.16	T	0.18	< 0.18		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.18	3.51		2.4	48.1	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Chlorobenzene	108-90-7	112.56	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Ethyl Benzene	100-41-4	106.16	T	0.18	< 0.18		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	m,p-Xylene	8-88-3/106-42	106.16	T	0.36	< 0.36		4.5	< 4.5	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Nonane	111-84-2	128.26	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Styrene	100-42-5	104.15	T	0.18	< 0.18		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	o-Xylene	95-47-6	106.16	T	0.19	< 0.19		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.18	< 0.18		3.6	< 3.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.18	3.51	100	3.6	71.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	n-Propylbenzene	103-65-1	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	2-Chlorotoluene	95-49-8	126.59	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	4-Ethyltoluene	622-96-8	120.19	T	0.19	< 0.19		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.19	< 0.19		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.19	< 0.19		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,3-Dichlorobenzene	541-73-1	147.01	T	0.19	< 0.19		3.2	< 3.2	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,4-Dichlorobenzene	106-46-7	147.01	T	0.18	< 0.18		3.1	< 3.1	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Benzyl chloride	100-44-7	126.58	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1,2-Dichlorobenzene	95-50-1	147.01	T	0.18	< 0.18		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

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Tel: (509) 792-1955

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463623

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
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Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Acetone	67-64-1	58	TIC	0.18	1.06		1.2	7.17	64
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Methane, dichloro-	75-09-2	84	TIC	0.18	3.31		1.7	32.4	96
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	2-Propenal, 2-methyl-	78-85-3	70	TIC	0.18	0.407		1.4	3.32	91
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	3-Buten-2-one	78-94-4	70	TIC	0.18	0.461		1.4	3.76	72
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Butanal	123-72-8	72	TIC	0.18	0.602		1.5	5.06	64
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Cyclopentanone	120-92-3	84	TIC	0.18	0.243		1.7	2.38	72
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	1-Butanol	71-36-3	74	TIC	0.18	0.274		1.5	2.37	78
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Pentanal	110-62-3	86	TIC	0.18	0.336		1.8	3.37	90
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Hexanal	66-25-1	100	TIC	0.18	0.506		2.0	5.90	91
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Furan	110-00-9	68	TIC	0.18	0.269		1.4	2.13	64
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.18	1.25		2.1	14.9	90
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Butyrolactone	96-48-0	86	TIC	0.18	0.264		1.8	2.65	80
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	2(3H)-Furanone, dihydro-5-methyl-	108-29-2	100	TIC	0.18	0.241		2.0	2.81	90
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	2(3H)-Furanone, dihydro-4-methyl-	1679-49-8	100	TIC	0.18	0.257		2.0	3.00	86
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	p-Cresol	106-44-5	108	TIC	0.18	0.575		2.2	7.25	97
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Nonanal	124-19-6	142	TIC	0.18	0.286		2.9	4.74	90
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	2(3H)-Furanone, dihydro-5-propyl-	105-21-5	128	TIC	0.18	0.262		2.6	3.91	91
MJ-II 315C - 5ppmW - Ozone In - 463623	W305171-08	Phthalic anhydride	85-44-9	148	TIC	0.18	1.42		3.0	24.6	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.


ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: 
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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 Attention: Dr. Byron Jones
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Air & Emissions**Volume 2.850****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	ppbv	ppbv	REC	RL ng/tube	ng/tube	Qualifier

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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673925

Client: Kansas State University
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 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 3.000

Broken Sample Tube on Receipt

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Bromochloromethane	74-97-5	129.39	Int. Std	0.17	< 0.17		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,1-Dichloroethane	75-34-3	98.96	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	2-Butanone (MEK)	78-93-3	72.11	T	0.17	< 0.17		1.5	< 1.5	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.17	< 0.17		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Chloroform	67-66-3	119.38	T	0.17	< 0.17		2.5	< 2.5	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Tetrahydrofuran	109-99-9	72.11	T	0.18	< 0.18		1.6	< 1.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,1,1-Trichloroethane	71-55-6	133.4	T	0.16	< 0.16		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.17	< 0.17	0.0	2.1	< 2.1	S
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.17	< 0.17		2.3	< 2.3	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Benzene	71-43-2	78.11	T	0.17	< 0.17		1.6	< 1.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.17	< 0.17		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Heptane	142-82-5	100.2	T	0.18	< 0.18		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Trichlorethylene (TCE)	79-01-6	131.39	T	0.17	< 0.17		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Bromodichloromethane	75-27-4	163.8	T	0.18	< 0.18		3.6	< 3.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Methyl methacrylate	80-62-6	100.12	T	0.18	< 0.18		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,4-Dioxane	123-91-1	88.11	T	0.18	< 0.18		2.0	< 2.0	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	4-Methyl-2-pentanone	108-10-1	100.16	T	0.17	< 0.17		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.17	< 0.17		2.3	< 2.3	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Toluene-d8	2037-26-5	100.21	Surr	0.17	< 0.17	0.0	2.1	< 2.1	S



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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673925

Client: Kansas State University
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Air & Emissions
Volume 3.000

Broken Sample Tube on Receipt
Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	< 0.17		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	< 0.17	0	3.6	< 3.6	S
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ozone Out - 673925	W305171-09	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

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Tel: (509) 792-1955

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673925

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions**Volume 3.000****Broken Sample Tube on Receipt****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram*ppbv* = parts per billion volume*ug/m3* = micrograms per cubic meter*ug/Kg* = micrograms per kilogram*BDL* = Below Detection Limit*N/A* = Not Applicable*ND* = Not detected. *Qualitative analysis**Surr* = Surrogate Compound*Int. Std* = Internal Standard*T* = Target Analyte*TIC* = Tentatively Identified Compound**Qualifiers**

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 2.850

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Bromochloromethane	74-97-5	129.39	Int. Std	0.18	3.51		2.6	52.9	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,1-Dichloroethane	75-34-3	98.96	T	0.19	< 0.19		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Vinyl acetate	108-05-4	86.09	T	0.18	< 0.18		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Hexane	110-54-3	86.18	T	0.18	< 0.18		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	2-Butanone (MEK)	78-93-3	72.11	T	0.18	0.565		1.5	4.75	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Ethyl acetate	141-78-6	88.11	T	0.18	< 0.18		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Chloroform	67-66-3	119.38	T	0.18	< 0.18		2.5	< 2.5	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Tetrahydrofuran	109-99-9	72.11	T	0.19	< 0.19		1.6	< 1.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,1,1-Trichloroethane	71-55-6	133.4	T	0.17	< 0.17		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.18	3.52	100	2.1	42.3	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.18	3.51		2.3	46.7	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,2-Dichloroethane	107-06-2	98.96	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Cyclohexane	110-82-7	84.16	T	0.18	< 0.18		1.8	< 1.8	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Benzene	71-43-2	78.11	T	0.18	< 0.18		1.6	< 1.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Carbon tetrachloride	56-23-5	153.82	T	0.18	< 0.18		3.3	< 3.3	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Heptane	142-82-5	100.2	T	0.19	< 0.19		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Trichlorethylene (TCE)	79-01-6	131.39	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Bromodichloromethane	75-27-4	163.8	T	0.19	< 0.19		3.6	< 3.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Methyl methacrylate	80-62-6	100.12	T	0.19	< 0.19		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,4-Dioxane	123-91-1	88.11	T	0.19	< 0.19		2.0	< 2.0	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	4-Methyl-2-pentanone	108-10-1	100.16	T	0.18	< 0.18		2.1	< 2.1	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.18	< 0.18		2.3	< 2.3	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Toluene-d8	2037-26-5	100.21	Surr	0.18	3.54	101	2.1	41.4	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
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Air & Emissions
Volume 2.850

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.19	< 0.19		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Toluene	108-88-3	92.14	T	0.18	< 0.18		1.9	< 1.9	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,1,2-Trichloroethane	79-00-5	133.4	T	0.18	< 0.18		2.8	< 2.8	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	2-Hexanone	591-78-6	110.16	T	0.18	< 0.18		2.3	< 2.3	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Dibromochloromethane	124-48-1	208.28	T	0.19	< 0.19		4.6	< 4.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,2-Dibromoethane	106-93-4	187.86	T	0.18	< 0.18		4.0	< 4.0	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Tetrachloroethylene	95-47-6	106.16	T	0.18	< 0.18		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.18	3.51		2.4	48.1	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Chlorobenzene	108-90-7	112.56	T	0.18	< 0.18		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Ethyl Benzene	100-41-4	106.16	T	0.18	< 0.18		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	m,p-Xylene	8-88-3/106-42	106.16	T	0.36	< 0.36		4.5	< 4.5	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Nonane	111-84-2	128.26	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Styrene	100-42-5	104.15	T	0.18	< 0.18		2.2	< 2.2	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	o-Xylene	95-47-6	106.16	T	0.19	< 0.19		2.4	< 2.4	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.18	< 0.18		3.6	< 3.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.18	3.53	101	3.6	72.0	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	n-Propylbenzene	103-65-1	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	2-Chlorotoluene	95-49-8	126.59	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	4-Ethyltoluene	622-96-8	120.19	T	0.19	< 0.19		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.19	< 0.19		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.19	< 0.19		2.6	< 2.6	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,3-Dichlorobenzene	541-73-1	147.01	T	0.19	< 0.19		3.2	< 3.2	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,4-Dichlorobenzene	106-46-7	147.01	T	0.18	< 0.18		3.1	< 3.1	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Benzyl chloride	100-44-7	126.58	T	0.18	< 0.18		2.7	< 2.7	
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,2-Dichlorobenzene	95-50-1	147.01	T	0.18	< 0.18		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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Client: Kansas State University
 Address: 245 Levee Drive
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 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Acetone	67-64-1	58	TIC	0.18	0.586		1.2	3.97	9
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Methane, dichloro-	75-09-2	84	TIC	0.18	3.68		1.7	36.0	96
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	2,3-Butanedione	431-03-8	86	TIC	0.18	0.246		1.8	2.47	38
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1-Butanol	71-36-3	74	TIC	0.18	0.232		1.5	2.00	72
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.18	0.205		2.1	2.43	59
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	2-Pinene	80-56-8	136	TIC	0.18	0.608		2.8	9.64	97
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Benzaldehyde	100-52-7	106	TIC	0.18	0.455		2.2	5.62	97
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	.beta.-Pinene	127-91-3	136	TIC	0.18	0.876		2.8	13.9	97
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.18	0.328		2.7	4.97	83
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Acetophenone	98-86-2	120	TIC	0.18	0.357		2.5	5.00	95
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Undecane	1120-21-4	156	TIC	0.18	0.307		3.2	5.58	95
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Nonanal	124-19-6	142	TIC	0.18	0.273		2.9	4.53	91
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Benzoic acid	65-85-0	122	TIC	0.18	1.08		2.5	15.4	97
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Dodecane	112-40-3	170	TIC	0.18	0.357		3.5	7.07	91
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Decanal	112-31-2	156	TIC	0.18	0.197		3.2	3.59	91
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Tetradecane	629-59-4	198	TIC	0.18	0.413		4.1	9.52	90
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Phthalic anhydride	85-44-9	148	TIC	0.18	0.511		3.0	8.81	96
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	1,2-Propanedione, 1-phenyl-	579-07-7	148	TIC	0.18	0.244		3.0	4.21	80
MJ-II 315C - 5ppmW - Ambient - 673915	W305171-10	Naphthalene, 1,6-dimethyl-	575-43-9	156	TIC	0.18	0.209		3.2	3.80	64

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
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N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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Air & Emissions
Volume 2.850

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID											
Client	RJLG	Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified

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Client: Kansas State University
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Air & Emissions
Volume: 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23

Revised Report, Rev. 3 - 01/29/24

PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Field Blank - 673919	W305171-11	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.50	10.0		2.6	52.9	
Field Blank - 673919	W305171-11	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Field Blank - 673919	W305171-11	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.53	< 0.53		1.9	< 1.9	
Field Blank - 673919	W305171-11	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.53	< 0.53		2.1	< 2.1	
Field Blank - 673919	W305171-11	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Field Blank - 673919	W305171-11	Hexane	110-54-3	86.18	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Field Blank - 673919	W305171-11	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.52	< 0.52		1.5	< 1.5	
Field Blank - 673919	W305171-11	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Field Blank - 673919	W305171-11	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.52	< 0.52		1.9	< 1.9	
Field Blank - 673919	W305171-11	Chloroform	67-66-3	119.38	<i>T</i>	0.52	< 0.52		2.5	< 2.5	
Field Blank - 673919	W305171-11	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.53	< 0.53		1.6	< 1.6	
Field Blank - 673919	W305171-11	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.48	< 0.48		2.6	< 2.6	
Field Blank - 673919	W305171-11	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.50	9.96	99.6	2.1	42.0	
Field Blank - 673919	W305171-11	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.50	10.0		2.3	46.7	
Field Blank - 673919	W305171-11	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.52	< 0.52		2.1	< 2.1	
Field Blank - 673919	W305171-11	Cyclohexane	110-82-7	84.16	<i>T</i>	0.52	< 0.52		1.8	< 1.8	
Field Blank - 673919	W305171-11	Benzene	71-43-2	78.11	<i>T</i>	0.52	10.3		1.6	33.0	
Field Blank - 673919	W305171-11	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.52	< 0.52		3.3	< 3.3	
Field Blank - 673919	W305171-11	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.51	< 0.51		2.4	< 2.4	
Field Blank - 673919	W305171-11	Heptane	142-82-5	100.2	<i>T</i>	0.53	< 0.53		2.2	< 2.2	
Field Blank - 673919	W305171-11	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.53	< 0.53		2.4	< 2.4	
Field Blank - 673919	W305171-11	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.51	< 0.51		2.7	< 2.7	
Field Blank - 673919	W305171-11	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.53	< 0.53		3.6	< 3.6	
Field Blank - 673919	W305171-11	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.53	< 0.53		2.2	< 2.2	
Field Blank - 673919	W305171-11	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.54	< 0.54		2.0	< 2.0	
Field Blank - 673919	W305171-11	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.51	< 0.51		2.1	< 2.1	
Field Blank - 673919	W305171-11	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.52	< 0.52		2.3	< 2.3	
Field Blank - 673919	W305171-11	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.50	10.0	100	2.1	41.0	



LABORATORY REPORT
EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673919

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume: 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23

Revised Report, Rev. 3 - 01/29/24

PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Field Blank - 673919	W305171-11	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.53	< 0.53		2.4	< 2.4	
Field Blank - 673919	W305171-11	Toluene	108-88-3	92.14	T	0.52	< 0.52		1.9	< 1.9	
Field Blank - 673919	W305171-11	1,1,2-Trichloroethane	79-00-5	133.4	T	0.52	< 0.52		2.8	< 2.8	
Field Blank - 673919	W305171-11	2-Hexanone	591-78-6	110.16	T	0.52	< 0.52		2.3	< 2.3	
Field Blank - 673919	W305171-11	Dibromochloromethane	124-48-1	208.28	T	0.54	< 0.54		4.6	< 4.6	
Field Blank - 673919	W305171-11	1,2-Dibromoethane	106-93-4	187.86	T	0.52	< 0.52		4.0	< 4.0	
Field Blank - 673919	W305171-11	Tetrachloroethylene	95-47-6	106.16	T	0.50	< 0.50		2.2	< 2.2	
Field Blank - 673919	W305171-11	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.50	10.0		2.4	48.1	
Field Blank - 673919	W305171-11	Chlorobenzene	108-90-7	112.56	T	0.51	< 0.51		2.4	< 2.4	
Field Blank - 673919	W305171-11	Ethyl Benzene	100-41-4	106.16	T	0.52	< 0.52		2.2	< 2.2	
Field Blank - 673919	W305171-11	m,p-Xylene	8-88-3/106-42	106.16	T	1.0	< 1.0		4.5	< 4.5	
Field Blank - 673919	W305171-11	Nonane	111-84-2	128.26	T	0.52	< 0.52		2.7	< 2.7	
Field Blank - 673919	W305171-11	Bromoform	75-25-2	252.73	T	0.53	< 0.53		5.4	< 5.4	
Field Blank - 673919	W305171-11	Styrene	100-42-5	104.15	T	0.51	< 0.51		2.2	< 2.2	
Field Blank - 673919	W305171-11	o-Xylene	95-47-6	106.16	T	0.54	< 0.54		2.4	< 2.4	
Field Blank - 673919	W305171-11	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.52	< 0.52		3.6	< 3.6	
Field Blank - 673919	W305171-11	Cumene	98-82-8	120.19	T	0.53	< 0.53		2.6	< 2.6	
Field Blank - 673919	W305171-11	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.50	9.99	99.9	3.6	71.5	
Field Blank - 673919	W305171-11	n-Propylbenzene	103-65-1	120.19	T	0.52	< 0.52		2.6	< 2.6	
Field Blank - 673919	W305171-11	2-Chlorotoluene	95-49-8	126.59	T	0.52	< 0.52		2.7	< 2.7	
Field Blank - 673919	W305171-11	4-Ethyltoluene	622-96-8	120.19	T	0.54	< 0.54		2.7	< 2.7	
Field Blank - 673919	W305171-11	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.53	< 0.53		2.6	< 2.6	
Field Blank - 673919	W305171-11	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.53	< 0.53		2.6	< 2.6	
Field Blank - 673919	W305171-11	1,3-Dichlorobenzene	541-73-1	147.01	T	0.53	< 0.53		3.2	< 3.2	
Field Blank - 673919	W305171-11	1,4-Dichlorobenzene	106-46-7	147.01	T	0.52	< 0.52		3.1	< 3.1	
Field Blank - 673919	W305171-11	Benzyl chloride	100-44-7	126.58	T	0.52	< 0.52		2.7	< 2.7	
Field Blank - 673919	W305171-11	1,2-Dichlorobenzene	95-50-1	147.01	T	0.52	< 0.52		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673919

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions**Volume: 1.000**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23

Revised Report, Rev. 3 - 01/29/24

PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS#	MW							Q-FIT
Field Blank - 673919	W305171-11	Acetone	67-64-1	58	TIC	0.50	0.605		1.2	1.44	7
Field Blank - 673919	W305171-11	Benzoic acid	65-85-0	122	TIC	0.50	1.43		2.5	7.15	97

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m³ = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube
673921

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300C - pack out - 673921	W305171-12	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.17	3.33		2.6	52.9	
Baseline - 300C - pack out - 673921	W305171-12	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - pack out - 673921	W305171-12	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
Baseline - 300C - pack out - 673921	W305171-12	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
Baseline - 300C - pack out - 673921	W305171-12	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - pack out - 673921	W305171-12	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - pack out - 673921	W305171-12	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	1.56		1.5	13.8	
Baseline - 300C - pack out - 673921	W305171-12	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - pack out - 673921	W305171-12	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Baseline - 300C - pack out - 673921	W305171-12	Chloroform	67-66-3	119.38	<i>T</i>	0.17	< 0.17		2.5	< 2.5	
Baseline - 300C - pack out - 673921	W305171-12	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
Baseline - 300C - pack out - 673921	W305171-12	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.16	< 0.16		2.6	< 2.6	
Baseline - 300C - pack out - 673921	W305171-12	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.17	3.54	106	2.1	44.8	
Baseline - 300C - pack out - 673921	W305171-12	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.17	3.33		2.3	46.7	
Baseline - 300C - pack out - 673921	W305171-12	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - pack out - 673921	W305171-12	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - pack out - 673921	W305171-12	Benzene	71-43-2	78.11	<i>T</i>	0.17	< 0.17		1.6	< 1.6	
Baseline - 300C - pack out - 673921	W305171-12	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
Baseline - 300C - pack out - 673921	W305171-12	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
Baseline - 300C - pack out - 673921	W305171-12	Heptane	142-82-5	100.2	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
Baseline - 300C - pack out - 673921	W305171-12	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - pack out - 673921	W305171-12	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - pack out - 673921	W305171-12	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.18	< 0.18		3.6	< 3.6	
Baseline - 300C - pack out - 673921	W305171-12	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
Baseline - 300C - pack out - 673921	W305171-12	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.18	< 0.18		2.0	< 2.0	
Baseline - 300C - pack out - 673921	W305171-12	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - pack out - 673921	W305171-12	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.17	< 0.17		2.3	< 2.3	
Baseline - 300C - pack out - 673921	W305171-12	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.17	3.36	101	2.1	41.4	



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube
673921

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300C - pack out - 673921	W305171-12	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - pack out - 673921	W305171-12	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
Baseline - 300C - pack out - 673921	W305171-12	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
Baseline - 300C - pack out - 673921	W305171-12	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
Baseline - 300C - pack out - 673921	W305171-12	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
Baseline - 300C - pack out - 673921	W305171-12	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
Baseline - 300C - pack out - 673921	W305171-12	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - pack out - 673921	W305171-12	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
Baseline - 300C - pack out - 673921	W305171-12	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
Baseline - 300C - pack out - 673921	W305171-12	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - pack out - 673921	W305171-12	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
Baseline - 300C - pack out - 673921	W305171-12	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - pack out - 673921	W305171-12	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
Baseline - 300C - pack out - 673921	W305171-12	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - pack out - 673921	W305171-12	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - pack out - 673921	W305171-12	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
Baseline - 300C - pack out - 673921	W305171-12	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - pack out - 673921	W305171-12	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.35	100	3.6	71.9	
Baseline - 300C - pack out - 673921	W305171-12	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline - 300C - pack out - 673921	W305171-12	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - pack out - 673921	W305171-12	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
Baseline - 300C - pack out - 673921	W305171-12	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - pack out - 673921	W305171-12	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - pack out - 673921	W305171-12	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
Baseline - 300C - pack out - 673921	W305171-12	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Baseline - 300C - pack out - 673921	W305171-12	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - pack out - 673921	W305171-12	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube
673921

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS#	MW							Q-FIT
Baseline - 300C - pack out - 673921	W305171-12	Acetone	67-64-1	58	TIC	0.17	0.359		1.2	2.55	50
Baseline - 300C - pack out - 673921	W305171-12	Methane, dichloro-	75-09-2	84	TIC	0.17	1.29		1.7	13.4	96
Baseline - 300C - pack out - 673921	W305171-12	Butanal	123-72-8	72	TIC	0.17	0.251		1.5	2.22	86
Baseline - 300C - pack out - 673921	W305171-12	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.17	0.182		2.7	2.90	78
Baseline - 300C - pack out - 673921	W305171-12	Phthalic anhydride	85-44-9	148	TIC	0.17	1.43		3.0	26.0	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463636

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300C - Ozone In - 463636	W305171-13	Bromochloromethane	74-97-5	129.39	Int. Std	0.17	3.33		2.6	52.9	
Baseline - 300C - Ozone In - 463636	W305171-13	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - Ozone In - 463636	W305171-13	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
Baseline - 300C - Ozone In - 463636	W305171-13	1,1-Dichloroethane	75-34-3	98.96	T	0.18	< 0.18		2.1	< 2.1	
Baseline - 300C - Ozone In - 463636	W305171-13	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - Ozone In - 463636	W305171-13	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - Ozone In - 463636	W305171-13	2-Butanone (MEK)	78-93-3	72.11	T	0.17	0.313		1.5	2.77	
Baseline - 300C - Ozone In - 463636	W305171-13	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - Ozone In - 463636	W305171-13	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
Baseline - 300C - Ozone In - 463636	W305171-13	Chloroform	67-66-3	119.38	T	0.17	< 0.17		2.5	< 2.5	
Baseline - 300C - Ozone In - 463636	W305171-13	Tetrahydrofuran	109-99-9	72.11	T	0.18	< 0.18		1.6	< 1.6	
Baseline - 300C - Ozone In - 463636	W305171-13	1,1,1-Trichloroethane	71-55-6	133.4	T	0.16	< 0.16		2.6	< 2.6	
Baseline - 300C - Ozone In - 463636	W305171-13	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.17	3.32	99.7	2.1	42.0	
Baseline - 300C - Ozone In - 463636	W305171-13	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.17	3.33		2.3	46.7	
Baseline - 300C - Ozone In - 463636	W305171-13	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - Ozone In - 463636	W305171-13	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - Ozone In - 463636	W305171-13	Benzene	71-43-2	78.11	T	0.17	< 0.17		1.6	< 1.6	
Baseline - 300C - Ozone In - 463636	W305171-13	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
Baseline - 300C - Ozone In - 463636	W305171-13	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.17	< 0.17		2.4	< 2.4	
Baseline - 300C - Ozone In - 463636	W305171-13	Heptane	142-82-5	100.2	T	0.18	< 0.18		2.2	< 2.2	
Baseline - 300C - Ozone In - 463636	W305171-13	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - Ozone In - 463636	W305171-13	Trichlorethylene (TCE)	79-01-6	131.39	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - Ozone In - 463636	W305171-13	Bromodichloromethane	75-27-4	163.8	T	0.18	< 0.18		3.6	< 3.6	
Baseline - 300C - Ozone In - 463636	W305171-13	Methyl methacrylate	80-62-6	100.12	T	0.18	< 0.18		2.2	< 2.2	
Baseline - 300C - Ozone In - 463636	W305171-13	1,4-Dioxane	123-91-1	88.11	T	0.18	< 0.18		2.0	< 2.0	
Baseline - 300C - Ozone In - 463636	W305171-13	4-Methyl-2-pentanone	108-10-1	100.16	T	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - Ozone In - 463636	W305171-13	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.17	< 0.17		2.3	< 2.3	
Baseline - 300C - Ozone In - 463636	W305171-13	Toluene-d8	2037-26-5	100.21	Surr	0.17	3.34	100	2.1	41.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463636

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300C - Ozone In - 463636	W305171-13	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - Ozone In - 463636	W305171-13	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
Baseline - 300C - Ozone In - 463636	W305171-13	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
Baseline - 300C - Ozone In - 463636	W305171-13	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
Baseline - 300C - Ozone In - 463636	W305171-13	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
Baseline - 300C - Ozone In - 463636	W305171-13	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
Baseline - 300C - Ozone In - 463636	W305171-13	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - Ozone In - 463636	W305171-13	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
Baseline - 300C - Ozone In - 463636	W305171-13	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
Baseline - 300C - Ozone In - 463636	W305171-13	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - Ozone In - 463636	W305171-13	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
Baseline - 300C - Ozone In - 463636	W305171-13	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - Ozone In - 463636	W305171-13	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
Baseline - 300C - Ozone In - 463636	W305171-13	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - Ozone In - 463636	W305171-13	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - Ozone In - 463636	W305171-13	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
Baseline - 300C - Ozone In - 463636	W305171-13	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - Ozone In - 463636	W305171-13	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.38	101	3.6	72.6	
Baseline - 300C - Ozone In - 463636	W305171-13	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline - 300C - Ozone In - 463636	W305171-13	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - Ozone In - 463636	W305171-13	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
Baseline - 300C - Ozone In - 463636	W305171-13	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - Ozone In - 463636	W305171-13	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - Ozone In - 463636	W305171-13	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
Baseline - 300C - Ozone In - 463636	W305171-13	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Baseline - 300C - Ozone In - 463636	W305171-13	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - Ozone In - 463636	W305171-13	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463636

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Baseline - 300C - Ozone In - 463636	W305171-13	Acetone	67-64-1	58	TIC	0.17	0.346		1.2	2.46	64
Baseline - 300C - Ozone In - 463636	W305171-13	Methane, dichloro-	75-09-2	84	TIC	0.17	0.257		1.7	2.65	96
Baseline - 300C - Ozone In - 463636	W305171-13	Nonanal	124-19-6	142	TIC	0.17	0.184		2.9	3.21	72
Baseline - 300C - Ozone In - 463636	W305171-13	Phthalic anhydride	85-44-9	148	TIC	0.17	0.322		3.0	5.85	94

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m³ = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673938

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.700

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300C - Ozone Out - 673938	W305171-14	Bromochloromethane	74-97-5	129.39	Int. Std	0.19	3.70		2.6	52.9	
Baseline - 300C - Ozone Out - 673938	W305171-14	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.19	< 0.19		2.1	< 2.1	
Baseline - 300C - Ozone Out - 673938	W305171-14	Methyl-t-butyl ether	1634-04-4	88.15	T	0.20	< 0.20		1.9	< 1.9	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,1-Dichloroethane	75-34-3	98.96	T	0.20	< 0.20		2.1	< 2.1	
Baseline - 300C - Ozone Out - 673938	W305171-14	Vinyl acetate	108-05-4	86.09	T	0.19	< 0.19		1.8	< 1.8	
Baseline - 300C - Ozone Out - 673938	W305171-14	Hexane	110-54-3	86.18	T	0.19	< 0.19		1.8	< 1.8	
Baseline - 300C - Ozone Out - 673938	W305171-14	2-Butanone (MEK)	78-93-3	72.11	T	0.19	1.66		1.5	13.2	
Baseline - 300C - Ozone Out - 673938	W305171-14	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.19	< 0.19		2.1	< 2.1	
Baseline - 300C - Ozone Out - 673938	W305171-14	Ethyl acetate	141-78-6	88.11	T	0.19	< 0.19		1.9	< 1.9	
Baseline - 300C - Ozone Out - 673938	W305171-14	Chloroform	67-66-3	119.38	T	0.19	< 0.19		2.5	< 2.5	
Baseline - 300C - Ozone Out - 673938	W305171-14	Tetrahydrofuran	109-99-9	72.11	T	0.20	< 0.20		1.6	< 1.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,1,1-Trichloroethane	71-55-6	133.4	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.19	3.79	102	2.1	43.1	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.19	3.70		2.3	46.7	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,2-Dichloroethane	107-06-2	98.96	T	0.19	< 0.19		2.1	< 2.1	
Baseline - 300C - Ozone Out - 673938	W305171-14	Cyclohexane	110-82-7	84.16	T	0.19	< 0.19		1.8	< 1.8	
Baseline - 300C - Ozone Out - 673938	W305171-14	Benzene	71-43-2	78.11	T	0.19	< 0.19		1.6	< 1.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	Carbon tetrachloride	56-23-5	153.82	T	0.19	< 0.19		3.3	< 3.3	
Baseline - 300C - Ozone Out - 673938	W305171-14	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.19	< 0.19		2.4	< 2.4	
Baseline - 300C - Ozone Out - 673938	W305171-14	Heptane	142-82-5	100.2	T	0.20	< 0.20		2.2	< 2.2	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,2-Dichloropropane	78-87-5	112.99	T	0.19	< 0.19		2.4	< 2.4	
Baseline - 300C - Ozone Out - 673938	W305171-14	Trichlorethylene (TCE)	79-01-6	131.39	T	0.19	< 0.19		2.7	< 2.7	
Baseline - 300C - Ozone Out - 673938	W305171-14	Bromodichloromethane	75-27-4	163.8	T	0.20	< 0.20		3.6	< 3.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	Methyl methacrylate	80-62-6	100.12	T	0.20	< 0.20		2.2	< 2.2	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,4-Dioxane	123-91-1	88.11	T	0.20	< 0.20		2.0	< 2.0	
Baseline - 300C - Ozone Out - 673938	W305171-14	4-Methyl-2-pentanone	108-10-1	100.16	T	0.19	< 0.19		2.1	< 2.1	
Baseline - 300C - Ozone Out - 673938	W305171-14	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.19	< 0.19		2.3	< 2.3	
Baseline - 300C - Ozone Out - 673938	W305171-14	Toluene-d8	2037-26-5	100.21	Surr	0.19	3.72	101	2.1	41.2	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673938

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.700

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300C - Ozone Out - 673938	W305171-14	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.20	< 0.20		2.4	< 2.4	
Baseline - 300C - Ozone Out - 673938	W305171-14	Toluene	108-88-3	92.14	T	0.19	< 0.19		1.9	< 1.9	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,1,2-Trichloroethane	79-00-5	133.4	T	0.19	< 0.19		2.8	< 2.8	
Baseline - 300C - Ozone Out - 673938	W305171-14	2-Hexanone	591-78-6	110.16	T	0.19	< 0.19		2.3	< 2.3	
Baseline - 300C - Ozone Out - 673938	W305171-14	Dibromochloromethane	124-48-1	208.28	T	0.20	< 0.20		4.6	< 4.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,2-Dibromoethane	106-93-4	187.86	T	0.19	< 0.19		4.0	< 4.0	
Baseline - 300C - Ozone Out - 673938	W305171-14	Tetrachloroethylene	95-47-6	106.16	T	0.19	< 0.19		2.2	< 2.2	
Baseline - 300C - Ozone Out - 673938	W305171-14	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.19	3.70		2.4	48.1	
Baseline - 300C - Ozone Out - 673938	W305171-14	Chlorobenzene	108-90-7	112.56	T	0.19	< 0.19		2.4	< 2.4	
Baseline - 300C - Ozone Out - 673938	W305171-14	Ethyl Benzene	100-41-4	106.16	T	0.19	< 0.19		2.2	< 2.2	
Baseline - 300C - Ozone Out - 673938	W305171-14	m,p-Xylene	8-88-3/106-42	106.16	T	0.38	< 0.38		4.5	< 4.5	
Baseline - 300C - Ozone Out - 673938	W305171-14	Nonane	111-84-2	128.26	T	0.19	< 0.19		2.7	< 2.7	
Baseline - 300C - Ozone Out - 673938	W305171-14	Bromoform	75-25-2	252.73	T	0.20	< 0.20		5.4	< 5.4	
Baseline - 300C - Ozone Out - 673938	W305171-14	Styrene	100-42-5	104.15	T	0.19	< 0.19		2.2	< 2.2	
Baseline - 300C - Ozone Out - 673938	W305171-14	o-Xylene	95-47-6	106.16	T	0.20	< 0.20		2.4	< 2.4	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.19	< 0.19		3.6	< 3.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	Cumene	98-82-8	120.19	T	0.19	< 0.19		2.6	< 2.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.19	3.73	101	3.6	72.2	
Baseline - 300C - Ozone Out - 673938	W305171-14	n-Propylbenzene	103-65-1	120.19	T	0.19	< 0.19		2.6	< 2.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	2-Chlorotoluene	95-49-8	126.59	T	0.19	< 0.19		2.7	< 2.7	
Baseline - 300C - Ozone Out - 673938	W305171-14	4-Ethyltoluene	622-96-8	120.19	T	0.20	< 0.20		2.7	< 2.7	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.20	< 0.20		2.6	< 2.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.20	< 0.20		2.6	< 2.6	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,3-Dichlorobenzene	541-73-1	147.01	T	0.20	< 0.20		3.2	< 3.2	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,4-Dichlorobenzene	106-46-7	147.01	T	0.19	< 0.19		3.1	< 3.1	
Baseline - 300C - Ozone Out - 673938	W305171-14	Benzyl chloride	100-44-7	126.58	T	0.19	< 0.19		2.7	< 2.7	
Baseline - 300C - Ozone Out - 673938	W305171-14	1,2-Dichlorobenzene	95-50-1	147.01	T	0.19	< 0.19		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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673938

Client: Kansas State University
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Air & Emissions
Volume: 2.700

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds		MW							Q-FIT
Baseline - 300C - Ozone Out - 673938	W305171-14	Hydrogen isocyanate	75-13-8	43	TIC	0.19	0.321		0.88	1.53	3
Baseline - 300C - Ozone Out - 673938	W305171-14	Acetone	67-64-1	58	TIC	0.19	0.529		1.2	3.39	9
Baseline - 300C - Ozone Out - 673938	W305171-14	Pentane	109-66-0	72	TIC	0.19	0.207		1.5	1.65	64
Baseline - 300C - Ozone Out - 673938	W305171-14	Methane, dichloro-	75-09-2	84	TIC	0.19	5.48		1.7	50.8	96
Baseline - 300C - Ozone Out - 673938	W305171-14	2-Propenal, 2-methyl-	78-85-3	70	TIC	0.19	0.241		1.4	1.87	90
Baseline - 300C - Ozone Out - 673938	W305171-14	Hexanal	66-25-1	100	TIC	0.19	0.190		2.0	2.09	94
Baseline - 300C - Ozone Out - 673938	W305171-14	Furan	110-00-9	68	TIC	0.19	0.680		1.4	5.11	64
Baseline - 300C - Ozone Out - 673938	W305171-14	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.19	1.22		2.1	13.8	90
Baseline - 300C - Ozone Out - 673938	W305171-14	2(3H)-Furanone, dihydro-5-methyl-	108-29-2	100	TIC	0.19	0.305		2.0	3.36	91
Baseline - 300C - Ozone Out - 673938	W305171-14	2(3H)-Furanone, dihydro-5-propyl-	105-21-5	128	TIC	0.19	0.209		2.6	2.96	91
Baseline - 300C - Ozone Out - 673938	W305171-14	Phthalic anhydride	85-44-9	148	TIC	0.19	0.472		3.0	7.72	97

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463638

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300C - Ambient - 463638	W305171-15	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.17	3.33		2.6	52.9	
Baseline - 300C - Ambient - 463638	W305171-15	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - Ambient - 463638	W305171-15	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
Baseline - 300C - Ambient - 463638	W305171-15	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
Baseline - 300C - Ambient - 463638	W305171-15	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - Ambient - 463638	W305171-15	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - Ambient - 463638	W305171-15	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	0.193		1.5	1.71	
Baseline - 300C - Ambient - 463638	W305171-15	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - Ambient - 463638	W305171-15	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Baseline - 300C - Ambient - 463638	W305171-15	Chloroform	67-66-3	119.38	<i>T</i>	0.17	< 0.17		2.5	< 2.5	
Baseline - 300C - Ambient - 463638	W305171-15	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
Baseline - 300C - Ambient - 463638	W305171-15	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.16	< 0.16		2.6	< 2.6	
Baseline - 300C - Ambient - 463638	W305171-15	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.17	3.34	100	2.1	42.3	
Baseline - 300C - Ambient - 463638	W305171-15	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.17	3.33		2.3	46.7	
Baseline - 300C - Ambient - 463638	W305171-15	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - Ambient - 463638	W305171-15	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline - 300C - Ambient - 463638	W305171-15	Benzene	71-43-2	78.11	<i>T</i>	0.17	< 0.17		1.6	< 1.6	
Baseline - 300C - Ambient - 463638	W305171-15	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
Baseline - 300C - Ambient - 463638	W305171-15	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
Baseline - 300C - Ambient - 463638	W305171-15	Heptane	142-82-5	100.2	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
Baseline - 300C - Ambient - 463638	W305171-15	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - Ambient - 463638	W305171-15	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - Ambient - 463638	W305171-15	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.18	< 0.18		3.6	< 3.6	
Baseline - 300C - Ambient - 463638	W305171-15	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
Baseline - 300C - Ambient - 463638	W305171-15	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.18	< 0.18		2.0	< 2.0	
Baseline - 300C - Ambient - 463638	W305171-15	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline - 300C - Ambient - 463638	W305171-15	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.17	< 0.17		2.3	< 2.3	
Baseline - 300C - Ambient - 463638	W305171-15	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.17	3.33	100	2.1	41.0	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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463638

Client: Kansas State University
 Address: 245 Levee Drive
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 Attention: Dr. Byron Jones
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 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline - 300C - Ambient - 463638	W305171-15	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - Ambient - 463638	W305171-15	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
Baseline - 300C - Ambient - 463638	W305171-15	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
Baseline - 300C - Ambient - 463638	W305171-15	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
Baseline - 300C - Ambient - 463638	W305171-15	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
Baseline - 300C - Ambient - 463638	W305171-15	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
Baseline - 300C - Ambient - 463638	W305171-15	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - Ambient - 463638	W305171-15	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
Baseline - 300C - Ambient - 463638	W305171-15	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
Baseline - 300C - Ambient - 463638	W305171-15	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - Ambient - 463638	W305171-15	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
Baseline - 300C - Ambient - 463638	W305171-15	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - Ambient - 463638	W305171-15	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
Baseline - 300C - Ambient - 463638	W305171-15	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
Baseline - 300C - Ambient - 463638	W305171-15	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
Baseline - 300C - Ambient - 463638	W305171-15	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
Baseline - 300C - Ambient - 463638	W305171-15	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - Ambient - 463638	W305171-15	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.32	100	3.6	71.3	
Baseline - 300C - Ambient - 463638	W305171-15	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline - 300C - Ambient - 463638	W305171-15	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - Ambient - 463638	W305171-15	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
Baseline - 300C - Ambient - 463638	W305171-15	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - Ambient - 463638	W305171-15	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline - 300C - Ambient - 463638	W305171-15	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
Baseline - 300C - Ambient - 463638	W305171-15	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Baseline - 300C - Ambient - 463638	W305171-15	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Baseline - 300C - Ambient - 463638	W305171-15	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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RJLG Lab #: W305171

Samples Received: 05/23/23

Analysis Date: 06/16/23

Report Date: 09/19/23

Sampling Date: 05/17/23

PO# 0

Client Project: Air Sampling

Air & Emissions**Volume: 3.000****Revised Report, Rev. 3 - 01/29/24**

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Baseline - 300C - Ambient - 463638	W305171-15	Acetone	67-64-1	58	TIC	0.17	0.393		1.2	2.79	50
Baseline - 300C - Ambient - 463638	W305171-15	Methane, dichloro-	75-09-2	84	TIC	0.17	0.212		1.7	2.18	95
Baseline - 300C - Ambient - 463638	W305171-15	Benzaldehyde	100-52-7	106	TIC	0.17	0.393		2.2	5.11	97
Baseline - 300C - Ambient - 463638	W305171-15	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.17	0.205		2.7	3.27	86
Baseline - 300C - Ambient - 463638	W305171-15	Acetophenone	98-86-2	120	TIC	0.17	0.397		2.5	5.84	97
Baseline - 300C - Ambient - 463638	W305171-15	Nonanal	124-19-6	142	TIC	0.17	0.275		2.9	4.79	72
Baseline - 300C - Ambient - 463638	W305171-15	Benzoic acid	65-85-0	122	TIC	0.17	1.26		2.5	18.9	96
Baseline - 300C - Ambient - 463638	W305171-15	Phthalic anhydride	85-44-9	148	TIC	0.17	0.256		3.0	4.65	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram

ppbv = parts per billion volume

ug/m³ = micrograms per cubic meter

ug/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

TIC = Tentatively Identified Compound

Surr = Surrogate Compound

Int. Std = Internal Standard

T = Target Analyte

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463648

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.18	3.51		2.6	52.9	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.19	< 0.19		2.1	< 2.1	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Hexane	110-54-3	86.18	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.18	1.39		1.5	11.7	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Chloroform	67-66-3	119.38	<i>T</i>	0.18	< 0.18		2.5	< 2.5	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.19	< 0.19		1.6	< 1.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.17	< 0.17		2.6	< 2.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.18	3.76	107	2.1	45.2	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.18	3.51		2.3	46.7	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Cyclohexane	110-82-7	84.16	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Benzene	71-43-2	78.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.18	< 0.18		3.3	< 3.3	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Heptane	142-82-5	100.2	<i>T</i>	0.19	< 0.19		2.2	< 2.2	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.19	< 0.19		3.6	< 3.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.19	< 0.19		2.2	< 2.2	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.19	< 0.19		2.0	< 2.0	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.18	< 0.18		2.3	< 2.3	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.18	3.49	99.5	2.1	40.8	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463648

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.19	< 0.19		2.4	< 2.4	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Toluene	108-88-3	92.14	T	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,1,2-Trichloroethane	79-00-5	133.4	T	0.18	< 0.18		2.8	< 2.8	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	2-Hexanone	591-78-6	110.16	T	0.18	0.400		2.3	5.14	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Dibromochloromethane	124-48-1	208.28	T	0.19	< 0.19		4.6	< 4.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,2-Dibromoethane	106-93-4	187.86	T	0.18	< 0.18		4.0	< 4.0	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Tetrachloroethylene	95-47-6	106.16	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.18	3.51		2.4	48.1	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Chlorobenzene	108-90-7	112.56	T	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Ethyl Benzene	100-41-4	106.16	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	m,p-Xylene	8-88-3/106-42	106.16	T	0.36	< 0.36		4.5	< 4.5	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Nonane	111-84-2	128.26	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Styrene	100-42-5	104.15	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	o-Xylene	95-47-6	106.16	T	0.19	< 0.19		2.4	< 2.4	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.18	< 0.18		3.6	< 3.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.18	3.53	101	3.6	72.1	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	n-Propylbenzene	103-65-1	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	2-Chlorotoluene	95-49-8	126.59	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	4-Ethyltoluene	622-96-8	120.19	T	0.19	< 0.19		2.7	< 2.7	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.19	< 0.19		2.6	< 2.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.19	< 0.19		2.6	< 2.6	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,3-Dichlorobenzene	541-73-1	147.01	T	0.19	< 0.19		3.2	< 3.2	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,4-Dichlorobenzene	106-46-7	147.01	T	0.18	< 0.18		3.1	< 3.1	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Benzyl chloride	100-44-7	126.58	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	1,2-Dichlorobenzene	95-50-1	147.01	T	0.18	< 0.18		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463648

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Acetone	67-64-1	58	TIC	0.18	0.553		1.2	3.74	64
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Methane, dichloro-	75-09-2	84	TIC	0.18	0.745		1.7	7.30	96
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	2,3-Butanedione	431-03-8	86	TIC	0.18	0.461		1.8	4.62	42
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Butanal	123-72-8	72	TIC	0.18	1.65		1.5	13.8	91
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Pentanal	110-62-3	86	TIC	0.18	0.710		1.8	7.12	91
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	2-Pentanone, 4,4-dimethyl-	590-50-1	114	TIC	0.18	0.835		2.3	11.1	90
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Hexanal	66-25-1	100	TIC	0.18	1.01		2.0	11.8	91
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Furan	110-00-9	68	TIC	0.18	1.37		1.4	10.8	64
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.18	0.825		2.1	9.81	91
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Heptanal	111-71-7	114	TIC	0.18	0.552		2.3	7.34	97
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	2(3H)-Furanone, dihydro-5-methyl-	108-29-2	100	TIC	0.18	0.594		2.0	6.93	91
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Octanal	124-13-0	128	TIC	0.18	0.609		2.6	9.09	97
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	p-Cresol	106-44-5	108	TIC	0.18	0.609		2.2	7.68	97
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Acetophenone	98-86-2	120	TIC	0.18	0.380		2.5	5.32	95
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Hexanoic acid, 3,5,5-trimethyl-	3302-10-1	158	TIC	0.18	8.57		3.2	158	90
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	Benzoic acid	65-85-0	122	TIC	0.18	1.00		2.5	14.3	91
2197 - 312C - 5ppmw - pack out - 463648	W305171-16	2(3H)-Furanone, dihydro-5-propyl-	105-21-5	128	TIC	0.18	0.364		2.6	5.44	91

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram


BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: 
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463648

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 2.850****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS			RL	Result	Surr %		Result	Qualifier
Client	RJLG		Number	MW	Type			REC	RL ng/tube		

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

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673922

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Bromochloromethane	74-97-5	129.39	Int. Std	0.17	3.33		2.6	52.9	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,1-Dichloroethane	75-34-3	98.96	T	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	2-Butanone (MEK)	78-93-3	72.11	T	0.17	0.327		1.5	2.89	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.17	< 0.17		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Chloroform	67-66-3	119.38	T	0.17	< 0.17		2.5	< 2.5	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Tetrahydrofuran	109-99-9	72.11	T	0.18	< 0.18		1.6	< 1.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,1,1-Trichloroethane	71-55-6	133.4	T	0.16	< 0.16		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.17	3.63	109	2.1	45.9	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.17	3.33		2.3	46.7	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Benzene	71-43-2	78.11	T	0.17	< 0.17		1.6	< 1.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.17	< 0.17		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Heptane	142-82-5	100.2	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Trichlorethylene (TCE)	79-01-6	131.39	T	0.17	< 0.17		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Bromodichloromethane	75-27-4	163.8	T	0.18	< 0.18		3.6	< 3.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Methyl methacrylate	80-62-6	100.12	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,4-Dioxane	123-91-1	88.11	T	0.18	< 0.18		2.0	< 2.0	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	4-Methyl-2-pentanone	108-10-1	100.16	T	0.17	< 0.17		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.17	< 0.17		2.3	< 2.3	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Toluene-d8	2037-26-5	100.21	Surr	0.17	3.33	99.9	2.1	41.0	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673922

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.36	101	3.6	72.3	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673922

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Acetone	67-64-1	58	TIC	0.17	0.590		1.2	4.20	64
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Methane, dichloro-	75-09-2	84.000	TIC	0.17	1.08		1.7	11.2	96
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Butanal	123-72-8	72.000	TIC	0.17	0.194		1.5	1.72	91
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	2(5H)-Furanone	497-23-4	84.000	TIC	0.17	0.226		1.7	2.33	72
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Benzaldehyde	100-52-7	106.000	TIC	0.17	0.179		2.2	2.32	97
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	p-Cresol	106-44-5	108.000	TIC	0.17	0.275		2.2	3.64	95
2197 - 312C - 5ppmw - Ozone In - 673922	W305171-17	Nonanal	124-19-6	142.000	TIC	0.17	0.189		2.9	3.30	50

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673914

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.18	3.51		2.6	52.9	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.19	< 0.19		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Hexane	110-54-3	86.18	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.18	1.46		1.5	12.3	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Chloroform	67-66-3	119.38	<i>T</i>	0.18	< 0.18		2.5	< 2.5	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.19	< 0.19		1.6	< 1.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.17	< 0.17		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.18	3.91	111	2.1	46.9	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.18	3.51		2.3	46.7	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Cyclohexane	110-82-7	84.16	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Benzene	71-43-2	78.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.18	< 0.18		3.3	< 3.3	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Heptane	142-82-5	100.2	<i>T</i>	0.19	< 0.19		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.19	< 0.19		3.6	< 3.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.19	< 0.19		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.19	< 0.19		2.0	< 2.0	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.18	< 0.18		2.3	< 2.3	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.18	3.51	99.9	2.1	41.0	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673914

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
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Air & Emissions
Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23

PO# 0

Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.19	< 0.19		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Toluene	108-88-3	92.14	T	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,1,2-Trichloroethane	79-00-5	133.4	T	0.18	< 0.18		2.8	< 2.8	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	2-Hexanone	591-78-6	110.16	T	0.18	0.418		2.3	5.36	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Dibromochloromethane	124-48-1	208.28	T	0.19	< 0.19		4.6	< 4.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,2-Dibromoethane	106-93-4	187.86	T	0.18	< 0.18		4.0	< 4.0	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Tetrachloroethylene	95-47-6	106.16	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.18	3.51		2.4	48.1	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Chlorobenzene	108-90-7	112.56	T	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Ethyl Benzene	100-41-4	106.16	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	m,p-Xylene	8-88-3/106-42	106.16	T	0.36	< 0.36		4.5	< 4.5	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Nonane	111-84-2	128.26	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Styrene	100-42-5	104.15	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	o-Xylene	95-47-6	106.16	T	0.19	< 0.19		2.4	< 2.4	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.18	< 0.18		3.6	< 3.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.18	3.51	100	3.6	71.5	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	n-Propylbenzene	103-65-1	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	2-Chlorotoluene	95-49-8	126.59	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	4-Ethyltoluene	622-96-8	120.19	T	0.19	< 0.19		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.19	< 0.19		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.19	< 0.19		2.6	< 2.6	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,3-Dichlorobenzene	541-73-1	147.01	T	0.19	< 0.19		3.2	< 3.2	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,4-Dichlorobenzene	106-46-7	147.01	T	0.18	< 0.18		3.1	< 3.1	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Benzyl chloride	100-44-7	126.58	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	1,2-Dichlorobenzene	95-50-1	147.01	T	0.18	< 0.18		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673914

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Acetone	67-64-1	58	TIC	0.18	0.567		1.2	3.84	50
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Methane, dichloro-	75-09-2	84	TIC	0.18	0.334		1.7	3.27	97
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	2-Butenal, (E)-	123-73-9	70	TIC	0.18	0.334		1.4	2.73	90
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Butanal	123-72-8	72	TIC	0.18	2.13		1.5	17.9	94
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Pentanal	110-62-3	86	TIC	0.18	0.835		1.8	8.37	90
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	2-Pentanone, 4,4-dimethyl-	590-50-1	114	TIC	0.18	1.09		2.3	14.5	90
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Hexanal	66-25-1	100	TIC	0.18	1.23		2.0	14.4	93
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Furan	110-00-9	68	TIC	0.18	1.78		1.4	14.1	64
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.18	1.16		2.1	13.7	90
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Heptanal	111-71-7	114	TIC	0.18	0.687		2.3	9.14	97
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	2(3H)-Furanone, dihydro-5-methyl-	108-29-2	100	TIC	0.18	0.755		2.0	8.80	91
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Octanal	124-13-0	128	TIC	0.18	0.743		2.6	11.1	97
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	p-Cresol	106-44-5	108	TIC	0.18	0.594		2.2	7.48	97
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	Hexanoic acid, 3,5,5-trimethyl-	3302-10-1	158	TIC	0.18	6.15		3.2	113	90
2197 - 312C - 5ppmw - Ozone Out - 673914	W305171-18	2(3H)-Furanone, dihydro-5-propyl-	105-21-5	128	TIC	0.18	0.419		2.6	6.26	91

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463635

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.18	3.51		2.6	52.9	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.19	< 0.19		2.1	< 2.1	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Hexane	110-54-3	86.18	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.18	0.189		1.5	1.59	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Chloroform	67-66-3	119.38	<i>T</i>	0.18	< 0.18		2.5	< 2.5	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.19	< 0.19		1.6	< 1.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.17	< 0.17		2.6	< 2.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.18	3.46	98.6	2.1	41.5	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.18	3.51		2.3	46.7	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Cyclohexane	110-82-7	84.16	<i>T</i>	0.18	< 0.18		1.8	< 1.8	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Benzene	71-43-2	78.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.18	< 0.18		3.3	< 3.3	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Heptane	142-82-5	100.2	<i>T</i>	0.19	< 0.19		2.2	< 2.2	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.19	< 0.19		3.6	< 3.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.19	< 0.19		2.2	< 2.2	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.19	< 0.19		2.0	< 2.0	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.18	< 0.18		2.3	< 2.3	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.18	3.55	101	2.1	41.5	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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Tel: (509) 792-1955

Tenax

463635

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.19	< 0.19		2.4	< 2.4	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Toluene	108-88-3	92.14	T	0.18	< 0.18		1.9	< 1.9	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,1,2-Trichloroethane	79-00-5	133.4	T	0.18	< 0.18		2.8	< 2.8	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	2-Hexanone	591-78-6	110.16	T	0.18	< 0.18		2.3	< 2.3	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Dibromochloromethane	124-48-1	208.28	T	0.19	< 0.19		4.6	< 4.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,2-Dibromoethane	106-93-4	187.86	T	0.18	< 0.18		4.0	< 4.0	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Tetrachloroethylene	95-47-6	106.16	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.18	3.51		2.4	48.1	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Chlorobenzene	108-90-7	112.56	T	0.18	< 0.18		2.4	< 2.4	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Ethyl Benzene	100-41-4	106.16	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	m,p-Xylene	8-88-3/106-42	106.16	T	0.36	< 0.36		4.5	< 4.5	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Nonane	111-84-2	128.26	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Styrene	100-42-5	104.15	T	0.18	< 0.18		2.2	< 2.2	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	o-Xylene	95-47-6	106.16	T	0.19	< 0.19		2.4	< 2.4	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.18	< 0.18		3.6	< 3.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.18	3.52	100	3.6	71.9	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	n-Propylbenzene	103-65-1	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	2-Chlorotoluene	95-49-8	126.59	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	4-Ethyltoluene	622-96-8	120.19	T	0.19	< 0.19		2.7	< 2.7	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.19	< 0.19		2.6	< 2.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.19	< 0.19		2.6	< 2.6	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,3-Dichlorobenzene	541-73-1	147.01	T	0.19	< 0.19		3.2	< 3.2	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,4-Dichlorobenzene	106-46-7	147.01	T	0.18	< 0.18		3.1	< 3.1	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Benzyl chloride	100-44-7	126.58	T	0.18	< 0.18		2.7	< 2.7	
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	1,2-Dichlorobenzene	95-50-1	147.01	T	0.18	< 0.18		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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463635

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Air & Emissions**Volume: 2.850**

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 Samples Received: 05/23/23
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 Sampling Date: 05/17/23
 PO#: 0
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Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Acetone	67-64-1	58	TIC	0.18	0.555		1.2	3.75	72
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Methane, dichloro-	75-09-2	84.000	TIC	0.18	0.592		1.7	5.80	97
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Benzaldehyde	100-52-7	106.000	TIC	0.18	0.399		2.2	4.93	97
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Acetophenone	98-86-2	120.000	TIC	0.18	0.284		2.5	3.97	95
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Nonanal	124-19-6	142.000	TIC	0.18	0.212		2.9	3.51	59
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Benzoic acid	65-85-0	122.000	TIC	0.18	1.53		2.5	21.7	97
2197 - 312C - 5ppmw - Ambient - 463635	W305171-19	Phthalic anhydride	85-44-9	148.000	TIC	0.18	0.839		3.0	14.5	96

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N = Identification based on mass spectral library search
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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Bromochloromethane	74-97-5	129.39	Int. Std	0.17	3.33		2.6	52.9	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,1-Dichloroethane	75-34-3	98.96	T	0.18	< 0.18		2.1	< 2.1	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2-Butanone (MEK)	78-93-3	72.11	T	0.17	0.377		1.5	3.33	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Chloroform	67-66-3	119.38	T	0.17	< 0.17		2.5	< 2.5	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Tetrahydrofuran	109-99-9	72.11	T	0.18	< 0.18		1.6	< 1.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,1,1-Trichloroethane	71-55-6	133.4	T	0.16	< 0.16		2.6	< 2.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.17	3.49	105	2.1	44.2	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.17	3.33		2.3	46.7	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Benzene	71-43-2	78.11	T	0.17	< 0.17		1.6	< 1.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.17	< 0.17		2.4	< 2.4	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Heptane	142-82-5	100.2	T	0.18	< 0.18		2.2	< 2.2	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Trichlorethylene (TCE)	79-01-6	131.39	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Bromodichloromethane	75-27-4	163.8	T	0.18	< 0.18		3.6	< 3.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Methyl methacrylate	80-62-6	100.12	T	0.18	< 0.18		2.2	< 2.2	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,4-Dioxane	123-91-1	88.11	T	0.18	< 0.18		2.0	< 2.0	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	4-Methyl-2-pentanone	108-10-1	100.16	T	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.17	< 0.17		2.3	< 2.3	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Toluene-d8	2037-26-5	100.21	Surr	0.17	3.33	99.9	2.1	41.0	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673918

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.29	98.8	3.6	70.7	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673918

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Acetone	67-64-1	58	TIC	0.17	0.453		1.2	3.22	72
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Methane, dichloro-	75-09-2	84	TIC	0.17	4.45		1.7	45.9	96
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2-Propenal, 2-methyl-	78-85-3	70	TIC	0.17	0.219		1.4	1.88	90
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2,3-Butanedione	431-03-8	86	TIC	0.17	0.235		1.8	2.48	32
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Butanal	123-72-8	72	TIC	0.17	0.487		1.5	4.30	91
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Pentanal	110-62-3	86	TIC	0.17	0.228		1.8	2.41	90
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2-Pentanone, 4,4-dimethyl-	590-50-1	114	TIC	0.17	0.194		2.3	2.72	87
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Hexanal	66-25-1	100	TIC	0.17	0.375		2.0	4.61	95
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Furan	110-00-9	68	TIC	0.17	0.894		1.4	7.47	64
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Heptanal	111-71-7	114	TIC	0.17	0.242		2.3	3.38	91
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2(3H)-Furanone, dihydro-5-methyl-	108-29-2	100	TIC	0.17	0.279		2.0	3.43	91
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Benzaldehyde	100-52-7	106	TIC	0.17	0.207		2.2	2.69	97
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Octanal	124-13-0	128	TIC	0.17	0.234		2.6	3.68	90
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	2(3H)-Furanone, dihydro-3-hydroxy-4,4-dimethyl-, (+/-)-	79-50-5	130	TIC	0.17	0.187		2.7	2.98	87
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	p-Cresol	106-44-5	108	TIC	0.17	0.862		2.2	11.4	97
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Acetophenone	98-86-2	120	TIC	0.17	0.242		2.5	3.57	95
2197 - 220C - 5ppmw - pack out - 673918	W305171-20	Hexanoic acid, 3,5,5-trimethyl-	3302-10-1	158	TIC	0.17	3.77		3.2	73.2	90

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.


ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: 
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673918

Client: Kansas State University

Address: 245 Levee Drive
Manhattan, KS 66502

Attention: Dr. Byron Jones

Telephone: 785-532-5620

Fax:

Air & Emissions**Volume: 3.000****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171

Samples Received: 05/23/23

Analysis Date: 06/16/23

Report Date: 09/19/23

Sampling Date: 05/17/23

PO# 0

Client Project: Air Sampling

Sample ID													
Client	RJLG	Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier		

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673933

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Bromochloromethane	74-97-5	129.39	Int. Std	0.17	3.33		2.6	52.9	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,1-Dichloroethane	75-34-3	98.96	T	0.18	< 0.18		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	2-Butanone (MEK)	78-93-3	72.11	T	0.17	0.180		1.5	1.59	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Chloroform	67-66-3	119.38	T	0.17	< 0.17		2.5	< 2.5	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Tetrahydrofuran	109-99-9	72.11	T	0.18	< 0.18		1.6	< 1.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,1,1-Trichloroethane	71-55-6	133.4	T	0.16	< 0.16		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.17	3.40	102	2.1	43.0	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.17	3.33		2.3	46.7	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Benzene	71-43-2	78.11	T	0.17	< 0.17		1.6	< 1.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.17	< 0.17		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Heptane	142-82-5	100.2	T	0.18	< 0.18		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Trichlorethylene (TCE)	79-01-6	131.39	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Bromodichloromethane	75-27-4	163.8	T	0.18	< 0.18		3.6	< 3.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Methyl methacrylate	80-62-6	100.12	T	0.18	< 0.18		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,4-Dioxane	123-91-1	88.11	T	0.18	< 0.18		2.0	< 2.0	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	4-Methyl-2-pentanone	108-10-1	100.16	T	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.17	< 0.17		2.3	< 2.3	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Toluene-d8	2037-26-5	100.21	Surr	0.17	3.37	101	2.1	41.4	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673933

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.34	100	3.6	71.7	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673933

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Acetone	67-64-1	58	TIC	0.17	0.336		1.2	2.39	50
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Methane, dichloro-	75-09-2	84	TIC	0.17	0.613		1.7	6.32	96
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Benzaldehyde	100-52-7	106	TIC	0.17	0.185		2.2	2.41	97
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Benzoic acid	65-85-0	122	TIC	0.17	0.484		2.5	7.24	97
2197 - 220C - 5ppmw - Ozone In - 673933	W305171-21	Phthalic anhydride	85-44-9	148	TIC	0.17	0.291		3.0	5.29	95

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463625

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.17	3.33		2.6	52.9	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	0.490		1.5	4.34	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Chloroform	67-66-3	119.38	<i>T</i>	0.17	< 0.17		2.5	< 2.5	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.16	< 0.16		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.17	3.59	108	2.1	45.4	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.17	3.33		2.3	46.7	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Benzene	71-43-2	78.11	<i>T</i>	0.17	< 0.17		1.6	< 1.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Heptane	142-82-5	100.2	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.18	< 0.18		3.6	< 3.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.18	< 0.18		2.0	< 2.0	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.17	< 0.17		2.3	< 2.3	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.17	3.37	101	2.1	41.5	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463625

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.33	100	3.6	71.5	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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463625

Client: Kansas State University
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Air & Emissions
Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/16/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0

Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Acetone	67-64-1	58	TIC	0.17	0.550		1.2	3.92	90
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Formic acid	64-18-6	46	TIC	0.17	3.06		0.94	17.3	32
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Methane, dichloro-	75-09-2	84	TIC	0.17	0.899		1.7	9.27	91
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Butanal	123-72-8	72	TIC	0.17	0.750		1.5	6.63	90
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	1,3,5-Trioxane	110-88-3	90	TIC	0.17	0.538		1.8	5.95	87
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Pentanal	110-62-3	86	TIC	0.17	0.299		1.8	3.16	95
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Hexanal	66-25-1	100	TIC	0.17	0.454		2.0	5.57	64
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Furan	110-00-9	68	TIC	0.17	0.300		1.4	2.51	91
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.17	0.369		2.1	4.61	91
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Heptanal	111-71-7	114	TIC	0.17	0.293		2.3	4.10	97
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Octanal	124-13-0	128	TIC	0.17	0.338		2.6	5.31	90
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	p-Cresol	106-44-5	108	TIC	0.17	1.05		2.2	13.9	87
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Hexanoic acid, 3,5,5-trimethyl-	3302-10-1	158	TIC	0.17	2.48		3.2	48.1	97
2197 - 220C - 5ppmw - Ozone Out - 463625	W305171-22	Phthalic anhydride	85-44-9	148	TIC	0.17	1.02		3.0	18.5	95

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673927

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions**Volume: 3.000**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23

PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197-220C-5ppmw - Ambient - 673927	W305171-23	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.17	3.33		2.6	52.9	
2197-220C-5ppmw - Ambient - 673927	W305171-23	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
2197-220C-5ppmw - Ambient - 673927	W305171-23	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	< 0.17		1.5	< 1.5	
2197-220C-5ppmw - Ambient - 673927	W305171-23	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Chloroform	67-66-3	119.38	<i>T</i>	0.17	< 0.17		2.5	< 2.5	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.16	< 0.16		2.6	< 2.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.17	3.34	100	2.1	42.2	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.17	3.33		2.3	46.7	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Benzene	71-43-2	78.11	<i>T</i>	0.17	< 0.17		1.6	< 1.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
2197-220C-5ppmw - Ambient - 673927	W305171-23	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Heptane	142-82-5	100.2	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.17	< 0.17		2.7	< 2.7	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.18	< 0.18		3.6	< 3.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.18	< 0.18		2.0	< 2.0	
2197-220C-5ppmw - Ambient - 673927	W305171-23	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
2197-220C-5ppmw - Ambient - 673927	W305171-23	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.17	< 0.17		2.3	< 2.3	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.17	3.30	98.9	2.1	40.6	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673927

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions**Volume: 3.000**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23

PO#

Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197-220C-5ppmw - Ambient - 673927	W305171-23	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
2197-220C-5ppmw - Ambient - 673927	W305171-23	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
2197-220C-5ppmw - Ambient - 673927	W305171-23	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
2197-220C-5ppmw - Ambient - 673927	W305171-23	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.34	100	3.6	71.8	
2197-220C-5ppmw - Ambient - 673927	W305171-23	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
2197-220C-5ppmw - Ambient - 673927	W305171-23	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
2197-220C-5ppmw - Ambient - 673927	W305171-23	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
2197-220C-5ppmw - Ambient - 673927	W305171-23	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673927

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions**Volume: 3.000**

RJLG Lab #: W305171

Samples Received: 05/23/23

Analysis Date: 06/19/23

Report Date: 09/19/23

Sampling Date: 05/18/23

PO#

Client Project: Air Sampling

Sample ID			CAS			RL	Result	Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	ppbv	ppbv	REC	RL ng/tube	ng/tube	Qualifier
		Tentatively Identified Compounds	CAS#	MW							Q-FIT
2197-220C-5ppmw - Ambient - 673927	W305171-23	Acetone	67-64-1	58	TIC	0.17	0.272		1.2	1.94	96
2197-220C-5ppmw - Ambient - 673927	W305171-23	Methane, dichloro-	75-09-2	84	TIC	0.17	2.24		1.7	23.1	96
2197-220C-5ppmw - Ambient - 673927	W305171-23	Benzaldehyde	100-52-7	106	TIC	0.17	0.570		2.2	7.42	97
2197-220C-5ppmw - Ambient - 673927	W305171-23	Decane	124-18-5	142	TIC	0.17	0.179		2.9	3.13	95
2197-220C-5ppmw - Ambient - 673927	W305171-23	Acetophenone	98-86-2	120	TIC	0.17	0.414		2.5	6.09	95
2197-220C-5ppmw - Ambient - 673927	W305171-23	Benzoylformic acid	611-73-4	150	TIC	0.17	0.191		3.1	3.52	83
2197-220C-5ppmw - Ambient - 673927	W305171-23	Undecane	1120-21-4	156	TIC	0.17	0.258		3.2	4.93	97
2197-220C-5ppmw - Ambient - 673927	W305171-23	Benzoic acid	65-85-0	122	TIC	0.17	0.978		2.5	14.7	97
2197-220C-5ppmw - Ambient - 673927	W305171-23	Dodecane	112-40-3	170	TIC	0.17	0.218		3.5	4.55	94
2197-220C-5ppmw - Ambient - 673927	W305171-23	Tridecane	629-50-5	184	TIC	0.17	0.195		3.8	4.39	95
2197-220C-5ppmw - Ambient - 673927	W305171-23	Phthalic anhydride	85-44-9	148	TIC	0.17	0.180		3.0	3.27	94

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
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Qualifiers

c = Sample RPD failure
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 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

463634

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions

Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID											
Client	RJLG	Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.17	3.33		2.6	52.9	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	4.64		1.5	41.1	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Chloroform	67-66-3	119.38	<i>T</i>	0.17	< 0.17		2.5	< 2.5	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.16	< 0.16		2.6	< 2.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.17	3.31	99.4	2.1	41.9	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.17	3.33		2.3	46.7	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Benzene	71-43-2	78.11	<i>T</i>	0.17	< 0.17		1.6	< 1.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Heptane	142-82-5	100.2	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.18	< 0.18		3.6	< 3.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.18	< 0.18		2.0	< 2.0	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.17	< 0.17		2.3	< 2.3	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.17	3.31	99.3	2.1	40.7	



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

463634

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions

Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	2-Hexanone	591-78-6	110.16	T	0.17	0.923		2.3	12.5	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.38	102	3.6	72.7	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube
463634

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions

Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS#	MW							Q-FIT
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Acetone	67-64-1	58	TIC	0.17	0.402		1.2	2.86	72
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Formic acid	64-18-6	46	TIC	0.17	0.728		0.94	4.11	64
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Methane, dichloro-	75-09-2	84	TIC	0.17	0.399		1.7	4.12	96
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	2-Propenal, 2-methyl-	78-85-3	70	TIC	0.17	0.547		1.4	4.70	91
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	2,3-Butanedione	431-03-8	86	TIC	0.17	0.377		1.8	3.98	72
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Butanal	123-72-8	72	TIC	0.17	1.50		1.5	13.2	94
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	1-Butanol	71-36-3	74	TIC	0.17	0.252		1.5	2.29	86
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	2-Ethylacrolein	922-63-4	84	TIC	0.17	0.242		1.7	2.50	94
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Pentanal	110-62-3	86	TIC	0.17	1.25		1.8	13.2	86
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Hexanal	66-25-1	100	TIC	0.17	1.05		2.0	12.8	91
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Furan	110-00-9	68	TIC	0.17	1.57		1.4	13.1	64
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.17	4.68		2.1	58.6	86
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Nonanal	124-19-6	142	TIC	0.17	0.346		2.9	6.02	91
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	Hexanoic acid, 3,5,5-trimethyl-	3302-10-1	158	TIC	0.17	1.61		3.2	31.2	90
MJ-II-220C-10ppmw - Pack Out - 463634	W305171-24	2(3H)-Furanone, dihydro-5-propyl-	105-21-5	128	TIC	0.17	0.342		2.6	5.37	91

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube
463634

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.000****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS			RL	Result	Surr %	Result	Qualifier	
Client	RJLG		Number	MW	Type	ppbv	ppbv	REC	RL ng/tube	ng/tube	
<i>ng = nanogram</i>						<i>BDL = Below Detection Limit</i>					
<i>ppbv = parts per billion volume</i>						<i>Surr = Surrogate Compound</i>					
<i>ug/m3 = micrograms per cubic meter</i>						<i>N/A = Not Applicable</i>					
<i>µg/Kg = micrograms per kilogram</i>						<i>ND = Not detected. Qualitative analysis</i>					
						<i>T = Target Analyte</i>					
						<i>TIC = Tentatively Identified Compound</i>					

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673940

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions

Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Bromochloromethane	74-97-5	129.39	Int. Std	0.18	3.51		2.6	52.9	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.18	< 0.18		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,1-Dichloroethane	75-34-3	98.96	T	0.19	< 0.19		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Vinyl acetate	108-05-4	86.09	T	0.18	< 0.18		1.8	< 1.8	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Hexane	110-54-3	86.18	T	0.18	< 0.18		1.8	< 1.8	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	2-Butanone (MEK)	78-93-3	72.11	T	0.18	1.10		1.5	9.24	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.18	< 0.18		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Ethyl acetate	141-78-6	88.11	T	0.18	< 0.18		1.9	< 1.9	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Chloroform	67-66-3	119.38	T	0.18	< 0.18		2.5	< 2.5	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Tetrahydrofuran	109-99-9	72.11	T	0.19	< 0.19		1.6	< 1.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,1,1-Trichloroethane	71-55-6	133.4	T	0.17	< 0.17		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.18	3.62	103	2.1	43.5	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.18	3.51		2.3	46.7	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,2-Dichloroethane	107-06-2	98.96	T	0.18	< 0.18		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Cyclohexane	110-82-7	84.16	T	0.18	< 0.18		1.8	< 1.8	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Benzene	71-43-2	78.11	T	0.18	< 0.18		1.6	< 1.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Carbon tetrachloride	56-23-5	153.82	T	0.18	< 0.18		3.3	< 3.3	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Heptane	142-82-5	100.2	T	0.19	< 0.19		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Trichlorethylene (TCE)	79-01-6	131.39	T	0.18	< 0.18		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Bromodichloromethane	75-27-4	163.8	T	0.19	< 0.19		3.6	< 3.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Methyl methacrylate	80-62-6	100.12	T	0.19	< 0.19		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,4-Dioxane	123-91-1	88.11	T	0.19	< 0.19		2.0	< 2.0	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	4-Methyl-2-pentanone	108-10-1	100.16	T	0.18	< 0.18		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.18	< 0.18		2.3	< 2.3	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Toluene-d8	2037-26-5	100.21	Surr	0.18	3.57	102	2.1	41.7	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673940

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions

Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.19	< 0.19		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Toluene	108-88-3	92.14	T	0.18	< 0.18		1.9	< 1.9	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,1,2-Trichloroethane	79-00-5	133.4	T	0.18	< 0.18		2.8	< 2.8	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	2-Hexanone	591-78-6	110.16	T	0.18	0.256		2.3	3.29	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Dibromochloromethane	124-48-1	208.28	T	0.19	< 0.19		4.6	< 4.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,2-Dibromoethane	106-93-4	187.86	T	0.18	< 0.18		4.0	< 4.0	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Tetrachloroethylene	95-47-6	106.16	T	0.18	< 0.18		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.18	3.51		2.4	48.1	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Chlorobenzene	108-90-7	112.56	T	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Ethyl Benzene	100-41-4	106.16	T	0.18	< 0.18		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	m,p-Xylene	8-88-3/106-42	106.16	T	0.36	< 0.36		4.5	< 4.5	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Nonane	111-84-2	128.26	T	0.18	0.193		2.7	2.89	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Styrene	100-42-5	104.15	T	0.18	< 0.18		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	o-Xylene	95-47-6	106.16	T	0.19	< 0.19		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.18	< 0.18		3.6	< 3.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.18	3.51	100	3.6	71.5	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	n-Propylbenzene	103-65-1	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	2-Chlorotoluene	95-49-8	126.59	T	0.18	< 0.18		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	4-Ethyltoluene	622-96-8	120.19	T	0.19	< 0.19		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.19	< 0.19		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.19	< 0.19		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,3-Dichlorobenzene	541-73-1	147.01	T	0.19	< 0.19		3.2	< 3.2	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,4-Dichlorobenzene	106-46-7	147.01	T	0.18	< 0.18		3.1	< 3.1	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Benzyl chloride	100-44-7	126.58	T	0.18	< 0.18		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	1,2-Dichlorobenzene	95-50-1	147.01	T	0.18	< 0.18		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673940

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
 Volume: 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Acetone	67-64-1	58	TIC	0.18	0.705		1.2	4.77	50
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Methane, dichloro-	75-09-2	84	TIC	0.18	7.09		1.7	69.4	96
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	2-Propenal, 2-methyl-	78-85-3	70	TIC	0.18	0.257		1.4	2.10	90
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Butanal	123-72-8	72	TIC	0.18	0.400		1.5	3.36	91
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Cyclopentanone	120-92-3	84	TIC	0.18	0.368		1.7	3.61	64
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Hexanal	66-25-1	100	TIC	0.18	0.290		2.0	3.38	87
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.18	0.700		2.1	8.32	91
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Decane	124-18-5	142	TIC	0.18	0.286		2.9	4.74	97
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	p-Cresol	106-44-5	108	TIC	0.18	0.909		2.2	11.4	97
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Undecane	1120-21-4	156	TIC	0.18	0.399		3.2	7.25	97
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Nonanal	124-19-6	142	TIC	0.18	0.303		2.9	5.01	72
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Dodecane	112-40-3	170	TIC	0.18	0.429		3.5	8.51	91
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	2H-Pyran-2-one, 6-ethyltetrahydro-	3301-90-4	128	TIC	0.18	0.328		2.6	4.90	87
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Tridecane	629-50-5	184	TIC	0.18	0.387		3.8	8.30	94
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Naphthalene, 2-methyl-	91-57-6	142	TIC	0.18	0.256		2.9	4.24	90
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Phthalic anhydride	85-44-9	148	TIC	0.18	1.36		3.0	23.4	96
MJ-II-220C-10ppmw - Ozone In - 673940	W305171-25	Tetradecane	629-59-4	198	TIC	0.18	0.250		4.1	5.77	96

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
673940

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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Air & Emissions

Volume: 2.850

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte		CAS	MW		RL	Result	Surr %	Result		Qualifier
Client	RJLG			Number		Type	ppbv	ppbv	REC	RL ng/tube	ng/tube	

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

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Client: Kansas State University
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 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
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Air & Emissions

Volume: 3.000

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Bromochloromethane	74-97-5	129.39	Int. Std	0.17	3.33		2.6	52.9	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,1-Dichloroethane	75-34-3	98.96	T	0.18	< 0.18		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	2-Butanone (MEK)	78-93-3	72.11	T	0.17	8.30		1.5	73.5	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Chloroform	67-66-3	119.38	T	0.17	< 0.17		2.5	< 2.5	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Tetrahydrofuran	109-99-9	72.11	T	0.18	< 0.18		1.6	< 1.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,1,1-Trichloroethane	71-55-6	133.4	T	0.16	< 0.16		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.17	3.32	100	2.1	42.0	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.17	3.33		2.3	46.7	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Benzene	71-43-2	78.11	T	0.17	< 0.17		1.6	< 1.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.17	< 0.17		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Heptane	142-82-5	100.2	T	0.18	< 0.18		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Trichlorethylene (TCE)	79-01-6	131.39	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Bromodichloromethane	75-27-4	163.8	T	0.18	< 0.18		3.6	< 3.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Methyl methacrylate	80-62-6	100.12	T	0.18	< 0.18		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,4-Dioxane	123-91-1	88.11	T	0.18	< 0.18		2.0	< 2.0	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	4-Methyl-2-pentanone	108-10-1	100.16	T	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.17	< 0.17		2.3	< 2.3	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Toluene-d8	2037-26-5	100.21	Surr	0.17	3.34	100	2.1	41.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

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463642

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
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Air & Emissions**Volume: 3.000****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	2-Hexanone	591-78-6	110.16	T	0.17	1.19		2.3	16.0	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.33	100	3.6	71.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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Air & Emissions

Volume: 3.000

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds		MW							Q-FIT
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Methane, dichloro-	75-09-2	84	TIC	0.17	0.511		1.7	5.27	96
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	2-Propenal, 2-methyl-	78-85-3	70	TIC	0.17	1.03		1.4	8.86	91
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	2,3-Butanedione	431-03-8	86	TIC	0.17	0.441		1.8	4.66	59
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Butanal	123-72-8	72	TIC	0.17	2.65		1.5	23.4	94
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	2(5H)-Furanone	497-23-4	84	TIC	0.17	0.358		1.7	3.69	72
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Pentanal	110-62-3	86	TIC	0.17	2.04		1.8	21.6	86
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Hexanal	66-25-1	100	TIC	0.17	3.59		2.0	44.1	91
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Furan	110-00-9	68	TIC	0.17	0.481		1.4	4.01	72
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.17	3.92		2.1	49.0	90
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	p-Cresol	106-44-5	108	TIC	0.17	2.42		2.2	32.0	97
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Acetophenone	98-86-2	120	TIC	0.17	0.385		2.5	5.67	95
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Undecane	1120-21-4	156	TIC	0.17	0.331		3.2	6.34	97
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	Nonanal	124-19-6	142	TIC	0.17	1.03		2.9	17.9	91
MJ-II-220C-10ppmw - Ozone Out - 463642	W305171-26	3,3-Dimethylheptanoic acid	67061-30-7	158	TIC	0.17	3.25		3.2	63.1	90

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes

both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673937

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions

Volume: 3.150

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Bromochloromethane	74-97-5	129.39	Int. Std	0.16	3.17		2.6	52.9	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Methyl-t-butyl ether	1634-04-4	88.15	T	0.17	< 0.17		1.9	< 1.9	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,1-Dichloroethane	75-34-3	98.96	T	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	2-Butanone (MEK)	78-93-3	72.11	T	0.17	0.276		1.5	2.57	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.16	< 0.16		2.1	< 2.1	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Chloroform	67-66-3	119.38	T	0.16	< 0.16		2.5	< 2.5	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Tetrahydrofuran	109-99-9	72.11	T	0.17	< 0.17		1.6	< 1.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,1,1-Trichloroethane	71-55-6	133.4	T	0.15	< 0.15		2.6	< 2.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.16	3.30	104	2.1	43.8	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.16	3.17		2.3	46.7	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Benzene	71-43-2	78.11	T	0.16	< 0.16		1.6	< 1.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.16	< 0.16		2.4	< 2.4	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Heptane	142-82-5	100.2	T	0.17	0.178		2.2	2.30	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,2-Dichloropropane	78-87-5	112.99	T	0.17	< 0.17		2.4	< 2.4	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Trichlorethylene (TCE)	79-01-6	131.39	T	0.16	< 0.16		2.7	< 2.7	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Bromodichloromethane	75-27-4	163.8	T	0.17	< 0.17		3.6	< 3.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Methyl methacrylate	80-62-6	100.12	T	0.17	< 0.17		2.2	< 2.2	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,4-Dioxane	123-91-1	88.11	T	0.17	< 0.17		2.0	< 2.0	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	4-Methyl-2-pentanone	108-10-1	100.16	T	0.16	< 0.16		2.1	< 2.1	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.16	< 0.16		2.3	< 2.3	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Toluene-d8	2037-26-5	100.21	Surr	0.16	3.15	99.2	2.1	40.7	



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 Attention: Dr. Byron Jones
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Air & Emissions**Volume: 3.150****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.17	< 0.17		2.4	< 2.4	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Toluene	108-88-3	92.14	T	0.16	< 0.16		1.9	< 1.9	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,1,2-Trichloroethane	79-00-5	133.4	T	0.16	< 0.16		2.8	< 2.8	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	2-Hexanone	591-78-6	110.16	T	0.16	< 0.16		2.3	< 2.3	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Dibromochloromethane	124-48-1	208.28	T	0.17	< 0.17		4.6	< 4.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,2-Dibromoethane	106-93-4	187.86	T	0.16	< 0.16		4.0	< 4.0	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Tetrachloroethylene	95-47-6	106.16	T	0.16	< 0.16		2.2	< 2.2	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.16	3.17		2.4	48.1	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Chlorobenzene	108-90-7	112.56	T	0.16	< 0.16		2.4	< 2.4	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Ethyl Benzene	100-41-4	106.16	T	0.16	< 0.16		2.2	< 2.2	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	m,p-Xylene	8-88-3/106-42	106.16	T	0.33	0.330		4.5	4.52	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Nonane	111-84-2	128.26	T	0.16	1.14		2.7	18.9	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Bromoform	75-25-2	252.73	T	0.17	< 0.17		5.4	< 5.4	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Styrene	100-42-5	104.15	T	0.16	< 0.16		2.2	< 2.2	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	o-Xylene	95-47-6	106.16	T	0.17	0.175		2.4	2.39	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.16	< 0.16		3.6	< 3.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Cumene	98-82-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.16	3.17	100	3.6	71.5	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	4-Ethyltoluene	622-96-8	120.19	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.17	0.552		2.6	8.56	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,3-Dichlorobenzene	541-73-1	147.01	T	0.17	< 0.17		3.2	< 3.2	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



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 Attention: Dr. Byron Jones
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Air & Emissions

Volume: 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Acetone	67-64-1	58	TIC	0.16	0.269		1.2	2.01	7
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Methane, dichloro-	75-09-2	84	TIC	0.16	1.65		1.7	17.9	96
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Octane	111-65-9	114	TIC	0.16	0.283		2.3	4.16	76
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.16	0.547		2.1	7.19	86
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Octane, 2-methyl-	3221-61-2	128	TIC	0.16	0.219		2.6	3.61	46
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Cyclohexane, propyl-	1678-92-8	126	TIC	0.16	0.221		2.6	3.59	87
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	2-Pinene	80-56-8	136	TIC	0.16	0.259		2.8	4.54	96
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	.beta.-Pinene	127-91-3	136	TIC	0.16	0.572		2.8	10.0	96
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Decane	124-18-5	142	TIC	0.16	1.06		2.9	19.4	97
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Decane, 4-methyl-	2847-72-5	156	TIC	0.16	0.323		3.2	6.49	94
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Benzene, 1,2,3-trimethyl-	526-73-8	120	TIC	0.16	0.267		2.5	4.14	94
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Decane, 2-methyl-	6975-98-0	156	TIC	0.16	0.300		3.2	6.03	55
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Decane, 3-methyl-	13151-34-3	156	TIC	0.16	0.355		3.2	7.13	97
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Acetophenone	98-86-2	120	TIC	0.16	0.486		2.5	7.52	94
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Undecane	1120-21-4	156	TIC	0.16	1.10		3.2	22.1	97
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Benzoic acid	65-85-0	122	TIC	0.16	0.406		2.5	6.38	97
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Undecane, 2-methyl-	7045-71-8	170	TIC	0.16	0.194		3.5	4.24	90
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Dodecane	112-40-3	170	TIC	0.16	0.738		3.5	16.2	95
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Undecane, 2,6-dimethyl-	17301-23-4	184	TIC	0.16	0.303		3.8	7.20	91
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Tridecane	629-50-5	184	TIC	0.16	0.491		3.8	11.6	97
MJ-II-220C-10ppmw - Ambient - 673937	W305171-27	Phthalic anhydride	85-44-9	148	TIC	0.16	0.221		3.0	4.22	95

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
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 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
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 Surr = Surrogate Compound
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Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds,



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Air & Emissions

Volume: 3.150

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	ppbv	ppbv	REC	RL ng/tube	ng/tube	Qualifier

I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
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 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
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Air & Emissions**Volume: 3.150****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline-220C-Ozone In - 463650	W305171-28	Bromochloromethane	74-97-5	129.39	Int. Std	0.16	3.17		2.6	52.9	
Baseline-220C-Ozone In - 463650	W305171-28	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
Baseline-220C-Ozone In - 463650	W305171-28	Methyl-t-butyl ether	1634-04-4	88.15	T	0.17	< 0.17		1.9	< 1.9	
Baseline-220C-Ozone In - 463650	W305171-28	1,1-Dichloroethane	75-34-3	98.96	T	0.17	< 0.17		2.1	< 2.1	
Baseline-220C-Ozone In - 463650	W305171-28	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
Baseline-220C-Ozone In - 463650	W305171-28	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
Baseline-220C-Ozone In - 463650	W305171-28	2-Butanone (MEK)	78-93-3	72.11	T	0.17	0.451		1.5	4.19	
Baseline-220C-Ozone In - 463650	W305171-28	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.16	< 0.16		2.1	< 2.1	
Baseline-220C-Ozone In - 463650	W305171-28	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
Baseline-220C-Ozone In - 463650	W305171-28	Chloroform	67-66-3	119.38	T	0.16	< 0.16		2.5	< 2.5	
Baseline-220C-Ozone In - 463650	W305171-28	Tetrahydrofuran	109-99-9	72.11	T	0.17	< 0.17		1.6	< 1.6	
Baseline-220C-Ozone In - 463650	W305171-28	1,1,1-Trichloroethane	71-55-6	133.4	T	0.15	< 0.15		2.6	< 2.6	
Baseline-220C-Ozone In - 463650	W305171-28	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.16	3.15	99.1	2.1	41.8	
Baseline-220C-Ozone In - 463650	W305171-28	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.16	3.17		2.3	46.7	
Baseline-220C-Ozone In - 463650	W305171-28	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
Baseline-220C-Ozone In - 463650	W305171-28	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
Baseline-220C-Ozone In - 463650	W305171-28	Benzene	71-43-2	78.11	T	0.16	< 0.16		1.6	< 1.6	
Baseline-220C-Ozone In - 463650	W305171-28	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
Baseline-220C-Ozone In - 463650	W305171-28	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.16	< 0.16		2.4	< 2.4	
Baseline-220C-Ozone In - 463650	W305171-28	Heptane	142-82-5	100.2	T	0.17	< 0.17		2.2	< 2.2	
Baseline-220C-Ozone In - 463650	W305171-28	1,2-Dichloropropane	78-87-5	112.99	T	0.17	< 0.17		2.4	< 2.4	
Baseline-220C-Ozone In - 463650	W305171-28	Trichlorethylene (TCE)	79-01-6	131.39	T	0.16	< 0.16		2.7	< 2.7	
Baseline-220C-Ozone In - 463650	W305171-28	Bromodichloromethane	75-27-4	163.8	T	0.17	< 0.17		3.6	< 3.6	
Baseline-220C-Ozone In - 463650	W305171-28	Methyl methacrylate	80-62-6	100.12	T	0.17	< 0.17		2.2	< 2.2	
Baseline-220C-Ozone In - 463650	W305171-28	1,4-Dioxane	123-91-1	88.11	T	0.17	< 0.17		2.0	< 2.0	
Baseline-220C-Ozone In - 463650	W305171-28	4-Methyl-2-pentanone	108-10-1	100.16	T	0.16	< 0.16		2.1	< 2.1	
Baseline-220C-Ozone In - 463650	W305171-28	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.16	< 0.16		2.3	< 2.3	
Baseline-220C-Ozone In - 463650	W305171-28	Toluene-d8	2037-26-5	100.21	Surr	0.16	3.17	99.8	2.1	40.9	



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
463650

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.150****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline-220C-Ozone In - 463650	W305171-28	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.17	< 0.17		2.4	< 2.4	
Baseline-220C-Ozone In - 463650	W305171-28	Toluene	108-88-3	92.14	T	0.16	< 0.16		1.9	< 1.9	
Baseline-220C-Ozone In - 463650	W305171-28	1,1,2-Trichloroethane	79-00-5	133.4	T	0.16	< 0.16		2.8	< 2.8	
Baseline-220C-Ozone In - 463650	W305171-28	2-Hexanone	591-78-6	110.16	T	0.16	< 0.16		2.3	< 2.3	
Baseline-220C-Ozone In - 463650	W305171-28	Dibromochloromethane	124-48-1	208.28	T	0.17	< 0.17		4.6	< 4.6	
Baseline-220C-Ozone In - 463650	W305171-28	1,2-Dibromoethane	106-93-4	187.86	T	0.16	< 0.16		4.0	< 4.0	
Baseline-220C-Ozone In - 463650	W305171-28	Tetrachloroethylene	95-47-6	106.16	T	0.16	< 0.16		2.2	< 2.2	
Baseline-220C-Ozone In - 463650	W305171-28	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.16	3.17		2.4	48.1	
Baseline-220C-Ozone In - 463650	W305171-28	Chlorobenzene	108-90-7	112.56	T	0.16	< 0.16		2.4	< 2.4	
Baseline-220C-Ozone In - 463650	W305171-28	Ethyl Benzene	100-41-4	106.16	T	0.16	< 0.16		2.2	< 2.2	
Baseline-220C-Ozone In - 463650	W305171-28	m,p-Xylene	8-88-3/106-42	106.16	T	0.33	< 0.33		4.5	< 4.5	
Baseline-220C-Ozone In - 463650	W305171-28	Nonane	111-84-2	128.26	T	0.16	< 0.16		2.7	< 2.7	
Baseline-220C-Ozone In - 463650	W305171-28	Bromoform	75-25-2	252.73	T	0.17	< 0.17		5.4	< 5.4	
Baseline-220C-Ozone In - 463650	W305171-28	Styrene	100-42-5	104.15	T	0.16	< 0.16		2.2	< 2.2	
Baseline-220C-Ozone In - 463650	W305171-28	o-Xylene	95-47-6	106.16	T	0.17	< 0.17		2.4	< 2.4	
Baseline-220C-Ozone In - 463650	W305171-28	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.16	< 0.16		3.6	< 3.6	
Baseline-220C-Ozone In - 463650	W305171-28	Cumene	98-82-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C-Ozone In - 463650	W305171-28	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.16	3.16	100	3.6	71.2	
Baseline-220C-Ozone In - 463650	W305171-28	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C-Ozone In - 463650	W305171-28	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C-Ozone In - 463650	W305171-28	4-Ethyltoluene	622-96-8	120.19	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C-Ozone In - 463650	W305171-28	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C-Ozone In - 463650	W305171-28	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C-Ozone In - 463650	W305171-28	1,3-Dichlorobenzene	541-73-1	147.01	T	0.17	< 0.17		3.2	< 3.2	
Baseline-220C-Ozone In - 463650	W305171-28	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Baseline-220C-Ozone In - 463650	W305171-28	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C-Ozone In - 463650	W305171-28	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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463650

Client: Kansas State University
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 Attention: Dr. Byron Jones
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Air & Emissions

Volume: 3.150

Revised Report, Rev. 3 - 01/29/24

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Baseline-220C-Ozone In - 463650	W305171-28	Acetone	67-64-1	58	TIC	0.16	0.331		1.2	2.47	72
Baseline-220C-Ozone In - 463650	W305171-28	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.16	0.189		2.1	2.48	90
Baseline-220C-Ozone In - 463650	W305171-28	Benzaldehyde	100-52-7	106	TIC	0.16	0.417		2.2	5.70	97
Baseline-220C-Ozone In - 463650	W305171-28	Decane	124-18-5	142	TIC	0.16	0.203		2.9	3.71	95
Baseline-220C-Ozone In - 463650	W305171-28	Acetophenone	98-86-2	120	TIC	0.16	0.338		2.5	5.23	95
Baseline-220C-Ozone In - 463650	W305171-28	Undecane	1120-21-4	156	TIC	0.16	0.263		3.2	5.30	94
Baseline-220C-Ozone In - 463650	W305171-28	Benzoic acid	65-85-0	122	TIC	0.16	1.12		2.5	17.6	97
Baseline-220C-Ozone In - 463650	W305171-28	Dodecane	112-40-3	170	TIC	0.16	0.225		3.5	4.92	91
Baseline-220C-Ozone In - 463650	W305171-28	Tridecane	629-50-5	184	TIC	0.16	0.170		3.8	4.02	86
Baseline-220C-Ozone In - 463650	W305171-28	Phthalic anhydride	85-44-9	148	TIC	0.16	0.251		3.0	4.79	91

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT
EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673928

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620

Air & Emissions

Volume: 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Fax:

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline-220C-Ozone Out - 673928	W305171-29	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.17	3.33		2.6	52.9	
Baseline-220C-Ozone Out - 673928	W305171-29	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline-220C-Ozone Out - 673928	W305171-29	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.18	< 0.18		1.9	< 1.9	
Baseline-220C-Ozone Out - 673928	W305171-29	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.18	< 0.18		2.1	< 2.1	
Baseline-220C-Ozone Out - 673928	W305171-29	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline-220C-Ozone Out - 673928	W305171-29	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline-220C-Ozone Out - 673928	W305171-29	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	2.83		1.5	25.1	
Baseline-220C-Ozone Out - 673928	W305171-29	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline-220C-Ozone Out - 673928	W305171-29	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Baseline-220C-Ozone Out - 673928	W305171-29	Chloroform	67-66-3	119.38	<i>T</i>	0.17	< 0.17		2.5	< 2.5	
Baseline-220C-Ozone Out - 673928	W305171-29	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.18	< 0.18		1.6	< 1.6	
Baseline-220C-Ozone Out - 673928	W305171-29	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.16	< 0.16		2.6	< 2.6	
Baseline-220C-Ozone Out - 673928	W305171-29	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.17	3.35	101	2.1	42.4	
Baseline-220C-Ozone Out - 673928	W305171-29	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.17	3.33		2.3	46.7	
Baseline-220C-Ozone Out - 673928	W305171-29	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline-220C-Ozone Out - 673928	W305171-29	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline-220C-Ozone Out - 673928	W305171-29	Benzene	71-43-2	78.11	<i>T</i>	0.17	< 0.17		1.6	< 1.6	
Baseline-220C-Ozone Out - 673928	W305171-29	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
Baseline-220C-Ozone Out - 673928	W305171-29	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
Baseline-220C-Ozone Out - 673928	W305171-29	Heptane	142-82-5	100.2	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
Baseline-220C-Ozone Out - 673928	W305171-29	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.18	< 0.18		2.4	< 2.4	
Baseline-220C-Ozone Out - 673928	W305171-29	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.17	< 0.17		2.7	< 2.7	
Baseline-220C-Ozone Out - 673928	W305171-29	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.18	< 0.18		3.6	< 3.6	
Baseline-220C-Ozone Out - 673928	W305171-29	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.18	< 0.18		2.2	< 2.2	
Baseline-220C-Ozone Out - 673928	W305171-29	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.18	< 0.18		2.0	< 2.0	
Baseline-220C-Ozone Out - 673928	W305171-29	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline-220C-Ozone Out - 673928	W305171-29	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.17	< 0.17		2.3	< 2.3	
Baseline-220C-Ozone Out - 673928	W305171-29	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.17	3.34	100	2.1	41.1	



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EPA Compendium Method TO-17-Modified

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673928

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Air & Emissions

Volume: 3.000

RJLG Lab #: W305171
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Fax:

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline-220C-Ozone Out - 673928	W305171-29	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
Baseline-220C-Ozone Out - 673928	W305171-29	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
Baseline-220C-Ozone Out - 673928	W305171-29	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
Baseline-220C-Ozone Out - 673928	W305171-29	2-Hexanone	591-78-6	110.16	T	0.17	0.340		2.3	4.60	
Baseline-220C-Ozone Out - 673928	W305171-29	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
Baseline-220C-Ozone Out - 673928	W305171-29	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
Baseline-220C-Ozone Out - 673928	W305171-29	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
Baseline-220C-Ozone Out - 673928	W305171-29	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
Baseline-220C-Ozone Out - 673928	W305171-29	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
Baseline-220C-Ozone Out - 673928	W305171-29	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
Baseline-220C-Ozone Out - 673928	W305171-29	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
Baseline-220C-Ozone Out - 673928	W305171-29	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C-Ozone Out - 673928	W305171-29	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
Baseline-220C-Ozone Out - 673928	W305171-29	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
Baseline-220C-Ozone Out - 673928	W305171-29	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
Baseline-220C-Ozone Out - 673928	W305171-29	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
Baseline-220C-Ozone Out - 673928	W305171-29	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline-220C-Ozone Out - 673928	W305171-29	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.33	100	3.6	71.6	
Baseline-220C-Ozone Out - 673928	W305171-29	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C-Ozone Out - 673928	W305171-29	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C-Ozone Out - 673928	W305171-29	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
Baseline-220C-Ozone Out - 673928	W305171-29	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline-220C-Ozone Out - 673928	W305171-29	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
Baseline-220C-Ozone Out - 673928	W305171-29	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
Baseline-220C-Ozone Out - 673928	W305171-29	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Baseline-220C-Ozone Out - 673928	W305171-29	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C-Ozone Out - 673928	W305171-29	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673928

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.000**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Baseline-220C-Ozone Out - 673928	W305171-29	Acetone	67-64-1	58	TIC	0.17	0.362		1.2	2.58	9
Baseline-220C-Ozone Out - 673928	W305171-29	Methane, dichloro-	75-09-2	84	TIC	0.17	1.03		1.7	10.6	96
Baseline-220C-Ozone Out - 673928	W305171-29	2-Propenal, 2-methyl-	78-85-3	70	TIC	0.17	0.247		1.4	2.12	91
Baseline-220C-Ozone Out - 673928	W305171-29	2,3-Pentanedione	600-14-6	100	TIC	0.17	0.325		2.0	3.99	59
Baseline-220C-Ozone Out - 673928	W305171-29	Butanal	123-72-8	72	TIC	0.17	0.604		1.5	5.34	91
Baseline-220C-Ozone Out - 673928	W305171-29	Pentanal	110-62-3	86	TIC	0.17	0.231		1.8	2.44	91
Baseline-220C-Ozone Out - 673928	W305171-29	Hexanal	66-25-1	100	TIC	0.17	0.369		2.0	4.53	91
Baseline-220C-Ozone Out - 673928	W305171-29	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.17	2.71		2.1	34.0	86
Baseline-220C-Ozone Out - 673928	W305171-29	2(3H)-Furanone, dihydro-5-methyl-	108-29-2	100	TIC	0.17	0.256		2.0	3.14	90
Baseline-220C-Ozone Out - 673928	W305171-29	Benzaldehyde	100-52-7	106	TIC	0.17	0.226		2.2	2.93	96
Baseline-220C-Ozone Out - 673928	W305171-29	Decane	124-18-5	142	TIC	0.17	0.228		2.9	3.98	97
Baseline-220C-Ozone Out - 673928	W305171-29	p-Cresol	106-44-5	108	TIC	0.17	0.506		2.2	6.71	95
Baseline-220C-Ozone Out - 673928	W305171-29	Undecane	1120-21-4	156	TIC	0.17	0.302		3.2	5.77	95
Baseline-220C-Ozone Out - 673928	W305171-29	Nonanal	124-19-6	142	TIC	0.17	0.279		2.9	4.87	90
Baseline-220C-Ozone Out - 673928	W305171-29	Hexanoic acid, 3,5,5-trimethyl-	3302-10-1	158	TIC	0.17	1.29		3.2	25.0	60
Baseline-220C-Ozone Out - 673928	W305171-29	2(3H)-Furanone, dihydro-5-propyl-	105-21-5	128	TIC	0.17	0.373		2.6	5.86	83
Baseline-220C-Ozone Out - 673928	W305171-29	Dodecane	112-40-3	170	TIC	0.17	0.241		3.5	5.03	95

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

TIC = Tentatively Identified Compound

Surr = Surrogate Compound

Int. Std = Internal Standard

T = Target Analyte

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

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673928

Client: Kansas State University

Address: 245 Levee Drive
Manhattan, KS 66502

Attention: Dr. Byron Jones

Telephone: 785-532-5620

Fax:

Air & Emissions

Volume: 3.000

RJLG Lab #: W305171

Samples Received: 05/23/23

Analysis Date: 06/19/23

Report Date: 09/19/23

Sampling Date: 05/18/23

PO# 0

Client Project: Air Sampling

Sample ID													
Client	RJLG	Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier		

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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Client: Kansas State University
 Address: 245 Levee Drive
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 Attention: Dr. Byron Jones
 Telephone: 785-532-5620

Fax:

Air & Emissions**Volume: 3.150****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline-220C - Ambient - 673936	W305171-30	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.16	3.17		2.6	52.9	
Baseline-220C - Ambient - 673936	W305171-30	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline-220C - Ambient - 673936	W305171-30	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Baseline-220C - Ambient - 673936	W305171-30	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline-220C - Ambient - 673936	W305171-30	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline-220C - Ambient - 673936	W305171-30	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline-220C - Ambient - 673936	W305171-30	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	0.184		1.5	1.71	
Baseline-220C - Ambient - 673936	W305171-30	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.16	< 0.16		2.1	< 2.1	
Baseline-220C - Ambient - 673936	W305171-30	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Baseline-220C - Ambient - 673936	W305171-30	Chloroform	67-66-3	119.38	<i>T</i>	0.16	< 0.16		2.5	< 2.5	
Baseline-220C - Ambient - 673936	W305171-30	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.17	< 0.17		1.6	< 1.6	
Baseline-220C - Ambient - 673936	W305171-30	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.15	< 0.15		2.6	< 2.6	
Baseline-220C - Ambient - 673936	W305171-30	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.16	3.33	105	2.1	44.2	
Baseline-220C - Ambient - 673936	W305171-30	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.16	3.17		2.3	46.7	
Baseline-220C - Ambient - 673936	W305171-30	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Baseline-220C - Ambient - 673936	W305171-30	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Baseline-220C - Ambient - 673936	W305171-30	Benzene	71-43-2	78.11	<i>T</i>	0.16	< 0.16		1.6	< 1.6	
Baseline-220C - Ambient - 673936	W305171-30	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
Baseline-220C - Ambient - 673936	W305171-30	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.16	< 0.16		2.4	< 2.4	
Baseline-220C - Ambient - 673936	W305171-30	Heptane	142-82-5	100.2	<i>T</i>	0.17	< 0.17		2.2	< 2.2	
Baseline-220C - Ambient - 673936	W305171-30	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
Baseline-220C - Ambient - 673936	W305171-30	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.16	< 0.16		2.7	< 2.7	
Baseline-220C - Ambient - 673936	W305171-30	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.17	< 0.17		3.6	< 3.6	
Baseline-220C - Ambient - 673936	W305171-30	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.17	< 0.17		2.2	< 2.2	
Baseline-220C - Ambient - 673936	W305171-30	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.17	< 0.17		2.0	< 2.0	
Baseline-220C - Ambient - 673936	W305171-30	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.16	< 0.16		2.1	< 2.1	
Baseline-220C - Ambient - 673936	W305171-30	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.16	< 0.16		2.3	< 2.3	
Baseline-220C - Ambient - 673936	W305171-30	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.16	3.20	101	2.1	41.3	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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673636

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620

Air & Emissions**Volume: 3.150**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23

Fax:

Revised Report, Rev. 3 - 01/29/24

PO# 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline-220C - Ambient - 673936	W305171-30	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.17	< 0.17		2.4	< 2.4	
Baseline-220C - Ambient - 673936	W305171-30	Toluene	108-88-3	92.14	T	0.16	< 0.16		1.9	< 1.9	
Baseline-220C - Ambient - 673936	W305171-30	1,1,2-Trichloroethane	79-00-5	133.4	T	0.16	< 0.16		2.8	< 2.8	
Baseline-220C - Ambient - 673936	W305171-30	2-Hexanone	591-78-6	110.16	T	0.16	< 0.16		2.3	< 2.3	
Baseline-220C - Ambient - 673936	W305171-30	Dibromochloromethane	124-48-1	208.28	T	0.17	< 0.17		4.6	< 4.6	
Baseline-220C - Ambient - 673936	W305171-30	1,2-Dibromoethane	106-93-4	187.86	T	0.16	< 0.16		4.0	< 4.0	
Baseline-220C - Ambient - 673936	W305171-30	Tetrachloroethylene	95-47-6	106.16	T	0.16	< 0.16		2.2	< 2.2	
Baseline-220C - Ambient - 673936	W305171-30	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.16	3.17		2.4	48.1	
Baseline-220C - Ambient - 673936	W305171-30	Chlorobenzene	108-90-7	112.56	T	0.16	< 0.16		2.4	< 2.4	
Baseline-220C - Ambient - 673936	W305171-30	Ethyl Benzene	100-41-4	106.16	T	0.16	< 0.16		2.2	< 2.2	
Baseline-220C - Ambient - 673936	W305171-30	m,p-Xylene	8-88-3/106-42	106.16	T	0.33	< 0.33		4.5	< 4.5	
Baseline-220C - Ambient - 673936	W305171-30	Nonane	111-84-2	128.26	T	0.16	0.238		2.7	3.94	
Baseline-220C - Ambient - 673936	W305171-30	Bromoform	75-25-2	252.73	T	0.17	< 0.17		5.4	< 5.4	
Baseline-220C - Ambient - 673936	W305171-30	Styrene	100-42-5	104.15	T	0.16	< 0.16		2.2	< 2.2	
Baseline-220C - Ambient - 673936	W305171-30	o-Xylene	95-47-6	106.16	T	0.17	< 0.17		2.4	< 2.4	
Baseline-220C - Ambient - 673936	W305171-30	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.16	< 0.16		3.6	< 3.6	
Baseline-220C - Ambient - 673936	W305171-30	Cumene	98-82-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C - Ambient - 673936	W305171-30	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.16	3.15	99.1	3.6	71.0	
Baseline-220C - Ambient - 673936	W305171-30	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C - Ambient - 673936	W305171-30	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C - Ambient - 673936	W305171-30	4-Ethyltoluene	622-96-8	120.19	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C - Ambient - 673936	W305171-30	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C - Ambient - 673936	W305171-30	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.17	< 0.17		2.6	< 2.6	
Baseline-220C - Ambient - 673936	W305171-30	1,3-Dichlorobenzene	541-73-1	147.01	T	0.17	< 0.17		3.2	< 3.2	
Baseline-220C - Ambient - 673936	W305171-30	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Baseline-220C - Ambient - 673936	W305171-30	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Baseline-220C - Ambient - 673936	W305171-30	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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673636

Client: Kansas State University
 Address: 245 Levee Drive
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 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.150**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Baseline-220C - Ambient - 673936	W305171-30	Acetone	67-64-1	58	TIC	0.16	0.339		1.2	2.54	9
Baseline-220C - Ambient - 673936	W305171-30	Methane, dichloro-	75-09-2	84	TIC	0.16	1.71		1.7	18.5	97
Baseline-220C - Ambient - 673936	W305171-30	.beta.-Pinene	127-91-3	136	TIC	0.16	0.291		2.8	5.09	97
Baseline-220C - Ambient - 673936	W305171-30	Decane	124-18-5	142	TIC	0.16	0.374		2.9	6.85	95
Baseline-220C - Ambient - 673936	W305171-30	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.16	0.197		2.7	3.31	83
Baseline-220C - Ambient - 673936	W305171-30	Acetophenone	98-86-2	120	TIC	0.16	0.244		2.5	3.78	94
Baseline-220C - Ambient - 673936	W305171-30	Undecane	1120-21-4	156	TIC	0.16	0.542		3.2	10.9	95
Baseline-220C - Ambient - 673936	W305171-30	Nonanal	124-19-6	142	TIC	0.16	0.241		2.9	4.42	64
Baseline-220C - Ambient - 673936	W305171-30	Benzoic acid	65-85-0	122	TIC	0.16	1.00		2.5	15.8	97
Baseline-220C - Ambient - 673936	W305171-30	Dodecane	112-40-3	170	TIC	0.16	0.417		3.5	9.14	96
Baseline-220C - Ambient - 673936	W305171-30	Undecane, 2,6-dimethyl-	17301-23-4	184	TIC	0.16	0.186		3.8	4.41	87
Baseline-220C - Ambient - 673936	W305171-30	Tridecane	629-50-5	184	TIC	0.16	0.312		3.8	7.40	97
Baseline-220C - Ambient - 673936	W305171-30	Phthalic anhydride	85-44-9	148	TIC	0.16	0.269		3.0	5.13	97

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673932

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620

Air & Emissions**Volume: 3.150**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Fax:

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.16	3.17		2.6	52.9	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	1.05		1.5	9.80	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.16	< 0.16		2.1	< 2.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Chloroform	67-66-3	119.38	<i>T</i>	0.16	< 0.16		2.5	< 2.5	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.17	0.194		1.6	1.80	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.15	< 0.15		2.6	< 2.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.16	3.17	99.8	2.1	42.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.16	3.17		2.3	46.7	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Benzene	71-43-2	78.11	<i>T</i>	0.16	< 0.16		1.6	< 1.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.16	< 0.16		2.4	< 2.4	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Heptane	142-82-5	100.2	<i>T</i>	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.16	< 0.16		2.7	< 2.7	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.17	< 0.17		3.6	< 3.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.17	< 0.17		2.0	< 2.0	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.16	< 0.16		2.1	< 2.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.16	< 0.16		2.3	< 2.3	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.16	3.18	100	2.1	41.0	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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Tenax

673932

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620

Air & Emissions

Volume: 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Fax:

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Toluene	108-88-3	92.14	T	0.16	< 0.16		1.9	< 1.9	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,1,2-Trichloroethane	79-00-5	133.4	T	0.16	< 0.16		2.8	< 2.8	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	2-Hexanone	591-78-6	110.16	T	0.16	0.263		2.3	3.74	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Dibromochloromethane	124-48-1	208.28	T	0.17	< 0.17		4.6	< 4.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,2-Dibromoethane	106-93-4	187.86	T	0.16	< 0.16		4.0	< 4.0	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Tetrachloroethylene	95-47-6	106.16	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.16	3.17		2.4	48.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Chlorobenzene	108-90-7	112.56	T	0.16	0.171		2.4	2.49	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Ethyl Benzene	100-41-4	106.16	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	m,p-Xylene	8-88-3/106-42	106.16	T	0.33	< 0.33		4.5	< 4.5	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Nonane	111-84-2	128.26	T	0.16	< 0.16		2.7	< 2.7	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Bromoform	75-25-2	252.73	T	0.17	< 0.17		5.4	< 5.4	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Styrene	100-42-5	104.15	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	o-Xylene	95-47-6	106.16	T	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.16	< 0.16		3.6	< 3.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Cumene	98-82-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.16	3.15	99.3	3.6	71.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	4-Ethyltoluene	622-96-8	120.19	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,3-Dichlorobenzene	541-73-1	147.01	T	0.17	< 0.17		3.2	< 3.2	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673932

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions

Volume: 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS		Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG		Number	MW							
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Acetone	67-64-1	58.000	TIC	0.16	0.380		1.2	2.84	9
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Methane, dichloro-	75-09-2	84.000	TIC	0.16	1.32		1.7	14.3	96
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	3-Buten-2-one	78-94-4	70.000	TIC	0.16	0.889		1.4	8.02	80
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Butanal	123-72-8	72.000	TIC	0.16	3.29		1.5	30.6	91
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	2-Butenal, (E)-	123-73-9	70.000	TIC	0.16	0.410		1.4	3.70	91
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1-Butanol	71-36-3	74.000	TIC	0.16	18.0		1.5	172	91
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Butanoic acid, 2-methyl-	116-53-0	102.000	TIC	0.16	1.15		2.1	15.1	91
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Hexanal, 2-ethyl-	123-05-7	128.000	TIC	0.16	0.415		2.6	6.84	60
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Phenol	108-95-2	94.000	TIC	0.16	0.978		1.9	11.9	96
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	1-Hexanol, 2-ethyl-	104-76-7	130.000	TIC	0.16	1.53		2.7	25.6	83
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	p-Cresol	106-44-5	108.000	TIC	0.16	0.759		2.2	10.6	97
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	2,5-Cyclohexadiene-1,4-dione, 2,6-bis(1,1-dimethylethyl)-	719-22-2	220.000	TIC	0.16	0.594		4.5	16.9	99
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	2,5-Cyclohexadien-1-one, 2,6-bis(1,1-dimethylethyl)-4-methylene-	2607-52-5	218.000	TIC	0.16	1.31		4.5	36.7	93
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Tributyl phosphate	126-73-8	266.000	TIC	0.16	23.3		5.4	800	50
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Butylated Hydroxytoluene	128-37-0	220.000	TIC	0.16	0.984		4.5	27.9	97
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Triisobutyl phosphate	126-71-6	266.000	TIC	0.16	1.04		5.4	35.7	80
Skydrol-220C-5ppmw - Pack Out - 673932	W305171-31	Tributyl phosphate	126-73-8	266.000	TIC	0.16	26.7		5.4	914	91

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
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 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
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 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: Joe Sears
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23



LABORATORY REPORT
EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673932

Client: Kansas State University

Address: 245 Levee Drive
 Manhattan, KS 66502

Attention: Dr. Byron Jones

Telephone: 785-532-5620

Fax:

Air & Emissions

Volume: 3.150

RJLG Lab #: W305171

Samples Received: 05/23/23

Analysis Date: 06/19/23

Report Date: 09/19/23

Sampling Date: 05/18/23

PO# 0

Client Project: Air Sampling

Sample ID													
Client	RJLG	Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier		

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463624

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.000**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Bromochloromethane	74-97-5	129.39	Int. Std	0.17	3.33		2.6	52.9	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	trans-1,2-Dichloroethene	156-60-5	96.95	T	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Methyl-t-butyl ether	1634-04-4	88.15	T	0.18	< 0.18		1.9	< 1.9	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,1-Dichloroethane	75-34-3	98.96	T	0.18	< 0.18		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Vinyl acetate	108-05-4	86.09	T	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Hexane	110-54-3	86.18	T	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	2-Butanone (MEK)	78-93-3	72.11	T	0.17	0.360		1.5	3.19	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	cis-1,2-Dichloroethene	156-59-2	96.95	T	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Ethyl acetate	141-78-6	88.11	T	0.17	< 0.17		1.9	< 1.9	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Chloroform	67-66-3	119.38	T	0.17	< 0.17		2.5	< 2.5	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Tetrahydrofuran	109-99-9	72.11	T	0.18	< 0.18		1.6	< 1.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,1,1-Trichloroethane	71-55-6	133.4	T	0.16	< 0.16		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.17	3.29	98.6	2.1	41.5	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.17	3.33		2.3	46.7	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,2-Dichloroethane	107-06-2	98.96	T	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Cyclohexane	110-82-7	84.16	T	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Benzene	71-43-2	78.11	T	0.17	< 0.17		1.6	< 1.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Carbon tetrachloride	56-23-5	153.82	T	0.17	< 0.17		3.3	< 3.3	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	2,2,4-Trimethylpentane	540-84-1	114.23	T	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Heptane	142-82-5	100.2	T	0.18	< 0.18		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,2-Dichloropropane	78-87-5	112.99	T	0.18	< 0.18		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Trichlorethylene (TCE)	79-01-6	131.39	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Bromodichloromethane	75-27-4	163.8	T	0.18	< 0.18		3.6	< 3.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Methyl methacrylate	80-62-6	100.12	T	0.18	< 0.18		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,4-Dioxane	123-91-1	88.11	T	0.18	< 0.18		2.0	< 2.0	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	4-Methyl-2-pentanone	108-10-1	100.16	T	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	cis-1,3-Dichloropropene	10061-01-5	110.97	T	0.17	< 0.17		2.3	< 2.3	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Toluene-d8	2037-26-5	100.21	Surr	0.17	3.31	99.3	2.1	40.7	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463624

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.000**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.18	< 0.18		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Toluene	108-88-3	92.14	T	0.17	< 0.17		1.9	< 1.9	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,1,2-Trichloroethane	79-00-5	133.4	T	0.17	< 0.17		2.8	< 2.8	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	2-Hexanone	591-78-6	110.16	T	0.17	< 0.17		2.3	< 2.3	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Dibromochloromethane	124-48-1	208.28	T	0.18	< 0.18		4.6	< 4.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,2-Dibromoethane	106-93-4	187.86	T	0.17	< 0.17		4.0	< 4.0	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Tetrachloroethylene	95-47-6	106.16	T	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.17	3.33		2.4	48.1	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Chlorobenzene	108-90-7	112.56	T	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Ethyl Benzene	100-41-4	106.16	T	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	m,p-Xylene	8-88-3/106-42	106.16	T	0.34	< 0.34		4.5	< 4.5	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Nonane	111-84-2	128.26	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Bromoform	75-25-2	252.73	T	0.18	< 0.18		5.4	< 5.4	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Styrene	100-42-5	104.15	T	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	o-Xylene	95-47-6	106.16	T	0.18	< 0.18		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.17	< 0.17		3.6	< 3.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Cumene	98-82-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.17	3.32	99.7	3.6	71.4	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	4-Ethyltoluene	622-96-8	120.19	T	0.18	< 0.18		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.18	< 0.18		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.18	< 0.18		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,3-Dichlorobenzene	541-73-1	147.01	T	0.18	< 0.18		3.2	< 3.2	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463624

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.000**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Acetone	67-64-1	58	TIC	0.17	0.555		1.2	3.95	64
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Methane, dichloro-	75-09-2	84	TIC	0.17	1.28		1.7	13.2	96
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Butanal	123-72-8	72	TIC	0.17	0.476		1.5	4.21	94
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1-Propanol, 2-methyl-	78-83-1	74	TIC	0.17	1.23		1.5	11.2	91
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1-Butanol	71-36-3	74	TIC	0.17	2.74		1.5	24.9	91
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Benzaldehyde	100-52-7	106	TIC	0.17	0.376		2.2	4.89	97
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	2-Propenoic acid, 2-methyl-, 2-methylpropyl ester	97-86-9	142	TIC	0.17	0.304		2.9	5.30	78
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Decane	124-18-5	142	TIC	0.17	0.227		2.9	3.95	93
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.17	0.305		2.7	4.86	78
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Acetophenone	98-86-2	120	TIC	0.17	0.273		2.5	4.01	95
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Undecane	1120-21-4	156	TIC	0.17	0.278		3.2	5.33	91
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Nonanal	124-19-6	142	TIC	0.17	0.197		2.9	3.43	90
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Dodecane	112-40-3	170	TIC	0.17	0.246		3.5	5.14	95
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Tridecane	629-50-5	184	TIC	0.17	0.245		3.8	5.54	94
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Phthalic anhydride	85-44-9	148	TIC	0.17	0.503		3.0	9.14	96
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	2,5-Cyclohexadiene-1,4-dione, 2,6-bis(1,1-dimethylethyl)-	719-22-2	220	TIC	0.17	0.382		4.5	10.3	94
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	2,5-Cyclohexadien-1-one, 2,6-bis(1,1-dimethylethyl)-4-methylene-	2607-52-5	218	TIC	0.17	0.477		4.5	12.8	97
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Triisobutyl phosphate	126-71-6	266	TIC	0.17	17.6		5.4	574	91
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Butylated Hydroxytoluene	128-37-0	220	TIC	0.17	0.627		4.5	16.9	97
Skydrol-220C-5ppmw - Ozone In - 463624	W305171-32	Tributyl phosphate	126-73-8	266	TIC	0.17	7.59		5.4	248	91

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 µg/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable



LABORATORY REPORT
EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463624

Client: Kansas State University

Address: 245 Levee Drive
 Manhattan, KS 66502

Attention: Dr. Byron Jones

Telephone: 785-532-5620

Fax:

Air & Emissions

Volume: 3.000

RJLG Lab #: W305171

Samples Received: 05/23/23

Analysis Date: 06/19/23

Report Date: 09/19/23

Sampling Date: 05/18/23

PO# 0

Client Project: Air Sampling

Sample ID		Analyte		CAS	MW	Type	RL	Result	Surr %	Result		Qualifier
Client	RJLG			Number			ppbv	ppbv	REC	RL ng/tube	ng/tube	

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
463647

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620

Air & Emissions
Volume: 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Fax:

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.16	3.17		2.6	52.9	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	1.34		1.5	12.4	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.16	< 0.16		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Chloroform	67-66-3	119.38	<i>T</i>	0.16	< 0.16		2.5	< 2.5	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.17	0.200		1.6	1.86	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.15	< 0.15		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.16	3.26	103	2.1	43.2	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.16	3.17		2.3	46.7	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Benzene	71-43-2	78.11	<i>T</i>	0.16	< 0.16		1.6	< 1.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.16	< 0.16		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Heptane	142-82-5	100.2	<i>T</i>	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.16	< 0.16		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.17	< 0.17		3.6	< 3.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.17	< 0.17		2.0	< 2.0	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.16	< 0.16		2.1	< 2.1	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.16	< 0.16		2.3	< 2.3	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.16	3.15	99.1	2.1	40.6	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463647

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620

Air & Emissions**Volume: 3.150**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Fax:

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Toluene	108-88-3	92.14	T	0.16	< 0.16		1.9	< 1.9	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,1,2-Trichloroethane	79-00-5	133.4	T	0.16	< 0.16		2.8	< 2.8	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	2-Hexanone	591-78-6	110.16	T	0.16	0.292		2.3	4.15	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Dibromochloromethane	124-48-1	208.28	T	0.17	< 0.17		4.6	< 4.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,2-Dibromoethane	106-93-4	187.86	T	0.16	< 0.16		4.0	< 4.0	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Tetrachloroethylene	95-47-6	106.16	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.16	3.17		2.4	48.1	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Chlorobenzene	108-90-7	112.56	T	0.16	0.187		2.4	2.72	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Ethyl Benzene	100-41-4	106.16	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	m,p-Xylene	8-88-3/106-42	106.16	T	0.33	< 0.33		4.5	< 4.5	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Nonane	111-84-2	128.26	T	0.16	< 0.16		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Bromoform	75-25-2	252.73	T	0.17	< 0.17		5.4	< 5.4	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Styrene	100-42-5	104.15	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	o-Xylene	95-47-6	106.16	T	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.16	< 0.16		3.6	< 3.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Cumene	98-82-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.16	3.15	99.2	3.6	71.0	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	4-Ethyltoluene	622-96-8	120.19	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,3-Dichlorobenzene	541-73-1	147.01	T	0.17	< 0.17		3.2	< 3.2	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463647

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.150**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Methane, dichloro-	75-09-2	84	TIC	0.16	1.60		1.7	17.3	96
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	3-Buten-2-one	78-94-4	70	TIC	0.16	1.01		1.4	9.12	64
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Butanal	123-72-8	72	TIC	0.16	3.75		1.5	34.8	94
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1-Propanol, 2-methyl-	78-83-1	74	TIC	0.16	0.371		1.5	3.54	91
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	2-Propenal, 2-methyl-	78-85-3	70	TIC	0.16	0.506		1.4	4.57	91
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1-Butanol	71-36-3	74	TIC	0.16	20.0		1.5	190	91
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Cyclohexanone, 4-methyl-	589-92-4	112	TIC	0.16	0.737		2.3	10.6	58
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Furan	110-00-9	68	TIC	0.16	0.429		1.4	3.76	64
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Butanoic acid, 2-methyl-	116-53-0	102	TIC	0.16	1.54		2.1	20.3	90
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Phenol	108-95-2	94	TIC	0.16	0.758		1.9	9.19	96
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.16	1.71		2.7	28.6	83
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	p-Cresol	106-44-5	108	TIC	0.16	0.669		2.2	9.32	97
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Hexanoic acid, 3,5,5-trimethyl-	3302-10-1	158	TIC	0.16	0.644		3.2	13.1	90
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	2,5-Cyclohexadien-1-one, 2,6-bis(1,1-dimethylethyl)-4-methylene-	2607-52-5	218	TIC	0.16	0.795		4.5	22.3	94
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Triisobutyl phosphate	126-71-6	266	TIC	0.16	7.91		5.4	271	91
Skydrol-220C-5ppmw - Ozone Out - 463647	W305171-33	Tributyl phosphate	126-73-8	266	TIC	0.16	1.51		5.4	51.7	91

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
 ppbv = parts per billion volume
 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram

BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL.
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463647

Client: Kansas State University

Address: 245 Levee Drive
Manhattan, KS 66502

Attention: Dr. Byron Jones

Telephone: 785-532-5620

Fax:

Air & Emissions

Volume: 3.150

RJLG Lab #: W305171

Samples Received: 05/23/23

Analysis Date: 06/19/23

Report Date: 09/19/23

Sampling Date: 05/18/23

PO# 0

Client Project: Air Sampling

Sample ID													
Client	RJLG	Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier		

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463644

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.150****Revised Report, Rev. 3 - 01/29/24**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Bromochloromethane	74-97-5	129.39	<i>Int. Std</i>	0.16	3.17		2.6	52.9	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	trans-1,2-Dichloroethene	156-60-5	96.95	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Methyl-t-butyl ether	1634-04-4	88.15	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,1-Dichloroethane	75-34-3	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Vinyl acetate	108-05-4	86.09	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Hexane	110-54-3	86.18	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	2-Butanone (MEK)	78-93-3	72.11	<i>T</i>	0.17	0.175		1.5	1.62	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	cis-1,2-Dichloroethene	156-59-2	96.95	<i>T</i>	0.16	< 0.16		2.1	< 2.1	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Ethyl acetate	141-78-6	88.11	<i>T</i>	0.17	< 0.17		1.9	< 1.9	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Chloroform	67-66-3	119.38	<i>T</i>	0.16	< 0.16		2.5	< 2.5	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Tetrahydrofuran	109-99-9	72.11	<i>T</i>	0.17	< 0.17		1.6	< 1.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,1,1-Trichloroethane	71-55-6	133.4	<i>T</i>	0.15	< 0.15		2.6	< 2.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,2-Dichloroethane-d4	17060-07-0	102.99	<i>Surr</i>	0.16	3.11	98.0	2.1	41.3	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,4-Difluorobenzene	540-36-3	114.09	<i>Int. Std</i>	0.16	3.17		2.3	46.7	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,2-Dichloroethane	107-06-2	98.96	<i>T</i>	0.17	< 0.17		2.1	< 2.1	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Cyclohexane	110-82-7	84.16	<i>T</i>	0.17	< 0.17		1.8	< 1.8	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Benzene	71-43-2	78.11	<i>T</i>	0.16	< 0.16		1.6	< 1.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Carbon tetrachloride	56-23-5	153.82	<i>T</i>	0.17	< 0.17		3.3	< 3.3	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	2,2,4-Trimethylpentane	540-84-1	114.23	<i>T</i>	0.16	< 0.16		2.4	< 2.4	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Heptane	142-82-5	100.2	<i>T</i>	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,2-Dichloropropane	78-87-5	112.99	<i>T</i>	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Trichlorethylene (TCE)	79-01-6	131.39	<i>T</i>	0.16	< 0.16		2.7	< 2.7	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Bromodichloromethane	75-27-4	163.8	<i>T</i>	0.17	< 0.17		3.6	< 3.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Methyl methacrylate	80-62-6	100.12	<i>T</i>	0.17	< 0.17		2.2	< 2.2	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,4-Dioxane	123-91-1	88.11	<i>T</i>	0.17	< 0.17		2.0	< 2.0	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	4-Methyl-2-pentanone	108-10-1	100.16	<i>T</i>	0.16	< 0.16		2.1	< 2.1	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	cis-1,3-Dichloropropene	10061-01-5	110.97	<i>T</i>	0.16	< 0.16		2.3	< 2.3	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Toluene-d8	2037-26-5	100.21	<i>Surr</i>	0.16	3.19	100	2.1	41.2	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

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2710 North 20th Avenue, Pasco WA 99301

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Tenax

463644

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.150**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Client Project: Air Sampling

Revised Report, Rev. 3 - 01/29/24

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	trans-1,3-Dichloropropene	10061-02-6	110.97	T	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Toluene	108-88-3	92.14	T	0.16	< 0.16		1.9	< 1.9	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,1,2-Trichloroethane	79-00-5	133.4	T	0.16	< 0.16		2.8	< 2.8	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	2-Hexanone	591-78-6	110.16	T	0.16	< 0.16		2.3	< 2.3	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Dibromochloromethane	124-48-1	208.28	T	0.17	< 0.17		4.6	< 4.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,2-Dibromoethane	106-93-4	187.86	T	0.16	< 0.16		4.0	< 4.0	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Tetrachloroethylene	95-47-6	106.16	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.16	3.17		2.4	48.1	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Chlorobenzene	108-90-7	112.56	T	0.16	< 0.16		2.4	< 2.4	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Ethyl Benzene	100-41-4	106.16	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	m,p-Xylene	8-88-3/106-42	106.16	T	0.33	< 0.33		4.5	< 4.5	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Nonane	111-84-2	128.26	T	0.16	0.232		2.7	3.83	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Bromoform	75-25-2	252.73	T	0.17	< 0.17		5.4	< 5.4	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Styrene	100-42-5	104.15	T	0.16	< 0.16		2.2	< 2.2	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	o-Xylene	95-47-6	106.16	T	0.17	< 0.17		2.4	< 2.4	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,1,2,2-Tetrachloroethane	79-34-5	167.85	T	0.16	< 0.16		3.6	< 3.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Cumene	98-82-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.16	3.19	100	3.6	71.9	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	n-Propylbenzene	103-65-1	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	2-Chlorotoluene	95-49-8	126.59	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	4-Ethyltoluene	622-96-8	120.19	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,3,5-Trimethylbenzene	108-67-8	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,2,4-Trimethylbenzene	95-63-6	120.19	T	0.17	< 0.17		2.6	< 2.6	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,3-Dichlorobenzene	541-73-1	147.01	T	0.17	< 0.17		3.2	< 3.2	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,4-Dichlorobenzene	106-46-7	147.01	T	0.17	< 0.17		3.1	< 3.1	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Benzyl chloride	100-44-7	126.58	T	0.17	< 0.17		2.7	< 2.7	
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1,2-Dichlorobenzene	95-50-1	147.01	T	0.17	< 0.17		3.1	< 3.1	



LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463644

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions**Volume: 3.150**

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/19/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0

Revised Report, Rev. 3 - 01/29/24

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL ppbv	Result ppbv	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
		Tentatively Identified Compounds	CAS #	MW							Q-FIT
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Acetone	67-64-1	58	TIC	0.16	0.192		1.2	1.44	94
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Methane, dichloro-	75-09-2	84	TIC	0.16	2.17		1.7	23.5	91
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Butanal	123-72-8	72	TIC	0.16	0.171		1.5	1.59	91
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1-Butanol	71-36-3	74	TIC	0.16	0.648		1.5	6.18	97
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	2-Pinene	80-56-8	136	TIC	0.16	0.221		2.8	3.88	78
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Benzaldehyde	100-52-7	106	TIC	0.16	0.510		2.2	6.97	93
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	.beta.-Pinene	127-91-3	136	TIC	0.16	0.327		2.8	5.73	78
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Decane	124-18-5	142	TIC	0.16	0.330		2.9	6.04	95
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	1-Hexanol, 2-ethyl-	104-76-7	130	TIC	0.16	0.194		2.7	3.24	91
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Acetophenone	98-86-2	120	TIC	0.16	0.304		2.5	4.70	90
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Undecane	1120-21-4	156	TIC	0.16	0.507		3.2	10.2	95
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Benzoic acid	65-85-0	122	TIC	0.16	1.32		2.5	20.7	94
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Dodecane	112-40-3	170	TIC	0.16	0.423		3.5	9.26	96
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Dodecane, 6-methyl-	6044-71-9	184	TIC	0.16	0.201		3.8	4.76	94
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Tridecane	629-50-5	184	TIC	0.16	0.375		3.8	8.90	97
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Phthalic anhydride	85-44-9	148	TIC	0.16	0.180		3.0	3.43	91
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Triisobutyl phosphate	126-71-6	266	TIC	0.16	0.274		5.4	9.39	97
Skydrol-220C-5ppmw - Ambient - 463644	W305171-34	Phenylmaleic anhydride	36122-35-7	174	TIC	0.16	0.183		3.6	4.11	95

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram
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 ug/m3 = micrograms per cubic meter
 ug/Kg = micrograms per kilogram


BDL = Below Detection Limit
 N/A = Not Applicable
 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
 Int. Std = Internal Standard
 T = Target Analyte
 TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure
 r = %REC failure in the MRL
 p = Positively identified compound, for non-calibrated compounds
 B = Compound found in associated laboratory blank above the MDL
 D = Diluted sample
 E = Report concentration was above the instrumental calibration range
 I = Response failure of an internal standard; concentration should be considered an estimate
 J = Reported concentration was estimated

N = Identification based on mass spectral library search
 P = Library spectrum match, rsd >90% w RT match
 Q = Qualitative results for non detects
 R = Analyte %REC Failure
 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: 
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23



LABORATORY REPORT
EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463644

Client: Kansas State University

Address: 245 Levee Drive
 Manhattan, KS 66502

Attention: Dr. Byron Jones

Telephone: 785-532-5620

Fax:

Air & Emissions

Volume: 3.150

RJLG Lab #: W305171

Samples Received: 05/23/23

Analysis Date: 06/19/23

Report Date: 09/19/23

Sampling Date: 05/18/23

PO# 0

Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	ppbv	ppbv	REC	RL ng/tube	ng/tube	Qualifier

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
673635

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory
 2710 North 20th Avenue, Pasco WA 99301
 Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Shipping Blank (1)	W305171-01	Bromochloromethane	74-97-5	129.39	Int. Std	2.0	10.0		2.0	10.0	
Shipping Blank (1)	W305171-01	Acetic Acid	64-19-7	60.05	T	2.0	11.6		2.0	11.6	
Shipping Blank (1)	W305171-01	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	2.0	9.31	93.1	2.0	9.31	
Shipping Blank (1)	W305171-01	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	2.0	10.0		2.0	10.0	
Shipping Blank (1)	W305171-01	Propionic Acid	79-09-4	74.08	T	50	< 50		50	< 50	
Shipping Blank (1)	W305171-01	Butanoic Acid	107-92-6	88.11	T	2.0	< 2.0		2.0	< 2.0	
Shipping Blank (1)	W305171-01	Toluene-d8	2037-26-5	100.21	Surr	2.0	10.3	103	2.0	10.3	
Shipping Blank (1)	W305171-01	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	2.0	10.0		2.0	10.0	
Shipping Blank (1)	W305171-01	Pentanoic Acid	109-52-4	102.13	T	2.0	< 2.0		2.0	< 2.0	
Shipping Blank (1)	W305171-01	Hexanoic Acid	142-62-1	116.16	T	2.0	< 2.0		2.0	< 2.0	
Shipping Blank (1)	W305171-01	Heptanoic Acid	111-14-8	130.18	T	2.0	2.02		2.0	2.02	
Shipping Blank (1)	W305171-01	Octanoic Acid	124-07-2	144.21	T	2.0	3.55		2.0	3.55	
Shipping Blank (1)	W305171-01	Nonanoic Acid	112-05-0	158.24	T	2.0	4.07		2.0	4.07	
Shipping Blank (1)	W305171-01	Decanoic Acid	334-48-5	172.26	T	2.0	4.25		2.0	4.25	
Shipping Blank (1)	W305171-01	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	2.0	9.69	96.9	2.0	9.69	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match


Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: 
 Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

673923

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
Field Blank (2)	W305171-02	Bromochloromethane	74-97-5	129.39	Int. Std	2.0	10.0		2.0	10.0	
Field Blank (2)	W305171-02	Acetic Acid	64-19-7	60.05	T	2.0	22.0		2.0	22.0	
Field Blank (2)	W305171-02	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	2.0	9.38	93.8	2.0	9.38	
Field Blank (2)	W305171-02	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	2.0	10.0		2.0	10.0	
Field Blank (2)	W305171-02	Propionic Acid	79-09-4	74.08	T	50	< 50		50	< 50	
Field Blank (2)	W305171-02	Butanoic Acid	107-92-6	88.11	T	2.0	2.86		2.0	2.86	
Field Blank (2)	W305171-02	Toluene-d8	2037-26-5	100.21	Surr	2.0	10.4	104	2.0	10.4	
Field Blank (2)	W305171-02	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	2.0	10.0		2.0	10.0	
Field Blank (2)	W305171-02	Pentanoic Acid	109-52-4	102.13	T	2.0	< 2.0		2.0	< 2.0	
Field Blank (2)	W305171-02	Hexanoic Acid	142-62-1	116.16	T	2.0	2.03		2.0	2.03	
Field Blank (2)	W305171-02	Heptanoic Acid	111-14-8	130.18	T	2.0	2.03		2.0	2.03	
Field Blank (2)	W305171-02	Octanoic Acid	124-07-2	144.21	T	2.0	< 2.0		2.0	< 2.0	
Field Blank (2)	W305171-02	Nonanoic Acid	112-05-0	158.24	T	2.0	3.34		2.0	3.34	
Field Blank (2)	W305171-02	Decanoic Acid	334-48-5	172.26	T	2.0	4.21		2.0	4.21	
Field Blank (2)	W305171-02	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	2.0	9.67	96.7	2.0	9.67	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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ppbv = parts per billion volume

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µg/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
673924

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 1.950

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	µg/m3	µg/m3	REC	RL ng/tube	ng/tube	Qualifier
Baseline - 300C - Ambient (3)	W305171-03	Bromochloromethane	74-97-5	129.39	Int. Std	1.0	5.13		2.0	10.0	
Baseline - 300C - Ambient (3)	W305171-03	Acetic Acid	64-19-7	60.05	T	1.0	35.4		2.0	69.0	
Baseline - 300C - Ambient (3)	W305171-03	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	1.0	4.92	95.9	2.0	9.59	
Baseline - 300C - Ambient (3)	W305171-03	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	1.0	5.13		2.0	10.0	
Baseline - 300C - Ambient (3)	W305171-03	Propionic Acid	79-09-4	74.08	T	26	< 26		50	< 50	
Baseline - 300C - Ambient (3)	W305171-03	Butanoic Acid	107-92-6	88.11	T	1.0	3.85		2.0	7.50	
Baseline - 300C - Ambient (3)	W305171-03	Toluene-d8	2037-26-5	100.21	Surr	1.0	5.28	103	2.0	10.3	
Baseline - 300C - Ambient (3)	W305171-03	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	1.0	5.13		2.0	10.0	
Baseline - 300C - Ambient (3)	W305171-03	Pentanoic Acid	109-52-4	102.13	T	1.0	26.0		2.0	50.7	
Baseline - 300C - Ambient (3)	W305171-03	Hexanoic Acid	142-62-1	116.16	T	1.0	3.45		2.0	6.73	
Baseline - 300C - Ambient (3)	W305171-03	Heptanoic Acid	111-14-8	130.18	T	1.0	71.8		2.0	140	
Baseline - 300C - Ambient (3)	W305171-03	Octanoic Acid	124-07-2	144.21	T	1.0	31.8		2.0	62.0	
Baseline - 300C - Ambient (3)	W305171-03	Nonanoic Acid	112-05-0	158.24	T	1.0	3.37		2.0	6.57	
Baseline - 300C - Ambient (3)	W305171-03	Decanoic Acid	334-48-5	172.26	T	1.0	15.4		2.0	30.0	AC
Baseline - 300C - Ambient (3)	W305171-03	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	1.0	4.94	96.3	2.0	9.63	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Surr = Surrogate Compound

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R = Analyte %REC Failure

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
673916

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 2.700

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	µg/m3	µg/m3	REC	RL ng/tube	ng/tube	Qualifier
Baseline - 300C - Ozone In (4)	W305171-04	Bromochloromethane	74-97-5	129.39	Int. Std	0.74	3.70		2.0	10.0	
Baseline - 300C - Ozone In (4)	W305171-04	Acetic Acid	64-19-7	60.05	T	0.74	16.4		2.0	44.2	
Baseline - 300C - Ozone In (4)	W305171-04	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.74	3.44	92.9	2.0	9.29	
Baseline - 300C - Ozone In (4)	W305171-04	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.74	3.70		2.0	10.0	
Baseline - 300C - Ozone In (4)	W305171-04	Propionic Acid	79-09-4	74.08	T	19	< 19		50	< 50	
Baseline - 300C - Ozone In (4)	W305171-04	Butanoic Acid	107-92-6	88.11	T	0.74	1.90		2.0	5.14	
Baseline - 300C - Ozone In (4)	W305171-04	Toluene-d8	2037-26-5	100.21	Surr	0.74	3.81	103	2.0	10.3	
Baseline - 300C - Ozone In (4)	W305171-04	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.74	3.70		2.0	10.0	
Baseline - 300C - Ozone In (4)	W305171-04	Pentanoic Acid	109-52-4	102.13	T	0.74	10.6		2.0	28.6	
Baseline - 300C - Ozone In (4)	W305171-04	Hexanoic Acid	142-62-1	116.16	T	0.74	1.59		2.0	4.29	
Baseline - 300C - Ozone In (4)	W305171-04	Heptanoic Acid	111-14-8	130.18	T	0.74	17.0		2.0	45.9	
Baseline - 300C - Ozone In (4)	W305171-04	Octanoic Acid	124-07-2	144.21	T	0.74	7.11		2.0	19.2	
Baseline - 300C - Ozone In (4)	W305171-04	Nonanoic Acid	112-05-0	158.24	T	0.74	1.91		2.0	5.16	
Baseline - 300C - Ozone In (4)	W305171-04	Decanoic Acid	334-48-5	172.26	T	0.74	3.46		2.0	9.33	AC
Baseline - 300C - Ozone In (4)	W305171-04	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.74	3.64	98.3	2.0	9.83	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram

ppbv = parts per billion volume

ug/m3 = micrograms per cubic meter

µg/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
463626

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 1.800

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
Baseline - 300C - Ozone Out (5)	W305171-05	Bromochloromethane	74-97-5	129.39	Int. Std	1.1	5.56		2.0	10.0	
Baseline - 300C - Ozone Out (5)	W305171-05	Acetic Acid	64-19-7	60.05	T	1.1	31.6		2.0	56.8	
Baseline - 300C - Ozone Out (5)	W305171-05	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	1.1	5.13	92.3	2.0	9.23	
Baseline - 300C - Ozone Out (5)	W305171-05	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	1.1	5.56		2.0	10.0	
Baseline - 300C - Ozone Out (5)	W305171-05	Propionic Acid	79-09-4	74.08	T	28	< 28		50	< 50	
Baseline - 300C - Ozone Out (5)	W305171-05	Butanoic Acid	107-92-6	88.11	T	1.1	5.78		2.0	10.4	
Baseline - 300C - Ozone Out (5)	W305171-05	Toluene-d8	2037-26-5	100.21	Surr	1.1	5.72	103	2.0	10.3	
Baseline - 300C - Ozone Out (5)	W305171-05	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	1.1	5.56		2.0	10.0	
Baseline - 300C - Ozone Out (5)	W305171-05	Pentanoic Acid	109-52-4	102.13	T	1.1	59.4		2.0	107	
Baseline - 300C - Ozone Out (5)	W305171-05	Hexanoic Acid	142-62-1	116.16	T	1.1	4.22		2.0	7.59	
Baseline - 300C - Ozone Out (5)	W305171-05	Heptanoic Acid	111-14-8	130.18	T	1.1	77.8		2.0	140	
Baseline - 300C - Ozone Out (5)	W305171-05	Octanoic Acid	124-07-2	144.21	T	1.1	22.3		2.0	40.2	
Baseline - 300C - Ozone Out (5)	W305171-05	Nonanoic Acid	112-05-0	158.24	T	1.1	2.51		2.0	4.52	
Baseline - 300C - Ozone Out (5)	W305171-05	Decanoic Acid	334-48-5	172.26	T	1.1	5.67		2.0	10.2	AC
Baseline - 300C - Ozone Out (5)	W305171-05	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	1.1	5.38	96.8	2.0	9.68	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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T = Target Analyte

Surr = Surrogate Compound

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TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

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P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte %REC Failure

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673917

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 1.950

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
Baseline - 300C - Ambiennt (6)	W305171-06	Bromochloromethane	74-97-5	129.39	Int. Std	1.0	5.13		2.0	10.0	
Baseline - 300C - Ambiennt (6)	W305171-06	Acetic Acid	64-19-7	60.05	T	1.0	18.1		2.0	35.2	
Baseline - 300C - Ambiennt (6)	W305171-06	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	1.0	4.64	90.5	2.0	9.05	
Baseline - 300C - Ambiennt (6)	W305171-06	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	1.0	5.13		2.0	10.0	
Baseline - 300C - Ambiennt (6)	W305171-06	Propionic Acid	79-09-4	74.08	T	26	< 26		50	< 50	
Baseline - 300C - Ambiennt (6)	W305171-06	Butanoic Acid	107-92-6	88.11	T	1.0	1.84		2.0	3.58	
Baseline - 300C - Ambiennt (6)	W305171-06	Toluene-d8	2037-26-5	100.21	Surr	1.0	5.33	104	2.0	10.4	
Baseline - 300C - Ambiennt (6)	W305171-06	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	1.0	5.13		2.0	10.0	
Baseline - 300C - Ambiennt (6)	W305171-06	Pentanoic Acid	109-52-4	102.13	T	1.0	1.96		2.0	3.83	
Baseline - 300C - Ambiennt (6)	W305171-06	Hexanoic Acid	142-62-1	116.16	T	1.0	1.65		2.0	3.21	
Baseline - 300C - Ambiennt (6)	W305171-06	Heptanoic Acid	111-14-8	130.18	T	1.0	3.13		2.0	6.11	
Baseline - 300C - Ambiennt (6)	W305171-06	Octanoic Acid	124-07-2	144.21	T	1.0	3.67		2.0	7.16	
Baseline - 300C - Ambiennt (6)	W305171-06	Nonanoic Acid	112-05-0	158.24	T	1.0	2.86		2.0	5.57	
Baseline - 300C - Ambiennt (6)	W305171-06	Decanoic Acid	334-48-5	172.26	T	1.0	2.71		2.0	5.28	AC
Baseline - 300C - Ambiennt (6)	W305171-06	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	1.0	4.98	97.2	2.0	9.72	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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ppbv = parts per billion volume

ug/m3 = micrograms per cubic meter

ug/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

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TIC = Tentatively Identified Compound

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c = Sample RPD failure

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E = Report concentration was above the instrumental calibration range

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673912

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Bromochloromethane	74-97-5	129.39	Int. Std	0.64	3.17		2.0	10.0	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Acetic Acid	64-19-7	60.05	T	0.64	72.7		2.0	229	E
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.64	3.05	96.0	2.0	9.60	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.64	3.17		2.0	10.0	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Propionic Acid	79-09-4	74.08	T	16	< 16		50	< 50	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Butanoic Acid	107-92-6	88.11	T	0.64	18.0		2.0	56.7	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Toluene-d8	2037-26-5	100.21	Surr	0.64	3.27	103	2.0	10.3	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.64	3.17		2.0	10.0	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Pentanoic Acid	109-52-4	102.13	T	0.64	330		2.0	1040	E
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Hexanoic Acid	142-62-1	116.16	T	0.64	19.5		2.0	61.4	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Heptanoic Acid	111-14-8	130.18	T	0.64	297		2.0	934	E
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Octanoic Acid	124-07-2	144.21	T	0.64	64.4		2.0	203	E
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Nonanoic Acid	112-05-0	158.24	T	0.64	1.34		2.0	4.23	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	Decanoic Acid	334-48-5	172.26	T	0.64	18.2		2.0	57.4	
MJ-II 315C - 5ppmw-Ambient (7)	W305171-07	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.64	3.11	98.0	2.0	9.80	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

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c = Sample RPD failure

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D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

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P = Library spectrum match, rsd >90% w RT match

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463623

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Bromochloromethane	74-97-5	129.39	Int. Std	0.70	3.51		2.0	10.0	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Acetic Acid	64-19-7	60.05	T	0.70	25.8		2.0	73.5	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.70	3.48	99.2	2.0	9.92	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.70	3.51		2.0	10.0	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Propionic Acid	79-09-4	74.08	T	18	< 18		50	< 50	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Butanoic Acid	107-92-6	88.11	T	0.70	3.36		2.0	9.57	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Toluene-d8	2037-26-5	100.21	Surr	0.70	3.65	104	2.0	10.4	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.70	3.51		2.0	10.0	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Pentanoic Acid	109-52-4	102.13	T	0.70	59.3		2.0	169	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Hexanoic Acid	142-62-1	116.16	T	0.70	3.93		2.0	11.2	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Heptanoic Acid	111-14-8	130.18	T	0.70	83.5		2.0	238	E
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Octanoic Acid	124-07-2	144.21	T	0.70	21.8		2.0	62.0	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Nonanoic Acid	112-05-0	158.24	T	0.70	1.88		2.0	5.37	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	Decanoic Acid	334-48-5	172.26	T	0.70	9.02		2.0	25.7	
MJ-II 315C - 5ppmw-Ozone In (8)	W305171-08	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.70	3.42	97.6	2.0	9.76	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673925

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.000

Broken Sample Tube on Receipt

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	< 0.67		2.0	< 2.0	S
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Acetic Acid	64-19-7	60.05	T	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	< 0.67	0.0	2.0	< 2.0	S
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Butanoic Acid	107-92-6	88.11	T	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Toluene-d8	2037-26-5	100.21	Surr	0.67	< 0.67	0	2.0	< 2.0	S
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Pentanoic Acid	109-52-4	102.13	T	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Hexanoic Acid	142-62-1	116.16	T	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Heptanoic Acid	111-14-8	130.18	T	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Octanoic Acid	124-07-2	144.21	T	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Nonanoic Acid	112-05-0	158.24	T	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	Decanoic Acid	334-48-5	172.26	T	0.67	< 0.67		2.0	< 2.0	
MJ-II 315C - 5ppmw-Ozone Out (9)	W305171-09	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	< 0.67	0.0	2.0	< 2.0	S

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram

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T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

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TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673915

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/16/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Bromochloromethane	74-97-5	129.39	Int. Std	0.70	3.51		2.0	10.0	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Acetic Acid	64-19-7	60.05	T	0.70	18.8		2.0	53.7	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.70	3.22	91.7	2.0	9.17	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.70	3.51		2.0	10.0	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Propionic Acid	79-09-4	74.08	T	18	< 18		50	< 50	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Butanoic Acid	107-92-6	88.11	T	0.70	1.88		2.0	5.35	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Toluene-d8	2037-26-5	100.21	Surr	0.70	3.65	104	2.0	10.4	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.70	3.51		2.0	10.0	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Pentanoic Acid	109-52-4	102.13	T	0.70	4.74		2.0	13.5	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Hexanoic Acid	142-62-1	116.16	T	0.70	1.62		2.0	4.62	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Heptanoic Acid	111-14-8	130.18	T	0.70	3.04		2.0	8.67	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Octanoic Acid	124-07-2	144.21	T	0.70	2.83		2.0	8.06	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Nonanoic Acid	112-05-0	158.24	T	0.70	1.98		2.0	5.64	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	Decanoic Acid	334-48-5	172.26	T	0.70	2.49		2.0	7.11	
MJ-II 315C - 5ppmw-Ambiennt (10)	W305171-10	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.70	3.44	98.1	2.0	9.81	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
673919

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory
 2710 North 20th Avenue, Pasco WA 99301
 Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 1.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Field Blank - (11)	W305171-11	Bromochloromethane	74-97-5	129.39	Int. Std	2.0	10.0		2.0	10.0	
Field Blank - (11)	W305171-11	Acetic Acid	64-19-7	60.05	T	2.0	29.2		2.0	29.2	
Field Blank - (11)	W305171-11	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	2.0	9.10	91.0	2.0	9.10	
Field Blank - (11)	W305171-11	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	2.0	10.0		2.0	10.0	
Field Blank - (11)	W305171-11	Propionic Acid	79-09-4	74.08	T	50	< 50		50	< 50	
Field Blank - (11)	W305171-11	Butanoic Acid	107-92-6	88.11	T	2.0	< 2.0		2.0	< 2.0	
Field Blank - (11)	W305171-11	Toluene-d8	2037-26-5	100.21	Surr	2.0	10.3	103	2.0	10.3	
Field Blank - (11)	W305171-11	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	2.0	10.0		2.0	10.0	
Field Blank - (11)	W305171-11	Pentanoic Acid	109-52-4	102.13	T	2.0	< 2.0		2.0	< 2.0	
Field Blank - (11)	W305171-11	Hexanoic Acid	142-62-1	116.16	T	2.0	< 2.0		2.0	< 2.0	
Field Blank - (11)	W305171-11	Heptanoic Acid	111-14-8	130.18	T	2.0	< 2.0		2.0	< 2.0	
Field Blank - (11)	W305171-11	Octanoic Acid	124-07-2	144.21	T	2.0	< 2.0		2.0	< 2.0	
Field Blank - (11)	W305171-11	Nonanoic Acid	112-05-0	158.24	T	2.0	< 2.0		2.0	< 2.0	
Field Blank - (11)	W305171-11	Decanoic Acid	334-48-5	172.26	T	2.0	< 2.0		2.0	< 2.0	
Field Blank - (11)	W305171-11	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	2.0	9.75	97.5	2.0	9.75	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

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Authorized Signature: 
 Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

673921

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL	Result	Surr %	RL ng/tube	Result	Qualifier
Client	RJLG	Analyte	Number			µg/m3	µg/m3	REC		ng/tube	
Baseline - 300C - Ambient (12)	W305171-12	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - Ambient (12)	W305171-12	Acetic Acid	64-19-7	60.05	T	0.67	14.0		2.0	42.1	
Baseline - 300C - Ambient (12)	W305171-12	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.24	97.1	2.0	9.71	
Baseline - 300C - Ambient (12)	W305171-12	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - Ambient (12)	W305171-12	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
Baseline - 300C - Ambient (12)	W305171-12	Butanoic Acid	107-92-6	88.11	T	0.67	2.30		2.0	6.90	
Baseline - 300C - Ambient (12)	W305171-12	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.47	104	2.0	10.4	
Baseline - 300C - Ambient (12)	W305171-12	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - Ambient (12)	W305171-12	Pentanoic Acid	109-52-4	102.13	T	0.67	13.8		2.0	41.3	
Baseline - 300C - Ambient (12)	W305171-12	Hexanoic Acid	142-62-1	116.16	T	0.67	1.77		2.0	5.32	
Baseline - 300C - Ambient (12)	W305171-12	Heptanoic Acid	111-14-8	130.18	T	0.67	29.0		2.0	86.9	
Baseline - 300C - Ambient (12)	W305171-12	Octanoic Acid	124-07-2	144.21	T	0.67	11.5		2.0	34.6	
Baseline - 300C - Ambient (12)	W305171-12	Nonanoic Acid	112-05-0	158.24	T	0.67	1.19		2.0	3.57	
Baseline - 300C - Ambient (12)	W305171-12	Decanoic Acid	334-48-5	172.26	T	0.67	6.67		2.0	20.0	
Baseline - 300C - Ambient (12)	W305171-12	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.26	97.9	2.0	9.79	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
463636

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
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Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL	Result	Surr %	RL ng/tube	Result	Qualifier
Client	RJLG	Analyte	Number			µg/m3	µg/m3	REC		ng/tube	
Baseline - 300C - Ozone In (13)	W305171-13	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - Ozone In (13)	W305171-13	Acetic Acid	64-19-7	60.05	T	0.67	7.87		2.0	23.6	
Baseline - 300C - Ozone In (13)	W305171-13	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.03	90.9	2.0	9.09	
Baseline - 300C - Ozone In (13)	W305171-13	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - Ozone In (13)	W305171-13	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
Baseline - 300C - Ozone In (13)	W305171-13	Butanoic Acid	107-92-6	88.11	T	0.67	1.24		2.0	3.71	
Baseline - 300C - Ozone In (13)	W305171-13	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.47	104	2.0	10.4	
Baseline - 300C - Ozone In (13)	W305171-13	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - Ozone In (13)	W305171-13	Pentanoic Acid	109-52-4	102.13	T	0.67	6.57		2.0	19.7	
Baseline - 300C - Ozone In (13)	W305171-13	Hexanoic Acid	142-62-1	116.16	T	0.67	1.05		2.0	3.14	
Baseline - 300C - Ozone In (13)	W305171-13	Heptanoic Acid	111-14-8	130.18	T	0.67	10.2		2.0	30.7	
Baseline - 300C - Ozone In (13)	W305171-13	Octanoic Acid	124-07-2	144.21	T	0.67	4.17		2.0	12.5	
Baseline - 300C - Ozone In (13)	W305171-13	Nonanoic Acid	112-05-0	158.24	T	0.67	1.87		2.0	5.60	
Baseline - 300C - Ozone In (13)	W305171-13	Decanoic Acid	334-48-5	172.26	T	0.67	2.68		2.0	8.04	
Baseline - 300C - Ozone In (13)	W305171-13	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.30	99.0	2.0	9.90	

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09/19/23

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EPA Compendium Method TO-17-Modified
Tenax
673938

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 2.700

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
Baseline - 300C - Ozone Out (14)	W305171-14	Bromochloromethane	74-97-5	129.39	Int. Std	0.74	3.70		2.0	10.0	
Baseline - 300C - Ozone Out (14)	W305171-14	Acetic Acid	64-19-7	60.05	T	0.74	20.4		2.0	55.1	
Baseline - 300C - Ozone Out (14)	W305171-14	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.74	3.46	93.5	2.0	9.35	
Baseline - 300C - Ozone Out (14)	W305171-14	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.74	3.70		2.0	10.0	
Baseline - 300C - Ozone Out (14)	W305171-14	Propionic Acid	79-09-4	74.08	T	19	< 19		50	< 50	
Baseline - 300C - Ozone Out (14)	W305171-14	Butanoic Acid	107-92-6	88.11	T	0.74	4.37		2.0	11.8	
Baseline - 300C - Ozone Out (14)	W305171-14	Toluene-d8	2037-26-5	100.21	Surr	0.74	3.85	104	2.0	10.4	
Baseline - 300C - Ozone Out (14)	W305171-14	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.74	3.70		2.0	10.0	
Baseline - 300C - Ozone Out (14)	W305171-14	Pentanoic Acid	109-52-4	102.13	T	0.74	48.1		2.0	130	
Baseline - 300C - Ozone Out (14)	W305171-14	Hexanoic Acid	142-62-1	116.16	T	0.74	2.87		2.0	7.76	
Baseline - 300C - Ozone Out (14)	W305171-14	Heptanoic Acid	111-14-8	130.18	T	0.74	35.6		2.0	96.1	
Baseline - 300C - Ozone Out (14)	W305171-14	Octanoic Acid	124-07-2	144.21	T	0.74	9.33		2.0	25.2	
Baseline - 300C - Ozone Out (14)	W305171-14	Nonanoic Acid	112-05-0	158.24	T	0.74	1.29		2.0	3.47	
Baseline - 300C - Ozone Out (14)	W305171-14	Decanoic Acid	334-48-5	172.26	T	0.74	2.74		2.0	7.41	
Baseline - 300C - Ozone Out (14)	W305171-14	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.74	3.64	98.3	2.0	9.83	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram

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ug/Kg = micrograms per kilogram

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N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

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Qualifiers

c = Sample RPD failure

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p = Positively identified compound, for non-calibrated compounds

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P = Library spectrum match, rsd >90% w RT match

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S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
463638

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Client: Kansas State University
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Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	µg/m3	µg/m3	REC	RL ng/tube	ng/tube	Qualifier
Baseline - 300C - AAmbiennt (15)	W305171-15	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - AAmbiennt (15)	W305171-15	Acetic Acid	64-19-7	60.05	T	0.67	10.9		2.0	32.8	
Baseline - 300C - AAmbiennt (15)	W305171-15	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.06	91.8	2.0	9.18	
Baseline - 300C - AAmbiennt (15)	W305171-15	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - AAmbiennt (15)	W305171-15	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
Baseline - 300C - AAmbiennt (15)	W305171-15	Butanoic Acid	107-92-6	88.11	T	0.67	1.01		2.0	3.04	
Baseline - 300C - AAmbiennt (15)	W305171-15	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.43	103	2.0	10.3	
Baseline - 300C - AAmbiennt (15)	W305171-15	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
Baseline - 300C - AAmbiennt (15)	W305171-15	Pentanoic Acid	109-52-4	102.13	T	0.67	0.903		2.0	2.71	
Baseline - 300C - AAmbiennt (15)	W305171-15	Hexanoic Acid	142-62-1	116.16	T	0.67	0.767		2.0	2.30	
Baseline - 300C - AAmbiennt (15)	W305171-15	Heptanoic Acid	111-14-8	130.18	T	0.67	1.01		2.0	3.02	
Baseline - 300C - AAmbiennt (15)	W305171-15	Octanoic Acid	124-07-2	144.21	T	0.67	1.36		2.0	4.07	
Baseline - 300C - AAmbiennt (15)	W305171-15	Nonanoic Acid	112-05-0	158.24	T	0.67	1.12		2.0	3.37	
Baseline - 300C - AAmbiennt (15)	W305171-15	Decanoic Acid	334-48-5	172.26	T	0.67	1.10		2.0	3.29	
Baseline - 300C - AAmbiennt (15)	W305171-15	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.23	97.0	2.0	9.70	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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463648

Client: Kansas State University
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 Attention: Dr. Byron Jones
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 Fax:

Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Bromochloromethane	74-97-5	129.39	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Acetic Acid	64-19-7	60.05	T	0.70	36.5		2.0	104	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.70	3.49	99.4	2.0	9.94	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Propionic Acid	79-09-4	74.08	T	18	< 18		50	< 50	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Butanoic Acid	107-92-6	88.11	T	0.70	19.7		2.0	56.2	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Toluene-d8	2037-26-5	100.21	Surr	0.70	3.61	103	2.0	10.3	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Pentanoic Acid	109-52-4	102.13	T	0.70	639		2.0	1820	E
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Hexanoic Acid	142-62-1	116.16	T	0.70	8.77		2.0	25.0	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Heptanoic Acid	111-14-8	130.18	T	0.70	249		2.0	710	E
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Octanoic Acid	124-07-2	144.21	T	0.70	23.0		2.0	65.6	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Nonanoic Acid	112-05-0	158.24	T	0.70	43.5		2.0	124	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	Decanoic Acid	334-48-5	172.26	T	0.70	26.8		2.0	76.3	
2197 - 312C - 5ppmw - Ambient (16)	W305171-16	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.70	3.45	98.2	2.0	9.82	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Air & Emissions
Volume 3.000

RJLG Lab #: W305171
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Sample ID			CAS			RL	Result	Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	µg/m3	µg/m3	REC	RL ng/tube	ng/tube	Qualifier
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Acetic Acid	64-19-7	60.05	T	0.67	12.1		2.0	36.2	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.32	99.6	2.0	9.96	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Butanoic Acid	107-92-6	88.11	T	0.67	1.64		2.0	4.93	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.43	103	2.0	10.3	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Pentanoic Acid	109-52-4	102.13	T	0.67	32.7		2.0	98.1	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Hexanoic Acid	142-62-1	116.16	T	0.67	1.36		2.0	4.07	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Heptanoic Acid	111-14-8	130.18	T	0.67	24.6		2.0	73.7	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Octanoic Acid	124-07-2	144.21	T	0.67	7.67		2.0	23.0	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Nonanoic Acid	112-05-0	158.24	T	0.67	8.37		2.0	25.1	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	Decanoic Acid	334-48-5	172.26	T	0.67	6.03		2.0	18.1	
2197 - 312C - 5ppmw - Ozone In (17)	W305171-17	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.28	98.5	2.0	9.85	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Air & Emissions
Volume 2.850

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 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Bromochloromethane	74-97-5	129.39	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Acetic Acid	64-19-7	60.05	T	0.70	51.9		2.0	148	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.70	3.58	101.9	2.0	10.2	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Propionic Acid	79-09-4	74.08	T	18	< 18		50	< 50	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Butanoic Acid	107-92-6	88.11	T	0.70	26.4		2.0	75.1	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Toluene-d8	2037-26-5	100.21	Surr	0.70	3.61	103	2.0	10.3	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Pentanoic Acid	109-52-4	102.13	T	0.70	632		2.0	1800	E
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Hexanoic Acid	142-62-1	116.16	T	0.70	12.1		2.0	34.5	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Heptanoic Acid	111-14-8	130.18	T	0.70	227		2.0	648	E
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Octanoic Acid	124-07-2	144.21	T	0.70	30.8		2.0	87.8	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Nonanoic Acid	112-05-0	158.24	T	0.70	5.37		2.0	15.3	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	Decanoic Acid	334-48-5	172.26	T	0.70	7.30		2.0	20.8	
2197 - 312C - 5ppmw - Aozone Out (18)	W305171-18	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.70	3.41	97.3	2.0	9.73	

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p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463635

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Bromochloromethane	74-97-5	129.39	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Acetic Acid	64-19-7	60.05	T	0.70	11.0		2.0	31.4	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.70	3.16	90.2	2.0	9.02	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Propionic Acid	79-09-4	74.08	T	18	< 18		50	< 50	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Butanoic Acid	107-92-6	88.11	T	0.70	1.14		2.0	3.26	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Toluene-d8	2037-26-5	100.21	Surr	0.70	3.65	104	2.0	10.4	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.70	3.51		2.0	10.0	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Pentanoic Acid	109-52-4	102.13	T	0.70	1.83		2.0	5.21	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Hexanoic Acid	142-62-1	116.16	T	0.70	0.870		2.0	2.48	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Heptanoic Acid	111-14-8	130.18	T	0.70	1.65		2.0	4.70	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Octanoic Acid	124-07-2	144.21	T	0.70	1.86		2.0	5.29	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Nonanoic Acid	112-05-0	158.24	T	0.70	1.61		2.0	4.59	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	Decanoic Acid	334-48-5	172.26	T	0.70	1.84		2.0	5.25	
2197 - 312C - 5ppmw - Ambiennt (19)	W305171-19	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.70	3.44	97.9	2.0	9.79	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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µg/Kg = micrograms per kilogram

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N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

T = Target Analyte

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

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Authorized Signature:

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09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

673918

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Acetic Acid	64-19-7	60.05	T	0.67	17.9		2.0	53.6	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.19	95.8	2.0	9.58	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Butanoic Acid	107-92-6	88.11	T	0.67	5.13		2.0	15.4	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.43	103	2.0	10.3	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Pentanoic Acid	109-52-4	102.13	T	0.67	407		2.0	1220	E
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Hexanoic Acid	142-62-1	116.16	T	0.67	3.47		2.0	10.4	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Heptanoic Acid	111-14-8	130.18	T	0.67	151		2.0	452	E
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Octanoic Acid	124-07-2	144.21	T	0.67	11.2		2.0	33.6	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Nonanoic Acid	112-05-0	158.24	T	0.67	21.3		2.0	63.9	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	Decanoic Acid	334-48-5	172.26	T	0.67	9.17		2.0	27.5	
2197 - 220C - 5ppmw - Ambient (20)	W305171-20	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.21	96.3	2.0	9.63	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

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TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463625

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.000

W305171

05/23/23

06/14/23

09/19/23

05/17/23

0

Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Acetic Acid	64-19-7	60.05	T	0.67	5.70		2.0	17.1	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	1,2-Dichloroethane-d4	17060-07-0	2.0	Surr	0.67	3.11	93.3	2.0	9.33	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	1,4-Difluorobenzene	540-36-3	2.0	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Propionic Acid	79-09-4	50	T	17	< 17		50	< 50	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Butanoic Acid	107-92-6	2.0	T	0.67	0.947		2.0	2.84	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Toluene-d8	2037-26-5	2.0	Surr	0.67	3.47	104	2.0	10.4	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Chlorobenzene-d5	3114-55-4	2.0	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Pentanoic Acid	109-52-4	2.0	T	0.67	4.87		2.0	14.6	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Hexanoic Acid	142-62-1	2.0	T	0.67	< 0.67		2.0	< 2.0	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Heptanoic Acid	111-14-8	2.0	T	0.67	4.17		2.0	12.5	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Octanoic Acid	124-07-2	2.0	T	0.67	1.70		2.0	5.11	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Nonanoic Acid	112-05-0	2.0	T	0.67	2.53		2.0	7.60	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	Decanoic Acid	334-48-5	2.0	T	0.67	2.31		2.0	6.94	
2197 - 220C - 5ppmw - Ozone In (21)	W305171-21	4-Bromofluorobenzene (BFB)	460-00-4	2.0	Surr	0.67	3.26	97.7	2.0	9.77	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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N/A = Not Applicable

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

Date

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463625

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/17/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	µg/m3	µg/m3	REC	RL ng/tube	ng/tube	Qualifier
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Bromochloromethane	74-97-5	2.0	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Acetic Acid	64-19-7	2.0	T	0.67	26.3		2.0	78.9	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	1,2-Dichloroethane-d4	17060-07-0	2.0	Surr	0.67	3.28	98.4	2.0	9.84	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	1,4-Difluorobenzene	540-36-3	2.0	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Propionic Acid	79-09-4	50	T	17	< 17		50	< 50	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Butanoic Acid	107-92-6	2.0	T	0.67	5.83		2.0	17.5	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Toluene-d8	2037-26-5	2.0	Surr	0.67	3.50	105	2.0	10.5	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Chlorobenzene-d5	3114-55-4	2.0	Int. Std	0.67	3.33		2.0	10.0	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Pentanoic Acid	109-52-4	2.0	T	0.67	272		2.0	816	E
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Hexanoic Acid	142-62-1	2.0	T	0.67	4.10		2.0	12.3	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Heptanoic Acid	111-14-8	2.0	T	0.67	85.3		2.0	256	E
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Octanoic Acid	124-07-2	2.0	T	0.67	10.8		2.0	32.3	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Nonanoic Acid	112-05-0	2.0	T	0.67	9.13		2.0	27.4	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	Decanoic Acid	334-48-5	2.0	T	0.67	5.43		2.0	16.3	
2197 - 220C - 5ppmw - Ozone Out (22)	W305171-22	4-Bromofluorobenzene (BFB)	460-00-4	2.0	Surr	0.67	3.25	97.5	2.0	9.75	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Authorized Signature:

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Date

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
673927

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 e-mail:

Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#

Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Acetic Acid	64-19-7	60.05	T	0.67	6.50		2.0	19.5	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.03	90.8	2.0	9.08	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Butanoic Acid	107-92-6	88.11	T	0.67	< 0.67		2.0	< 2.0	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.47	104	2.0	10.4	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Pentanoic Acid	109-52-4	102.13	T	0.67	5.33		2.0	16.0	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Hexanoic Acid	142-62-1	116.16	T	0.67	< 0.67		2.0	< 2.0	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Heptanoic Acid	111-14-8	130.18	T	0.67	2.06		2.0	6.18	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Octanoic Acid	124-07-2	144.21	T	0.67	1.42		2.0	4.26	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Nonanoic Acid	112-05-0	158.24	T	0.67	1.38		2.0	4.14	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	Decanoic Acid	334-48-5	172.26	T	0.67	1.26		2.0	3.78	
2197-220C-5ppmw-Ambiennt (23)	W305171-23	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.28	98.3	2.0	9.83	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram

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ug/m3 = micrograms per cubic meter

µg/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match


Q = Qualitative results for non detects

R = Analyte %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature: 
 Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax TDU Tube

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

463634

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Acetic Acid	64-19-7	60.05	T	0.67	32.0		2.0	96.1	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.04	91.2	2.0	9.12	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Butanoic Acid	107-92-6	88.11	T	0.67	13.5		2.0	40.4	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.47	104	2.0	10.4	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Pentanoic Acid	109-52-4	102.13	T	0.67	853		2.0	2560	E
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Hexanoic Acid	142-62-1	116.16	T	0.67	35.3		2.0	106	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Heptanoic Acid	111-14-8	130.18	T	0.67	800		2.0	2400	E
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Octanoic Acid	124-07-2	144.21	T	0.67	172		2.0	517	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Nonanoic Acid	112-05-0	158.24	T	0.67	49.3		2.0	148	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	Decanoic Acid	334-48-5	172.26	T	0.67	8.37		2.0	25.1	
MJ-II-220C-10ppmw-Ambient (24)	W305171-24	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.31	99.2	2.0	9.92	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

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E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

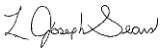
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Authorized Signature: 
 Laboratory Technical Manager - Dr. Joe Sears

Date: 09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
673940

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 2.850

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	µg/m3	µg/m3	REC	RL ng/tube	ng/tube	Qualifier
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Bromochloromethane	74-97-5	129.39	Int. Std	0.70	3.51		2.0	10.0	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Acetic Acid	64-19-7	60.05	T	0.70	17.4		2.0	49.6	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.70	3.44	97.9	2.0	9.79	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.70	3.51		2.0	10.0	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Propionic Acid	79-09-4	74.08	T	18	< 18		50	< 50	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Butanoic Acid	107-92-6	88.11	T	0.70	2.07		2.0	5.89	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Toluene-d8	2037-26-5	100.21	Surr	0.70	3.61	103	2.0	10.3	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.70	3.51		2.0	10.0	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Pentanoic Acid	109-52-4	102.13	T	0.70	35.4		2.0	101	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Hexanoic Acid	142-62-1	116.16	T	0.70	2.42		2.0	6.91	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Heptanoic Acid	111-14-8	130.18	T	0.70	42.5		2.0	121	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Octanoic Acid	124-07-2	144.21	T	0.70	12.1		2.0	34.5	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Nonanoic Acid	112-05-0	158.24	T	0.70	2.15		2.0	6.12	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	Decanoic Acid	334-48-5	172.26	T	0.70	8.49		2.0	24.2	
MJ-II-220C-10ppmw-Ozone In (25)	W305171-25	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.70	3.40	97.0	2.0	9.70	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Int. Std = Internal Standard

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Qualifiers

c = Sample RPD failure

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

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Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
463642

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Acetic Acid	64-19-7	60.05	T	0.67	19.5		2.0	58.6	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.02	90.7	2.0	9.07	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Butanoic Acid	107-92-6	88.11	T	0.67	12.0		2.0	36.0	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.40	102	2.0	10.2	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Pentanoic Acid	109-52-4	102.13	T	0.67	268		2.0	804	E
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Hexanoic Acid	142-62-1	116.16	T	0.67	12.5		2.0	37.6	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Heptanoic Acid	111-14-8	130.18	T	0.67	173		2.0	520	E
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Octanoic Acid	124-07-2	144.21	T	0.67	18.5		2.0	55.4	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Nonanoic Acid	112-05-0	158.24	T	0.67	12.2		2.0	36.7	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	Decanoic Acid	334-48-5	172.26	T	0.67	8.77		2.0	26.3	
MJ-II-220C-10ppmw-Ozone Out (26)	W305171-26	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.26	97.7	2.0	9.77	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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µg/Kg = micrograms per kilogram

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N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

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D = Diluted sample

E = Report concentration was above the instrumental calibration range

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J = Reported concentration was estimated

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified
Tenax
673937

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Bromochloromethane	74-97-5	129.39	Int. Std	0.64	3.17		2.0	10.0	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Acetic Acid	64-19-7	60.05	T	0.64	6.35		2.0	20.0	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.64	3.02	95.1	2.0	9.51	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.64	3.17		2.0	10.0	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Propionic Acid	79-09-4	74.08	T	16	< 16		50	< 50	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Butanoic Acid	107-92-6	88.11	T	0.64	1.22		2.0	3.83	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Toluene-d8	2037-26-5	100.21	Surr	0.64	3.30	104	2.0	10.4	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.64	3.17		2.0	10.0	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Pentanoic Acid	109-52-4	102.13	T	0.64	26.9		2.0	84.7	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Hexanoic Acid	142-62-1	116.16	T	0.64	2.04		2.0	6.44	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Heptanoic Acid	111-14-8	130.18	T	0.64	24.0		2.0	75.6	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Octanoic Acid	124-07-2	144.21	T	0.64	2.86		2.0	9.00	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Nonanoic Acid	112-05-0	158.24	T	0.64	2.05		2.0	6.47	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	Decanoic Acid	334-48-5	172.26	T	0.64	1.57		2.0	4.94	
MJ-II-220C-10ppmw-Ambiennt (27)	W305171-27	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.64	3.09	97.4	2.0	9.74	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463650

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
Baseline-220C-Ozone In (28)	W305171-28	Bromochloromethane	74-97-5	129.39	Int. Std	0.64	3.17		2.0	10.0	
Baseline-220C-Ozone In (28)	W305171-28	Acetic Acid	64-19-7	60.05	T	0.64	7.84		2.0	24.7	
Baseline-220C-Ozone In (28)	W305171-28	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.64	2.88	90.7	2.0	9.07	
Baseline-220C-Ozone In (28)	W305171-28	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.64	3.17		2.0	10.0	
Baseline-220C-Ozone In (28)	W305171-28	Propionic Acid	79-09-4	74.08	T	16	< 16		50	< 50	
Baseline-220C-Ozone In (28)	W305171-28	Butanoic Acid	107-92-6	88.11	T	0.64	1.40		2.0	4.41	
Baseline-220C-Ozone In (28)	W305171-28	Toluene-d8	2037-26-5	100.21	Surr	0.64	3.30	104	2.0	10.4	
Baseline-220C-Ozone In (28)	W305171-28	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.64	3.17		2.0	10.0	
Baseline-220C-Ozone In (28)	W305171-28	Pentanoic Acid	109-52-4	102.13	T	0.64	10.0		2.0	31.5	
Baseline-220C-Ozone In (28)	W305171-28	Hexanoic Acid	142-62-1	116.16	T	0.64	1.24		2.0	3.90	
Baseline-220C-Ozone In (28)	W305171-28	Heptanoic Acid	111-14-8	130.18	T	0.64	10.2		2.0	32.1	
Baseline-220C-Ozone In (28)	W305171-28	Octanoic Acid	124-07-2	144.21	T	0.64	3.27		2.0	10.3	
Baseline-220C-Ozone In (28)	W305171-28	Nonanoic Acid	112-05-0	158.24	T	0.64	1.76		2.0	5.53	
Baseline-220C-Ozone In (28)	W305171-28	Decanoic Acid	334-48-5	172.26	T	0.64	2.02		2.0	6.36	
Baseline-220C-Ozone In (28)	W305171-28	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.64	3.10	97.6	2.0	9.76	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

ng = nanogram

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ug/m3 = micrograms per cubic meter

µg/Kg = micrograms per kilogram

BDL = Below Detection Limit

N/A = Not Applicable

ND = Not detected. Qualitative analysis

T = Target Analyte

Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

Qualifiers

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B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

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N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

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TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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Air & Emissions
Volume 3.000

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID											
Client	RJLG	Analyte	CAS Number	MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Baseline-220C-Ozone Out (29)	W305171-29	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
Baseline-220C-Ozone Out (29)	W305171-29	Acetic Acid	64-19-7	60.05	T	0.67	25.4		2.0	76.2	
Baseline-220C-Ozone Out (29)	W305171-29	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.06	91.7	2.0	9.17	
Baseline-220C-Ozone Out (29)	W305171-29	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
Baseline-220C-Ozone Out (29)	W305171-29	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
Baseline-220C-Ozone Out (29)	W305171-29	Butanoic Acid	107-92-6	88.11	T	0.67	5.83		2.0	17.5	
Baseline-220C-Ozone Out (29)	W305171-29	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.43	103	2.0	10.3	
Baseline-220C-Ozone Out (29)	W305171-29	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
Baseline-220C-Ozone Out (29)	W305171-29	Pentanoic Acid	109-52-4	102.13	T	0.67	137		2.0	411	E
Baseline-220C-Ozone Out (29)	W305171-29	Hexanoic Acid	142-62-1	116.16	T	0.67	8.53		2.0	25.6	
Baseline-220C-Ozone Out (29)	W305171-29	Heptanoic Acid	111-14-8	130.18	T	0.67	249		2.0	748	E
Baseline-220C-Ozone Out (29)	W305171-29	Octanoic Acid	124-07-2	144.21	T	0.67	54.7		2.0	164	
Baseline-220C-Ozone Out (29)	W305171-29	Nonanoic Acid	112-05-0	158.24	T	0.67	17.3		2.0	51.9	
Baseline-220C-Ozone Out (29)	W305171-29	Decanoic Acid	334-48-5	172.26	T	0.67	7.43		2.0	22.3	
Baseline-220C-Ozone Out (29)	W305171-29	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.25	97.5	2.0	9.75	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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N/A = Not Applicable

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Qualifiers

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

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LABORATORY REPORT
EPA Compendium Method TO-17-Modified

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673636

Client: Kansas State University
 Address: 245 Levee Drive
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 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO# 0
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG										
Baseline-220C-Ambiennt (30)	W305171-30	Bromochloromethane	74-97-5	129.39	Int. Std	0.64	3.17		2.0	10.0	
Baseline-220C-Ambiennt (30)	W305171-30	Acetic Acid	64-19-7	60.05	T	0.64	8.86		2.0	27.9	
Baseline-220C-Ambiennt (30)	W305171-30	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.64	3.03	95.6	2.0	9.56	
Baseline-220C-Ambiennt (30)	W305171-30	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.64	3.17		2.0	10.0	
Baseline-220C-Ambiennt (30)	W305171-30	Propionic Acid	79-09-4	74.08	T	16	< 16		50	< 50	
Baseline-220C-Ambiennt (30)	W305171-30	Butanoic Acid	107-92-6	88.11	T	0.64	1.07		2.0	3.38	
Baseline-220C-Ambiennt (30)	W305171-30	Toluene-d8	2037-26-5	100.21	Surr	0.64	3.27	103	2.0	10.3	
Baseline-220C-Ambiennt (30)	W305171-30	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.64	3.17		2.0	10.0	
Baseline-220C-Ambiennt (30)	W305171-30	Pentanoic Acid	109-52-4	102.13	T	0.64	2.78		2.0	8.76	
Baseline-220C-Ambiennt (30)	W305171-30	Hexanoic Acid	142-62-1	116.16	T	0.64	< 0.64		2.0	< 2.0	
Baseline-220C-Ambiennt (30)	W305171-30	Heptanoic Acid	111-14-8	130.18	T	0.64	6.32		2.0	19.9	
Baseline-220C-Ambiennt (30)	W305171-30	Octanoic Acid	124-07-2	144.21	T	0.64	3.21		2.0	10.1	
Baseline-220C-Ambiennt (30)	W305171-30	Nonanoic Acid	112-05-0	158.24	T	0.64	1.34		2.0	4.23	
Baseline-220C-Ambiennt (30)	W305171-30	Decanoic Acid	334-48-5	172.26	T	0.64	1.01		2.0	3.17	
Baseline-220C-Ambiennt (30)	W305171-30	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.64	3.07	96.8	2.0	9.68	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		MW	Type	RL µg/m3	Result µg/m3	Surr % REC	RL ng/tube	Result ng/tube	Qualifier
Client	RJLG	Analyte	Number								
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Bromochloromethane	74-97-5	129.39	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Acetic Acid	64-19-7	60.05	T	0.64	12.5		2.0	39.4	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.64	2.90	91.2	2.0	9.12	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Propionic Acid	79-09-4	74.08	T	16	< 16		50	< 50	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Butanoic Acid	107-92-6	88.11	T	0.64	16.3		2.0	51.5	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Toluene-d8	2037-26-5	100.21	Surr	0.64	3.27	103	2.0	10.3	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Pentanoic Acid	109-52-4	102.13	T	0.64	44.4		2.0	140	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Hexanoic Acid	142-62-1	116.16	T	0.64	3.27		2.0	10.3	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Heptanoic Acid	111-14-8	130.18	T	0.64	73.3		2.0	231	E
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Octanoic Acid	124-07-2	144.21	T	0.64	23.9		2.0	75.3	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Nonanoic Acid	112-05-0	158.24	T	0.64	6.41		2.0	20.2	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	Decanoic Acid	334-48-5	172.26	T	0.64	16.3		2.0	51.4	
Skydrol-220C-5ppmw-Ambient (31)	W305171-31	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.64	3.07	96.8	2.0	9.68	

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Client	RJLG	Analyte	Number								
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Bromochloromethane	74-97-5	129.39	Int. Std	0.67	3.33		2.0	10.0	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Acetic Acid	64-19-7	60.05	T	0.67	11.8		2.0	35.4	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	1,2-Dichloroethane-d4	17060-07-0	102.99	Surr	0.67	3.02	90.5	2.0	9.05	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	1,4-Difluorobenzene	540-36-3	114.09	Int. Std	0.67	3.33		2.0	10.0	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Propionic Acid	79-09-4	74.08	T	17	< 17		50	< 50	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Butanoic Acid	107-92-6	88.11	T	0.67	4.47		2.0	13.4	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Toluene-d8	2037-26-5	100.21	Surr	0.67	3.40	102	2.0	10.2	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Chlorobenzene-d5	3114-55-4	117.56	Int. Std	0.67	3.33		2.0	10.0	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Pentanoic Acid	109-52-4	102.13	T	0.67	4.07		2.0	12.2	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Hexanoic Acid	142-62-1	116.16	T	0.67	1.10		2.0	3.30	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Heptanoic Acid	111-14-8	130.18	T	0.67	3.87		2.0	11.6	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Octanoic Acid	124-07-2	144.21	T	0.67	1.97		2.0	5.90	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Nonanoic Acid	112-05-0	158.24	T	0.67	1.59		2.0	4.77	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	Decanoic Acid	334-48-5	172.26	T	0.67	1.44		2.0	4.33	
Skydrol-220C-5ppmw-Ozone In (31)	W305171-32	4-Bromofluorobenzene (BFB)	460-00-4	175.01	Surr	0.67	3.24	97.3	2.0	9.73	

*Comments: Samples and RLs have been adjusted for analysis volumes and dilution factors, where appropriate. Tentatively Identified Compound concentrations are based on the total ion current response with respect to the nearest internal standard.

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 µg/Kg = micrograms per kilogram

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 ND = Not detected. Qualitative analysis
 Surr = Surrogate Compound
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 T = Target Analyte
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Qualifiers

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 P = Library spectrum match, rsd >90% w RT match
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 S = Surrogate recovery failure
 TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns.
 X = Detected but not quantifiable

Authorized Signature: _____
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23

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LABORATORY REPORT

EPA Compendium Method TO-17-Modified

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Tenax

463644

Client: Kansas State University
 Address: 245 Levee Drive
 Manhattan, KS 66502
 Attention: Dr. Byron Jones
 Telephone: 785-532-5620
 Fax:

Air & Emissions
Volume 3.150

W305171
 05/23/23
 06/14/23
 09/19/23
 05/18/23
 0
 Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	µg/m3	µg/m3	REC	RL ng/tube	ng/tube	Qualifier
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Bromochloromethane	74-97-5	129.39	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Acetic Acid	64-19-7	60.05	T	0.64	14.8		2.0	46.5	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	1,2-Dichloroethane-d4	17060-07-0	2.0	Surr	0.64	3.02	95.0	2.0	9.50	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	1,4-Difluorobenzene	540-36-3	2.0	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Propionic Acid	79-09-4	50	T	16	< 16		50	< 50	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Butanoic Acid	107-92-6	2.0	T	0.64	15.0		2.0	47.1	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Toluene-d8	2037-26-5	2.0	Surr	0.64	3.27	103	2.0	10.3	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Chlorobenzene-d5	3114-55-4	2.0	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Pentanoic Acid	109-52-4	2.0	T	0.64	70.5		2.0	222	E
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Hexanoic Acid	142-62-1	2.0	T	0.64	4.67		2.0	14.7	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Heptanoic Acid	111-14-8	2.0	T	0.64	148		2.0	467	E
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Octanoic Acid	124-07-2	2.0	T	0.64	44.8		2.0	141	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Nonanoic Acid	112-05-0	2.0	T	0.64	13.6		2.0	42.8	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	Decanoic Acid	334-48-5	2.0	T	0.64	5.90		2.0	18.6	
Skydrol-220C-5ppmw-Ozone Out (33)	W305171-33	4-Bromofluorobenzene (BFB)	460-00-4	2.0	Surr	0.64	3.07	96.8	2.0	9.68	

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

Date

09/19/23

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Air & Emissions
Volume 3.150

RJLG Lab #: W305171
 Samples Received: 05/23/23
 Analysis Date: 06/14/23
 Report Date: 09/19/23
 Sampling Date: 05/18/23
 PO#: 0
 Client Project: Air Sampling

Sample ID		CAS		RL		Result		Surr %		Result	
Client	RJLG	Analyte	Number	MW	Type	µg/m3	µg/m3	REC	RL ng/tube	ng/tube	Qualifier
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Bromochloromethane	74-97-5	2.0	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Acetic Acid	64-19-7	2.0	T	0.64	11.1		2.0	35.1	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	1,2-Dichloroethane-d4	17060-07-0	2.0	Surr	0.64	2.87	90.4	2.0	9.04	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	1,4-Difluorobenzene	540-36-3	2.0	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Propionic Acid	79-09-4	50	T	16	< 16		50	< 50	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Butanoic Acid	107-92-6	2.0	T	0.64	1.66		2.0	5.24	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Toluene-d8	2037-26-5	2.0	Surr	0.64	3.27	103	2.0	10.3	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Chlorobenzene-d5	3114-55-4	2.0	Int. Std	0.64	3.17		2.0	10.0	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Pentanoic Acid	109-52-4	2.0	T	0.64	2.40		2.0	7.56	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Hexanoic Acid	142-62-1	2.0	T	0.64	0.930		2.0	2.93	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Heptanoic Acid	111-14-8	2.0	T	0.64	4.22		2.0	13.3	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Octanoic Acid	124-07-2	2.0	T	0.64	2.62		2.0	8.26	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Nonanoic Acid	112-05-0	2.0	T	0.64	1.33		2.0	4.18	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	Decanoic Acid	334-48-5	2.0	T	0.64	0.879		2.0	2.77	
Skydrol-220C-5ppmw-Ambiennt (34)	W305171-34	4-Bromofluorobenzene (BFB)	460-00-4	2.0	Surr	0.64	3.11	97.9	2.0	9.79	

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Authorized Signature: _____

Laboratory Technical Manager - Dr. Joe Sears

Date 09/19/23

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QUALITY CONTROL REPORT
EPA Compendium Method TO-17-Modified
Tenax

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2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Kansas State University
 245 Levee Drive
 Manhattan, KS 66502
 Dr. Byron Jones
 785-532-5620

Samples W305171-01 - W305171-10

RJ Lee Group Project: W305171
 Samples Received: 5/23/2023
 Analysis Date: 6/14/2023
 Report Date: 9/19/2023
 Sampling Date:
 Purchase Order No.:
 Client Project: Air Sampling

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV1	7.597	15657140	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV1	6.024	9152477	10.5	11.7	111	70-130		
Methyl-t-butyl ether	1634-04-4	T	CCV1	6.126	18040882	10.5	11.1	105	70-130		
1,1-Dichloroethane	75-34-3	T	CCV1	6.397	13499814	10.6	10.9	103	70-130		
Vinyl acetate	108-05-4	T	CCV1	6.954	10125655	10.5	10.4	98.9	70-130		
Hexane	110-54-3	T	CCV1	6.954	13666156	10.5	10.5	100	70-130		
2-Butanone (MEK)	78-93-3	T	CCV1	6.856	19745604	10.5	10.4	99.4	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV1	7.296	7714584	10.4	10.7	103	70-130		
Ethyl acetate	141-78-6	T	CCV1	7.435	21626153	10.4	10.4	99.3	70-130		
Chloroform	67-66-3	T	CCV1	7.612	15069204	10.4	10.3	99.3	70-130		
Tetrahydrofuran	109-99-9	T	CCV1	7.962	11368964	10.7	10.9	102	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV1	8.613	12890415	9.69	10.2	105	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV1	8.542	21099640	10.0	9.73	97.3	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV1	9.761	28973089	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CCV1	8.685	10612912	10.4	10.5	101	70-130		
Cyclohexane	110-82-7	T	CCV1	9.227	12804462	10.5	11.2	106	70-130		
Benzene	71-43-2	T	CCV1	9.197	36118129	10.3	8.99	87.3	70-130		
Carbon tetrachloride	56-23-5	T	CCV1	9.234	14842137	10.5	10.6	102	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV1	10.066	16119705	10.2	10.8	105	70-130		
Heptane	142-82-5	T	CCV1	10.469	8105695	10.6	10.5	99.4	70-130		
1,2-Dichloropropane	78-87-5	T	CCV1	10.514	4347532	10.5	10.5	99.7	70-130		
Trichloroethylene (TCE)	79-01-6	T	CCV1	10.559	4682784	10.2	10.2	100	70-130		
Bromodichloromethane	75-27-4	T	CCV1	10.796	7650521	10.7	10.6	99.4	70-130		
Methyl methacrylate	80-62-6	T	CCV1	10.911	4326159	10.6	10.7	101	70-130		
1,4-Dioxane	123-91-1	T	CCV1	10.785	2770323	10.9	11.1	102	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV1	11.875	10581215	10.2	10.5	103	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV1	11.945	6670602	10.3	10.4	101	70-130		
Toluene-d8	2037-26-5	Surr	CCV1	12.771	27561298	10.0	10.1	101	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV1	12.742	6123099	10.6	10.5	99.0	70-130		
Toluene	108-88-3	T	CCV1	12.902	13111019	10.3	10.4	101	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV1	12.967	4373274	10.4	10.6	102	70-130		
2-Hexanone	591-78-6	T	CCV1	13.419	9924558	10.4	10.7	103	70-130		
Dibromochloromethane	124-48-1	T	CCV1	13.768	8043929	10.8	10.7	98.3	70-130		
1,2-Dibromoethane	106-93-4	T	CCV1	14.110	6718725	10.3	10.4	101	70-130		
Tetrachloroethylene	95-47-6	T	CCV1	14.226	6300465	10.0	10.4	104	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV1	15.180	24635970	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV1	15.236	5877629	10.2	10.3	101	70-130		
Ethyl Benzene	100-41-4	T	CCV1	15.593	5382674	10.3	10.5	101	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV1	15.787	13002405	20.5	20.8	101	70-130		
Nonane	111-84-2	T	CCV1	16.336	11148451	10.3	10.3	99.9	70-130		
Bromoform	75-25-2	T	CCV1	16.263	7991581	10.5	10.6	100	70-130		
Styrene	100-42-5	T	CCV1	16.324	4574979	10.2	10.3	101	70-130		
o-Xylene	95-47-6	T	CCV1	16.400	6263042	10.8	10.5	96.4	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV1	16.761	9304936	10.4	10.6	102	70-130		
Cumene	98-82-8	T	CCV1	17.101	4627668	10.5	10.4	98.7	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV1	17.113	18481007	10.0	9.95	99.5	70-130		
n-Propylbenzene	103-65-1	T	CCV1	17.745	5023640	10.4	10.4	100	70-130		
2-Chlorotoluene	95-49-8	T	CCV1	17.778	4379661	10.5	10.5	101	70-130		
4-Ethyltoluene	622-96-8	T	CCV1	17.935	5428575	10.8	10.6	97.6	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV1	18.032	7297628	10.7	10.4	97.8	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV1	18.587	6731416	10.6	10.5	99.1	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV1	18.920	6110885	10.6	10.8	102	70-130		



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Samples W305171-01 - W305171-10

RJ Lee Group Project: W305171
 Samples Received: 5/23/2023
 Analysis Date: 6/14/2023
 Report Date: 9/19/2023
 Sampling Date:
 Purchase Order No.:
 Client Project: Air Sampling

1,4-Dichlorobenzene	106-46-7	T	CCV1	19.038	5990748	10.5	10.8	103	70-130		
Benzyl chloride	100-44-7	T	CCV1	19.021	12891290	10.4	10.9	105	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV1	19.529	5527678	10.4	10.9	104	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB1	7.594	13546407	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB1						-		
Methyl-t-butyl ether	1634-04-4	T	CB1						-		
1,1-Dichloroethane	75-34-3	T	CB1						-		
Vinyl acetate	108-05-4	T	CB1						-		
Hexane	110-54-3	T	CB1						-		
2-Butanone (MEK)	78-93-3	T	CB1		109228				-		
cis-1,2-Dichloroethene	156-59-2	T	CB1						-		
Ethyl acetate	141-78-6	T	CB1						-		
Chloroform	67-66-3	T	CB1						-		
Tetrahydrofuran	109-99-9	T	CB1						-		
1,1,1-Trichloroethane	71-55-6	T	CB1						-		
1,2-Dichloroethane-d4	17060-07-0	Surr	CB1	8.538	20613348	10.0	11.0	110	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB1	9.761	29109386	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB1						-		
Cyclohexane	110-82-7	T	CB1						-		
Benzene	71-43-2	T	CB1		10737838				-		
Carbon tetrachloride	56-23-5	T	CB1						-		
2,2,4-Trimethylpentane	540-84-1	T	CB1		56057				-		
Heptane	142-82-5	T	CB1						-		
1,2-Dichloropropane	78-87-5	T	CB1						-		
Trichloroethylene (TCE)	79-01-6	T	CB1						-		
Bromodichloromethane	75-27-4	T	CB1						-		
Methyl methacrylate	80-62-6	T	CB1						-		
1,4-Dioxane	123-91-1	T	CB1		51085				-		
4-Methyl-2-pentanone	108-10-1	T	CB1		113058				-		
cis-1,3-Dichloropropene	10061-01-5	T	CB1		53590				-		
Toluene-d8	2037-26-5	Surr	CB1	12.771	27301633	10.0	9.92	99.2	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB1	12.747	57967		0.100		-		
Toluene	108-88-3	T	CB1		258316				-		
1,1,2-Trichloroethane	79-00-5	T	CB1		34491				-		
2-Hexanone	591-78-6	T	CB1		69622				-		
Dibromochloromethane	124-48-1	T	CB1		52094				-		
1,2-Dibromoethane	106-93-4	T	CB1		47008				-		
Tetrachloroethylene	95-47-6	T	CB1		43820				-		
Chlorobenzene-d5	3114-55-4	Int. Std	CB1	15.180	24649850	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB1	15.182	242955		0.390		-		B
Ethyl Benzene	100-41-4	T	CB1		35507				-		
m,p-Xylene	108-88-3/106-42-3	T	CB1	15.786	151009		0.150		-		
Nonane	111-84-2	T	CB1		151534				-		
Bromoform	75-25-2	T	CB1	16.261	58867		0.100		-		
Styrene	100-42-5	T	CB1	16.322	92263		0.110		-		
o-Xylene	95-47-6	T	CB1		77932				-		
1,1,2,2-Tetrachloroethane	79-34-5	T	CB1		82531				-		
Cumene	98-82-8	T	CB1		39814				-		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB1	17.114	18331946	10.0	9.87	98.7	70-130		
n-Propylbenzene	103-65-1	T	CB1		58853				-		
2-Chlorotoluene	95-49-8	T	CB1		51870				-		



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Samples W305171-01 - W305171-10

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4-Ethyltoluene	622-96-8	T	CB1		65057				-		
1,3,5-Trimethylbenzene	108-67-8	T	CB1		110199				-		
1,2,4-Trimethylbenzene	95-63-6	T	CB1		98209				-		
1,3-Dichlorobenzene	541-73-1	T	CB1	18.923	79400		0.100		-		
1,4-Dichlorobenzene	106-46-7	T	CB1	19.037	83442		0.120		-		
Benzyl chloride	100-44-7	T	CB1	19.023	101114		0.110		-		
1,2-Dichlorobenzene	95-50-1	T	CB1	19.531	92939		0.150		-		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	RL2	7.593	14240009	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	RL2	6.020	202486	0.523	0.240	45.9	60-140		R
Methyl-t-butyl ether	1634-04-4	T	RL2	6.129	911030	0.527	0.560	106	60-140		
1,1-Dichloroethane	75-34-3	T	RL2	6.393	431614	0.529	0.380	71.8	60-140		
Vinyl acetate	108-05-4	T	RL2	6.957	783501	0.525	0.580	111	60-140		
Hexane	110-54-3	T	RL2	6.957	823899	0.523	0.580	111	60-140		
2-Butanone (MEK)	78-93-3	T	RL2	6.860	1436418	0.523	0.700	134	60-140		
cis-1,2-Dichloroethene	156-59-2	T	RL2	7.289	299531	0.520	0.430	82.8	60-140		
Ethyl acetate	141-78-6	T	RL2	7.435	1141223	0.522	0.560	107	60-140		
Chloroform	67-66-3	T	RL2	7.608	630287	0.519	0.440	84.9	60-140		
Tetrahydrofuran	109-99-9	T	RL2	7.970	575643	0.533	0.540	101	60-140		
1,1,1-Trichloroethane	71-55-6	T	RL2	8.617	621858	0.485	0.500	103	60-140		
1,2-Dichloroethane-d4	17060-07-0	Surr	RL2	8.538	20772992	10.0	10.5	105	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	RL2	9.761	28917705	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	RL2	8.689	577765	0.521	0.500	96.1	60-140		
Cyclohexane	110-82-7	T	RL2	9.227	683741	0.524	0.530	101	60-140		
Benzene	71-43-2	T	RL2	9.193	42200438	0.515	13.1	2540	60-140		R
Carbon tetrachloride	56-23-5	T	RL2	9.231	697504	0.524	0.490	93.6	60-140		
2,2,4-Trimethylpentane	540-84-1	T	RL2	10.062	843941	0.512	0.570	111	60-140		
Heptane	142-82-5	T	RL2	10.469	550163	0.529	0.610	115	60-140		
1,2-Dichloropropane	78-87-5	T	RL2	10.514	218348	0.525	0.470	89.5	60-140		
Trichloroethylene (TCE)	79-01-6	T	RL2	10.559	254970	0.509	0.520	102	60-140		
Bromodichloromethane	75-27-4	T	RL2	10.800	384009	0.533	0.520	97.7	60-140		
Methyl methacrylate	80-62-6	T	RL2	10.911	236096	0.531	0.550	104	60-140		
1,4-Dioxane	123-91-1	T	RL2	10.789	247959	0.544	0.860	158	60-140		R
4-Methyl-2-pentanone	108-10-1	T	RL2	11.878	573042	0.509	0.510	100	60-140		
cis-1,3-Dichloropropene	10061-01-5	T	RL2	11.946	350155	0.515	0.530	103	60-140		
Toluene-d8	2037-26-5	Surr	RL2	12.771	27227516	10.0	9.96	99.6	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	RL2	12.741	324389	0.529	0.560	106	60-140		
Toluene	108-88-3	T	RL2	12.900	1842487	0.515	1.13	219	60-140		R
1,1,2-Trichloroethane	79-00-5	T	RL2	12.964	229146	0.518	0.510	98.6	60-140		
2-Hexanone	591-78-6	T	RL2	13.419	584700	0.518	0.580	112	60-140		
Dibromochloromethane	124-48-1	T	RL2	13.768	400708	0.542	0.520	96.0	60-140		
1,2-Dibromoethane	106-93-4	T	RL2	14.112	360356	0.517	0.540	104	60-140		
Tetrachloroethylene	95-47-6	T	RL2	14.224	356842	0.501	0.560	112	60-140		
Chlorobenzene-d5	3114-55-4	Int. Std	RL2	15.180	24512388	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	RL2	15.236	334715	0.511	0.550	108	60-140		
Ethyl Benzene	100-41-4	T	RL2	15.591	321105	0.517	0.580	112	60-140		
m,p-Xylene	108-88-3/106-42-3	T	RL2	15.786	782304	1.03	1.17	114	60-140		
Nonane	111-84-2	T	RL2	16.335	762401	0.517	0.590	114	60-140		
Bromoform	75-25-2	T	RL2	16.264	393001	0.527	0.550	104	60-140		
Styrene	100-42-5	T	RL2	16.322	274862	0.511	0.520	102	60-140		
o-Xylene	95-47-6	T	RL2	16.399	367775	0.542	0.560	103	60-140		
1,1,2,2-Tetrachloroethane	79-34-5	T	RL2	16.763	502189	0.518	0.560	108	60-140		



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Cumene	98-82-8	T	RL2	17.100	248770	0.526	0.540	103	60-140		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	RL2	17.113	18270034	10.0	9.89	98.9	70-130		
n-Propylbenzene	103-65-1	T	RL2	17.744	300763	0.521	0.570	109	60-140		
2-Chlorotoluene	95-49-8	T	RL2	17.779	240845	0.523	0.540	103	60-140		
4-Ethyltoluene	622-96-8	T	RL2	17.932	303391	0.542	0.560	103	60-140		
1,3,5-Trimethylbenzene	108-67-8	T	RL2	18.032	440535	0.533	0.580	109	60-140		
1,2,4-Trimethylbenzene	95-63-6	T	RL2	18.588	459896	0.532	0.640	120	60-140		
1,3-Dichlorobenzene	541-73-1	T	RL2	18.920	316209	0.532	0.530	99.6	60-140		
1,4-Dichlorobenzene	106-46-7	T	RL2	19.040	308562	0.523	0.520	99.5	60-140		
Benzyl chloride	100-44-7	T	RL2	19.024	553637	0.522	0.490	93.9	60-140		
1,2-Dichlorobenzene	95-50-1	T	RL2	19.529	278558	0.521	0.520	99.9	60-140		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30059-BS1	7.597	15657140	10.0	10.0	100	70-130	0.0	
trans-1,2-Dichloroethene	156-60-5	T	BF30059-BS1	6.024	9152477	10.5	7.91	75.6	70-130	15.1	
Methyl-t-butyl ether	1634-04-4	T	BF30059-BS1	6.126	18040882	10.5	11.6	110	70-130	2.8	
1,1-Dichloroethane	75-34-3	T	BF30059-BS1	6.397	13499814	10.6	9.83	92.9	70-130	18.8	
Vinyl acetate	108-05-4	T	BF30059-BS1	6.954	10125655	10.5	10.6	101	70-130	2.7	
Hexane	110-54-3	T	BF30059-BS1	6.954	13666156	10.5	10.8	104	70-130	3.9	
2-Butanone (MEK)	78-93-3	T	BF30059-BS1	6.856	19745604	10.5	9.87	94.4	70-130	5.1	
cis-1,2-Dichloroethene	156-59-2	T	BF30059-BS1	7.296	7714584	10.4	9.91	95.4	70-130	8.9	
Ethyl acetate	141-78-6	T	BF30059-BS1	7.435	21626153	10.4	10.5	101	70-130	8.5	
Chloroform	67-66-3	T	BF30059-BS1	7.612	15069204	10.4	10.2	98.4	70-130	6.8	
Tetrahydrofuran	109-99-9	T	BF30059-BS1	7.962	11368964	10.7	10.8	102	70-130	1.0	
1,1,1-Trichloroethane	71-55-6	T	BF30059-BS1	8.613	12890415	9.69	10.8	111	70-130	7.5	
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30059-BS1	8.542	21099640	10.0	10.2	102	70-130	4.8	
1,4-Difluorobenzene	540-36-3	Int. Std	BF30059-BS1	9.761	28973089	10.0	10.0	100	70-130	0.0	
1,2-Dichloroethane	107-06-2	T	BF30059-BS1	8.685	10612912	10.4	9.63	92.5	70-130	2.4	
Cyclohexane	110-82-7	T	BF30059-BS1	9.227	12804462	10.5	10.7	102	70-130	12.3	
Benzene	71-43-2	T	BF30059-BS1	9.197	36118129	10.3	16.9	164	70-130	65.8	Re
Carbon tetrachloride	56-23-5	T	BF30059-BS1	9.234	14842137	10.5	10.3	98.3	70-130	8.4	
2,2,4-Trimethylpentane	540-84-1	T	BF30059-BS1	10.066	16119705	10.2	11.0	108	70-130	4.7	
Heptane	142-82-5	T	BF30059-BS1	10.469	8105695	10.6	10.5	99.0	70-130	0.3	
1,2-Dichloropropane	78-87-5	T	BF30059-BS1	10.514	4347532	10.5	10.2	97.5	70-130	1.8	
Trichloroethylene (TCE)	79-01-6	T	BF30059-BS1	10.559	4682784	10.2	9.98	98.1	70-130	2.9	
Bromodichloromethane	75-27-4	T	BF30059-BS1	10.796	7650521	10.7	10.4	97.6	70-130	1.2	
Methyl methacrylate	80-62-6	T	BF30059-BS1	10.911	4326159	10.6	10.4	97.6	70-130	3.4	
1,4-Dioxane	123-91-1	T	BF30059-BS1	10.785	2770323	10.9	10.8	99.1	70-130	3.9	
4-Methyl-2-pentanone	108-10-1	T	BF30059-BS1	11.875	10581215	10.2	10.3	101	70-130	2.9	
cis-1,3-Dichloropropene	10061-01-5	T	BF30059-BS1	11.945	6670602	10.3	10.0	97.1	70-130	1.0	
Toluene-d8	2037-26-5	Surr	BF30059-BS1	12.771	27561298	10.0	10.0	100	70-130	1.0	
trans-1,3-Dichloropropene	10061-02-6	T	BF30059-BS1	12.742	6123099	10.6	9.97	94.3	70-130	1.3	
Toluene	108-88-3	T	BF30059-BS1	12.902	13111019	10.3	10.4	101	70-130	0.0	
1,1,2-Trichloroethane	79-00-5	T	BF30059-BS1	12.967	4373274	10.4	10.5	101	70-130	1.0	
2-Hexanone	591-78-6	T	BF30059-BS1	13.419	9924558	10.4	10.4	100	70-130	3.0	
Dibromochloromethane	124-48-1	T	BF30059-BS1	13.768	8043929	10.8	10.4	96.3	70-130	1.5	
1,2-Dibromoethane	106-93-4	T	BF30059-BS1	14.110	6718725	10.3	10.2	98.3	70-130	2.7	
Tetrachloroethylene	95-47-6	T	BF30059-BS1	14.226	6300465	10.0	10.3	103	70-130	1.0	
Chlorobenzene-d5	3114-55-4	Int. Std	BF30059-BS1	15.180	24635970	10.0	10.0	100	70-130	0.0	
Chlorobenzene	108-90-7	T	BF30059-BS1	15.236	5877629	10.2	10.1	99.0	70-130	0.7	
Ethyl Benzene	100-41-4	T	BF30059-BS1	15.593	5382674	10.3	10.2	99.0	70-130	0.5	
m,p-Xylene	108-88-3/106-42-3	T	BF30059-BS1	15.787	13002405	20.5	20.4	99.4	70-130	1.6	
Nonane	111-84-2	T	BF30059-BS1	16.336	11148451	10.3	10.2	98.4	70-130	0.1	



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Bromoform	75-25-2	T	BF30059-BS1	16.263	7991581	10.5	10.4	98.8	70-130	0.4	
Styrene	100-42-5	T	BF30059-BS1	16.324	4574979	10.2	10.1	99.2	70-130	0.1	
o-Xylene	95-47-6	T	BF30059-BS1	16.400	6263042	10.8	10.4	96.3	70-130	0.4	
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30059-BS1	16.761	9304936	10.4	10.5	101	70-130	0.0	
Cumene	98-82-8	T	BF30059-BS1	17.101	4627668	10.5	10.4	98.7	70-130	1.3	
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30059-BS1	17.113	18481007	10.0	9.97	99.7	70-130	1.3	
n-Propylbenzene	103-65-1	T	BF30059-BS1	17.745	5023640	10.4	10.3	99.1	70-130	0.8	
2-Chlorotoluene	95-49-8	T	BF30059-BS1	17.778	4379661	10.5	10.3	98.7	70-130	1.3	
4-Ethyltoluene	622-96-8	T	BF30059-BS1	17.935	5428575	10.8	10.3	94.6	70-130	2.9	
1,3,5-Trimethylbenzene	108-67-8	T	BF30059-BS1	18.032	7297628	10.7	10.3	97.0	70-130	0.6	
1,2,4-Trimethylbenzene	95-63-6	T	BF30059-BS1	18.587	6731416	10.6	10.4	97.9	70-130	0.0	
1,3-Dichlorobenzene	541-73-1	T	BF30059-BS1	18.920	6110885	10.6	10.6	99.2	70-130	1.8	
1,4-Dichlorobenzene	106-46-7	T	BF30059-BS1	19.038	5990748	10.5	10.3	98.6	70-130	4.4	
Benzyl chloride	100-44-7	T	BF30059-BS1	19.021	12891290	10.4	10.8	104	70-130	0.0	
1,2-Dichlorobenzene	95-50-1	T	BF30059-BS1	19.529	5527678	10.4	10.7	103	70-130	2.9	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30059-BSD1	7.663	13850587	10.0	10.0	100	70-130	0.0	
trans-1,2-Dichloroethene	156-60-5	T	BF30059-BSD1	6.105	4732384	10.5	6.80	65.0	70-130	15.1	R
Methyl-t-butyl ether	1634-04-4	T	BF30059-BSD1	6.207	16223477	10.5	11.3	107	70-130	2.8	
1,1-Dichloroethane	75-34-3	T	BF30059-BSD1	6.475	8913198	10.6	8.14	76.9	70-130	18.8	
Vinyl acetate	108-05-4	T	BF30059-BSD1	7.027	8908147	10.5	10.3	98.3	70-130	2.7	
Hexane	110-54-3	T	BF30059-BSD1	7.028	12091296	10.5	10.5	100	70-130	3.9	
2-Butanone (MEK)	78-93-3	T	BF30059-BSD1	6.930	17461938	10.5	10.4	99.3	70-130	5.1	
cis-1,2-Dichloroethene	156-59-2	T	BF30059-BSD1	7.362	5772517	10.4	9.07	87.3	70-130	8.9	
Ethyl acetate	141-78-6	T	BF30059-BSD1	7.499	21201825	10.4	11.5	110	70-130	8.5	
Chloroform	67-66-3	T	BF30059-BSD1	7.676	12328335	10.4	9.53	91.9	70-130	6.8	
Tetrahydrofuran	109-99-9	T	BF30059-BSD1	8.022	10135929	10.7	11.0	103	70-130	1.0	
1,1,1-Trichloroethane	71-55-6	T	BF30059-BSD1	8.671	11197218	9.69	10.0	103	70-130	7.5	
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30059-BSD1	8.598	20600787	10.0	10.7	107	70-130	4.8	
1,4-Difluorobenzene	540-36-3	Int. Std	BF30059-BSD1	9.808	28584643	10.0	10.0	100	70-130	0.0	
1,2-Dichloroethane	107-06-2	T	BF30059-BSD1	8.742	9813526	10.4	9.86	94.7	70-130	2.4	
Cyclohexane	110-82-7	T	BF30059-BSD1	9.281	10705676	10.5	9.44	90.2	70-130	12.3	
Benzene	71-43-2	T	BF30059-BSD1	9.247	34940038	10.3	8.53	82.8	70-130	65.8	c
Carbon tetrachloride	56-23-5	T	BF30059-BSD1	9.287	13044049	10.5	9.47	90.4	70-130	8.4	
2,2,4-Trimethylpentane	540-84-1	T	BF30059-BSD1	10.109	15597218	10.2	10.6	103	70-130	4.7	
Heptane	142-82-5	T	BF30059-BSD1	10.509	7990663	10.6	10.5	99.3	70-130	0.3	
1,2-Dichloropropane	78-87-5	T	BF30059-BSD1	10.553	4271457	10.5	10.4	99.3	70-130	1.8	
Trichloroethylene (TCE)	79-01-6	T	BF30059-BSD1	10.600	4657769	10.2	10.3	101	70-130	2.9	
Bromodichloromethane	75-27-4	T	BF30059-BSD1	10.834	7498279	10.7	10.5	98.8	70-130	1.2	
Methyl methacrylate	80-62-6	T	BF30059-BSD1	10.944	4288377	10.6	10.8	101	70-130	3.4	
1,4-Dioxane	123-91-1	T	BF30059-BSD1	10.822	2763644	10.9	11.2	103	70-130	3.9	
4-Methyl-2-pentanone	108-10-1	T	BF30059-BSD1	11.900	10466445	10.2	10.6	104	70-130	2.9	
cis-1,3-Dichloropropene	10061-01-5	T	BF30059-BSD1	11.971	6392896	10.3	10.1	98.1	70-130	1.0	
Toluene-d8	2037-26-5	Surr	BF30059-BSD1	12.792	27211517	10.0	10.1	101	70-130	1.0	
trans-1,3-Dichloropropene	10061-02-6	T	BF30059-BSD1	12.762	5828277	10.6	10.1	95.5	70-130	1.3	
Toluene	108-88-3	T	BF30059-BSD1	12.921	13012999	10.3	10.4	101	70-130	0.0	
1,1,2-Trichloroethane	79-00-5	T	BF30059-BSD1	12.985	4317679	10.4	10.6	102	70-130	1.0	
2-Hexanone	591-78-6	T	BF30059-BSD1	13.434	9802202	10.4	10.7	103	70-130	3.0	
Dibromochloromethane	124-48-1	T	BF30059-BSD1	13.784	7891439	10.8	10.6	97.8	70-130	1.5	
1,2-Dibromoethane	106-93-4	T	BF30059-BSD1	14.125	6635631	10.3	10.5	101	70-130	2.7	
Tetrachloroethylene	95-47-6	T	BF30059-BSD1	14.240	6232600	10.0	10.4	104	70-130	1.0	
Chlorobenzene-d5	3114-55-4	Int. Std	BF30059-BSD1	15.190	24482972	10.0	10.0	100	70-130	0.0	



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Samples W305171-01 - W305171-10

RJ Lee Group Project: W305171
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Chlorobenzene	108-90-7	T	BF30059-BSD1	15.246	5791294	10.2	10.2	99.7	70-130	0.7	
Ethyl Benzene	100-41-4	T	BF30059-BSD1	15.602	5259498	10.3	10.3	99.5	70-130	0.5	
m,p-Xylene	108-88-3/106-42-3	T	BF30059-BSD1	15.795	12903467	20.5	20.8	101	70-130	1.6	
Nonane	111-84-2	T	BF30059-BSD1	16.341	10917554	10.3	10.2	98.5	70-130	0.1	
Bromoform	75-25-2	T	BF30059-BSD1	16.270	7843593	10.5	10.5	99.2	70-130	0.4	
Styrene	100-42-5	T	BF30059-BSD1	16.330	4463769	10.2	10.1	99.3	70-130	0.1	
o-Xylene	95-47-6	T	BF30059-BSD1	16.405	6195378	10.8	10.4	95.9	70-130	0.4	
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30059-BSD1	16.765	9169087	10.4	10.5	101	70-130	0.0	
Cumene	98-82-8	T	BF30059-BSD1	17.109	4680199	10.5	10.6	100	70-130	1.3	
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30059-BSD1	17.121	18571041	10.0	10.1	101	70-130	1.3	
n-Propylbenzene	103-65-1	T	BF30059-BSD1	17.757	4984527	10.4	10.4	99.9	70-130	0.8	
2-Chlorotoluene	95-49-8	T	BF30059-BSD1	17.790	4338669	10.5	10.5	100	70-130	1.3	
4-Ethyltoluene	622-96-8	T	BF30059-BSD1	17.946	5383479	10.8	10.6	97.4	70-130	2.9	
1,3,5-Trimethylbenzene	108-67-8	T	BF30059-BSD1	18.043	7150819	10.7	10.3	96.4	70-130	0.6	
1,2,4-Trimethylbenzene	95-63-6	T	BF30059-BSD1	18.597	6612847	10.6	10.4	97.9	70-130	0.0	
1,3-Dichlorobenzene	541-73-1	T	BF30059-BSD1	18.929	6055645	10.6	10.8	101	70-130	1.8	
1,4-Dichlorobenzene	106-46-7	T	BF30059-BSD1	19.047	5978515	10.5	10.8	103	70-130	4.4	
Benzyl chloride	100-44-7	T	BF30059-BSD1	19.031	12731090	10.4	10.9	104	70-130	0.0	
1,2-Dichlorobenzene	95-50-1	T	BF30059-BSD1	19.538	5554326	10.4	11.0	106	70-130	2.9	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30059-MRL1	7.623	15613679	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	BF30059-MRL1	6.050	333552	0.523	0.390	74.6	60-140		
Methyl-t-butyl ether	1634-04-4	T	BF30059-MRL1	6.163	1036629	0.527	0.580	110	60-140		
1,1-Dichloroethane	75-34-3	T	BF30059-MRL1	6.430	605703	0.529	0.490	92.6	60-140		
Vinyl acetate	108-05-4	T	BF30059-MRL1	6.987	786516	0.525	0.500	95.3	60-140		
Hexane	110-54-3	T	BF30059-MRL1	6.984	901270	0.523	0.580	111	60-140		
2-Butanone (MEK)	78-93-3	T	BF30059-MRL1	6.890	1282778	0.523	0.550	105	60-140		
cis-1,2-Dichloroethene	156-59-2	T	BF30059-MRL1	7.326	394755	0.520	0.520	100	60-140		
Ethyl acetate	141-78-6	T	BF30059-MRL1	7.462	1419228	0.522	0.640	123	60-140		
Chloroform	67-66-3	T	BF30059-MRL1	7.638	778542	0.519	0.500	96.4	60-140		
Tetrahydrofuran	109-99-9	T	BF30059-MRL1	7.996	635241	0.533	0.540	101	60-140		
1,1,1-Trichloroethane	71-55-6	T	BF30059-MRL1	8.643	713701	0.485	0.530	109	60-140		
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30059-MRL1	8.564	21816278	10.0	10.1	101	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	BF30059-MRL1	9.780	29653286	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	BF30059-MRL1	8.710	601346	0.521	0.510	98.0	60-140		
Cyclohexane	110-82-7	T	BF30059-MRL1	9.248	735399	0.524	0.560	107	60-140		
Benzene	71-43-2	T	BF30059-MRL1	9.216	29286934	0.515	3.99	775	60-140		R
Carbon tetrachloride	56-23-5	T	BF30059-MRL1	9.254	802362	0.524	0.550	105	60-140		
2,2,4-Trimethylpentane	540-84-1	T	BF30059-MRL1	10.075	924421	0.512	0.610	119	60-140		
Heptane	142-82-5	T	BF30059-MRL1	10.483	502105	0.529	0.530	100	60-140		
1,2-Dichloropropane	78-87-5	T	BF30059-MRL1	10.529	271841	0.525	0.590	112	60-140		
Trichlorethylene (TCE)	79-01-6	T	BF30059-MRL1	10.579	286030	0.509	0.570	112	60-140		
Bromodichloromethane	75-27-4	T	BF30059-MRL1	10.812	431543	0.533	0.570	107	60-140		
Methyl methacrylate	80-62-6	T	BF30059-MRL1	10.928	271556	0.531	0.630	119	60-140		
1,4-Dioxane	123-91-1	T	BF30059-MRL1	10.805	202881	0.544	0.650	119	60-140		
4-Methyl-2-pentanone	108-10-1	T	BF30059-MRL1	11.890	638501	0.509	0.560	110	60-140		
cis-1,3-Dichloropropene	10061-01-5	T	BF30059-MRL1	11.956	391515	0.515	0.580	113	60-140		
Toluene-d8	2037-26-5	Surr	BF30059-MRL1	12.779	27991813	10.0	9.98	99.8	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	BF30059-MRL1	12.749	370808	0.529	0.620	117	60-140		
Toluene	108-88-3	T	BF30059-MRL1	12.910	1218290	0.515	0.600	117	60-140		
1,1,2-Trichloroethane	79-00-5	T	BF30059-MRL1	12.975	268752	0.518	0.590	114	60-140		
2-Hexanone	591-78-6	T	BF30059-MRL1	13.427	622832	0.518	0.610	118	60-140		



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Dibromochloromethane	124-48-1	T	BF30059-MRL1	13.773	466105	0.542	0.600	111	60-140		
1,2-Dibromoethane	106-93-4	T	BF30059-MRL1	14.112	405151	0.517	0.590	114	60-140		
Tetrachloroethylene	95-47-6	T	BF30059-MRL1	14.232	377020	0.501	0.580	116	60-140		
Chlorobenzene-d5	3114-55-4	Int. Std	BF30059-MRL1	15.184	25596873	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	BF30059-MRL1	15.237	366049	0.511	0.580	114	60-140		
Ethyl Benzene	100-41-4	T	BF30059-MRL1	15.594	338773	0.517	0.590	114	60-140		
m,p-Xylene	108-88-3/106-42-3	T	BF30059-MRL1	15.788	879430	1.03	1.27	124	60-140		
Nonane	111-84-2	T	BF30059-MRL1	16.339	836837	0.517	0.630	122	60-140		
Bromoform	75-25-2	T	BF30059-MRL1	16.267	489448	0.527	0.650	123	60-140		
Styrene	100-42-5	T	BF30059-MRL1	16.328	337613	0.511	0.640	125	60-140		
o-Xylene	95-47-6	T	BF30059-MRL1	16.403	437343	0.542	0.640	118	60-140		
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30059-MRL1	16.763	634791	0.518	0.680	131	60-140		
Cumene	98-82-8	T	BF30059-MRL1	17.100	299996	0.526	0.630	120	60-140		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30059-MRL1	17.115	19079099	10.0	9.89	98.9	70-130		
n-Propylbenzene	103-65-1	T	BF30059-MRL1	17.747	355506	0.521	0.660	127	60-140		
2-Chlorotoluene	95-49-8	T	BF30059-MRL1	17.779	303608	0.523	0.670	128	60-140		
4-Ethyltoluene	622-96-8	T	BF30059-MRL1	17.932	380140	0.542	0.670	124	60-140		
1,3,5-Trimethylbenzene	108-67-8	T	BF30059-MRL1	18.033	562960	0.533	0.720	135	60-140		
1,2,4-Trimethylbenzene	95-63-6	T	BF30059-MRL1	18.590	510324	0.532	0.680	128	60-140		
1,3-Dichlorobenzene	541-73-1	T	BF30059-MRL1	18.921	491564	0.532	0.800	150	60-140		R
1,4-Dichlorobenzene	106-46-7	T	BF30059-MRL1	19.037	487260	0.523	0.810	155	60-140		R
Benzyl chloride	100-44-7	T	BF30059-MRL1	19.022	963671	0.522	0.810	155	60-140		R
1,2-Dichlorobenzene	95-50-1	T	BF30059-MRL1	19.527	489849	0.521	0.890	171	60-140		R

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30059-BLK1	7.691	14712669	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	BF30059-BLK1								
Methyl-t-butyl ether	1634-04-4	T	BF30059-BLK1		11236						
1,1-Dichloroethane	75-34-3	T	BF30059-BLK1								
Vinyl acetate	108-05-4	T	BF30059-BLK1								
Hexane	110-54-3	T	BF30059-BLK1		43474						
2-Butanone (MEK)	78-93-3	T	BF30059-BLK1		228778						
cis-1,2-Dichloroethene	156-59-2	T	BF30059-BLK1								
Ethyl acetate	141-78-6	T	BF30059-BLK1		60275						
Chloroform	67-66-3	T	BF30059-BLK1								
Tetrahydrofuran	109-99-9	T	BF30059-BLK1		28390						
1,1,1-Trichloroethane	71-55-6	T	BF30059-BLK1								
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30059-BLK1	8.622	20604228	10.0	10.1	101	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	BF30059-BLK1	9.826	28764511	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	BF30059-BLK1		65299						
Cyclohexane	110-82-7	T	BF30059-BLK1		24644						
Benzene	71-43-2	T	BF30059-BLK1	9.269	23478199		0.680				B
Carbon tetrachloride	56-23-5	T	BF30059-BLK1								
2,2,4-Trimethylpentane	540-84-1	T	BF30059-BLK1		51375						
Heptane	142-82-5	T	BF30059-BLK1		51476						
1,2-Dichloropropane	78-87-5	T	BF30059-BLK1								
Trichloroethylene (TCE)	79-01-6	T	BF30059-BLK1								
Bromodichloromethane	75-27-4	T	BF30059-BLK1								
Methyl methacrylate	80-62-6	T	BF30059-BLK1								
1,4-Dioxane	123-91-1	T	BF30059-BLK1		42304						
4-Methyl-2-pentanone	108-10-1	T	BF30059-BLK1		57333						
cis-1,3-Dichloropropene	10061-01-5	T	BF30059-BLK1		33197						
Toluene-d8	2037-26-5	Surr	BF30059-BLK1	12.800	27181437	10.0	9.99	99.9	70-130		



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trans-1,3-Dichloropropene	10061-02-6	T	BF30059-BLK1		31563						
Toluene	108-88-3	T	BF30059-BLK1		400969						
1,1,2-Trichloroethane	79-00-5	T	BF30059-BLK1								
2-Hexanone	591-78-6	T	BF30059-BLK1		54481						
Dibromochloromethane	124-48-1	T	BF30059-BLK1								
1,2-Dibromoethane	106-93-4	T	BF30059-BLK1								
Tetrachloroethylene	95-47-6	T	BF30059-BLK1		24429						
Chlorobenzene-d5	3114-55-4	Int. Std	BF30059-BLK1	15.194	24495422	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	BF30059-BLK1		34007						
Ethyl Benzene	100-41-4	T	BF30059-BLK1								
m,p-Xylene	108-88-3/106-42-3	T	BF30059-BLK1		10166						
Nonane	111-84-2	T	BF30059-BLK1		93228						
Bromoform	75-25-2	T	BF30059-BLK1								
Styrene	100-42-5	T	BF30059-BLK1		50067						
o-Xylene	95-47-6	T	BF30059-BLK1		33418						
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30059-BLK1		65302						
Cumene	98-82-8	T	BF30059-BLK1								
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30059-BLK1	17.120	18347320	10.0	9.94	99.4	70-130		
n-Propylbenzene	103-65-1	T	BF30059-BLK1								
2-Chlorotoluene	95-49-8	T	BF30059-BLK1								
4-Ethyltoluene	622-96-8	T	BF30059-BLK1								
1,3,5-Trimethylbenzene	108-67-8	T	BF30059-BLK1		70293						
1,2,4-Trimethylbenzene	95-63-6	T	BF30059-BLK1		72878						
1,3-Dichlorobenzene	541-73-1	T	BF30059-BLK1		47972						
1,4-Dichlorobenzene	106-46-7	T	BF30059-BLK1		49766						
Benzyl chloride	100-44-7	T	BF30059-BLK1	19.029	92746		0.100				
1,2-Dichlorobenzene	95-50-1	T	BF30059-BLK1		59774						

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV3	7.672	14850726	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV3	6.116	4468225	11.0	5.98	54.4	70-130		R
Methyl-t-butyl ether	1634-04-4	T	CCV3	6.218	15760641	10.2	10.2	100	70-130		
1,1-Dichloroethane	75-34-3	T	CCV3	6.485	9168294	10.3	7.81	75.8	70-130		
Vinyl acetate	108-05-4	T	CCV3	7.036	9372993	10.0	10.1	101	70-130		
Hexane	110-54-3	T	CCV3	7.036	12328321	10.1	9.98	98.8	70-130		
2-Butanone (MEK)	78-93-3	T	CCV3	6.938	16829897	10.4	9.31	89.5	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV3	7.374	5713794	10.6	8.38	79.1	70-130		
Ethyl acetate	141-78-6	T	CCV3	7.508	19381149	10.2	9.79	96.0	70-130		
Chloroform	67-66-3	T	CCV3	7.685	12381768	9.80	8.92	91.0	70-130		
Tetrahydrofuran	109-99-9	T	CCV3	8.031	9488990	10.8	9.57	88.6	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV3	8.678	11772376	9.00	9.81	109	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV3	8.607	20433898	10.7	9.93	92.8	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV3	9.814	28258024	9.90	10.0	101	70-130		
1,2-Dichloroethane	107-06-2	T	CCV3	8.751	9307784	10.2	9.46	92.7	70-130		
Cyclohexane	110-82-7	T	CCV3	9.289	11358686	11.0	10.1	92.2	70-130		
Benzene	71-43-2	T	CCV3	9.255	47464493	10.8	17.4	161	70-130		R
Carbon tetrachloride	56-23-5	T	CCV3	9.294	13456057	10.8	9.89	91.6	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV3	10.116	16104078	10.8	11.1	102	70-130		
Heptane	142-82-5	T	CCV3	10.513	7740899	11.7	10.3	87.9	70-130		
1,2-Dichloropropane	78-87-5	T	CCV3	10.558	4069743	10.8	10.1	93.1	70-130		
Trichloroethylene (TCE)	79-01-6	T	CCV3	10.605	4361778	11.0	9.72	88.4	70-130		
Bromodichloromethane	75-27-4	T	CCV3	10.839	7163750	10.3	10.2	98.6	70-130		
Methyl methacrylate	80-62-6	T	CCV3	10.948	4013601	10.4	10.2	97.9	70-130		



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1,4-Dioxane	123-91-1	T	CCV3	10.827	2550845	10.7	10.4	97.5	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV3	11.903	9953406	10.5	10.2	96.7	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV3	11.975	6154224	11.0	9.84	89.5	70-130		
Toluene-d8	2037-26-5	Surr	CCV3	12.795	26833307	10.8	10.0	93.0	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV3	12.765	5678274	10.7	9.94	92.9	70-130		
Toluene	108-88-3	T	CCV3	12.924	12722535	10.6	10.3	97.4	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV3	12.988	4115263	10.8	10.2	94.5	70-130		
2-Hexanone	591-78-6	T	CCV3	13.436	9306755	10.8	10.3	95.1	70-130		
Dibromochloromethane	124-48-1	T	CCV3	13.786	7686770	10.9	10.4	95.7	70-130		
1,2-Dibromoethane	106-93-4	T	CCV3	14.126	6313197	10.3	10.1	97.7	70-130		
Tetrachloroethylene	95-47-6	T	CCV3	14.241	5967094	10.0	10.1	101	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV3	15.191	24107007	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV3	15.247	5580885	10.4	9.96	95.8	70-130		
Ethyl Benzene	100-41-4	T	CCV3	15.603	5117103	10.6	10.2	95.8	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV3	15.795	12393627	10.7	20.3	189	70-130		R
Nonane	111-84-2	T	CCV3	16.342	10633802	10.5	10.1	95.9	70-130		
Bromoform	75-25-2	T	CCV3	16.270	7644027	10.6	10.4	97.6	70-130		
Styrene	100-42-5	T	CCV3	16.331	4349130	10.8	10.0	92.9	70-130		
o-Xylene	95-47-6	T	CCV3	16.405	6015628	10.6	10.3	96.7	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV3	16.766	8882239	10.4	10.3	99.0	70-130		
Cumene	98-82-8	T	CCV3	17.107	4534344	10.4	10.4	99.9	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV3	17.119	18279943	10.2	10.1	98.6	70-130		
n-Propylbenzene	103-65-1	T	CCV3	17.750	4756900	10.4	10.1	97.0	70-130		
2-Chlorotoluene	95-49-8	T	CCV3	17.782	4193997	10.3	10.3	99.9	70-130		
4-Ethyltoluene	622-96-8	T	CCV3	17.939	5189916	11.0	10.3	93.8	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV3	18.035	6958483	10.0	10.2	102	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV3	18.591	6444859	10.6	10.3	97.3	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV3	18.922	5815820	10.8	10.5	97.5	70-130		
1,4-Dichlorobenzene	106-46-7	T	CCV3	19.041	5798460	10.4	10.6	102	70-130		
Benzyl chloride	100-44-7	T	CCV3	19.025	12618664	10.7	10.9	102	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV3	19.531	5390264	11.0	10.8	98.5	70-130		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB3	7.669	14170143	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB3		24903						
Methyl-t-butyl ether	1634-04-4	T	CB3		80584						
1,1-Dichloroethane	75-34-3	T	CB3								
Vinyl acetate	108-05-4	T	CB3		89993						
Hexane	110-54-3	T	CB3		98258						
2-Butanone (MEK)	78-93-3	T	CB3	6.942	399182		0.110				
cis-1,2-Dichloroethene	156-59-2	T	CB3		7423						
Ethyl acetate	141-78-6	T	CB3		175700						
Chloroform	67-66-3	T	CB3		36744						
Tetrahydrofuran	109-99-9	T	CB3		62476						
1,1,1-Trichloroethane	71-55-6	T	CB3		54858						
1,2-Dichloroethane-d4	17060-07-0	Surr	CB3	8.604	20236774	10.0	10.3	103	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB3	9.812	28025810	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB3		65749						
Cyclohexane	110-82-7	T	CB3		81977						
Benzene	71-43-2	T	CB3		10165532						
Carbon tetrachloride	56-23-5	T	CB3		26374						
2,2,4-Trimethylpentane	540-84-1	T	CB3		53550						
Heptane	142-82-5	T	CB3		56935						



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Kansas State University
245 Levee Drive
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Dr. Byron Jones
785-532-5620

Samples W305171-01 - W305171-10

RJ Lee Group Project:	W305171
Samples Received:	5/23/2023
Analysis Date:	6/14/2023
Report Date:	9/19/2023
Sampling Date:	
Purchase Order No.:	
Client Project:	Air Sampling

[illegible]

Comments: MDLs and RLs have been adjusted for analysis volumes and dilution factors.

ng = nanogram
ppbv = parts per billion volume
ug/m3 = micrograms per cubic meter

BDL = Below Detection Limit
N/A = Not Applicable

* no TIC above the reporting threshold

Qualifiers

B = Compound found in associated laboratory blank above the reporting limit.

c = Sample RPD failure

 $r = \% \text{REC failure in the MRL}$

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

I = Reported concentration was estimated

Z = Compound Highly Variable Due to Thermal Breakdown of Tenax

N = Identification based on mass spectral library search

P = Library spectrum match, $\text{rsd} > 90\%$ w RT match


Q = Qualitative results for non detects

R = Analyte Spike %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns. (Library spectrum match w/o RT match)

X = Detected but not quantifiable

Authorized Signature: 
Laboratory Technical Manager - Dr. Joe Sears

Date 09/19/23



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These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA011195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



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Samples W305171-11 - W305171-22

RJ Lee Group Project: W305171
 Samples Received: 5/23/2023
 Analysis Date: 6/16/2023
 Report Date: 9/19/2023
 Sampling Date:
 Purchase Order No.:
 Client Project: Air Sampling

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV1	7.685	15011802	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV1	6.133	9845164	10.5	13.1	125	70-130		
Methyl-t-butyl ether	1634-04-4	T	CCV1	6.234	16598593	10.5	10.6	101	70-130		
1,1-Dichloroethane	75-34-3	T	CCV1	6.500	13444676	10.6	11.3	107	70-130		
Vinyl acetate	108-05-4	T	CCV1	7.051	9203059	10.5	9.82	93.6	70-130		
Hexane	110-54-3	T	CCV1	7.051	13322173	10.5	10.7	102	70-130		
2-Butanone (MEK)	78-93-3	T	CCV1	6.953	19852241	10.5	10.9	104	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV1	7.386	7618540	10.4	11.1	106	70-130		
Ethyl acetate	141-78-6	T	CCV1	7.521	21231462	10.4	10.6	102	70-130		
Chloroform	67-66-3	T	CCV1	7.698	15094346	10.4	10.8	104	70-130		
Tetrahydrofuran	109-99-9	T	CCV1	8.043	11122912	10.7	11.1	104	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV1	8.690	12515671	9.69	10.3	107	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV1	8.619	20530423	10.0	9.87	98.7	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV1	9.823	28328633	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CCV1	8.763	10234955	10.4	10.4	99.7	70-130		
Cyclohexane	110-82-7	T	CCV1	9.296	12033779	10.5	10.7	102	70-130		
Benzene	71-43-2	T	CCV1	9.265	35725877	10.3	9.28	90.1	70-130		
Carbon tetrachloride	56-23-5	T	CCV1	9.305	14445245	10.5	10.6	101	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV1	10.124	13397072	10.2	9.17	89.6	70-130		
Heptane	142-82-5	T	CCV1	10.521	7925374	10.6	10.5	99.4	70-130		
1,2-Dichloropropane	78-87-5	T	CCV1	10.565	4214589	10.5	10.4	98.9	70-130		
Trichloroethylene (TCE)	79-01-6	T	CCV1	10.613	4619817	10.2	10.3	101	70-130		
Bromodichloromethane	75-27-4	T	CCV1	10.847	7497695	10.7	10.6	99.6	70-130		
Methyl methacrylate	80-62-6	T	CCV1	10.955	4204975	10.6	10.6	100	70-130		
1,4-Dioxane	123-91-1	T	CCV1	10.834	2708977	10.9	11.1	102	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV1	11.909	10293396	10.2	10.5	103	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV1	11.980	6530008	10.3	10.4	101	70-130		
Toluene-d8	2037-26-5	Surr	CCV1	12.799	26916732	10.0	10.1	101	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV1	12.769	6016308	10.6	10.5	99.4	70-130		
Toluene	108-88-3	T	CCV1	12.928	12899071	10.3	10.4	101	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV1	12.992	4271547	10.4	10.6	102	70-130		
2-Hexanone	591-78-6	T	CCV1	13.440	9617053	10.4	10.6	102	70-130		
Dibromochloromethane	124-48-1	T	CCV1	13.789	7868001	10.8	10.7	98.3	70-130		
1,2-Dibromoethane	106-93-4	T	CCV1	14.129	6611340	10.3	10.5	102	70-130		
Tetrachloroethylene	95-47-6	T	CCV1	14.244	6153060	10.0	10.4	104	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV1	15.193	24201570	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV1	15.249	5725984	10.2	10.2	99.7	70-130		
Ethyl Benzene	100-41-4	T	CCV1	15.604	5157923	10.3	10.2	98.6	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV1	15.797	12515313	20.5	20.4	99.2	70-130		
Nonane	111-84-2	T	CCV1	16.342	10700244	10.3	10.1	97.6	70-130		
Bromoform	75-25-2	T	CCV1	16.272	7669253	10.5	10.4	98.2	70-130		
Styrene	100-42-5	T	CCV1	16.332	4411943	10.2	10.1	99.2	70-130		
o-Xylene	95-47-6	T	CCV1	16.407	6042281	10.8	10.3	94.6	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV1	16.768	8794654	10.4	10.2	98.1	70-130		
Cumene	98-82-8	T	CCV1	17.108	4444726	10.5	10.1	96.5	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV1	17.121	18320562	10.0	10.0	100	70-130		
n-Propylbenzene	103-65-1	T	CCV1	17.750	4748180	10.4	10.0	96.3	70-130		
2-Chlorotoluene	95-49-8	T	CCV1	17.784	4074971	10.5	9.96	95.3	70-130		
4-Ethyltoluene	622-96-8	T	CCV1	17.940	5176644	10.8	10.3	94.7	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV1	18.036	6912500	10.7	10.1	94.3	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV1	18.591	6293942	10.6	10.0	94.3	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV1	18.923	5568039	10.6	10.0	94.4	70-130		



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1,4-Dichlorobenzene	106-46-7	T	CCV1	19.041	5469341	10.5	10.0	95.7	70-130		
Benzyl chloride	100-44-7	T	CCV1	19.025	11387526	10.4	9.82	94.1	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV1	19.532	4768292	10.4	9.54	91.6	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB	7.675	13600164	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB						-		
Methyl-t-butyl ether	1634-04-4	T	CB						-		
1,1-Dichloroethane	75-34-3	T	CB						-		
Vinyl acetate	108-05-4	T	CB						-		
Hexane	110-54-3	T	CB		142415				-		
2-Butanone (MEK)	78-93-3	T	CB	6.946	648990		0.270		-		B
cis-1,2-Dichloroethene	156-59-2	T	CB						-		
Ethyl acetate	141-78-6	T	CB		204047				-		
Chloroform	67-66-3	T	CB						-		
Tetrahydrofuran	109-99-9	T	CB		71662				-		
1,1,1-Trichloroethane	71-55-6	T	CB						-		
1,2-Dichloroethane-d4	17060-07-0	Surr	CB	8.608	21896484	10.0	11.6	116	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB	9.815	30042217	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB		62099				-		
Cyclohexane	110-82-7	T	CB		40796				-		
Benzene	71-43-2	T	CB		18499419				-		
Carbon tetrachloride	56-23-5	T	CB						-		
2,2,4-Trimethylpentane	540-84-1	T	CB						-		
Heptane	142-82-5	T	CB		47348				-		
1,2-Dichloropropane	78-87-5	T	CB						-		
Trichlorethylene (TCE)	79-01-6	T	CB						-		
Bromodichloromethane	75-27-4	T	CB						-		
Methyl methacrylate	80-62-6	T	CB		36262				-		
1,4-Dioxane	123-91-1	T	CB	10.832	64237		0.100		-		
4-Methyl-2-pentanone	108-10-1	T	CB						-		
cis-1,3-Dichloropropene	10061-01-5	T	CB						-		
Toluene-d8	2037-26-5	Surr	CB	12.795	28598169	10.0	10.1	101	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB						-		
Toluene	108-88-3	T	CB		368996				-		
1,1,2-Trichloroethane	79-00-5	T	CB						-		
2-Hexanone	591-78-6	T	CB		67434				-		
Dibromochloromethane	124-48-1	T	CB						-		
1,2-Dibromoethane	106-93-4	T	CB						-		
Tetrachloroethylene	95-47-6	T	CB						-		
Chlorobenzene-d5	3114-55-4	Int. Std	CB	15.192	25870466	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB						-		
Ethyl Benzene	100-41-4	T	CB						-		
m,p-Xylene	108-88-3/106-42-3	T	CB						-		
Nonane	111-84-2	T	CB		73705				-		
Bromoform	75-25-2	T	CB						-		
Styrene	100-42-5	T	CB		73556				-		
o-Xylene	95-47-6	T	CB						-		
1,1,2,2-Tetrachloroethane	79-34-5	T	CB		37398				-		
Cumene	98-82-8	T	CB						-		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB	17.120	19644048	10.0	10.1	101	70-130		
n-Propylbenzene	103-65-1	T	CB						-		
2-Chlorotoluene	95-49-8	T	CB						-		



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4-Ethyltoluene	622-96-8	T	CB						-		
1,3,5-Trimethylbenzene	108-67-8	T	CB		41533				-		
1,2,4-Trimethylbenzene	95-63-6	T	CB		45670				-		
1,3-Dichlorobenzene	541-73-1	T	CB		43812				-		
1,4-Dichlorobenzene	106-46-7	T	CB		46893				-		
Benzyl chloride	100-44-7	T	CB		61986				-		
1,2-Dichlorobenzene	95-50-1	T	CB		59721				-		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	RL1	7.627	15058700	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	RL1	6.062	547275	0.523	0.690	132	60-140		
Methyl-t-butyl ether	1634-04-4	T	RL1	6.171	1014818	0.527	0.590	112	60-140		
1,1-Dichloroethane	75-34-3	T	RL1	6.430	720348	0.529	0.600	113	60-140		
Vinyl acetate	108-05-4	T	RL1	6.995	689432	0.525	0.430	82.0	60-140		
Hexane	110-54-3	T	RL1	6.984	989119	0.523	0.670	128	60-140		
2-Butanone (MEK)	78-93-3	T	RL1	6.897	1891995	0.523	0.910	174	60-140		R
cis-1,2-Dichloroethene	156-59-2	T	RL1	7.326	414753	0.520	0.570	110	60-140		
Ethyl acetate	141-78-6	T	RL1	7.469	1545189	0.522	0.730	140	60-140		
Chloroform	67-66-3	T	RL1	7.639	813434	0.519	0.550	106	60-140		
Tetrahydrofuran	109-99-9	T	RL1	8.000	608756	0.533	0.540	101	60-140		
1,1,1-Trichloroethane	71-55-6	T	RL1	8.640	711594	0.485	0.550	114	60-140		
1,2-Dichloroethane-d4	17060-07-0	Surr	RL1	8.568	20744701	10.0	9.94	99.4	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	RL1	9.785	28183224	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	RL1	8.716	591153	0.521	0.530	102	60-140		
Cyclohexane	110-82-7	T	RL1	9.252	771369	0.524	0.620	118	60-140		
Benzene	71-43-2	T	RL1	9.221	77361857	0.515	37.9	7370	60-140		R
Carbon tetrachloride	56-23-5	T	RL1	9.261	836126	0.524	0.600	115	60-140		
2,2,4-Trimethylpentane	540-84-1	T	RL1	10.081	773876	0.512	0.540	106	60-140		
Heptane	142-82-5	T	RL1	10.487	572974	0.529	0.660	125	60-140		
1,2-Dichloropropane	78-87-5	T	RL1	10.533	243721	0.525	0.550	105	60-140		
Trichlorethylene (TCE)	79-01-6	T	RL1	10.581	265080	0.509	0.560	110	60-140		
Bromodichloromethane	75-27-4	T	RL1	10.817	411657	0.533	0.570	107	60-140		
Methyl methacrylate	80-62-6	T	RL1	10.931	244430	0.531	0.590	111	60-140		
1,4-Dioxane	123-91-1	T	RL1	10.804	319693	0.544	1.18	217	60-140		R
4-Methyl-2-pentanone	108-10-1	T	RL1	11.888	616851	0.509	0.570	112	60-140		
cis-1,3-Dichloropropene	10061-01-5	T	RL1	11.959	360114	0.515	0.560	109	60-140		
Toluene-d8	2037-26-5	Surr	RL1	12.781	26603225	10.0	9.98	99.8	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	RL1	12.755	328058	0.529	0.580	110	60-140		
Toluene	108-88-3	T	RL1	12.911	3095667	0.515	2.23	433	60-140		R
1,1,2-Trichloroethane	79-00-5	T	RL1	12.975	242088	0.518	0.560	108	60-140		
2-Hexanone	591-78-6	T	RL1	13.428	590621	0.518	0.610	118	60-140		
Dibromochloromethane	124-48-1	T	RL1	13.777	425615	0.542	0.570	105	60-140		
1,2-Dibromoethane	106-93-4	T	RL1	14.119	368319	0.517	0.570	110	60-140		
Tetrachloroethylene	95-47-6	T	RL1	14.236	340180	0.501	0.550	110	60-140		
Chlorobenzene-d5	3114-55-4	Int. Std	RL1	15.185	24205935	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	RL1	15.239	328372	0.511	0.550	108	60-140		
Ethyl Benzene	100-41-4	T	RL1	15.596	389671	0.517	0.730	141	60-140		R
m,p-Xylene	108-88-3/106-42-3	T	RL1	15.789	902880	1.03	1.39	135	60-140		
Nonane	111-84-2	T	RL1	16.337	852654	0.517	0.690	133	60-140		
Bromoform	75-25-2	T	RL1	16.264	394298	0.527	0.550	104	60-140		
Styrene	100-42-5	T	RL1	16.326	293618	0.511	0.580	114	60-140		
o-Xylene	95-47-6	T	RL1	16.401	427644	0.542	0.670	124	60-140		
1,1,2,2-Tetrachloroethane	79-34-5	T	RL1	16.766	456482	0.518	0.510	98.5	60-140		



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Samples W305171-11 - W305171-22

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Cumene	98-82-8	T	RL1	17.103	257787	0.526	0.570	108	60-140		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	RL1	17.116	18195079	10.0	9.97	99.7	70-130		
n-Propylbenzene	103-65-1	T	RL1	17.746	347587	0.521	0.680	131	60-140		
2-Chlorotoluene	95-49-8	T	RL1	17.779	241435	0.523	0.550	105	60-140		
4-Ethyltoluene	622-96-8	T	RL1	17.937	315166	0.542	0.590	109	60-140		
1,3,5-Trimethylbenzene	108-67-8	T	RL1	18.034	427946	0.533	0.570	107	60-140		
1,2,4-Trimethylbenzene	95-63-6	T	RL1	18.588	438393	0.532	0.610	115	60-140		
1,3-Dichlorobenzene	541-73-1	T	RL1	18.922	297923	0.532	0.500	94.0	60-140		
1,4-Dichlorobenzene	106-46-7	T	RL1	19.038	291167	0.523	0.500	95.7	60-140		
Benzyl chloride	100-44-7	T	RL1	19.024	460197	0.522	0.420	80.5	60-140		
1,2-Dichlorobenzene	95-50-1	T	RL1	19.532	236729	0.521	0.440	84.5	60-140		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30060-BS1	7.685	15011802	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	BF30060-BS1	6.133	9845164	10.5	6.10	58.3	70-130		R
Methyl-t-butyl ether	1634-04-4	T	BF30060-BS1	6.234	16598593	10.5	10.8	102	70-130		
1,1-Dichloroethane	75-34-3	T	BF30060-BS1	6.500	13444676	10.6	8.93	84.4	70-130		
Vinyl acetate	108-05-4	T	BF30060-BS1	7.051	9203059	10.5	10.2	97.2	70-130		
Hexane	110-54-3	T	BF30060-BS1	7.051	13322173	10.5	10.8	103	70-130		
2-Butanone (MEK)	78-93-3	T	BF30060-BS1	6.953	19852241	10.5	11.3	108	70-130		
cis-1,2-Dichloroethene	156-59-2	T	BF30060-BS1	7.386	7618540	10.4	9.72	93.6	70-130		
Ethyl acetate	141-78-6	T	BF30060-BS1	7.521	21231462	10.4	11.5	110	70-130		
Chloroform	67-66-3	T	BF30060-BS1	7.698	15094346	10.4	10.2	98.3	70-130		
Tetrahydrofuran	109-99-9	T	BF30060-BS1	8.043	11122912	10.7	11.1	105	70-130		
1,1,1-Trichloroethane	71-55-6	T	BF30060-BS1	8.690	12515671	9.69	10.6	109	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30060-BS1	8.619	20530423	10.0	10.6	106	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	BF30060-BS1	9.823	28328633	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	BF30060-BS1	8.763	10234955	10.4	10.2	98.2	70-130		
Cyclohexane	110-82-7	T	BF30060-BS1	9.296	12033779	10.5	9.90	94.6	70-130		
Benzene	71-43-2	T	BF30060-BS1	9.265	35725877	10.3	30.6	297	70-130		R
Carbon tetrachloride	56-23-5	T	BF30060-BS1	9.305	14445245	10.5	10.0	95.5	70-130		
2,2,4-Trimethylpentane	540-84-1	T	BF30060-BS1	10.124	13397072	10.2	9.21	90.0	70-130		
Heptane	142-82-5	T	BF30060-BS1	10.521	7925374	10.6	10.5	99.6	70-130		
1,2-Dichloropropane	78-87-5	T	BF30060-BS1	10.565	4214589	10.5	10.4	99.4	70-130		
Trichlorethylene (TCE)	79-01-6	T	BF30060-BS1	10.613	4619817	10.2	10.3	102	70-130		
Bromodichloromethane	75-27-4	T	BF30060-BS1	10.847	7497695	10.7	10.7	100	70-130		
Methyl methacrylate	80-62-6	T	BF30060-BS1	10.955	4204975	10.6	10.7	100	70-130		
1,4-Dioxane	123-91-1	T	BF30060-BS1	10.834	2708977	10.9	11.1	102	70-130		
4-Methyl-2-pentanone	108-10-1	T	BF30060-BS1	11.909	10293396	10.2	10.4	102	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	BF30060-BS1	11.980	6530008	10.3	10.2	99.4	70-130		
Toluene-d8	2037-26-5	Surr	BF30060-BS1	12.799	26916732	10.0	10.0	100	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	BF30060-BS1	12.769	6016308	10.6	10.4	98.2	70-130		
Toluene	108-88-3	T	BF30060-BS1	12.928	12899071	10.3	11.1	107	70-130		
1,1,2-Trichloroethane	79-00-5	T	BF30060-BS1	12.992	4271547	10.4	10.6	102	70-130		
2-Hexanone	591-78-6	T	BF30060-BS1	13.440	9617053	10.4	10.6	103	70-130		
Dibromochloromethane	124-48-1	T	BF30060-BS1	13.789	7868001	10.8	10.8	99.3	70-130		
1,2-Dibromoethane	106-93-4	T	BF30060-BS1	14.129	6611340	10.3	10.5	102	70-130		
Tetrachloroethylene	95-47-6	T	BF30060-BS1	14.244	6153060	10.0	10.6	105	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	BF30060-BS1	15.193	24201570	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	BF30060-BS1	15.249	5725984	10.2	10.3	101	70-130		
Ethyl Benzene	100-41-4	T	BF30060-BS1	15.604	5157923	10.3	10.4	101	70-130		
m,p-Xylene	108-88-3/106-42-3	T	BF30060-BS1	15.797	12515313	20.5	21.0	102	70-130		
Nonane	111-84-2	T	BF30060-BS1	16.342	10700244	10.3	10.3	99.7	70-130		



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Bromoform	75-25-2	T	BF30060-BS1	16.272	7669253	10.5	10.7	101	70-130		
Styrene	100-42-5	T	BF30060-BS1	16.332	4411943	10.2	10.4	101	70-130		
o-Xylene	95-47-6	T	BF30060-BS1	16.407	6042281	10.8	10.6	97.3	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30060-BS1	16.768	8794654	10.4	10.6	102	70-130		
Cumene	98-82-8	T	BF30060-BS1	17.108	4444726	10.5	10.5	99.6	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30060-BS1	17.121	18320562	10.0	10.1	101	70-130		
n-Propylbenzene	103-65-1	T	BF30060-BS1	17.750	4748180	10.4	10.3	99.2	70-130		
2-Chlorotoluene	95-49-8	T	BF30060-BS1	17.784	4074971	10.5	10.5	100	70-130		
4-Ethyltoluene	622-96-8	T	BF30060-BS1	17.940	5176644	10.8	10.6	97.9	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	BF30060-BS1	18.036	6912500	10.7	10.4	97.4	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	BF30060-BS1	18.591	6293942	10.6	10.4	97.8	70-130		
1,3-Dichlorobenzene	541-73-1	T	BF30060-BS1	18.923	5568039	10.6	10.7	100	70-130		
1,4-Dichlorobenzene	106-46-7	T	BF30060-BS1	19.041	5469341	10.5	10.4	99.6	70-130		
Benzyl chloride	100-44-7	T	BF30060-BS1	19.025	11387526	10.4	10.6	101	70-130		
1,2-Dichlorobenzene	95-50-1	T	BF30060-BS1	19.532	4768292	10.4	10.4	100	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30060-BSD1	7.624	14044615	10.0	10.0	100	70-130	0.0	
trans-1,2-Dichloroethene	156-60-5	T	BF30060-BSD1	6.058	5117188	10.5	7.25	69.3	70-130	17.2	R
Methyl-t-butyl ether	1634-04-4	T	BF30060-BSD1	6.160	15926535	10.5	10.9	103	70-130	1.0	
1,1-Dichloroethane	75-34-3	T	BF30060-BSD1	6.431	10116743	10.6	9.11	86.1	70-130	2.0	
Vinyl acetate	108-05-4	T	BF30060-BSD1	6.988	9478858	10.5	10.8	103	70-130	5.8	
Hexane	110-54-3	T	BF30060-BSD1	6.988	12582801	10.5	10.8	103	70-130	0.0	
2-Butanone (MEK)	78-93-3	T	BF30060-BSD1	6.890	18612837	10.5	10.9	105	70-130	2.8	
cis-1,2-Dichloroethene	156-59-2	T	BF30060-BSD1	7.330	6446704	10.4	10.0	96.2	70-130	2.7	
Ethyl acetate	141-78-6	T	BF30060-BSD1	7.462	21003834	10.4	11.2	108	70-130	1.8	
Chloroform	67-66-3	T	BF30060-BSD1	7.639	13541365	10.4	10.3	99.5	70-130	1.2	
Tetrahydrofuran	109-99-9	T	BF30060-BSD1	7.989	10778029	10.7	11.5	108	70-130	2.8	
1,1,1-Trichloroethane	71-55-6	T	BF30060-BSD1	8.640	11635145	9.69	10.3	106	70-130	2.8	
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30060-BSD1	8.564	20492522	10.0	10.5	105	70-130	0.9	
1,4-Difluorobenzene	540-36-3	Int. Std	BF30060-BSD1	9.780	28221926	10.0	10.0	100	70-130	0.0	
1,2-Dichloroethane	107-06-2	T	BF30060-BSD1	8.713	9750189	10.4	9.93	95.4	70-130	2.9	
Cyclohexane	110-82-7	T	BF30060-BSD1	9.253	10935237	10.5	9.77	93.3	70-130	1.4	
Benzene	71-43-2	T	BF30060-BSD1	9.220	35660697	10.3	9.32	90.5	70-130	106.6	d
Carbon tetrachloride	56-23-5	T	BF30060-BSD1	9.259	13391277	10.5	9.85	94.1	70-130	1.5	
2,2,4-Trimethylpentane	540-84-1	T	BF30060-BSD1	10.087	13851541	10.2	9.52	93.1	70-130	3.4	
Heptane	142-82-5	T	BF30060-BSD1	10.488	7829525	10.6	10.4	98.6	70-130	1.0	
1,2-Dichloropropane	78-87-5	T	BF30060-BSD1	10.532	4205257	10.5	10.4	99.0	70-130	0.4	
Trichloroethylene (TCE)	79-01-6	T	BF30060-BSD1	10.579	4524209	10.2	10.1	99.3	70-130	2.7	
Bromodichloromethane	75-27-4	T	BF30060-BSD1	10.815	7444406	10.7	10.6	99.2	70-130	0.8	
Methyl methacrylate	80-62-6	T	BF30060-BSD1	10.927	4154843	10.6	10.6	99.3	70-130	0.7	
1,4-Dioxane	123-91-1	T	BF30060-BSD1	10.802	2683761	10.9	11.0	101	70-130	1.0	
4-Methyl-2-pentanone	108-10-1	T	BF30060-BSD1	11.887	10127739	10.2	10.3	102	70-130	0.0	
cis-1,3-Dichloropropene	10061-01-5	T	BF30060-BSD1	11.958	6406826	10.3	10.3	99.6	70-130	0.2	
Toluene-d8	2037-26-5	Surr	BF30060-BSD1	12.781	26309223	10.0	9.86	98.6	70-130	1.4	
trans-1,3-Dichloropropene	10061-02-6	T	BF30060-BSD1	12.752	5762272	10.6	10.1	95.6	70-130	2.7	
Toluene	108-88-3	T	BF30060-BSD1	12.911	12698591	10.3	10.3	100	70-130	6.8	
1,1,2-Trichloroethane	79-00-5	T	BF30060-BSD1	12.976	4205768	10.4	10.5	101	70-130	1.0	
2-Hexanone	591-78-6	T	BF30060-BSD1	13.426	9418678	10.4	10.4	101	70-130	2.0	
Dibromochloromethane	124-48-1	T	BF30060-BSD1	13.776	7768129	10.8	10.6	97.5	70-130	1.8	
1,2-Dibromoethane	106-93-4	T	BF30060-BSD1	14.116	6662846	10.3	10.6	103	70-130	1.0	
Tetrachloroethylene	95-47-6	T	BF30060-BSD1	14.232	6127103	10.0	10.4	104	70-130	1.0	
Chlorobenzene-d5	3114-55-4	Int. Std	BF30060-BSD1	15.185	23954762	10.0	10.0	100	70-130	0.0	



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Chlorobenzene	108-90-7	T	BF30060-BSD1	15.241	5754579	10.2	10.3	101	70-130	0.0	
Ethyl Benzene	100-41-4	T	BF30060-BSD1	15.598	5163311	10.3	10.3	99.8	70-130	1.2	
m,p-Xylene	108-88-3/106-42-3	T	BF30060-BSD1	15.791	12581291	20.5	20.7	101	70-130	1.0	
Nonane	111-84-2	T	BF30060-BSD1	16.338	10763722	10.3	10.3	99.2	70-130	0.5	
Bromoform	75-25-2	T	BF30060-BSD1	16.266	7734175	10.5	10.5	100	70-130	1.0	
Styrene	100-42-5	T	BF30060-BSD1	16.327	4491961	10.2	10.4	102	70-130	1.0	
o-Xylene	95-47-6	T	BF30060-BSD1	16.403	6059310	10.8	10.4	95.9	70-130	1.4	
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30060-BSD1	16.763	8985808	10.4	10.5	101	70-130	1.0	
Cumene	98-82-8	T	BF30060-BSD1	17.103	4560320	10.5	10.5	100	70-130	0.4	
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30060-BSD1	17.115	18014495	10.0	9.98	99.8	70-130	1.2	
n-Propylbenzene	103-65-1	T	BF30060-BSD1	17.746	4838210	10.4	10.3	99.1	70-130	0.1	
2-Chlorotoluene	95-49-8	T	BF30060-BSD1	17.780	4242629	10.5	10.5	100	70-130	0.0	
4-Ethyltoluene	622-96-8	T	BF30060-BSD1	17.937	5287942	10.8	10.6	97.8	70-130	0.1	
1,3,5-Trimethylbenzene	108-67-8	T	BF30060-BSD1	18.033	7105204	10.7	10.4	97.9	70-130	0.5	
1,2,4-Trimethylbenzene	95-63-6	T	BF30060-BSD1	18.588	6481802	10.6	10.4	98.1	70-130	0.3	
1,3-Dichlorobenzene	541-73-1	T	BF30060-BSD1	18.922	5830023	10.6	10.6	99.8	70-130	0.2	
1,4-Dichlorobenzene	106-46-7	T	BF30060-BSD1	19.040	5765277	10.5	10.7	102	70-130	2.4	
Benzyl chloride	100-44-7	T	BF30060-BSD1	19.023	12209096	10.4	10.6	102	70-130	1.0	
1,2-Dichlorobenzene	95-50-1	T	BF30060-BSD1	19.530	5225153	10.4	10.6	102	70-130	2.0	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30060-MRL1	7.597	14047366	10.0	10.0	100			
trans-1,2-Dichloroethene	156-60-5	T	BF30060-MRL1	6.024	259553	0.523	0.330	63.1			
Methyl-t-butyl ether	1634-04-4	T	BF30060-MRL1	6.133	945647	0.527	0.590	112			
1,1-Dichloroethane	75-34-3	T	BF30060-MRL1	6.400	499583	0.529	0.450	85.1			
Vinyl acetate	108-05-4	T	BF30060-MRL1	6.961	755192	0.525	0.560	107			
Hexane	110-54-3	T	BF30060-MRL1	6.950	816110	0.523	0.580	111			
2-Butanone (MEK)	78-93-3	T	BF30060-MRL1	6.863	1278334	0.523	0.620	119			
cis-1,2-Dichloroethene	156-59-2	T	BF30060-MRL1	7.292	326610	0.520	0.480	92.4			
Ethyl acetate	141-78-6	T	BF30060-MRL1	7.439	1204413	0.522	0.600	115			
Chloroform	67-66-3	T	BF30060-MRL1	7.612	694650	0.519	0.500	96.4			
Tetrahydrofuran	109-99-9	T	BF30060-MRL1	7.966	588066	0.533	0.560	105			
1,1,1-Trichloroethane	71-55-6	T	BF30060-MRL1	8.613	670661	0.485	0.550	114			
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30060-MRL1	8.542	20404045	10.0	10.5	105			
1,4-Difluorobenzene	540-36-3	Int. Std	BF30060-MRL1	9.761	27669289	10.0	10.0	100			
1,2-Dichloroethane	107-06-2	T	BF30060-MRL1	8.685	603653	0.521	0.560	108			
Cyclohexane	110-82-7	T	BF30060-MRL1	9.227	704054	0.524	0.570	109			
Benzene	71-43-2	T	BF30060-MRL1	9.193	34109635	0.515	8.73	1700			R
Carbon tetrachloride	56-23-5	T	BF30060-MRL1	9.238	780514	0.524	0.570	109			
2,2,4-Trimethylpentane	540-84-1	T	BF30060-MRL1	10.058	813550	0.512	0.570	111			
Heptane	142-82-5	T	BF30060-MRL1	10.472	508264	0.529	0.590	112			
1,2-Dichloropropane	78-87-5	T	BF30060-MRL1	10.510	246115	0.525	0.570	109			
Trichlorethylene (TCE)	79-01-6	T	BF30060-MRL1	10.555	274636	0.509	0.590	116			
Bromodichloromethane	75-27-4	T	BF30060-MRL1	10.796	415279	0.533	0.590	111			
Methyl methacrylate	80-62-6	T	BF30060-MRL1	10.912	265140	0.531	0.660	124			
1,4-Dioxane	123-91-1	T	BF30060-MRL1	10.790	219044	0.544	0.780	143			R
4-Methyl-2-pentanone	108-10-1	T	BF30060-MRL1	11.878	604109	0.509	0.560	110			
cis-1,3-Dichloropropene	10061-01-5	T	BF30060-MRL1	11.946	363349	0.515	0.580	113			
Toluene-d8	2037-26-5	Surr	BF30060-MRL1	12.772	26428595	10.0	10.1	101			
trans-1,3-Dichloropropene	10061-02-6	T	BF30060-MRL1	12.744	336035	0.529	0.600	114			
Toluene	108-88-3	T	BF30060-MRL1	12.901	1459860	0.515	0.870	169			R
1,1,2-Trichloroethane	79-00-5	T	BF30060-MRL1	12.967	250999	0.518	0.590	114			
2-Hexanone	591-78-6	T	BF30060-MRL1	13.419	541148	0.518	0.560	108			



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Samples W305171-11 - W305171-22

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Dibromochloromethane	124-48-1	T	BF30060-MRL1	13.769	438269	0.542	0.600	111			
1,2-Dibromoethane	106-93-4	T	BF30060-MRL1	14.110	371184	0.517	0.580	112			
Tetrachloroethylene	95-47-6	T	BF30060-MRL1	14.227	361437	0.501	0.600	120			
Chlorobenzene-d5	3114-55-4	Int. Std	BF30060-MRL1	15.180	23865383	10.0	10.0	100			
Chlorobenzene	108-90-7	T	BF30060-MRL1	15.236	347437	0.511	0.590	116			
Ethyl Benzene	100-41-4	T	BF30060-MRL1	15.591	323782	0.517	0.610	118			
m,p-Xylene	108-88-3/106-42-3	T	BF30060-MRL1	15.787	839584	1.03	1.30	127			
Nonane	111-84-2	T	BF30060-MRL1	16.335	785440	0.517	0.640	124			
Bromoform	75-25-2	T	BF30060-MRL1	16.263	410117	0.527	0.580	110			
Styrene	100-42-5	T	BF30060-MRL1	16.326	297466	0.511	0.590	116			
o-Xylene	95-47-6	T	BF30060-MRL1	16.399	389962	0.542	0.610	113			
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30060-MRL1	16.760	519704	0.518	0.590	114			
Cumene	98-82-8	T	BF30060-MRL1	17.101	273040	0.526	0.610	116			
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30060-MRL1	17.113	17867864	10.0	9.93	99.3			
n-Propylbenzene	103-65-1	T	BF30060-MRL1	17.743	322965	0.521	0.640	123			
2-Chlorotoluene	95-49-8	T	BF30060-MRL1	17.776	266877	0.523	0.630	121			
4-Ethyltoluene	622-96-8	T	BF30060-MRL1	17.932	333678	0.542	0.630	116			
1,3,5-Trimethylbenzene	108-67-8	T	BF30060-MRL1	18.032	446519	0.533	0.600	113			
1,2,4-Trimethylbenzene	95-63-6	T	BF30060-MRL1	18.588	435211	0.532	0.620	117			
1,3-Dichlorobenzene	541-73-1	T	BF30060-MRL1	18.920	366040	0.532	0.630	118			
1,4-Dichlorobenzene	106-46-7	T	BF30060-MRL1	19.036	347583	0.523	0.610	117			
Benzyl chloride	100-44-7	T	BF30060-MRL1	19.022	601656	0.522	0.550	105			
1,2-Dichlorobenzene	95-50-1	T	BF30060-MRL1	19.530	304830	0.521	0.580	111			

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30060-BLK1	7.673	14355726	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	BF30060-BLK1		9018						
Methyl-t-butyl ether	1634-04-4	T	BF30060-BLK1								
1,1-Dichloroethane	75-34-3	T	BF30060-BLK1								
Vinyl acetate	108-05-4	T	BF30060-BLK1		197902						
Hexane	110-54-3	T	BF30060-BLK1		94457						
2-Butanone (MEK)	78-93-3	T	BF30060-BLK1	6.944	391389		0.100				
cis-1,2-Dichloroethene	156-59-2	T	BF30060-BLK1								
Ethyl acetate	141-78-6	T	BF30060-BLK1		123273						
Chloroform	67-66-3	T	BF30060-BLK1								
Tetrahydrofuran	109-99-9	T	BF30060-BLK1		10427						
1,1,1-Trichloroethane	71-55-6	T	BF30060-BLK1								
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30060-BLK1	8.606	20001572	10.0	10.1	101	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	BF30060-BLK1	9.815	27445815	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	BF30060-BLK1		52081						
Cyclohexane	110-82-7	T	BF30060-BLK1		47254						
Benzene	71-43-2	T	BF30060-BLK1		9486709						
Carbon tetrachloride	56-23-5	T	BF30060-BLK1								
2,2,4-Trimethylpentane	540-84-1	T	BF30060-BLK1								
Heptane	142-82-5	T	BF30060-BLK1		44690						
1,2-Dichloropropane	78-87-5	T	BF30060-BLK1								
Trichloroethylene (TCE)	79-01-6	T	BF30060-BLK1								
Bromodichloromethane	75-27-4	T	BF30060-BLK1								
Methyl methacrylate	80-62-6	T	BF30060-BLK1		6847						
1,4-Dioxane	123-91-1	T	BF30060-BLK1		36638						
4-Methyl-2-pentanone	108-10-1	T	BF30060-BLK1		51181						
cis-1,3-Dichloropropene	10061-01-5	T	BF30060-BLK1								
Toluene-d8	2037-26-5	Surr	BF30060-BLK1	12.795	26157621	10.0	10.1	101	70-130		



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trans-1,3-Dichloropropene	10061-02-6	T	BF30060-BLK1								
Toluene	108-88-3	T	BF30060-BLK1		185660						
1,1,2-Trichloroethane	79-00-5	T	BF30060-BLK1								
2-Hexanone	591-78-6	T	BF30060-BLK1		47585						
Dibromochloromethane	124-48-1	T	BF30060-BLK1								
1,2-Dibromoethane	106-93-4	T	BF30060-BLK1								
Tetrachloroethylene	95-47-6	T	BF30060-BLK1								
Chlorobenzene-d5	3114-55-4	Int. Std	BF30060-BLK1	15.191	23567354	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	BF30060-BLK1		24916						
Ethyl Benzene	100-41-4	T	BF30060-BLK1								
m,p-Xylene	108-88-3/106-42-3	T	BF30060-BLK1		35152						
Nonane	111-84-2	T	BF30060-BLK1		65718						
Bromoforn	75-25-2	T	BF30060-BLK1								
Styrene	100-42-5	T	BF30060-BLK1		41636						
o-Xylene	95-47-6	T	BF30060-BLK1								
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30060-BLK1								
Cumene	98-82-8	T	BF30060-BLK1								
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30060-BLK1	17.121	18034599	10.0	10.2	102	70-130		
n-Propylbenzene	103-65-1	T	BF30060-BLK1								
2-Chlorotoluene	95-49-8	T	BF30060-BLK1								
4-Ethyltoluene	622-96-8	T	BF30060-BLK1								
1,3,5-Trimethylbenzene	108-67-8	T	BF30060-BLK1		37045						
1,2,4-Trimethylbenzene	95-63-6	T	BF30060-BLK1		34750						
1,3-Dichlorobenzene	541-73-1	T	BF30060-BLK1								
1,4-Dichlorobenzene	106-46-7	T	BF30060-BLK1								
Benzyl chloride	100-44-7	T	BF30060-BLK1		21469						
1,2-Dichlorobenzene	95-50-1	T	BF30060-BLK1								

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV2	7.668	13948812	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV2	6.111	3901171	11.0	5.56	50.5	70-130		R
Methyl-t-butyl ether	1634-04-4	T	CCV2	6.214	16547575	10.2	11.4	112	70-130		
1,1-Dichloroethane	75-34-3	T	CCV2	6.482	8578269	10.3	7.78	75.5	70-130		
Vinyl acetate	108-05-4	T	CCV2	7.034	9150267	10.0	10.5	105	70-130		
Hexane	110-54-3	T	CCV2	7.032	12841554	10.1	11.1	110	70-130		
2-Butanone (MEK)	78-93-3	T	CCV2	6.937	17747502	10.4	10.5	101	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV2	7.369	5612678	10.6	8.76	82.6	70-130		
Ethyl acetate	141-78-6	T	CCV2	7.505	21720761	10.2	11.7	115	70-130		
Chloroform	67-66-3	T	CCV2	7.682	12595447	9.80	9.66	98.6	70-130		
Tetrahydrofuran	109-99-9	T	CCV2	8.028	10086244	10.8	10.8	100	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV2	8.677	11956880	9.00	10.6	118	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV2	8.603	20127749	10.7	10.4	97.4	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV2	9.812	27590288	9.90	10.0	101	70-130		
1,2-Dichloroethane	107-06-2	T	CCV2	8.749	10175683	10.2	10.6	104	70-130		
Cyclohexane	110-82-7	T	CCV2	9.285	11322309	11.0	10.4	94.1	70-130		
Benzene	71-43-2	T	CCV2	9.253	60050740	10.8	27.0	250	70-130		R
Carbon tetrachloride	56-23-5	T	CCV2	9.293	13863622	10.8	10.4	96.6	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV2	10.115	16207923	10.8	11.4	105	70-130		
Heptane	142-82-5	T	CCV2	10.512	8261597	11.7	11.3	96.2	70-130		
1,2-Dichloropropane	78-87-5	T	CCV2	10.556	4370460	10.8	11.1	102	70-130		
Trichlorethylene (TCE)	79-01-6	T	CCV2	10.604	4751969	11.0	10.9	98.6	70-130		
Bromodichloromethane	75-27-4	T	CCV2	10.839	7765971	10.3	11.3	110	70-130		
Methyl methacrylate	80-62-6	T	CCV2	10.947	4309801	10.4	11.2	108	70-130		



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1,4-Dioxane	123-91-1	T	CCV2	10.825	2803671	10.7	11.8	110	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV2	11.904	10578607	10.5	11.1	105	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV2	11.974	6588150	11.0	10.8	98.1	70-130		
Toluene-d8	2037-26-5	Surr	CCV2	12.795	26281821	10.8	10.1	93.2	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV2	12.765	5967175	10.7	10.7	100	70-130		
Toluene	108-88-3	T	CCV2	12.924	14073919	10.6	11.7	111	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV2	12.987	4403693	10.8	11.2	104	70-130		
2-Hexanone	591-78-6	T	CCV2	13.436	9906285	10.8	11.2	104	70-130		
Dibromochloromethane	124-48-1	T	CCV2	13.786	8222643	10.9	11.4	105	70-130		
1,2-Dibromoethane	106-93-4	T	CCV2	14.126	6729125	10.3	11.0	107	70-130		
Tetrachloroethylene	95-47-6	T	CCV2	14.241	6411197	10.0	11.1	111	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV2	15.191	23546534	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV2	15.247	5967105	10.4	10.9	105	70-130		
Ethyl Benzene	100-41-4	T	CCV2	15.603	5403801	10.6	11.0	104	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV2	15.796	13169336	10.7	22.1	206	70-130		R
Nonane	111-84-2	T	CCV2	16.342	11250876	10.5	10.9	104	70-130		
Bromoform	75-25-2	T	CCV2	16.271	8132610	10.6	11.3	106	70-130		
Styrene	100-42-5	T	CCV2	16.330	4606906	10.8	10.9	101	70-130		
o-Xylene	95-47-6	T	CCV2	16.407	6313868	10.6	11.0	104	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV2	16.767	9405372	10.4	11.2	107	70-130		
Cumene	98-82-8	T	CCV2	17.106	4727659	10.4	11.1	107	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV2	17.119	17796058	10.2	10.0	98.3	70-130		
n-Propylbenzene	103-65-1	T	CCV2	17.750	5064792	10.4	11.0	106	70-130		
2-Chlorotoluene	95-49-8	T	CCV2	17.782	4416389	10.3	11.1	108	70-130		
4-Ethyltoluene	622-96-8	T	CCV2	17.939	5370124	11.0	10.9	99.5	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV2	18.035	7356937	10.0	11.0	110	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV2	18.591	6829771	10.6	11.2	106	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV2	18.922	6086076	10.8	11.3	104	70-130		
1,4-Dichlorobenzene	106-46-7	T	CCV2	19.041	6036287	10.4	11.4	109	70-130		
Benzyl chloride	100-44-7	T	CCV2	19.024	12908138	10.7	11.4	107	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV2	19.531	5420771	11.0	11.2	101	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB2	7.687	13495881	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB2		26710						
Methyl-t-butyl ether	1634-04-4	T	CB2								
1,1-Dichloroethane	75-34-3	T	CB2								
Vinyl acetate	108-05-4	T	CB2		227677						
Hexane	110-54-3	T	CB2		96083						
2-Butanone (MEK)	78-93-3	T	CB2		325885						
cis-1,2-Dichloroethene	156-59-2	T	CB2								
Ethyl acetate	141-78-6	T	CB2		149393						
Chloroform	67-66-3	T	CB2		32082						
Tetrahydrofuran	109-99-9	T	CB2		33329						
1,1,1-Trichloroethane	71-55-6	T	CB2		50493						
1,2-Dichloroethane-d4	17060-07-0	Surr	CB2	8.620	19786099	10.0	10.6	106	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB2	9.825	27234430	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB2		78224						
Cyclohexane	110-82-7	T	CB2		94768						
Benzene	71-43-2	T	CB2		14850413						
Carbon tetrachloride	56-23-5	T	CB2		52364						
2,2,4-Trimethylpentane	540-84-1	T	CB2		58362						
Heptane	142-82-5	T	CB2		56746						



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1,2-Dichloropropane	78-87-5	T	CB2		29626						
Trichlorethylene (TCE)	79-01-6	T	CB2		32454						
Bromodichloromethane	75-27-4	T	CB2								
Methyl methacrylate	80-62-6	T	CB2		28441						
1,4-Dioxane	123-91-1	T	CB2		35472						
4-Methyl-2-pentanone	108-10-1	T	CB2		87445						
cis-1,3-Dichloropropene	10061-01-5	T	CB2		35700						
Toluene-d8	2037-26-5	Surr	CB2	12.800	25893806	10.0	10.1	101	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB2		35090						
Toluene	108-88-3	T	CB2		227079						
1,1,2-Trichloroethane	79-00-5	T	CB2		33901						
2-Hexanone	591-78-6	T	CB2		85445						
Dibromochloromethane	124-48-1	T	CB2		47799						
1,2-Dibromoethane	106-93-4	T	CB2		44753						
Tetrachloroethylene	95-47-6	T	CB2		36127						
Chlorobenzene-d5	3114-55-4	Int. Std	CB2	15.194	23257507	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB2	15.193	176687		0.290				B
Ethyl Benzene	100-41-4	T	CB2		25267						
m,p-Xylene	108-88-3/106-42-3	T	CB2	15.795	154217		0.170				
Nonane	111-84-2	T	CB2		139044						
Bromoform	75-25-2	T	CB2	16.278	69913		0.120				
Styrene	100-42-5	T	CB2	16.333	92803		0.120				
o-Xylene	95-47-6	T	CB2		83581						
1,1,2,2-Tetrachloroethane	79-34-5	T	CB2	16.771	114789		0.120				
Cumene	98-82-8	T	CB2		48070						
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB2	17.121	17631174	10.0	10.1	101	70-130		
n-Propylbenzene	103-65-1	T	CB2		69268						
2-Chlorotoluene	95-49-8	T	CB2	17.787	65816		0.130				
4-Ethyltoluene	622-96-8	T	CB2	17.941	84800		0.140				
1,3,5-Trimethylbenzene	108-67-8	T	CB2	18.035	118433		0.120				
1,2,4-Trimethylbenzene	95-63-6	T	CB2	18.592	123418		0.110				
1,3-Dichlorobenzene	541-73-1	T	CB2	18.925	146477		0.240				
1,4-Dichlorobenzene	106-46-7	T	CB2	19.041	148018		0.250				B
Benzyl chloride	100-44-7	T	CB2	19.028	233390		0.230				
1,2-Dichlorobenzene	95-50-1	T	CB2	19.536	173372		0.330				B

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV3	7.667	14160678	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV3	6.109	5008775	10.5	7.04	67.3	70-130		R
Methyl-t-butyl ether	1634-04-4	T	CCV3	6.212	15843711	10.5	10.8	102	70-130		
1,1-Dichloroethane	75-34-3	T	CCV3	6.478	9388374	10.6	8.39	79.3	70-130		
Vinyl acetate	108-05-4	T	CCV3	7.029	9108910	10.5	10.3	98.4	70-130		
Hexane	110-54-3	T	CCV3	7.033	12048085	10.5	10.2	97.9	70-130		
2-Butanone (MEK)	78-93-3	T	CCV3	6.931	17127864	10.5	9.96	95.2	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV3	7.368	5848086	10.4	8.99	86.5	70-130		
Ethyl acetate	141-78-6	T	CCV3	7.503	19502017	10.4	10.3	99.0	70-130		
Chloroform	67-66-3	T	CCV3	7.680	12435996	10.4	9.40	90.6	70-130		
Tetrahydrofuran	109-99-9	T	CCV3	8.027	9642422	10.7	10.2	95.8	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV3	8.674	11700928	9.69	10.2	106	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV3	8.603	19788634	10.0	10.1	101	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV3	9.811	27264115	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CCV3	8.748	9314384	10.4	9.82	94.3	70-130		
Cyclohexane	110-82-7	T	CCV3	9.284	11154116	10.5	10.3	98.6	70-130		



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Samples W305171-11 - W305171-22

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Benzene	71-43-2	T	CCV3	9.252	51859351	10.3	21.7	210	70-130		R
Carbon tetrachloride	56-23-5	T	CCV3	9.291	13378122	10.5	10.2	97.3	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV3	10.113	15816062	10.2	11.3	110	70-130		
Heptane	142-82-5	T	CCV3	10.510	7623625	10.6	10.5	99.3	70-130		
1,2-Dichloropropane	78-87-5	T	CCV3	10.557	4003815	10.5	10.2	97.5	70-130		
Trichlorethylene (TCE)	79-01-6	T	CCV3	10.603	4349198	10.2	10.1	98.8	70-130		
Bromodichloromethane	75-27-4	T	CCV3	10.837	7111451	10.7	10.5	98.2	70-130		
Methyl methacrylate	80-62-6	T	CCV3	10.947	3954058	10.6	10.4	97.8	70-130		
1,4-Dioxane	123-91-1	T	CCV3	10.824	2575213	10.9	10.9	100	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV3	11.902	9799891	10.2	10.4	102	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV3	11.974	6037434	10.3	10.0	97.1	70-130		
Toluene-d8	2037-26-5	Surr	CCV3	12.794	26125879	10.0	10.1	101	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV3	12.765	5590447	10.6	10.1	95.9	70-130		
Toluene	108-88-3	T	CCV3	12.923	12675581	10.3	10.7	104	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV3	12.987	4070448	10.4	10.5	101	70-130		
2-Hexanone	591-78-6	T	CCV3	13.437	9133709	10.4	10.5	101	70-130		
Dibromochloromethane	124-48-1	T	CCV3	13.787	7637118	10.8	10.7	99.2	70-130		
1,2-Dibromoethane	106-93-4	T	CCV3	14.126	6260385	10.3	10.3	100	70-130		
Tetrachloroethylene	95-47-6	T	CCV3	14.240	5924221	10.0	10.4	104	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV3	15.191	23367752	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV3	15.247	5545865	10.2	10.2	100	70-130		
Ethyl Benzene	100-41-4	T	CCV3	15.602	5038710	10.3	10.3	99.8	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV3	15.796	12263260	20.5	20.7	101	70-130		
Nonane	111-84-2	T	CCV3	16.342	10398331	10.3	10.2	98.3	70-130		
Bromoform	75-25-2	T	CCV3	16.271	7612164	10.5	10.6	101	70-130		
Styrene	100-42-5	T	CCV3	16.331	4272228	10.2	10.2	99.5	70-130		
o-Xylene	95-47-6	T	CCV3	16.406	5932378	10.8	10.4	96.2	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV3	16.767	8846040	10.4	10.6	102	70-130		
Cumene	98-82-8	T	CCV3	17.107	4377822	10.5	10.4	98.5	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV3	17.120	17572867	10.0	9.98	99.8	70-130		
n-Propylbenzene	103-65-1	T	CCV3	17.750	4768272	10.4	10.4	100	70-130		
2-Chlorotoluene	95-49-8	T	CCV3	17.783	4115143	10.5	10.4	99.7	70-130		
4-Ethyltoluene	622-96-8	T	CCV3	17.939	5142711	10.8	10.6	97.5	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV3	18.036	6857756	10.7	10.3	96.9	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV3	18.591	6338419	10.6	10.5	98.3	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV3	18.923	5699725	10.6	10.6	100	70-130		
1,4-Dichlorobenzene	106-46-7	T	CCV3	19.041	5633088	10.5	10.7	102	70-130		
Benzyl chloride	100-44-7	T	CCV3	19.025	12027867	10.4	10.7	103	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV3	19.532	5054127	10.4	10.5	101	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB3	7.590	14473799	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB3								
Methyl-t-butyl ether	1634-04-4	T	CB3								
1,1-Dichloroethane	75-34-3	T	CB3								
Vinyl acetate	108-05-4	T	CB3								
Hexane	110-54-3	T	CB3								
2-Butanone (MEK)	78-93-3	T	CB3								
cis-1,2-Dichloroethene	156-59-2	T	CB3								
Ethyl acetate	141-78-6	T	CB3								
Chloroform	67-66-3	T	CB3								
Tetrahydrofuran	109-99-9	T	CB3								
1,1,1-Trichloroethane	71-55-6	T	CB3								



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1,2-Dichloroethane-d4	17060-07-0	Surr	CB3	8.538	20097359	10.0	10.0	100	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB3	9.758	27601887	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB3								
Cyclohexane	110-82-7	T	CB3								
Benzene	71-43-2	T	CB3								
Carbon tetrachloride	56-23-5	T	CB3								
2,2,4-Trimethylpentane	540-84-1	T	CB3								
Heptane	142-82-5	T	CB3								
1,2-Dichloropropane	78-87-5	T	CB3								
Trichloroethylene (TCE)	79-01-6	T	CB3								
Bromodichloromethane	75-27-4	T	CB3								
Methyl methacrylate	80-62-6	T	CB3		26597						
1,4-Dioxane	123-91-1	T	CB3		38564						
4-Methyl-2-pentanone	108-10-1	T	CB3		68147						
cis-1,3-Dichloropropene	10061-01-5	T	CB3								
Toluene-d8	2037-26-5	Surr	CB3	12.770	26067693	10.0	9.99	99.9	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB3		30529						
Toluene	108-88-3	T	CB3		195216						
1,1,2-Trichloroethane	79-00-5	T	CB3		24564						
2-Hexanone	591-78-6	T	CB3		61884						
Dibromochloromethane	124-48-1	T	CB3		29747						
1,2-Dibromoethane	106-93-4	T	CB3								
Tetrachloroethylene	95-47-6	T	CB3								
Chlorobenzene-d5	3114-55-4	Int. Std	CB3	15.180	23502198	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB3		36399						
Ethyl Benzene	100-41-4	T	CB3		29540						
m,p-Xylene	108-88-3/106-42-3	T	CB3	15.785	116984		0.110				
Nonane	111-84-2	T	CB3		103337						
Bromoform	75-25-2	T	CB3		37871						
Styrene	100-42-5	T	CB3		77437						
o-Xylene	95-47-6	T	CB3		58445						
1,1,2,2-Tetrachloroethane	79-34-5	T	CB3		45568						
Cumene	98-82-8	T	CB3		31131						
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB3	17.114	17689835	10.0	9.98	99.8	70-130		
n-Propylbenzene	103-65-1	T	CB3		47492						
2-Chlorotoluene	95-49-8	T	CB3		43236						
4-Ethyltoluene	622-96-8	T	CB3		47760						
1,3,5-Trimethylbenzene	108-67-8	T	CB3		63921						
1,2,4-Trimethylbenzene	95-63-6	T	CB3		57165						
1,3-Dichlorobenzene	541-73-1	T	CB3		59733						
1,4-Dichlorobenzene	106-46-7	T	CB3		58596						
Benzyl chloride	100-44-7	T	CB3		74112						
1,2-Dichlorobenzene	95-50-1	T	CB3		58119						

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV4	7.635	14594419	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV4	6.069	6294298	10.5	8.59	82.1	70-130		
Methyl-t-butyl ether	1634-04-4	T	CCV4	6.171	16688415	10.5	11.0	104	70-130		
1,1-Dichloroethane	75-34-3	T	CCV4	6.442	10527779	10.6	9.13	86.3	70-130		
Vinyl acetate	108-05-4	T	CCV4	6.999	9341905	10.5	10.3	97.8	70-130		
Hexane	110-54-3	T	CCV4	6.999	12213393	10.5	10.1	96.3	70-130		
2-Butanone (MEK)	78-93-3	T	CCV4	6.901	18247528	10.5	10.3	98.5	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV4	7.334	6318750	10.4	9.43	90.8	70-130		



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Ethyl acetate	141-78-6	T	CCV4	7.473	19993417	10.4	10.3	98.5	70-130		
Chloroform	67-66-3	T	CCV4	7.646	13252320	10.4	9.72	93.7	70-130		
Tetrahydrofuran	109-99-9	T	CCV4	7.996	10149698	10.7	10.4	97.8	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV4	8.649	11770911	9.69	9.99	103	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV4	8.576	19676271	10.0	9.73	97.3	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV4	9.790	27267582	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CCV4	8.719	9880801	10.4	10.4	100	70-130		
Cyclohexane	110-82-7	T	CCV4	9.260	11493309	10.5	10.6	102	70-130		
Benzene	71-43-2	T	CCV4	9.227	36311138	10.3	10.6	103	70-130		
Carbon tetrachloride	56-23-5	T	CCV4	9.267	13600991	10.5	10.4	98.9	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV4	10.093	15936044	10.2	11.3	111	70-130		
Heptane	142-82-5	T	CCV4	10.493	7546893	10.6	10.4	98.3	70-130		
1,2-Dichloropropane	78-87-5	T	CCV4	10.537	3964611	10.5	10.1	96.6	70-130		
Trichloroethylene (TCE)	79-01-6	T	CCV4	10.585	4375930	10.2	10.1	99.4	70-130		
Bromodichloromethane	75-27-4	T	CCV4	10.821	7073887	10.7	10.4	97.7	70-130		
Methyl methacrylate	80-62-6	T	CCV4	10.931	4011921	10.6	10.5	99.2	70-130		
1,4-Dioxane	123-91-1	T	CCV4	10.807	2578029	10.9	10.9	101	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV4	11.891	9828495	10.2	10.4	102	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV4	11.962	6123481	10.3	10.2	98.5	70-130		
Toluene-d8	2037-26-5	Surr	CCV4	12.784	25867065	10.0	10.0	100	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV4	12.755	5622170	10.6	10.2	96.5	70-130		
Toluene	108-88-3	T	CCV4	12.914	12334940	10.3	10.4	101	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV4	12.978	4044390	10.4	10.4	100	70-130		
2-Hexanone	591-78-6	T	CCV4	13.428	9115904	10.4	10.4	101	70-130		
Dibromochloromethane	124-48-1	T	CCV4	13.778	7533394	10.8	10.6	97.8	70-130		
1,2-Dibromoethane	106-93-4	T	CCV4	14.119	6290015	10.3	10.4	100	70-130		
Tetrachloroethylene	95-47-6	T	CCV4	14.234	5936164	10.0	10.4	104	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV4	15.185	23546698	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV4	15.243	5514435	10.2	10.1	98.7	70-130		
Ethyl Benzene	100-41-4	T	CCV4	15.598	5023438	10.3	10.2	98.7	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV4	15.792	12167776	20.5	20.4	99.1	70-130		
Nonane	111-84-2	T	CCV4	16.339	10381148	10.3	10.1	97.3	70-130		
Bromoform	75-25-2	T	CCV4	16.268	7578871	10.5	10.5	99.7	70-130		
Styrene	100-42-5	T	CCV4	16.327	4373604	10.2	10.3	101	70-130		
o-Xylene	95-47-6	T	CCV4	16.403	5868169	10.8	10.2	94.5	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV4	16.764	8740379	10.4	10.4	100	70-130		
Cumene	98-82-8	T	CCV4	17.104	4399510	10.5	10.3	98.2	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV4	17.117	17573156	10.0	9.90	99.0	70-130		
n-Propylbenzene	103-65-1	T	CCV4	17.747	4714044	10.4	10.2	98.3	70-130		
2-Chlorotoluene	95-49-8	T	CCV4	17.781	4136448	10.5	10.4	99.4	70-130		
4-Ethyltoluene	622-96-8	T	CCV4	17.937	5035629	10.8	10.3	94.7	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV4	18.034	6885344	10.7	10.3	96.5	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV4	18.589	6325571	10.6	10.4	97.4	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV4	18.922	5773831	10.6	10.7	101	70-130		
1,4-Dichlorobenzene	106-46-7	T	CCV4	19.040	5654405	10.5	10.6	102	70-130		
Benzyl chloride	100-44-7	T	CCV4	19.023	12111574	10.4	10.7	103	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV4	19.531	5177404	10.4	10.7	102	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected (ppbv)	Result (ppbv)	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB4	7.590	13985436	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB4								
Methyl-t-butyl ether	1634-04-4	T	CB4								
1,1-Dichloroethane	75-34-3	T	CB4								



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EPA Compendium Method TO-17-Modified
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Kansas State University
 245 Levee Drive
 Manhattan, KS 66502
 Dr. Byron Jones
 785-532-5620

Samples W305171-11 - W305171-22

RJ Lee Group Project: W305171
 Samples Received: 5/23/2023
 Analysis Date: 6/16/2023
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Vinyl acetate	108-05-4	T	CB4								
Hexane	110-54-3	T	CB4								
2-Butanone (MEK)	78-93-3	T	CB4		49421						
cis-1,2-Dichloroethene	156-59-2	T	CB4								
Ethyl acetate	141-78-6	T	CB4								
Chloroform	67-66-3	T	CB4								
Tetrahydrofuran	109-99-9	T	CB4								
1,1,1-Trichloroethane	71-55-6	T	CB4								
1,2-Dichloroethane-d4	17060-07-0	Surr	CB4	8.534	19988059	10.0	10.3	103	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB4	9.754	27361755	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB4								
Cyclohexane	110-82-7	T	CB4								
Benzene	71-43-2	T	CB4								
Carbon tetrachloride	56-23-5	T	CB4								
2,2,4-Trimethylpentane	540-84-1	T	CB4								
Heptane	142-82-5	T	CB4								
1,2-Dichloropropane	78-87-5	T	CB4								
Trichlorethylene (TCE)	79-01-6	T	CB4								
Bromodichloromethane	75-27-4	T	CB4								
Methyl methacrylate	80-62-6	T	CB4								
1,4-Dioxane	123-91-1	T	CB4	10.787	66168		0.130				B
4-Methyl-2-pentanone	108-10-1	T	CB4		67874						
cis-1,3-Dichloropropene	10061-01-5	T	CB4		4433						
Toluene-d8	2037-26-5	Surr	CB4	12.769	25768249	10.0	9.96	99.6	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB4		11462						
Toluene	108-88-3	T	CB4	12.898	600642		0.140				B
1,1,2-Trichloroethane	79-00-5	T	CB4		21818						
2-Hexanone	591-78-6	T	CB4		60840						
Dibromochloromethane	124-48-1	T	CB4		34207						
1,2-Dibromoethane	106-93-4	T	CB4								
Tetrachloroethylene	95-47-6	T	CB4								
Chlorobenzene-d5	3114-55-4	Int. Std	CB4	15.179	23352055	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB4		31028						
Ethyl Benzene	100-41-4	T	CB4		44562						
m,p-Xylene	108-88-3/106-42-3	T	CB4	15.790	143800		0.150				B
Nonane	111-84-2	T	CB4		118732						
Bromoform	75-25-2	T	CB4		33736						
Styrene	100-42-5	T	CB4		67502						
o-Xylene	95-47-6	T	CB4		66592						
1,1,2,2-Tetrachloroethane	79-34-5	T	CB4		45432						
Cumene	98-82-8	T	CB4		33608						
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB4	17.116	17672752	10.0	10.0	100	70-130		
n-Propylbenzene	103-65-1	T	CB4		56913						
2-Chlorotoluene	95-49-8	T	CB4		39309						
4-Ethyltoluene	622-96-8	T	CB4		59852						
1,3,5-Trimethylbenzene	108-67-8	T	CB4		73052						
1,2,4-Trimethylbenzene	95-63-6	T	CB4		74341						
1,3-Dichlorobenzene	541-73-1	T	CB4		62228						
1,4-Dichlorobenzene	106-46-7	T	CB4		64066						
Benzyl chloride	100-44-7	T	CB4		76544						
1,2-Dichlorobenzene	95-50-1	T	CB4		62356						

Comments: MDLs and RLs have been adjusted for analysis volumes and dilution factors.

ng = nanogram

BDL = Below Detection Limit

* no TIC above the reporting threshold



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Samples W305171-11 - W305171-22

RJ Lee Group Project: W305171
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 Client Project: Air Sampling

ppbv = parts per billion volume
ug/m3 = micrograms per cubic meter

N/A = Not Applicable

Qualifiers

B = Compound found in associated laboratory blank above the reporting limit.

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

Z = Compound Highly Variable Due to Thermal Breakdown of Tenax

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte Spike %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns. (Library spectrum match w/o RT match)

X = Detected but not quantifiable

Authorized Signature:
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



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Samples W305171-23 - W305171-34

RJ Lee Group Project: W305171
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 Analysis Date: 6/19/2023
 Report Date: 9/19/2023
 Sampling Date:
 Purchase Order No.:
 Client Project: Air Sampling

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV1	7.575	15187599	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV1	5.998	10454446	10.5	13.7	131	70-130		R
Methyl-t-butyl ether	1634-04-4	T	CCV1	6.103	16882320	10.5	10.7	101	70-130		
1,1-Dichloroethane	75-34-3	T	CCV1	6.370	13954912	10.6	11.6	110	70-130		
Vinyl acetate	108-05-4	T	CCV1	6.931	9844276	10.5	10.4	99.1	70-130		
Hexane	110-54-3	T	CCV1	6.935	13427924	10.5	10.6	102	70-130		
2-Butanone (MEK)	78-93-3	T	CCV1	6.833	20095833	10.5	10.9	104	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV1	7.273	7847357	10.4	11.3	108	70-130		
Ethyl acetate	141-78-6	T	CCV1	7.413	21886158	10.4	10.8	104	70-130		
Chloroform	67-66-3	T	CCV1	7.590	15413384	10.4	10.9	105	70-130		
Tetrahydrofuran	109-99-9	T	CCV1	7.940	11274288	10.7	11.1	105	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV1	8.594	12852884	9.69	10.5	108	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV1	8.523	20754295	10.0	9.86	98.6	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV1	9.746	28488392	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CCV1	8.670	10657715	10.4	10.8	103	70-130		
Cyclohexane	110-82-7	T	CCV1	9.212	12333864	10.5	10.9	104	70-130		
Benzene	71-43-2	T	CCV1	9.178	37028479	10.3	10.0	97.3	70-130		
Carbon tetrachloride	56-23-5	T	CCV1	9.219	14965547	10.5	10.9	104	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV1	10.047	13209593	10.2	8.99	87.9	70-130		
Heptane	142-82-5	T	CCV1	10.457	8005042	10.6	10.6	99.8	70-130		
1,2-Dichloropropane	78-87-5	T	CCV1	10.499	4242990	10.5	10.4	99.0	70-130		
Trichloroethylene (TCE)	79-01-6	T	CCV1	10.548	4742172	10.2	10.5	103	70-130		
Bromodichloromethane	75-27-4	T	CCV1	10.785	7695798	10.7	10.8	102	70-130		
Methyl methacrylate	80-62-6	T	CCV1	10.902	4307065	10.6	10.8	102	70-130		
1,4-Dioxane	123-91-1	T	CCV1	10.774	2740843	10.9	11.1	102	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV1	11.866	10352646	10.2	10.5	103	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV1	11.936	6574104	10.3	10.4	101	70-130		
Toluene-d8	2037-26-5	Surr	CCV1	12.764	27015641	10.0	10.0	100	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV1	12.735	6088212	10.6	10.6	100	70-130		
Toluene	108-88-3	T	CCV1	12.894	13030718	10.3	10.5	102	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV1	12.959	4294972	10.4	10.6	102	70-130		
2-Hexanone	591-78-6	T	CCV1	13.413	9683289	10.4	10.6	103	70-130		
Dibromochloromethane	124-48-1	T	CCV1	13.763	8013208	10.8	10.8	99.6	70-130		
1,2-Dibromoethane	106-93-4	T	CCV1	14.105	6700574	10.3	10.6	102	70-130		
Tetrachloroethylene	95-47-6	T	CCV1	14.221	6254560	10.0	10.5	105	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV1	15.176	24322487	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV1	15.232	5866996	10.2	10.4	102	70-130		
Ethyl Benzene	100-41-4	T	CCV1	15.590	5251206	10.3	10.3	100	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV1	15.784	12660016	20.5	20.5	99.9	70-130		
Nonane	111-84-2	T	CCV1	16.334	10822198	10.3	10.2	98.3	70-130		
Bromoform	75-25-2	T	CCV1	16.260	7871585	10.5	10.6	100	70-130		
Styrene	100-42-5	T	CCV1	16.321	4492975	10.2	10.3	101	70-130		
o-Xylene	95-47-6	T	CCV1	16.398	6113321	10.8	10.3	95.3	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV1	16.758	8779121	10.4	10.1	97.4	70-130		
Cumene	98-82-8	T	CCV1	17.100	4536422	10.5	10.3	98.0	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV1	17.111	18366642	10.0	10.0	100	70-130		
n-Propylbenzene	103-65-1	T	CCV1	17.744	4822327	10.4	10.1	97.3	70-130		
2-Chlorotoluene	95-49-8	T	CCV1	17.776	4184293	10.5	10.2	97.3	70-130		
4-Ethyltoluene	622-96-8	T	CCV1	17.933	5239326	10.8	10.3	95.4	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV1	18.030	6971085	10.7	10.1	94.7	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV1	18.586	6360290	10.6	10.1	94.7	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV1	18.918	5665962	10.6	10.2	95.5	70-130		



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Samples W305171-23 - W305171-34

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1,4-Dichlorobenzene	106-46-7	T	CCV1	19.037	5472013	10.5	9.95	95.2	70-130		
Benzyl chloride	100-44-7	T	CCV1	19.021	11130148	10.4	9.55	91.5	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV1	19.528	4675937	10.4	9.31	89.4	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB	7.571	15155861	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB						-		
Methyl-t-butyl ether	1634-04-4	T	CB						-		
1,1-Dichloroethane	75-34-3	T	CB						-		
Vinyl acetate	108-05-4	T	CB						-		
Hexane	110-54-3	T	CB						-		
2-Butanone (MEK)	78-93-3	T	CB	6.833	1646406		0.770		-		B
cis-1,2-Dichloroethene	156-59-2	T	CB						-		
Ethyl acetate	141-78-6	T	CB						-		
Chloroform	67-66-3	T	CB						-		
Tetrahydrofuran	109-99-9	T	CB						-		
1,1,1-Trichloroethane	71-55-6	T	CB						-		
1,2-Dichloroethane-d4	17060-07-0	Surr	CB	8.519	20989387	10.0	10.0	100	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB	9.742	28435492	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB						-		
Cyclohexane	110-82-7	T	CB		20052				-		
Benzene	71-43-2	T	CB		12437487				-		
Carbon tetrachloride	56-23-5	T	CB						-		
2,2,4-Trimethylpentane	540-84-1	T	CB						-		
Heptane	142-82-5	T	CB						-		
1,2-Dichloropropane	78-87-5	T	CB						-		
Trichloroethylene (TCE)	79-01-6	T	CB						-		
Bromodichloromethane	75-27-4	T	CB						-		
Methyl methacrylate	80-62-6	T	CB						-		
1,4-Dioxane	123-91-1	T	CB						-		
4-Methyl-2-pentanone	108-10-1	T	CB		105572				-		
cis-1,3-Dichloropropene	10061-01-5	T	CB		34509				-		
Toluene-d8	2037-26-5	Surr	CB	12.763	26890720	10.0	10.0	100	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB		34523				-		
Toluene	108-88-3	T	CB		319970				-		
1,1,2-Trichloroethane	79-00-5	T	CB		30403				-		
2-Hexanone	591-78-6	T	CB	13.414	145952		0.110		-		
Dibromochloromethane	124-48-1	T	CB		46046				-		
1,2-Dibromoethane	106-93-4	T	CB		35478				-		
Tetrachloroethylene	95-47-6	T	CB		30079				-		
Chlorobenzene-d5	3114-55-4	Int. Std	CB	15.176	24427456	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB		66819				-		
Ethyl Benzene	100-41-4	T	CB		38100				-		
m,p-Xylene	108-88-3/106-42-3	T	CB	15.782	144201		0.140		-		
Nonane	111-84-2	T	CB		128503				-		
Bromoform	75-25-2	T	CB		52404				-		
Styrene	100-42-5	T	CB	16.319	111251		0.150		-		
o-Xylene	95-47-6	T	CB		77553				-		
1,1,2,2-Tetrachloroethane	79-34-5	T	CB	16.759	112732		0.110		-		
Cumene	98-82-8	T	CB		45225				-		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB	17.111	18509115	10.0	10.1	101	70-130		
n-Propylbenzene	103-65-1	T	CB		64120				-		
2-Chlorotoluene	95-49-8	T	CB		55254				-		



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Samples W305171-23 - W305171-34

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4-Ethyltoluene	622-96-8	T	CB	17.930	72355		0.100	-		
1,3,5-Trimethylbenzene	108-67-8	T	CB	18.030	113189		0.110	-		
1,2,4-Trimethylbenzene	95-63-6	T	CB	18.585	125238		0.110	-		
1,3-Dichlorobenzene	541-73-1	T	CB	18.916	149835		0.230	-		
1,4-Dichlorobenzene	106-46-7	T	CB	19.038	162991		0.260	-		B
Benzyl chloride	100-44-7	T	CB	19.020	268758		0.250	-		B
1,2-Dichlorobenzene	95-50-1	T	CB	19.530	211677		0.380	-		B

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	RL1	7.654	14920184	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	RL1	6.092	515837	0.523	0.650	124	60-140		
Methyl-t-butyl ether	1634-04-4	T	RL1	6.197	975967	0.527	0.570	108	60-140		
1,1-Dichloroethane	75-34-3	T	RL1	6.460	722049	0.529	0.610	115	60-140		
Vinyl acetate	108-05-4	T	RL1	7.014	585366	0.525	0.320	61.0	60-140		
Hexane	110-54-3	T	RL1	7.017	856079	0.523	0.570	109	60-140		
2-Butanone (MEK)	78-93-3	T	RL1	6.920	1422552	0.523	0.660	126	60-140		
cis-1,2-Dichloroethene	156-59-2	T	RL1	7.352	415038	0.520	0.580	112	60-140		
Ethyl acetate	141-78-6	T	RL1	7.484	1327187	0.522	0.620	119	60-140		
Chloroform	67-66-3	T	RL1	7.661	821935	0.519	0.560	108	60-140		
Tetrahydrofuran	109-99-9	T	RL1	8.019	648078	0.533	0.580	109	60-140		
1,1,1-Trichloroethane	71-55-6	T	RL1	8.666	716729	0.485	0.550	114	60-140		
1,2-Dichloroethane-d4	17060-07-0	Surr	RL1	8.587	20743517	10.0	10.0	100	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	RL1	9.799	28311797	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	RL1	8.737	628611	0.521	0.570	110	60-140		
Cyclohexane	110-82-7	T	RL1	9.272	763519	0.524	0.610	117	60-140		
Benzene	71-43-2	T	RL1	9.238	34889252	0.515	8.72	1690	60-140		R
Carbon tetrachloride	56-23-5	T	RL1	9.276	827862	0.524	0.600	115	60-140		
2,2,4-Trimethylpentane	540-84-1	T	RL1	10.096	783654	0.512	0.540	106	60-140		
Heptane	142-82-5	T	RL1	10.502	485507	0.529	0.540	102	60-140		
1,2-Dichloropropane	78-87-5	T	RL1	10.548	241411	0.525	0.540	103	60-140		
Trichloroethylene (TCE)	79-01-6	T	RL1	10.594	260958	0.509	0.540	106	60-140		
Bromodichloromethane	75-27-4	T	RL1	10.827	397357	0.533	0.550	103	60-140		
Methyl methacrylate	80-62-6	T	RL1	10.940	231123	0.531	0.550	104	60-140		
1,4-Dioxane	123-91-1	T	RL1	10.823	194092	0.544	0.660	121	60-140		
4-Methyl-2-pentanone	108-10-1	T	RL1	11.898	572652	0.509	0.520	102	60-140		
cis-1,3-Dichloropropene	10061-01-5	T	RL1	11.969	363778	0.515	0.560	109	60-140		
Toluene-d8	2037-26-5	Surr	RL1	12.788	26716299	10.0	9.98	99.8	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	RL1	12.759	331532	0.529	0.580	110	60-140		
Toluene	108-88-3	T	RL1	12.917	1590779	0.515	0.960	186	60-140		R
1,1,2-Trichloroethane	79-00-5	T	RL1	12.983	247859	0.518	0.570	110	60-140		
2-Hexanone	591-78-6	T	RL1	13.433	555453	0.518	0.560	108	60-140		
Dibromochloromethane	124-48-1	T	RL1	13.781	439525	0.542	0.590	109	60-140		
1,2-Dibromoethane	106-93-4	T	RL1	14.123	362729	0.517	0.550	106	60-140		
Tetrachloroethylene	95-47-6	T	RL1	14.236	343635	0.501	0.550	110	60-140		
Chlorobenzene-d5	3114-55-4	Int. Std	RL1	15.188	24230243	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	RL1	15.244	329130	0.511	0.550	108	60-140		
Ethyl Benzene	100-41-4	T	RL1	15.600	319692	0.517	0.590	114	60-140		
m,p-Xylene	108-88-3/106-42-3	T	RL1	15.792	798271	1.03	1.21	118	60-140		
Nonane	111-84-2	T	RL1	16.340	740826	0.517	0.580	112	60-140		
Bromoform	75-25-2	T	RL1	16.269	396140	0.527	0.560	106	60-140		
Styrene	100-42-5	T	RL1	16.328	292368	0.511	0.570	112	60-140		
o-Xylene	95-47-6	T	RL1	16.401	402632	0.542	0.630	116	60-140		
1,1,2,2-Tetrachloroethane	79-34-5	T	RL1	16.765	473910	0.518	0.530	102	60-140		



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Samples W305171-23 - W305171-34

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Cumene	98-82-8	T	RL1	17.102	262948	0.526	0.580	110	60-140		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	RL1	17.117	18215715	10.0	9.97	99.7	70-130		
n-Propylbenzene	103-65-1	T	RL1	17.749	301783	0.521	0.580	111	60-140		
2-Chlorotoluene	95-49-8	T	RL1	17.782	253984	0.523	0.580	111	60-140		
4-Ethyltoluene	622-96-8	T	RL1	17.939	311479	0.542	0.580	107	60-140		
1,3,5-Trimethylbenzene	108-67-8	T	RL1	18.035	410698	0.533	0.540	101	60-140		
1,2,4-Trimethylbenzene	95-63-6	T	RL1	18.591	378318	0.532	0.510	95.9	60-140		
1,3-Dichlorobenzene	541-73-1	T	RL1	18.922	292578	0.532	0.490	92.1	60-140		
1,4-Dichlorobenzene	106-46-7	T	RL1	19.040	268676	0.523	0.460	88.0	60-140		
Benzyl chloride	100-44-7	T	RL1	19.023	407923	0.522	0.370	70.9	60-140		
1,2-Dichlorobenzene	95-50-1	T	RL1	19.531	215060	0.521	0.390	74.9	60-140		
Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30077-BS1	7.575	15187599	10.0	10.0	100	70-130	0.0	
trans-1,2-Dichloroethene	156-60-5	T	BF30077-BS1	5.998	10454446	10.5	6.52	62.3	70-130	15.5	R
Methyl-t-butyl ether	1634-04-4	T	BF30077-BS1	6.103	16882320	10.5	10.5	99.9	70-130	0.1	
1,1-Dichloroethane	75-34-3	T	BF30077-BS1	6.370	13954912	10.6	9.19	86.9	70-130	0.8	
Vinyl acetate	108-05-4	T	BF30077-BS1	6.931	9844276	10.5	10.8	103	70-130	3.0	
Hexane	110-54-3	T	BF30077-BS1	6.935	13427924	10.5	10.7	103	70-130	1.0	
2-Butanone (MEK)	78-93-3	T	BF30077-BS1	6.833	20095833	10.5	10.3	98.0	70-130	5.0	
cis-1,2-Dichloroethene	156-59-2	T	BF30077-BS1	7.273	7847357	10.4	9.86	94.9	70-130	2.9	
Ethyl acetate	141-78-6	T	BF30077-BS1	7.413	21886158	10.4	10.9	105	70-130	1.9	
Chloroform	67-66-3	T	BF30077-BS1	7.590	15413384	10.4	10.3	99.2	70-130	0.0	
Tetrahydrofuran	109-99-9	T	BF30077-BS1	7.940	11274288	10.7	11.0	104	70-130	1.0	
1,1,1-Trichloroethane	71-55-6	T	BF30077-BS1	8.594	12852884	9.69	10.4	107	70-130	2.8	
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30077-BS1	8.523	20754295	10.0	10.4	104	70-130	1.9	
1,4-Difluorobenzene	540-36-3	Int. Std	BF30077-BS1	9.746	28488392	10.0	10.0	100	70-130	0.0	
1,2-Dichloroethane	107-06-2	T	BF30077-BS1	8.670	10657715	10.4	10.4	99.7	70-130	5.2	
Cyclohexane	110-82-7	T	BF30077-BS1	9.212	12333864	10.5	9.97	95.2	70-130	1.3	
Benzene	71-43-2	T	BF30077-BS1	9.178	37028479	10.3	26.4	257	70-130	90.8	Rc
Carbon tetrachloride	56-23-5	T	BF30077-BS1	9.219	14965547	10.5	10.2	97.2	70-130	0.5	
2,2,4-Trimethylpentane	540-84-1	T	BF30077-BS1	10.047	13209593	10.2	8.75	85.5	70-130	7.1	
Heptane	142-82-5	T	BF30077-BS1	10.457	8005042	10.6	10.5	99.2	70-130	0.7	
1,2-Dichloropropane	78-87-5	T	BF30077-BS1	10.499	4242990	10.5	10.4	98.8	70-130	2.2	
Trichlorethylene (TCE)	79-01-6	T	BF30077-BS1	10.548	4742172	10.2	10.3	101	70-130	2.0	
Bromodichloromethane	75-27-4	T	BF30077-BS1	10.785	7695798	10.7	10.8	101	70-130	2.1	
Methyl methacrylate	80-62-6	T	BF30077-BS1	10.902	4307065	10.6	10.7	101	70-130	1.1	
1,4-Dioxane	123-91-1	T	BF30077-BS1	10.774	2740843	10.9	11.1	102	70-130	2.7	
4-Methyl-2-pentanone	108-10-1	T	BF30077-BS1	11.866	10352646	10.2	10.4	102	70-130	1.0	
cis-1,3-Dichloropropene	10061-01-5	T	BF30077-BS1	11.936	6574104	10.3	10.4	101	70-130	0.0	
Toluene-d8	2037-26-5	Surr	BF30077-BS1	12.764	27015641	10.0	10.0	100	70-130	0.0	
trans-1,3-Dichloropropene	10061-02-6	T	BF30077-BS1	12.735	6088212	10.6	10.6	99.8	70-130	0.5	
Toluene	108-88-3	T	BF30077-BS1	12.894	13030718	10.3	11.0	106	70-130	3.8	
1,1,2-Trichloroethane	79-00-5	T	BF30077-BS1	12.959	4294972	10.4	10.5	102	70-130	1.9	
2-Hexanone	591-78-6	T	BF30077-BS1	13.413	9683289	10.4	10.6	103	70-130	0.0	
Dibromochloromethane	124-48-1	T	BF30077-BS1	13.763	8013208	10.8	10.8	99.9	70-130	0.0	
1,2-Dibromoethane	106-93-4	T	BF30077-BS1	14.105	6700574	10.3	10.6	102	70-130	1.0	
Tetrachloroethylene	95-47-6	T	BF30077-BS1	14.221	6254560	10.0	10.6	106	70-130	0.9	
Chlorobenzene-d5	3114-55-4	Int. Std	BF30077-BS1	15.176	24322487	10.0	10.0	100	70-130	0.0	
Chlorobenzene	108-90-7	T	BF30077-BS1	15.232	5866996	10.2	10.3	101	70-130	1.0	
Ethyl Benzene	100-41-4	T	BF30077-BS1	15.590	5251206	10.3	10.4	101	70-130	1.1	
m,p-Xylene	108-88-3/106-42-3	T	BF30077-BS1	15.784	12660016	20.5	20.7	101	70-130	1.0	
Nonane	111-84-2	T	BF30077-BS1	16.334	10822198	10.3	10.2	98.3	70-130	0.8	



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Bromoform	75-25-2	T	BF30077-BS1	16.260	7871585	10.5	10.7	101	70-130	0.0	
Styrene	100-42-5	T	BF30077-BS1	16.321	4492975	10.2	10.3	101	70-130	2.0	
o-Xylene	95-47-6	T	BF30077-BS1	16.398	6113321	10.8	10.5	96.4	70-130	0.7	
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30077-BS1	16.758	8779121	10.4	10.4	100	70-130	2.0	
Cumene	98-82-8	T	BF30077-BS1	17.100	4536422	10.5	10.5	99.8	70-130	0.2	
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30077-BS1	17.111	18366642	10.0	10.1	101	70-130	0.0	
n-Propylbenzene	103-65-1	T	BF30077-BS1	17.744	4822327	10.4	10.3	98.8	70-130	0.2	
2-Chlorotoluene	95-49-8	T	BF30077-BS1	17.776	4184293	10.5	10.4	99.1	70-130	1.9	
4-Ethyltoluene	622-96-8	T	BF30077-BS1	17.933	5239326	10.8	10.5	96.5	70-130	0.8	
1,3,5-Trimethylbenzene	108-67-8	T	BF30077-BS1	18.030	6971085	10.7	10.4	97.8	70-130	0.1	
1,2,4-Trimethylbenzene	95-63-6	T	BF30077-BS1	18.586	6360290	10.6	10.4	98.0	70-130	0.4	
1,3-Dichlorobenzene	541-73-1	T	BF30077-BS1	18.918	5665962	10.6	10.5	98.8	70-130	2.2	
1,4-Dichlorobenzene	106-46-7	T	BF30077-BS1	19.037	5472013	10.5	10.4	99.4	70-130	2.6	
Benzyl chloride	100-44-7	T	BF30077-BS1	19.021	11130148	10.4	10.1	96.5	70-130	3.4	
1,2-Dichlorobenzene	95-50-1	T	BF30077-BS1	19.528	4675937	10.4	10.1	96.8	70-130	3.3	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30077-BSD1	7.657	14243412	10.0	10.0	100	70-130	0.0	
trans-1,2-Dichloroethene	156-60-5	T	BF30077-BSD1	6.103	5442695	10.5	7.61	72.8	70-130	15.5	
Methyl-t-butyl ether	1634-04-4	T	BF30077-BSD1	6.205	15580872	10.5	10.5	99.8	70-130	0.1	
1,1-Dichloroethane	75-34-3	T	BF30077-BSD1	6.472	10442280	10.6	9.27	87.6	70-130	0.8	
Vinyl acetate	108-05-4	T	BF30077-BSD1	7.025	9311505	10.5	10.5	100	70-130	3.0	
Hexane	110-54-3	T	BF30077-BSD1	7.025	12593101	10.5	10.6	102	70-130	1.0	
2-Butanone (MEK)	78-93-3	T	BF30077-BSD1	6.927	18612404	10.5	10.8	103	70-130	5.0	
cis-1,2-Dichloroethene	156-59-2	T	BF30077-BSD1	7.360	6634439	10.4	10.2	97.7	70-130	2.9	
Ethyl acetate	141-78-6	T	BF30077-BSD1	7.495	20488370	10.4	10.8	103	70-130	1.9	
Chloroform	67-66-3	T	BF30077-BSD1	7.672	13697111	10.4	10.3	99.2	70-130	0.0	
Tetrahydrofuran	109-99-9	T	BF30077-BSD1	8.019	10579265	10.7	11.1	105	70-130	1.0	
1,1,1-Trichloroethane	71-55-6	T	BF30077-BSD1	8.670	11600819	9.69	10.1	104	70-130	2.8	
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30077-BSD1	8.594	20085680	10.0	10.2	102	70-130	1.9	
1,4-Difluorobenzene	540-36-3	Int. Std	BF30077-BSD1	9.806	27245691	10.0	10.0	100	70-130	0.0	
1,2-Dichloroethane	107-06-2	T	BF30077-BSD1	8.741	10362511	10.4	10.9	105	70-130	5.2	
Cyclohexane	110-82-7	T	BF30077-BSD1	9.276	10902716	10.5	10.1	96.4	70-130	1.3	
Benzene	71-43-2	T	BF30077-BSD1	9.246	35301577	10.3	9.94	96.5	70-130	90.8	c
Carbon tetrachloride	56-23-5	T	BF30077-BSD1	9.283	13275944	10.5	10.1	96.7	70-130	0.5	
2,2,4-Trimethylpentane	540-84-1	T	BF30077-BSD1	10.107	13187621	10.2	9.39	91.8	70-130	7.1	
Heptane	142-82-5	T	BF30077-BSD1	10.506	7662613	10.6	10.6	99.9	70-130	0.7	
1,2-Dichloropropane	78-87-5	T	BF30077-BSD1	10.552	4127954	10.5	10.6	101	70-130	2.2	
Trichloroethylene (TCE)	79-01-6	T	BF30077-BSD1	10.600	4513412	10.2	10.4	103	70-130	2.0	
Bromodichloromethane	75-27-4	T	BF30077-BSD1	10.834	7159183	10.7	10.5	98.9	70-130	2.1	
Methyl methacrylate	80-62-6	T	BF30077-BSD1	10.943	4034227	10.6	10.6	99.9	70-130	1.1	
1,4-Dioxane	123-91-1	T	BF30077-BSD1	10.821	2544909	10.9	10.8	99.3	70-130	2.7	
4-Methyl-2-pentanone	108-10-1	T	BF30077-BSD1	11.900	9884087	10.2	10.5	103	70-130	1.0	
cis-1,3-Dichloropropene	10061-01-5	T	BF30077-BSD1	11.971	6288929	10.3	10.4	101	70-130	0.0	
Toluene-d8	2037-26-5	Surr	BF30077-BSD1	12.792	25813143	10.0	10.0	100	70-130	0.0	
trans-1,3-Dichloropropene	10061-02-6	T	BF30077-BSD1	12.761	5781029	10.6	10.5	99.3	70-130	0.5	
Toluene	108-88-3	T	BF30077-BSD1	12.921	12448126	10.3	10.5	102	70-130	3.8	
1,1,2-Trichloroethane	79-00-5	T	BF30077-BSD1	12.985	4182789	10.4	10.8	104	70-130	1.9	
2-Hexanone	591-78-6	T	BF30077-BSD1	13.434	9277030	10.4	10.6	103	70-130	0.0	
Dibromochloromethane	124-48-1	T	BF30077-BSD1	13.784	7687648	10.8	10.8	99.9	70-130	0.0	
1,2-Dibromoethane	106-93-4	T	BF30077-BSD1	14.125	6429332	10.3	10.6	103	70-130	1.0	
Tetrachloroethylene	95-47-6	T	BF30077-BSD1	14.239	6068259	10.0	10.7	107	70-130	0.9	
Chlorobenzene-d5	3114-55-4	Int. Std	BF30077-BSD1	15.190	23321294	10.0	10.0	100	70-130	0.0	



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Chlorobenzene	108-90-7	T	BF30077-BSD1	15.246	5619706	10.2	10.4	102	70-130	1.0	
Ethyl Benzene	100-41-4	T	BF30077-BSD1	15.601	5029336	10.3	10.3	99.9	70-130	1.1	
m,p-Xylene	108-88-3/106-42-3	T	BF30077-BSD1	15.795	12403060	20.5	21.0	102	70-130	1.0	
Nonane	111-84-2	T	BF30077-BSD1	16.340	10475258	10.3	10.3	99.1	70-130	0.8	
Bromoform	75-25-2	T	BF30077-BSD1	16.270	7627524	10.5	10.7	101	70-130	0.0	
Styrene	100-42-5	T	BF30077-BSD1	16.329	4402624	10.2	10.5	103	70-130	2.0	
o-Xylene	95-47-6	T	BF30077-BSD1	16.406	5973746	10.8	10.5	97.1	70-130	0.7	
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30077-BSD1	16.767	8773686	10.4	10.5	102	70-130	2.0	
Cumene	98-82-8	T	BF30077-BSD1	17.106	4455189	10.5	10.6	100	70-130	0.2	
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30077-BSD1	17.119	17811474	10.0	10.1	101	70-130	0.0	
n-Propylbenzene	103-65-1	T	BF30077-BSD1	17.750	4685764	10.4	10.3	98.6	70-130	0.2	
2-Chlorotoluene	95-49-8	T	BF30077-BSD1	17.783	4168873	10.5	10.6	101	70-130	1.9	
4-Ethyltoluene	622-96-8	T	BF30077-BSD1	17.940	5126334	10.8	10.5	97.3	70-130	0.8	
1,3,5-Trimethylbenzene	108-67-8	T	BF30077-BSD1	18.035	6919120	10.7	10.4	97.9	70-130	0.1	
1,2,4-Trimethylbenzene	95-63-6	T	BF30077-BSD1	18.591	6331829	10.6	10.5	98.4	70-130	0.4	
1,3-Dichlorobenzene	541-73-1	T	BF30077-BSD1	18.923	5721854	10.6	10.7	101	70-130	2.2	
1,4-Dichlorobenzene	106-46-7	T	BF30077-BSD1	19.041	5610964	10.5	10.7	102	70-130	2.6	
Benzyl chloride	100-44-7	T	BF30077-BSD1	19.025	11641422	10.4	10.4	99.8	70-130	3.4	
1,2-Dichlorobenzene	95-50-1	T	BF30077-BSD1	19.531	5012561	10.4	10.4	100	70-130	3.3	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30077-MRL1	7.587	13031065	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	BF30077-MRL1	6.011	252596	0.523	0.350	66.9	60-140		
Methyl-t-butyl ether	1634-04-4	T	BF30077-MRL1	6.116	972362	0.527	0.660	125	60-140		
1,1-Dichloroethane	75-34-3	T	BF30077-MRL1	6.384	474689	0.529	0.460	87.0	60-140		
Vinyl acetate	108-05-4	T	BF30077-MRL1	6.942	593716	0.525	0.430	82.0	60-140		
Hexane	110-54-3	T	BF30077-MRL1	6.945	782662	0.523	0.610	117	60-140		
2-Butanone (MEK)	78-93-3	T	BF30077-MRL1	6.850	1274568	0.523	0.680	130	60-140		
cis-1,2-Dichloroethene	156-59-2	T	BF30077-MRL1	7.287	318880	0.520	0.510	98.2	60-140		
Ethyl acetate	141-78-6	T	BF30077-MRL1	7.426	1263069	0.522	0.680	130	60-140		
Chloroform	67-66-3	T	BF30077-MRL1	7.599	693990	0.519	0.540	104	60-140		
Tetrahydrofuran	109-99-9	T	BF30077-MRL1	7.955	561800	0.533	0.580	109	60-140		
1,1,1-Trichloroethane	71-55-6	T	BF30077-MRL1	8.604	678727	0.485	0.610	126	60-140		
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30077-MRL1	8.533	19748190	10.0	10.9	109	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	BF30077-MRL1	9.755	27077098	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	BF30077-MRL1	8.677	572387	0.521	0.540	104	60-140		
Cyclohexane	110-82-7	T	BF30077-MRL1	9.220	702226	0.524	0.590	113	60-140		
Benzene	71-43-2	T	BF30077-MRL1	9.187	45679455	0.515	17.5	3400	60-140		R
Carbon tetrachloride	56-23-5	T	BF30077-MRL1	9.229	765463	0.524	0.580	111	60-140		
2,2,4-Trimethylpentane	540-84-1	T	BF30077-MRL1	10.049	734895	0.512	0.530	104	60-140		
Heptane	142-82-5	T	BF30077-MRL1	10.462	512423	0.529	0.610	115	60-140		
1,2-Dichloropropane	78-87-5	T	BF30077-MRL1	10.508	257513	0.525	0.610	116	60-140		
Trichlorethylene (TCE)	79-01-6	T	BF30077-MRL1	10.558	263061	0.509	0.580	114	60-140		
Bromodichloromethane	75-27-4	T	BF30077-MRL1	10.790	414118	0.533	0.600	113	60-140		
Methyl methacrylate	80-62-6	T	BF30077-MRL1	10.907	251516	0.531	0.640	121	60-140		
1,4-Dioxane	123-91-1	T	BF30077-MRL1	10.784	239409	0.544	0.890	164	60-140		R
4-Methyl-2-pentanone	108-10-1	T	BF30077-MRL1	11.874	592056	0.509	0.570	112	60-140		
cis-1,3-Dichloropropene	10061-01-5	T	BF30077-MRL1	11.941	361012	0.515	0.580	113	60-140		
Toluene-d8	2037-26-5	Surr	BF30077-MRL1	12.768	25825080	10.0	10.1	101	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	BF30077-MRL1	12.739	315801	0.529	0.580	110	60-140		
Toluene	108-88-3	T	BF30077-MRL1	12.897	1813352	0.515	1.21	235	60-140		R
1,1,2-Trichloroethane	79-00-5	T	BF30077-MRL1	12.963	260703	0.518	0.630	122	60-140		
2-Hexanone	591-78-6	T	BF30077-MRL1	13.418	558873	0.518	0.600	116	60-140		



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Dibromochloromethane	124-48-1	T	BF30077-MRL1	13.765	440848	0.542	0.620	114	60-140		
1,2-Dibromoethane	106-93-4	T	BF30077-MRL1	14.109	383572	0.517	0.620	120	60-140		
Tetrachloroethylene	95-47-6	T	BF30077-MRL1	14.222	369997	0.501	0.630	126	60-140		
Chlorobenzene-d5	3114-55-4	Int. Std	BF30077-MRL1	15.179	23407277	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	BF30077-MRL1	15.233	337052	0.511	0.590	116	60-140		
Ethyl Benzene	100-41-4	T	BF30077-MRL1	15.590	339317	0.517	0.650	126	60-140		
m,p-Xylene	108-88-3/106-42-3	T	BF30077-MRL1	15.783	867129	1.03	1.38	134	60-140		
Nonane	111-84-2	T	BF30077-MRL1	16.333	761937	0.517	0.630	122	60-140		
Bromoform	75-25-2	T	BF30077-MRL1	16.262	418700	0.527	0.610	116	60-140		
Styrene	100-42-5	T	BF30077-MRL1	16.323	290657	0.511	0.590	116	60-140		
o-Xylene	95-47-6	T	BF30077-MRL1	16.398	417474	0.542	0.680	125	60-140		
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30077-MRL1	16.761	512406	0.518	0.600	116	60-140		
Cumene	98-82-8	T	BF30077-MRL1	17.102	276041	0.526	0.630	120	60-140		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30077-MRL1	17.113	17673658	10.0	10.0	100	70-130		
n-Propylbenzene	103-65-1	T	BF30077-MRL1	17.746	326620	0.521	0.660	127	60-140		
2-Chlorotoluene	95-49-8	T	BF30077-MRL1	17.778	266806	0.523	0.640	122	60-140		
4-Ethyltoluene	622-96-8	T	BF30077-MRL1	17.934	336048	0.542	0.650	120	60-140		
1,3,5-Trimethylbenzene	108-67-8	T	BF30077-MRL1	18.032	446436	0.533	0.620	116	60-140		
1,2,4-Trimethylbenzene	95-63-6	T	BF30077-MRL1	18.586	428353	0.532	0.620	117	60-140		
1,3-Dichlorobenzene	541-73-1	T	BF30077-MRL1	18.920	359257	0.532	0.630	118	60-140		
1,4-Dichlorobenzene	106-46-7	T	BF30077-MRL1	19.039	348312	0.523	0.630	121	60-140		
Benzyl chloride	100-44-7	T	BF30077-MRL1	19.023	588812	0.522	0.550	105	60-140		
1,2-Dichlorobenzene	95-50-1	T	BF30077-MRL1	19.528	289915	0.521	0.570	110	60-140		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	BF30077-BLK1	7.631	13406767	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	BF30077-BLK1								
Methyl-t-butyl ether	1634-04-4	T	BF30077-BLK1								
1,1-Dichloroethane	75-34-3	T	BF30077-BLK1								
Vinyl acetate	108-05-4	T	BF30077-BLK1								
Hexane	110-54-3	T	BF30077-BLK1								
2-Butanone (MEK)	78-93-3	T	BF30077-BLK1								
cis-1,2-Dichloroethene	156-59-2	T	BF30077-BLK1								
Ethyl acetate	141-78-6	T	BF30077-BLK1								
Chloroform	67-66-3	T	BF30077-BLK1		15291						
Tetrahydrofuran	109-99-9	T	BF30077-BLK1								
1,1,1-Trichloroethane	71-55-6	T	BF30077-BLK1								
1,2-Dichloroethane-d4	17060-07-0	Surr	BF30077-BLK1	8.573	18790399	10.0	10.1	101	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	BF30077-BLK1	9.787	26338887	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	BF30077-BLK1		51808						
Cyclohexane	110-82-7	T	BF30077-BLK1		36016						
Benzene	71-43-2	T	BF30077-BLK1		10974491						
Carbon tetrachloride	56-23-5	T	BF30077-BLK1								
2,2,4-Trimethylpentane	540-84-1	T	BF30077-BLK1		15747						
Heptane	142-82-5	T	BF30077-BLK1		37146						
1,2-Dichloropropane	78-87-5	T	BF30077-BLK1								
Trichlorethylene (TCE)	79-01-6	T	BF30077-BLK1								
Bromodichloromethane	75-27-4	T	BF30077-BLK1								
Methyl methacrylate	80-62-6	T	BF30077-BLK1		11533						
1,4-Dioxane	123-91-1	T	BF30077-BLK1		24695						
4-Methyl-2-pentanone	108-10-1	T	BF30077-BLK1		41597						
cis-1,3-Dichloropropene	10061-01-5	T	BF30077-BLK1								
Toluene-d8	2037-26-5	Surr	BF30077-BLK1	12.782	25338934	10.0	10.2	102	70-130		



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trans-1,3-Dichloropropene	10061-02-6	T	BF30077-BLK1								
Toluene	108-88-3	T	BF30077-BLK1		197559						
1,1,2-Trichloroethane	79-00-5	T	BF30077-BLK1								
2-Hexanone	591-78-6	T	BF30077-BLK1		50669						
Dibromochloromethane	124-48-1	T	BF30077-BLK1								
1,2-Dibromoethane	106-93-4	T	BF30077-BLK1								
Tetrachloroethylene	95-47-6	T	BF30077-BLK1								
Chlorobenzene-d5	3114-55-4	Int. Std	BF30077-BLK1	15.185	22969315	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	BF30077-BLK1		25062						
Ethyl Benzene	100-41-4	T	BF30077-BLK1								
m,p-Xylene	108-88-3/106-42-3	T	BF30077-BLK1		34418						
Nonane	111-84-2	T	BF30077-BLK1		102586						
Bromoform	75-25-2	T	BF30077-BLK1								
Styrene	100-42-5	T	BF30077-BLK1		49404						
o-Xylene	95-47-6	T	BF30077-BLK1								
1,1,2,2-Tetrachloroethane	79-34-5	T	BF30077-BLK1		40388						
Cumene	98-82-8	T	BF30077-BLK1								
4-Bromofluorobenzene (BFB)	460-00-4	Surr	BF30077-BLK1	17.118	17564546	10.0	10.1	101	70-130		
n-Propylbenzene	103-65-1	T	BF30077-BLK1								
2-Chlorotoluene	95-49-8	T	BF30077-BLK1								
4-Ethyltoluene	622-96-8	T	BF30077-BLK1		27423						
1,3,5-Trimethylbenzene	108-67-8	T	BF30077-BLK1		47359						
1,2,4-Trimethylbenzene	95-63-6	T	BF30077-BLK1		43148						
1,3-Dichlorobenzene	541-73-1	T	BF30077-BLK1		34967						
1,4-Dichlorobenzene	106-46-7	T	BF30077-BLK1		37550						
Benzyl chloride	100-44-7	T	BF30077-BLK1		41545						
1,2-Dichlorobenzene	95-50-1	T	BF30077-BLK1		47440						

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV2	7.680	13779884	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV2	6.126	3762918	11.0	5.43	49.4	70-130		R
Methyl-t-butyl ether	1634-04-4	T	CCV2	6.227	16491065	10.2	11.5	113	70-130		
1,1-Dichloroethane	75-34-3	T	CCV2	6.494	8434102	10.3	7.74	75.1	70-130		
Vinyl acetate	108-05-4	T	CCV2	7.048	9400360	10.0	11.0	110	70-130		
Hexane	110-54-3	T	CCV2	7.044	12463538	10.1	10.9	108	70-130		
2-Butanone (MEK)	78-93-3	T	CCV2	6.950	18561020	10.4	11.1	107	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV2	7.375	5671490	10.6	8.96	84.5	70-130		
Ethyl acetate	141-78-6	T	CCV2	7.514	21725765	10.2	11.8	116	70-130		
Chloroform	67-66-3	T	CCV2	7.691	12227215	9.80	9.50	96.9	70-130		
Tetrahydrofuran	109-99-9	T	CCV2	8.038	10165794	10.8	11.1	102	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV2	8.685	11827844	9.00	10.6	118	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV2	8.610	20179292	10.7	10.6	98.8	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV2	9.818	27726670	9.90	10.0	101	70-130		
1,2-Dichloroethane	107-06-2	T	CCV2	8.756	10298277	10.2	10.7	105	70-130		
Cyclohexane	110-82-7	T	CCV2	9.295	11242257	11.0	10.2	93.0	70-130		
Benzene	71-43-2	T	CCV2	9.261	55177305	10.8	23.4	216	70-130		R
Carbon tetrachloride	56-23-5	T	CCV2	9.298	13808839	10.8	10.3	95.7	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV2	10.119	15840640	10.8	11.1	103	70-130		
Heptane	142-82-5	T	CCV2	10.518	8075179	11.7	10.9	93.5	70-130		
1,2-Dichloropropane	78-87-5	T	CCV2	10.563	4302288	10.8	10.8	100	70-130		
Trichloroethylene (TCE)	79-01-6	T	CCV2	10.608	4821900	11.0	11.0	99.6	70-130		
Bromodichloromethane	75-27-4	T	CCV2	10.841	7768111	10.3	11.2	109	70-130		
Methyl methacrylate	80-62-6	T	CCV2	10.947	4322335	10.4	11.2	107	70-130		



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1,4-Dioxane	123-91-1	T	CCV2	10.834	2817291	10.7	11.8	110	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV2	11.906	10327236	10.5	10.7	102	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV2	11.978	6470258	11.0	10.5	95.8	70-130		
Toluene-d8	2037-26-5	Surr	CCV2	12.797	26097737	10.8	9.95	92.1	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV2	12.767	5980318	10.7	10.7	99.7	70-130		
Toluene	108-88-3	T	CCV2	12.926	13857935	10.6	11.5	108	70-130		
1,1,2-Trichloroethane	79-00-7	T	CCV2	12.990	4386618	10.8	11.1	103	70-130		
2-Hexanone	591-78-6	T	CCV2	13.438	9619405	10.8	10.8	100	70-130		
Dibromochloromethane	124-48-1	T	CCV2	13.788	8204736	10.9	11.4	104	70-130		
1,2-Dibromoethane	106-93-4	T	CCV2	14.128	6723204	10.3	10.9	106	70-130		
Tetrachloroethylene	95-47-6	T	CCV2	14.242	6440702	10.0	11.1	111	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV2	15.192	23607703	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV2	15.247	5938462	10.4	10.8	104	70-130		
Ethyl Benzene	100-41-4	T	CCV2	15.603	5409441	10.6	11.0	103	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV2	15.796	13048751	10.7	21.8	204	70-130		R
Nonane	111-84-2	T	CCV2	16.341	11094745	10.5	10.7	102	70-130		
Bromoform	75-25-2	T	CCV2	16.272	8184303	10.6	11.3	107	70-130		
Styrene	100-42-5	T	CCV2	16.331	4691555	10.8	11.1	102	70-130		
o-Xylene	95-47-6	T	CCV2	16.407	6303471	10.6	11.0	104	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV2	16.767	9476298	10.4	11.2	108	70-130		
Cumene	98-82-8	T	CCV2	17.108	4751912	10.4	11.1	107	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV2	17.120	17786439	10.2	9.99	97.9	70-130		
n-Propylbenzene	103-65-1	T	CCV2	17.751	5063103	10.4	11.0	105	70-130		
2-Chlorotoluene	95-49-8	T	CCV2	17.783	4429497	10.3	11.1	108	70-130		
4-Ethyltoluene	622-96-8	T	CCV2	17.939	5412091	11.0	11.0	100	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV2	18.035	7080477	10.0	10.6	106	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV2	18.591	6832356	10.6	11.2	105	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV2	18.923	6219536	10.8	11.5	106	70-130		
1,4-Dichlorobenzene	106-46-7	T	CCV2	19.041	6047932	10.4	11.3	109	70-130		
Benzyl chloride	100-44-7	T	CCV2	19.025	12906009	10.7	11.4	107	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV2	19.532	5480365	11.0	11.3	102	70-130		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB2	7.621	13661656	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB2								
Methyl-t-butyl ether	1634-04-4	T	CB2		65980						
1,1-Dichloroethane	75-34-3	T	CB2								
Vinyl acetate	108-05-4	T	CB2		259300						
Hexane	110-54-3	T	CB2		123517						
2-Butanone (MEK)	78-93-3	T	CB2		361106						
cis-1,2-Dichloroethene	156-59-2	T	CB2								
Ethyl acetate	141-78-6	T	CB2		116233						
Chloroform	67-66-3	T	CB2		25797						
Tetrahydrofuran	109-99-9	T	CB2		34443						
1,1,1-Trichloroethane	71-55-6	T	CB2								
1,2-Dichloroethane-d4	17060-07-0	Surr	CB2	8.563	20077871	10.0	10.6	106	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB2	9.779	27632421	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB2		66068						
Cyclohexane	110-82-7	T	CB2		92611						
Benzene	71-43-2	T	CB2		16348898						
Carbon tetrachloride	56-23-5	T	CB2		58625						
2,2,4-Trimethylpentane	540-84-1	T	CB2		51761						
Heptane	142-82-5	T	CB2		54966						



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RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Kansas State University
 245 Levee Drive
 Manhattan, KS 66502
 Dr. Byron Jones
 785-532-5620

Samples W305171-23 - W305171-34

RJ Lee Group Project: W305171
 Samples Received: 5/23/2023
 Analysis Date: 6/19/2023
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1,2-Dichloropropane	78-87-5	T	CB2								
Trichlorethylene (TCE)	79-01-6	T	CB2								
Bromodichloromethane	75-27-4	T	CB2								
Methyl methacrylate	80-62-6	T	CB2		25916						
1,4-Dioxane	123-91-1	T	CB2		33972						
4-Methyl-2-pentanone	108-10-1	T	CB2		72120						
cis-1,3-Dichloropropene	10061-01-5	T	CB2		18957						
Toluene-d8	2037-26-5	Surr	CB2	12.778	26203616	10.0	10.0	100	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB2		32497						
Toluene	108-88-3	T	CB2		214204						
1,1,2-Trichloroethane	79-00-5	T	CB2								
2-Hexanone	591-78-6	T	CB2		78929						
Dibromochloromethane	124-48-1	T	CB2		35245						
1,2-Dibromoethane	106-93-4	T	CB2		32955						
Tetrachloroethylene	95-47-6	T	CB2		28494						
Chlorobenzene-d5	3114-55-4	Int. Std	CB2	15.183	23687354	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB2		40105						
Ethyl Benzene	100-41-4	T	CB2		34732						
m,p-Xylene	108-88-3/106-42-3	T	CB2	15.787	123230		0.120				
Nonane	111-84-2	T	CB2		133126						
Bromoform	75-25-2	T	CB2		37117						
Styrene	100-42-5	T	CB2	16.328	88720		0.110				
o-Xylene	95-47-6	T	CB2		68858						
1,1,2,2-Tetrachloroethane	79-34-5	T	CB2		54754						
Cumene	98-82-8	T	CB2		37481						
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB2	17.115	17774591	10.0	9.95	99.5	70-130		
n-Propylbenzene	103-65-1	T	CB2		54951						
2-Chlorotoluene	95-49-8	T	CB2		41017						
4-Ethyltoluene	622-96-8	T	CB2		60686						
1,3,5-Trimethylbenzene	108-67-8	T	CB2		72444						
1,2,4-Trimethylbenzene	95-63-6	T	CB2		69653						
1,3-Dichlorobenzene	541-73-1	T	CB2	18.918	76652		0.100				
1,4-Dichlorobenzene	106-46-7	T	CB2	19.036	71880		0.100				
Benzyl chloride	100-44-7	T	CB2	19.022	91804		0.100				
1,2-Dichlorobenzene	95-50-1	T	CB2	19.530	77179		0.120				

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV3	7.646	14768378	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV3	6.085	6120979	10.5	8.26	79.0	70-130		
Methyl-t-butyl ether	1634-04-4	T	CCV3	6.187	16919549	10.5	11.0	105	70-130		
1,1-Dichloroethane	75-34-3	T	CCV3	6.455	10661826	10.6	9.13	86.3	70-130		
Vinyl acetate	108-05-4	T	CCV3	7.010	9045912	10.5	9.81	93.5	70-130		
Hexane	110-54-3	T	CCV3	7.006	12475819	10.5	10.2	97.2	70-130		
2-Butanone (MEK)	78-93-3	T	CCV3	6.908	17555626	10.5	9.78	93.5	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV3	7.346	6471969	10.4	9.54	91.8	70-130		
Ethyl acetate	141-78-6	T	CCV3	7.482	19821532	10.4	10.1	96.5	70-130		
Chloroform	67-66-3	T	CCV3	7.659	13459266	10.4	9.75	94.0	70-130		
Tetrahydrofuran	109-99-9	T	CCV3	8.006	9936401	10.7	10.1	94.6	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV3	8.655	12229975	9.69	10.3	106	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV3	8.582	20039300	10.0	9.79	97.9	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV3	9.795	27436947	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CCV3	8.728	9461718	10.4	9.91	95.2	70-130		
Cyclohexane	110-82-7	T	CCV3	9.266	11597590	10.5	10.7	102	70-130		



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Benzene	71-43-2	T	CCV3	9.233	54943769	10.3	23.6	229	70-130		R
Carbon tetrachloride	56-23-5	T	CCV3	9.273	14101580	10.5	10.7	102	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV3	10.096	15964080	10.2	11.3	110	70-130		
Heptane	142-82-5	T	CCV3	10.496	7701032	10.6	10.5	99.7	70-130		
1,2-Dichloropropane	78-87-5	T	CCV3	10.542	4059896	10.5	10.3	98.3	70-130		
Trichlorethylene (TCE)	79-01-6	T	CCV3	10.588	4448647	10.2	10.2	100	70-130		
Bromodichloromethane	75-27-4	T	CCV3	10.823	7346715	10.7	10.7	101	70-130		
Methyl methacrylate	80-62-6	T	CCV3	10.934	4032686	10.6	10.5	99.2	70-130		
1,4-Dioxane	123-91-1	T	CCV3	10.811	2589935	10.9	10.9	100	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV3	11.892	9888939	10.2	10.4	102	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV3	11.963	6274277	10.3	10.3	100	70-130		
Toluene-d8	2037-26-5	Surr	CCV3	12.785	26216867	10.0	10.1	101	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV3	12.755	5734460	10.6	10.3	97.8	70-130		
Toluene	108-88-3	T	CCV3	12.914	12950293	10.3	10.8	105	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV3	12.979	4177143	10.4	10.7	103	70-130		
2-Hexanone	591-78-6	T	CCV3	13.428	9274547	10.4	10.6	102	70-130		
Dibromochloromethane	124-48-1	T	CCV3	13.778	7780959	10.8	10.9	100	70-130		
1,2-Dibromoethane	106-93-4	T	CCV3	14.119	6438703	10.3	10.6	102	70-130		
Tetrachloroethylene	95-47-6	T	CCV3	14.234	6058796	10.0	10.6	106	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV3	15.186	23576684	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV3	15.241	5645862	10.2	10.3	101	70-130		
Ethyl Benzene	100-41-4	T	CCV3	15.597	5116613	10.3	10.4	100	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV3	15.791	12536914	20.5	21.0	102	70-130		
Nonane	111-84-2	T	CCV3	16.337	10553608	10.3	10.2	98.8	70-130		
Bromoform	75-25-2	T	CCV3	16.266	7842737	10.5	10.9	103	70-130		
Styrene	100-42-5	T	CCV3	16.326	4450510	10.2	10.5	103	70-130		
o-Xylene	95-47-6	T	CCV3	16.402	6057989	10.8	10.6	97.4	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV3	16.763	9000309	10.4	10.7	103	70-130		
Cumene	98-82-8	T	CCV3	17.103	4535635	10.5	10.6	101	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV3	17.116	17806319	10.0	10.0	100	70-130		
n-Propylbenzene	103-65-1	T	CCV3	17.747	4866607	10.4	10.6	101	70-130		
2-Chlorotoluene	95-49-8	T	CCV3	17.779	4195781	10.5	10.5	101	70-130		
4-Ethyltoluene	622-96-8	T	CCV3	17.936	5250176	10.8	10.7	98.6	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV3	18.033	7091492	10.7	10.6	99.3	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV3	18.589	6507098	10.6	10.7	100	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV3	18.921	5954925	10.6	11.0	104	70-130		
1,4-Dichlorobenzene	106-46-7	T	CCV3	19.039	5794127	10.5	10.9	104	70-130		
Benzyl chloride	100-44-7	T	CCV3	19.023	12343408	10.4	10.9	105	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV3	19.530	5274187	10.4	10.8	104	70-130		

Analyte	CAS No.	QC Sample ID	Analyte	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB3	7.575	14451360	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB3								
Methyl-t-butyl ether	1634-04-4	T	CB3								
1,1-Dichloroethane	75-34-3	T	CB3								
Vinyl acetate	108-05-4	T	CB3								
Hexane	110-54-3	T	CB3								
2-Butanone (MEK)	78-93-3	T	CB3		346186						
cis-1,2-Dichloroethene	156-59-2	T	CB3								
Ethyl acetate	141-78-6	T	CB3								
Chloroform	67-66-3	T	CB3								
Tetrahydrofuran	109-99-9	T	CB3								
1,1,1-Trichloroethane	71-55-6	T	CB3								



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1,2-Dichloroethane-d4	17060-07-0	Surr	CB3	8.523	20104458	10.0	10.0	100	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB3	9.746	27659226	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB3								
Cyclohexane	110-82-7	T	CB3								
Benzene	71-43-2	T	CB3		15778973						
Carbon tetrachloride	56-23-5	T	CB3								
2,2,4-Trimethylpentane	540-84-1	T	CB3								
Heptane	142-82-5	T	CB3								
1,2-Dichloropropane	78-87-5	T	CB3								
Trichloroethylene (TCE)	79-01-6	T	CB3								
Bromodichloromethane	75-27-4	T	CB3								
Methyl methacrylate	80-62-6	T	CB3								
1,4-Dioxane	123-91-1	T	CB3								
4-Methyl-2-pentanone	108-10-1	T	CB3		64574						
cis-1,3-Dichloropropene	10061-01-5	T	CB3		27393						
Toluene-d8	2037-26-5	Surr	CB3	12.763	26012859	10.0	9.95	99.5	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB3		28179						
Toluene	108-88-3	T	CB3		198051						
1,1,2-Trichloroethane	79-00-5	T	CB3		21421						
2-Hexanone	591-78-6	T	CB3		55752						
Dibromochloromethane	124-48-1	T	CB3								
1,2-Dibromoethane	106-93-4	T	CB3								
Tetrachloroethylene	95-47-6	T	CB3								
Chlorobenzene-d5	3114-55-4	Int. Std	CB3	15.174	23593595	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB3		32208						
Ethyl Benzene	100-41-4	T	CB3		30859						
m,p-Xylene	108-88-3/106-42-3	T	CB3	15.782	121371		0.110				
Nonane	111-84-2	T	CB3		105309						
Bromoform	75-25-2	T	CB3		35815						
Styrene	100-42-5	T	CB3		79400						
o-Xylene	95-47-6	T	CB3		62464						
1,1,2,2-Tetrachloroethane	79-34-5	T	CB3		52954						
Cumene	98-82-8	T	CB3		32865						
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB3	17.110	17772882	10.0	9.99	99.9	70-130		
n-Propylbenzene	103-65-1	T	CB3		48162						
2-Chlorotoluene	95-49-8	T	CB3		43161						
4-Ethyltoluene	622-96-8	T	CB3		51658						
1,3,5-Trimethylbenzene	108-67-8	T	CB3		66322						
1,2,4-Trimethylbenzene	95-63-6	T	CB3		69702						
1,3-Dichlorobenzene	541-73-1	T	CB3		69901						
1,4-Dichlorobenzene	106-46-7	T	CB3		70242						
Benzyl chloride	100-44-7	T	CB3	19.019	94266		0.100				
1,2-Dichlorobenzene	95-50-1	T	CB3	19.526	72319		0.110				

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CCV4	7.608	14681113	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CCV4	6.039	8031863	12.6	10.9	86.9	70-130		
Methyl-t-butyl ether	1634-04-4	T	CCV4	6.144	19477151	12.6	12.8	101	70-130		
1,1-Dichloroethane	75-34-3	T	CCV4	6.412	13269314	12.7	11.4	90.0	70-130		
Vinyl acetate	108-05-4	T	CCV4	6.969	11003216	12.6	12.1	95.9	70-130		
Hexane	110-54-3	T	CCV4	6.969	14882843	12.5	12.2	97.4	70-130		
2-Butanone (MEK)	78-93-3	T	CCV4	6.871	22272841	12.6	12.6	100	70-130		
cis-1,2-Dichloroethene	156-59-2	T	CCV4	7.307	7911522	12.5	11.7	94.2	70-130		



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Ethyl acetate	141-78-6	T	CCV4	7.447	24217602	12.5	12.4	98.9	70-130		
Chloroform	67-66-3	T	CCV4	7.620	16283923	12.4	11.9	95.5	70-130		
Tetrahydrofuran	109-99-9	T	CCV4	7.970	12190342	12.8	12.5	97.5	70-130		
1,1,1-Trichloroethane	71-55-6	T	CCV4	8.625	14514036	11.6	12.3	105	70-130		
1,2-Dichloroethane-d4	17060-07-0	Surr	CCV4	8.553	20117577	10.0	9.89	98.9	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CCV4	9.769	27543997	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CCV4	8.700	12064116	12.5	12.6	101	70-130		
Cyclohexane	110-82-7	T	CCV4	9.234	13888806	12.6	12.7	101	70-130		
Benzene	71-43-2	T	CCV4	9.204	40889127	12.4	13.6	110	70-130		
Carbon tetrachloride	56-23-5	T	CCV4	9.245	16765708	12.6	12.6	101	70-130		
2,2,4-Trimethylpentane	540-84-1	T	CCV4	10.073	19240249	12.3	13.6	110	70-130		
Heptane	142-82-5	T	CCV4	10.477	9059306	12.7	12.4	97.5	70-130		
1,2-Dichloropropane	78-87-5	T	CCV4	10.521	4764455	12.6	12.1	95.9	70-130		
Trichloroethylene (TCE)	79-01-6	T	CCV4	10.569	5364666	12.2	12.3	101	70-130		
Bromodichloromethane	75-27-4	T	CCV4	10.805	8699885	12.8	12.7	99.1	70-130		
Methyl methacrylate	80-62-6	T	CCV4	10.917	4844373	12.7	12.6	98.9	70-130		
1,4-Dioxane	123-91-1	T	CCV4	10.791	3122283	13.1	13.1	101	70-130		
4-Methyl-2-pentanone	108-10-1	T	CCV4	11.878	11878293	12.2	12.4	102	70-130		
cis-1,3-Dichloropropene	10061-01-5	T	CCV4	11.949	7521308	12.4	12.3	99.8	70-130		
Toluene-d8	2037-26-5	Surr	CCV4	12.774	26047458	10.0	10.0	100	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CCV4	12.745	6974564	12.7	12.5	98.8	70-130		
Toluene	108-88-3	T	CCV4	12.904	15072499	12.4	12.6	102	70-130		
1,1,2-Trichloroethane	79-00-5	T	CCV4	12.969	4963599	12.4	12.7	102	70-130		
2-Hexanone	591-78-6	T	CCV4	13.420	11067215	12.4	12.6	101	70-130		
Dibromochloromethane	124-48-1	T	CCV4	13.770	9306736	13.0	13.0	99.7	70-130		
1,2-Dibromoethane	106-93-4	T	CCV4	14.112	7757559	12.4	12.7	102	70-130		
Tetrachloroethylene	95-47-6	T	CCV4	14.227	7304264	12.0	12.7	106	70-130		
Chlorobenzene-d5	3114-55-4	Int. Std	CCV4	15.180	23521566	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CCV4	15.236	6721516	12.3	12.3	100	70-130		
Ethyl Benzene	100-41-4	T	CCV4	15.593	6097778	12.4	12.4	100	70-130		
m,p-Xylene	108-88-3/106-42-3	T	CCV4	15.787	14760029	24.6	24.8	100	70-130		
Nonane	111-84-2	T	CCV4	16.335	12398879	12.4	12.1	97.2	70-130		
Bromoform	75-25-2	T	CCV4	16.262	9372420	12.6	13.0	103	70-130		
Styrene	100-42-5	T	CCV4	16.323	5265720	12.3	12.5	102	70-130		
o-Xylene	95-47-6	T	CCV4	16.399	7152362	13.0	12.5	96.2	70-130		
1,1,2,2-Tetrachloroethane	79-34-5	T	CCV4	16.761	10576874	12.4	12.6	101	70-130		
Cumene	98-82-8	T	CCV4	17.100	5296726	12.6	12.4	98.6	70-130		
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CCV4	17.113	17733107	10.0	10.0	100	70-130		
n-Propylbenzene	103-65-1	T	CCV4	17.745	5651001	12.5	12.3	98.4	70-130		
2-Chlorotoluene	95-49-8	T	CCV4	17.778	4993031	12.5	12.6	100	70-130		
4-Ethyltoluene	622-96-8	T	CCV4	17.935	6163373	13.0	12.6	96.8	70-130		
1,3,5-Trimethylbenzene	108-67-8	T	CCV4	18.031	8355042	12.8	12.5	97.8	70-130		
1,2,4-Trimethylbenzene	95-63-6	T	CCV4	18.587	7724664	12.8	12.7	99.4	70-130		
1,3-Dichlorobenzene	541-73-1	T	CCV4	18.919	7071228	12.8	13.1	103	70-130		
1,4-Dichlorobenzene	106-46-7	T	CCV4	19.038	7006804	12.5	13.2	105	70-130		
Benzyl chloride	100-44-7	T	CCV4	19.021	15425304	12.5	13.7	109	70-130		
1,2-Dichlorobenzene	95-50-1	T	CCV4	19.529	6561661	12.5	13.5	108	70-130		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ppbv	Result ppbv	%REC	Range %REC	%RPD	Qualifier
Bromochloromethane	74-97-5	Int. Std	CB4	7.578	14382074	10.0	10.0	100	70-130		
trans-1,2-Dichloroethene	156-60-5	T	CB4								
Methyl-t-butyl ether	1634-04-4	T	CB4								
1,1-Dichloroethane	75-34-3	T	CB4								



QUALITY CONTROL REPORT
EPA Compendium Method TO-17-Modified
Tenax

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Kansas State University
 245 Levee Drive
 Manhattan, KS 66502
 Dr. Byron Jones
 785-532-5620

Samples W305171-23 - W305171-34

RJ Lee Group Project: W305171
 Samples Received: 5/23/2023
 Analysis Date: 6/19/2023
 Report Date: 9/19/2023
 Sampling Date:
 Purchase Order No.:
 Client Project: Air Sampling

Vinyl acetate	108-05-4	T	CB4								
Hexane	110-54-3	T	CB4								
2-Butanone (MEK)	78-93-3	T	CB4		237690						
cis-1,2-Dichloroethene	156-59-2	T	CB4								
Ethyl acetate	141-78-6	T	CB4								
Chloroform	67-66-3	T	CB4								
Tetrahydrofuran	109-99-9	T	CB4								
1,1,1-Trichloroethane	71-55-6	T	CB4								
1,2-Dichloroethane-d4	17060-07-0	Surr	CB4	8.523	19858626	10.0	9.97	99.7	70-130		
1,4-Difluorobenzene	540-36-3	Int. Std	CB4	9.746	27336281	10.0	10.0	100	70-130		
1,2-Dichloroethane	107-06-2	T	CB4								
Cyclohexane	110-82-7	T	CB4								
Benzene	71-43-2	T	CB4	9.178	35283566		9.85				B
Carbon tetrachloride	56-23-5	T	CB4								
2,2,4-Trimethylpentane	540-84-1	T	CB4								
Heptane	142-82-5	T	CB4								
1,2-Dichloropropane	78-87-5	T	CB4								
Trichlorethylene (TCE)	79-01-6	T	CB4								
Bromodichloromethane	75-27-4	T	CB4								
Methyl methacrylate	80-62-6	T	CB4		46182						
1,4-Dioxane	123-91-1	T	CB4								
4-Methyl-2-pentanone	108-10-1	T	CB4		60050						
cis-1,3-Dichloropropene	10061-01-5	T	CB4		28899						
Toluene-d8	2037-26-5	Surr	CB4	12.764	25846244	10.0	10.0	100	70-130		
trans-1,3-Dichloropropene	10061-02-6	T	CB4		31289						
Toluene	108-88-3	T	CB4	12.895	749670		0.270				B
1,1,2-Trichloroethane	79-00-5	T	CB4								
2-Hexanone	591-78-6	T	CB4		60454						
Dibromochloromethane	124-48-1	T	CB4		36199						
1,2-Dibromoethane	106-93-4	T	CB4		32895						
Tetrachloroethylene	95-47-6	T	CB4		27989						
Chlorobenzene-d5	3114-55-4	Int. Std	CB4	15.176	23325314	10.0	10.0	100	70-130		
Chlorobenzene	108-90-7	T	CB4		36512						
Ethyl Benzene	100-41-4	T	CB4		52966						
m,p-Xylene	108-88-3/106-42-3	T	CB4	15.786	167525		0.190				B
Nonane	111-84-2	T	CB4		156216						
Bromoform	75-25-2	T	CB4		37792						
Styrene	100-42-5	T	CB4		76812						
o-Xylene	95-47-6	T	CB4		82358						
1,1,2,2-Tetrachloroethane	79-34-5	T	CB4		46587						
Cumene	98-82-8	T	CB4		35483						
4-Bromofluorobenzene (BFB)	460-00-4	Surr	CB4	17.113	17843117	10.0	10.2	102	70-130		
n-Propylbenzene	103-65-1	T	CB4		65381						
2-Chlorotoluene	95-49-8	T	CB4		43119						
4-Ethyltoluene	622-96-8	T	CB4		58796						
1,3,5-Trimethylbenzene	108-67-8	T	CB4		83369						
1,2,4-Trimethylbenzene	95-63-6	T	CB4		90852						
1,3-Dichlorobenzene	541-73-1	T	CB4	18.931	74845		0.100				
1,4-Dichlorobenzene	106-46-7	T	CB4	19.049	75968		0.110				
Benzyl chloride	100-44-7	T	CB4	19.038	99072		0.110				
1,2-Dichlorobenzene	95-50-1	T	CB4	19.548	73999		0.120				

Comments: MDLs and RLs have been adjusted for analysis volumes and dilution factors.

ng = nanogram

BDL = Below Detection Limit

* no TIC above the reporting threshold



QUALITY CONTROL REPORT
EPA Compendium Method TO-17-Modified
Tenax

RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

Kansas State University
 245 Levee Drive
 Manhattan, KS 66502
 Dr. Byron Jones
 785-532-5620

Samples W305171-23 - W305171-34

RJ Lee Group Project: W305171
 Samples Received: 5/23/2023
 Analysis Date: 6/19/2023
 Report Date: 9/19/2023
 Sampling Date:
 Purchase Order No.:
 Client Project: Air Sampling

ppbv = parts per billion volume
ug/m3 = micrograms per cubic meter

N/A = Not Applicable

Qualifiers

B = Compound found in associated laboratory blank above the reporting limit.

c = Sample RPD failure

r = %REC failure in the MRL

p = Positively identified compound, for non-calibrated compounds

B = Compound found in associated laboratory blank above the MDL.

D = Diluted sample

E = Report concentration was above the instrumental calibration range

I = Response failure of an internal standard; concentration should be considered an estimate

J = Reported concentration was estimated

Z = Compound Highly Variable Due to Thermal Breakdown of Tenax

N = Identification based on mass spectral library search

P = Library spectrum match, rsd >90% w RT match

Q = Qualitative results for non detects

R = Analyte Spike %REC Failure

S = Surrogate recovery failure

TIC = Compound is tentatively identified compound. Includes both chemical library matches, chemist identified compounds, and unknowns. (Library spectrum match w/o RT match)

X = Detected but not quantifiable

Authorized Signature:
 Laboratory Technical Manager - Dr. Joe Sears

09/19/23

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples. Unless otherwise noted, samples were received in an acceptable condition. This laboratory operates in accordance with ISO 17025 guidelines, and holds limited scopes of accreditation under EPA ID WA01195, WA DOE Lab ID C859, AIHA Lab ID 178656, and ORELAP4061. This report may not be used to claim product endorsement by any laboratory accrediting agency. The results contained in this report relate only to the items tested or the sample(s) as received by the laboratory. Quality control data is available upon request.



End of Report

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ATTENTION TO:						JJ Furlong							Purchase Order No.: 2272794 Document Number 2275794 R Client Job No.: GEIE007679								
Lab Use Only	Project No.: W305171 Client No:					Date Results Needed	Per Quote					Rush Charges Authorized ? (check one)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	STANDARD							
	Date Logged In: Logged In By:																				
	Temperature Upon Receipt (Chem Only) °C Therm ID No.																				
Report Results To	Name: Byron Jones					Drinking Water Sample Only	Sample Purpose: Information <input type="checkbox"/> Regulatory Accreditation (please list below):														
	Company: KSU Alin Levin Department of Mechanical and Nuclear Engineering						System ID #:														
	Address:						DOH Source #:														
	City, State, Zip: Manhattan, KS 66502					Multiple Sources #s: Sample Purpose: A <input type="checkbox"/> B <input type="checkbox"/> Other <input type="checkbox"/>															
	Phone: 785-410-0625 (mobile) Fax:																				
	Email Results To: Jones@KSU.EDU and richardfox@acenvinc.com (602) 359-7868																				
Invoice To	Name: Shelly Reves-Klinkner If a hard copy of invoice is needed, check here					Chemistry Analysis Key	Preservation: Unpres H ₂ SO ₄ 4° C HCl HNO ₃ NaOH Other Na ₂ SO ₄ Matrix: WW=Wastewater GW=Groundwater Water S=Soil/Sludge E=Extract Container: P=Plastic G=Glass W=Wipe A=Air (filter or tube)														
	Company: KSU Email: sireves@ksu.edu						Analysis Requested														
	Address:																				
	City, State, Zip: Manhattan, KS 66502																				
Phone: 785-532-7014 Fax:					EPA TO-17 Therman Desorption Tube								Pres. Upon Receipt (Y/N)	Preservation	Matrix	Container Type	pH	No. Containers			
Special Instructions	Sample ID's were revered in original submission. Switched sample ID from original COC from Ambient to Pack Out, and Coalescer to Ambient.																				
Client Sample ID						Sample #	Sample Collection Date	Sample Collection Time	Total Collection Time - min	Air Volume (specify units)											
MJ-II - 220 C - 10 ppmW - Pack Out - 463634						24	May 18th 2023	11:58	15 min	3 L											
MJ-II - 220 C - 10 ppmW - Ozone In - 673940						25	May 18th 2023	11:58	15 min	2.85 L											
MJ-II - 220 C - 10 ppmW - Ozone Out - 463642						26	May 18th 2023	11:58	15 min	3 L											
MJ-II - 220 C - 10 ppmW - Ambient - 673937						27	May 18th 2023	11:58	15 min	3.15 L											
Baseline - 220 C - Ozone In - 463650						28	May 18th 2023	15:40	15 min	3.15 L											
Baseline - 220 C - Ozone Out - 673928						29	May 18th 2023	15:40	15 min	3 L											
Baseline - 220 C - Ambient - 673936						30	May 18th 2023	15:40	15 min	3.15 L											
Skydrol - 220 C - 5 ppmW - Pack Out - 673932						31	May 18th 2023	17:05	15 min	3.15 L											
Skydrol - 220 C - 5 ppmW - Ozone In - 463624						32	May 18th 2023	17:05	15 min	3 L											
Skydrol - 220 C - 5 ppmW - Ozone Out - 463647						33	May 18th 2023	17:05	15 min	3.15 L											
Skydrol - 220 C - 5 ppmW - Ambient - 463644					34	May 18th 2023	17:05	15 min	3.15 L												
Chain of Custody	Relinquished By (Signature): Richard B Fox Date: 11/29/2023 Time: 15:00					Chain of Custody	Received By (Signature): Date: Time:														
	Relinquished By (Print Name): Richard Fox Relinquished To: RJ Lee Group						Received By (Print Name): Relinquished To:														
	Company Name: Kansas State University Method of Shipment: N/A						Company Name: Method of Shipment:														
Chain of Custody	Relinquished By (Signature): Date: Time:					Chain of Custody	Received By (Signature): Date: Time:														
	Relinquished By (Print Name): Relinquished To:						Received By (Print Name): Relinquished To:														
	Company Name: Method of Shipment:						Company Name: Method of Shipment:														

Pennsylvania - HQ
350 Hochberg Road
Monroeville, PA 15146

Washington
Columbia Basin Analytical Laboratories
2710 North 20th Avenue
Pasco, WA 99301

724.325.1776 **Phone**
724.733.1799 **Fax**

509.545.4989 **Phone**
509.544.6010 **Fax**

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Page 1 of 3

ATTENTION TO:						JJ Furlong	Purchase Order No.: 2272794 Document Number 2275794 R								Client Job No.: GEIE007679												
Lab Use Only	Project No.: W305171 Client No:					Date Results Needed	Per Quote				Rush Charges Authorized ? (check one)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	STANDARD														
	Date Logged In: _____ Logged In By: _____																										
	Temperature Upon Receipt (Chem Only) _____ °C Therm ID No. _____																										
Report Results To	Name: Byron Jones					Drinking Water Sample Only	Sample Purpose: Information <input type="checkbox"/> Regulatory <input type="checkbox"/> Accreditation (please list below):																				
	Company: KSU Alin Levin Department of Mechanical and Nuclear Engineering						System ID #: _____																				
	Address: _____						DOH Source #: _____																				
	City, State, Zip: Manhattan, KS 66502					Multiple Sources #s: _____																					
	Phone: 785-410-0625 (mobile) Fax: _____					Sample Purpose: A <input checked="" type="checkbox"/> B <input type="checkbox"/> Other <input type="checkbox"/>																					
	Email Results To: Jones@KSU.EDU and richardfox@acenvinc.com (602) 359-7868					Chemistry Analysis Key	Preservation: Unpres H ₂ SO ₄ 4° C HCl HNO ₃ Other NaOH Na ₂ SO ₄ Matrix: WW=Wastewater GW=Groundwater Water S=Soil/Sludge E=Extract Container: P=Plastic G=Glass W=Wipe A=Air (filter or tube)																				
Invoice To	Name: Shelly Reves-Klinkner If a hard copy of invoice is needed, check here					Analysis Requested											EPA TO-17 Therman Desorption Tube	Pres. Upon Receipt (Y/N)	Preservation	Matrix	Container Type	pH	No. Containers				
	Company: KSU Email: sireves@ksu.edu																										
	Address: Manhattan, KS 66502																										
	City, State, Zip: Manhattan, KS 66502																										
Phone: 785-532-7014 Fax: _____																											
Special Instructions	Sample ID's were revered in original submission. Switched sample ID from original COC from Ambient to Pack Out, and Coalescercr to Ambient.																										
Client Sample ID						Sample #	Sample Collection Date	Sample Collection Time	Total Collection Time - min	Air Volume (specify units)																	
Shipping Blank - 673935						1	May 16th 2023	N/A	N/A	N/A												✓					
Field Blank - 672923						2	May 16th 2023	N/A	N/A	N/A												✓					
Baseline - 300 C - Pack Out - 673924						3	May 16th 2023	15:21	15 min	1.95 L												✓					
Baseline - 300 C - Ozone In - 673916						4	May 16th 2023	15:21	15 min	2.7 L												✓					
Baseline - 300 C - Ozone Out - 463626						5	May 16th 2023	15:21	15 min	1.8 L												✓					
Baseline - 300 C - Ambient - 673917						6	May 16th 2023	15:21	15 min	1.95 L												✓					
MJ-II - 315 C - 5ppmW - Pack Out - 673912						7	May 16th 2023	17:30	15 min	3.15 L												✓					
MJ-II - 315 C - 5ppmW - Ozone In - 463623						8	May 16th 2023	17:30	15 min	2.85 L												✓					
MJ-II - 315 C - 5ppmW - Ozone Out - 673925						9	May 16th 2023	17:30	15 min	3 L												✓					
MJ-II - 315 C - 5ppmW - Ambient - 673915						10	May 16th 2023	17:30	15 min	2.85 L												✓					
Chain of Custody	Relinquished By (Signature): Richard B Fox Date:11/29/2023 Time: 15:00					Chain of Custody	Received By (Signature): _____ Date: _____ Time: _____																				
	Relinquished By (Print Name): Richard Fox Relinquished To: RJ Lee Group						Received By (Print Name): _____ Relinquished To: _____																				
	Company Name: Kansas State University Method of Shipment: N/A						Company Name: _____ Method of Shipment: _____																				
Chain of Custody	Relinquished By (Signature): _____ Date: _____ Time: _____					Chain of Custody	Received By (Signature): _____ Date: _____ Time: _____																				
	Relinquished By (Print Name): _____ Relinquished To: _____						Received By (Print Name): _____ Relinquished To: _____																				
	Company Name: _____ Method of Shipment: _____						Company Name: _____ Method of Shipment: _____																				

R4 09202019

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R4 09202019

W305171 Rev.3, Page 198 of 206

Page 1 of 3

Pennsylvania - HQ
350 Hochberg Road
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Pasco, WA 99301

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724.733.1799 Fax

509.545.4989 Phone
509.544.6010 Fax



RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Request for Environmental and IH Laboratory Analytical Services

W305171

Page 2 of 3

ATTENTION TO: <u>JOE SEARS</u>						Purchase Order No.: <u>2272744</u>		Client Job No.:									
Lab Use Only	Project No.:		Client No.:		Date Results Needed	<u>Per Quote</u>		Rush Charges Authorized? (check one) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO									
	Date Logged In:		Logged In By:														
Report Results To	Temperature Upon Receipt (Chem Only) _____ °C Therm ID No. _____					Drinking Water Sample Only	Sample Purpose: Information <input type="checkbox"/> Regulatory <input checked="" type="checkbox"/> Accreditation (please list below):										
	Name: <u>BYRON JONES</u>						System ID #: _____										
	Company: <u>KSU</u>						DOH Source #: _____										
	Address: _____						Multiple Sources #s: _____										
	City, State, Zip: _____					Chemistry Analysis Key	Sample Purpose: A <input type="checkbox"/> B <input type="checkbox"/> Other <input type="checkbox"/>										
	Phone: _____ Fax: _____						Preservation: Unpres H ₂ SO ₄ 4°C HCl HNO ₃ NaOH Other Na ₂ SO ₄										
Email Results To: <u>jones@ksu.edu</u> <u>richardfox@acuvine.com</u>					Matrix: WW=Wastewater GW=Groundwater Water S=Soil/Sludge E=Extract SW=Surface Water DW=Drinking O=Oil X=Other Container: P=Plastic G=Glass W=Wipe A=Air (filter or tube)												
Invoice To	Name: <u>KSU</u> If a hard copy of invoice is needed, check here					Analysis Requested											
	Company: _____ Email: _____																
	Address: _____																
Special Instructions	City, State, Zip: _____					EPA TO-17 Therman Desorption Tube						Pres. Upon Receipt (Y/N)	Preservation	Matrix	Container Type	pH	No. Containers
	Phone: _____ Fax: _____																
Client Sample ID		Sample #	Sample Collection Date	Sample Collection Time	Total Collection Time - min	Air Volume (specify units)											
Field Blank - 673919		11	May 17th 2023	N/A	N/A	N/A	✓										
Baseline - 300 C - Ambient - 673921		12	May 17th 2023	10:35	15 min	3 L	✓										
Baseline - 300 C - Ozone In - 463636		13	May 17th 2023	10:35	15 min	3L	✓										
Baseline - 300 C - Ozone Out - 673938		14	May 17th 2023	10:35	15 min	2.7 L	✓										
Baseline - 300 C - Coalescer - 463638		15	May 17th 2023	10:35	15 min	3L	✓										
2197 - 312 C - 5ppmW - Ambient - 463648		16	May 17th 2023	12:30	15 min	2.85 L	✓										
2197 - 312 - 5ppmW - Ozone In - 673922		17	May 17th 2023	12:30	15 min	3 L	✓										
2197 - 312 C - 5ppmW - Ozone Out - 673914		18	May 17th 2023	12:30	15 min	2.85 L	✓										
2197 - 312 C - 5ppmW - Coalescer - 463635		19	May 17th 2023	12:30	15 min	2.85 L	✓										
2197 - 220 C - 5ppmW - Ambient - 673918		20	May 17th 2023	16:45	15 min	3 L	✓										
2197 - 220 C - 5ppmW - Ozone In - 673933		21	May 17th 2023	16:45	15 min	3 L	✓										
2197 - 220 C - 5ppmW - Ozone Out - 463625		22	May 17th 2023	16:45	15 min	3 L	✓										
2197 - 220 C - 5ppmW - Coalescer - 673927		23	May 17th 2023	16:45	15 min	3 L	✓										
Chain of Custody	Relinquished By (Signature): <u>R. Licht / RJP</u>		Date: <u>May 20 2023</u> Time: <u>0900</u>		Chain of Custody	Received By (Signature): <u>M. Harkins</u>		Date: <u>05/24/23</u> Time: <u>1045</u>									
	Relinquished By (Print Name): <u>Stephanie Licht</u>		Relinquished To:			Received By (Print Name): <u>J. Harkins</u>		Relinquished To:									
	Company Name: <u>RICHARD FOX</u>		Method of Shipment:			Company Name: <u>RJL6</u>		Method of Shipment:									
Chain of Custody	Relinquished By (Signature):		Date: _____ Time: _____		Chain of Custody	Received By (Signature):		Date: _____ Time: _____									
	Relinquished By (Print Name):		Relinquished To:			Received By (Print Name):		Relinquished To:									
	Company Name:		Method of Shipment:			Company Name:		Method of Shipment:									

Request for Environmental and IH Laboratory Analytical Services

W305171

Page 3 of 3

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ATTENTION TO: <u>Joe Sarno</u>						Purchase Order No.: <u>2272794</u>		Client Job No.:								
Lab Use Only	Project No.:		Client No.:		Date Results Needed	per Quotation		Rush Charges Authorized? (check one)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
	Date Logged In:		Logged In By:													
	Temperature Upon Receipt (Chem Only) _____ °C		Therm ID No. _____													
Report Results To	Name: <u>BYRON JONES</u>				Drinking Water Sample Only	Sample Purpose: Information <input type="checkbox"/> Regulatory <input checked="" type="checkbox"/> Accreditation (please list below):										
	Company: <u>KSU</u>					System ID #: _____										
	Address: _____					DOH Source #: <u>15.1</u>										
	City, State, Zip: _____					Multiple Sources #s: _____										
	Phone: _____ Fax: _____					Sample Purpose: A <input type="checkbox"/> B <input type="checkbox"/> Other <input type="checkbox"/>										
Invoice To	Email Results To: <u>jones@KSU.EDU</u>				Chemistry Analysis Key	Preservation:										
	Name: _____ If a hard copy of invoice is needed, check here					Unpres H ₂ SO ₄ Matrix: WW=Wastewater SW=Surface Water Container: P=Plastic										
	Company: _____ Email: _____					4°C HCl GW=Groundwater DW=Drinking G=Glass										
	Address: _____					HNO ₃ NaOH S=Soil/Sludge O=Oil W=Wipe A=Air (filter or tube)										
	City, State, Zip: _____					Other Na ₂ SO ₄ E=Extract X=Other										
Special Instructions	Phone: _____ Fax: _____				Analysis Requested											
					EPA TO-17 Therman Desorption Tube						Pres. Upon Receipt (Y/N)	Preservation	Matrix	Container Type	pH	No. Containers
Client Sample ID			Sample #	Sample Collection Date	Sample Collection Time	Total Collection Time - min	Air Volume (specify units)									
MJ-II - 220 C - 10 ppmW - Ambient - 463634			24	May 18th 2023	11:58	15 min	3 L	✓								
MJ-II - 220 C - 10 ppmW - Ozone In - 673940			25	May 18th 2023	11:58	15 min	2.85 L	✓								
MJ-II - 220 C - 10 ppmW - Ozone Out - 463642			26	May 18th 2023	11:58	15 min	3 L	✓								
MJ-II - 220 C - 10 ppmW - Coalescer - 673937			27	May 18th 2023	11:58	15 min	3.15 L	✓								
Baseline - 220 C - Ozone In - 463850			28	May 18th 2023	15:40	15 min	3.15 L	✓								
Baseline - 220 C - Ozone Out - 673928			29	May 18th 2023	15:40	15 min	3 L	✓								
Baseline - 220 C - Coalescer - 673936			30	May 18th 2023	15:40	15 min	3.15 L	✓								
Skydrol - 220 C - 5 ppmW - Ambient - 673932			31	May 18th 2023	17:05	15 min	3.15 L	✓								
Skydrol - 220 C - 5 ppmW - Ozone In - 463624			32	May 18th 2023	17:05	15 min	3 L	✓								
Skydrol - 220 C - 5 ppmW - Ozone Out - 463647			33	May 18th 2023	17:05	15 min	3.15 L	✓								
Skydrol - 220 C - 5 ppmW - Coalescer - 463644			34	May 18th 2023	17:05	15 min	3.15 L	✓								
Chain of Custody	Relinquished By (Signature): <u>J. Licht / R Fox</u>		Date: <u>May 22 2023</u> Time: <u>0900</u>		Chain of Custody	Received By (Signature): <u>M. Furlong</u>		Date: <u>05/23/23</u> Time: <u>1045</u>								
	Relinquished By (Print Name): <u>Stephanie Licht</u>		Relinquished To:			Received By (Print Name): <u>JJ Furlong</u>		Relinquished To:								
	Company Name: <u>RICHARD FOX</u>		Method of Shipment:			Company Name: <u>RJL6</u>		Method of Shipment:								
Chain of Custody	Relinquished By (Signature): _____		Date: _____ Time: _____		Chain of Custody	Received By (Signature): _____		Date: _____ Time: _____								
	Relinquished By (Print Name): _____		Relinquished To: _____			Received By (Print Name): _____		Relinquished To: _____								
	Company Name: _____		Method of Shipment: _____			Company Name: _____		Method of Shipment: _____								

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Monroeville, PA 15146

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Columbia Basin Analytical Laboratories
2710 North 20th Avenue
Pasco, WA 99301

724.325.1776 Phone

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 **RJ LEE GROUP**
DELIVERING SCIENTIFIC RESOLUTION

May 16 th 2023	N/A	Shipping Blank
N/A	N/A	N/A
EPA T0-17 Thermal Desorption Tube	Sample# 1 673935	N/A
N/A	N/A	N/A

May 16 th 2023	N/A	Shipping Blank
N/A	N/A	N/A
EPA T0-17 Thermal Desorption Tube	Sample#2 672923	N/A
N/A	N/A	N/A

May 16 th 2023	15:21	Ambient
Baseline 300 C	Fluid Injection Rate - O	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#3 673924	Total Sample Volume -1.95 L
Sample Temp 25 C	Sample Duration 15min	Sample Flow Rate-0.13 LPM

May 16 th 2023	17:30	Ambient
MJ-11- 315 C	Fluid Injection Rate-5ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#? 673912	Total Sample Volume - 3.15 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.21 LPM

May 16 th 2023	15:21	Ozone In
Baseline 300 C	Fluid Injection Rate - O	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#4 673916	Total Sample Volume-2.7L
Sample Temp 25 C	Sample Duration 15 min	Sample Flow Rate-0.18 LPM

May 16 th 2023	17:30	Ozone In
MJ-11- 315 C	Fluid Injection Rate-5ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#8 463623	Total Sample Volume - 2.85 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.19 LPM

May 16 th 2023	15:21	Ozone Out
Baseline 300 C	Fluid Injection Rate - O	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#5 463626	Total Sample Volume - 1.8 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.12 LPM

May 16 th 2023	17:30	Ozone Out
MJ-11- 315 C	Fluid Injection Rate-5ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#9 673925	Total Sample Volume-3 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.2 LPM

May 16 th 2023	15:21	Ambient
Baseline 300 C	Fluid Injection Rate - O	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#6 673917	Total Sample Volume - 1.95 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate-0.13 LPM

May 16 th 2023	17:30	Ambient
MJ-11- 315 C	Fluid Injection Rate-5ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample# 10 673915	Total Sample Volume - 2.85 L
Sample Temp 25 C	Sample Duration 15min	Sample Flow Rate - 0.19 LPM

May 17 th 2023	NIA	Field Blank
N/A	N/A	N/A
EPA T0-17 Thermal Desorption Tube	Sample# 11 673919	NIA
NIA	NIA	N/A

May 17 th 2023	10:35	Ambient
Baseline 300 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample# 12 673921	Total Sample Volume-3 L
Sample Temp 25 C	Sample Duration 15 min	Sample Flow Rate - 0.2 LPM

May 17 th 2023	12:30	Ambient
Eastman 2197 312 C	Fluid Injection Rate-SppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample# 16 463648	Total Sample Volume - 2.85 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate-0.19 LPM

May 17 th 2023	10:35	Ozone In
Baseline 300 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample# 13 463636	Total Sample Volume-3 L
Sample Temp 25 C	Sample Duration 15 min	Sample Flow Rate - 0.2 LPM

May 17 th 2023	12:30	Ozone In
Eastman 2197 312 C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample# 17 673922	Total Sample Volume-3 L
Sample Temp 25C	Sample Duration 15min	Sample Flow Rate - 0.2 LPM

May 17 th 2023	10:35	Ozone Out
Baseline 300 C	Fluid Injection Rate -0	Bleed Air Exit Temp
EPA T0-17 Thermal Desorp1Jon Tube	Sample# 14 673938	Total Sample Volume - 2.7 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.18 LPM

May 17 th 2023	12:30	Ozone Out
Eastman 2197 312C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPAT0-17 Thermal Desorption Tube	Sample# 18 673914	Total Sample Volume - 2.85 L
Sample Temp 25 C	Sample Duration 15 min	Sample Flow Rate-0.19 LPM

May 17 th 2023	10:35	Ambient
Baseline 300 C	Fluid Injection Rate- 0	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample# 15 463638	Total Sample Volume-3 L
Sample Temp 25 C	Sample Duration 15 min	Sample Flow Rate - 0.2 LPM

May 17 th 2023	12:30	Ambient
Eastman 2197 312 C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample# 19 463635	Total Sample Volume - 2.85 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate-0.19 LPM

May 17th 2023	Time	Ambient
Low Temp 2197	Fluid Injection Rate	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample #	Total Sample Volume
Sample Temp	Sample Duration	Sample Flow Rate

May 17 th 2023	16:45	Ambient
Eastman 2197 220 C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA TO-17 Thermal Desorption Tube	Sample#20 673918	Total Sample Volume-3 L
Sample Temp 25 C	Sample Duration 15min	Sample Flow Rate - 0.2 LPM

May 17 th 2023	16:45	Ozone In
Eastman 2197 220C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA TO-17 Thermal Desorption Tube	Sample #21 673933	Total Sample Volume-3 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.2 LPM

May 17 th 2023	16:45	Ozone out
Eastman 2197 220 C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA TO-17 Thermal Desorption Tube	Sample#22 463625	Total Sample Volume-3 L
Sample Temp 25 C	Sample Duration 15 min	Sample Flow Rate - 0.2 LPM

May 17 th 2023	16:45	Ambient
Eastman 2197 220 C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA TO-17 Thermal Desorption Tube	Sample#23 673927	Total Sample Volume-3 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.2 LPM

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May 18 th 2023	11:58	Ambient
MJ-11220 C	Fluid Injection Rate - 10 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#24 463634	Total Sample Volume-3 L
Sample Temp 25 C	Sample Duration 15 min	Sample Flow Rate

May 18 th 2023	15:40	Ozone Out
Baseline 220 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample# 29 673928	Total Sample Volume- 3 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.2 LPM

May 18 th 2023	11:58	Ozone In
MJ-11220 C	Fluid Injection Rate - 10 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#25 673940	Total Sample Volume - 2.85 L
Sample Temp 25C	Sample Duration 15min	Sample Flow Rate

May 18 th 2023	15:40	Ambient
Baseline 220 C	Fluid Injection Rate	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#30 673936	Total Sample Volume-3.15 L
Sample Temp 25 C	Sample Duration 15min	Sample Flow Rate - 0.21 LPM

May 18 ^o 2023	11:58	Ozone Out
MJ-11220 C	Fluid Injection Rate - 10 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample #26 463642	Total Sample Volume-3 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate

May 18 th 2023	17:05	Ambient
Skydrol 220C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#31 673932	Total Sample Volume- 3.15 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.21 LPM

May 18 th 2023	11:58	Ambient
MJ-11220 C	Fluid Injection Rate - 10 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#27 673937	Total Sample Volume-3.15L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate

May 18 th 2023	17:05	Ozone In
Skydrol 220C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#32 463624	Total Sample Volume-3 L
Sample Temp 25C	Sample Duration 15min	Sample Flow Rate-0.21 LPM

May 18 th 2023	15:40	Ozone In
Baseline 220 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#28 463650	Total Sample Volume 3.15 L
Sample Temp 25C	Sample Duration 15 min	Sample Flow Rate - 0.21 LPM

May 18 th , 2023	17:05	Ozone Out
Skydrol 220C	Fluid Injection Rate-5ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#33 463647	Total Sample Volume-3.15 L
Sample Temp 25C	Sample Duration 15min	Sample Flow Rate - 0.21 LPM

May 18 th 2023	17:05	Ambient
Skydrol 220C	Fluid Injection Rate-5 ppmW	Bleed Air Exit Temp
EPA T0-17 Thermal Desorption Tube	Sample#34 463644	Total Sample Volume-3.15 L
Sample Temp 25 C	Sample Duration 15 min	Sample Flow Rate - 0.21 LPM