

August 25, 2023

Revised July 17, 2024



Submitted by:

Joe Sears, Ph.D.; Laboratory Technical Manager  
RJ Lee Group, Inc. - Columbia Basin Analytical Laboratories  
2710 N. 20<sup>th</sup> Avenue  
Pasco, WA 99301  
Laboratory Work Order W305170

Prepared for:

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

#### Notice of Restriction on Disclosure and Use of Data

"This submittal includes data that shall not be disclosed outside 'Kansas State University' and shall not be duplicated, used, or disclosed—in whole or in part—for any purpose other than to evaluate this submittal. However, 'Kansas State University' shall have the right to duplicate, use, or disclose the data to the extent provided by agreements with CBAL, either verbally, e-mail, quotation for services, Chain of Custody, or other means of communication regarding the sample(s) or sample analysis. This restriction does not limit 'Kansas State University' the right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in all sheets of this report.

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

August 25, 2023

Subject: Analysis of 33 samples for Polynuclear Aromatic Hydrocarbons by EPA Method TO-13

The following is the report for the analysis of 33 quartz filter samples received at Columbia Basin Analytical Laboratory on May 23, 2023 for the analysis of polynuclear aromatic hydrocarbons (PAHs). The sample group was assigned a Columbia Basin Analytical Laboratories login order number of W305170. This report consists of the results of the analyses for the 33 samples, the Quality Control Reports from the two sample prep batches, a copy of the chain of custodies, and a copy of the chromatograms of the samples. General Set Comments:

Columbia Basin Analytical Laboratories received 33 samples on 05/23/23 to be tested for polynuclear aromatic hydrocarbons (PAHs) by EPA Compendium Method TO-13. An updated Chain of Custody was submitted via e-mail from Dr. Fox on August 22, 2023. The updated sample IDs, sample numbers, sampling times, and sample volumes have been incorporated into this report.

The submitted samples were Air and Emission samples on quartz filters, therefore, no dry weight determinations were conducted and no dry weight corrections were made to the final data reports. Sample results are reported in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), and nanograms per sample (ng/sample). An additional reporting unit of parts per billion volume (ppbV) is provided in the Electronic Data Delivery (EDD) file. An air volume of 3000 liters was applied to all Field Blanks and Shipping Blank samples to facilitate a calculation of ppbv and  $\mu\text{g}/\text{m}^3$  results for the blanks.

#### Analysis Comments:

The samples were spiked with surrogates and triple extracted with methylene chloride. The methylene chloride was reduced to 1.00 mL volume followed by the addition of 40  $\mu\text{L}$  of internal standard. The sample preps were analyzed on an Agilent 6890N gas chromatograph with a 5973N mass spectrometer. The capillary column was a Phenomenex ZB-Semivolatiles capillary column (30m x 0.25mmid x 0.25 $\mu$  film using helium as the carrier gas. The interface between the GC and mass spectrometer was maintained at 310°C. The mass spectrometer ion source and quadrupole rods were maintained at a temperature of 230°C and 150°C, respectively.

Each sample batch consisted of 20 samples and 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.

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

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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.

#### General Lab Comments

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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.



08/25/23

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Joe Sears, Ph.D., Laboratory Technical Manager

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

*The original report from RJ Lee Group was edited by KSU to reflect corrected sample volumes. References to Sample Location Coalescer in the Chain of Custody are equivalent to Pack Exit Sample Location.*



**LABORATORY REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Shipping Blank 1	W305170-01	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Shipping Blank 1	W305170-01	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.25	49.8	0.0083	0.415	S
Shipping Blank 1	W305170-01	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.60	64.1	0.0083	0.535	S
Shipping Blank 1	W305170-01	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.14	85.6	0.0083	0.713	
Shipping Blank 1	W305170-01	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Shipping Blank 1	W305170-01	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Shipping Blank 1	W305170-01	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.24	89.5	0.0083	0.746	
Shipping Blank 1	W305170-01	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Shipping Blank 1	W305170-01	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.32	52.9	0.0083	0.441	S
Shipping Blank 1	W305170-01	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Shipping Blank 1	W305170-01	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.45	97.8	0.0083	0.815	
Shipping Blank 1	W305170-01	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	



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**Quartz Filters**

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 Attention: Dr. Byron Jones  
 Telephone: 785-532-5620  
 e-mail:

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Shipping Blank 1	W305170-01	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0083	< 0.0083	
Shipping Blank 1	W305170-01	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0083	< 0.0083	

\*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

Authorized Signature: \_\_\_\_\_

Laboratory Technical Manager - Dr. Joe Sears

Date: \_\_\_\_\_

*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-13

### Quartz Filters

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Field Blank - Ambient 6	W305170-02	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ambient 6	W305170-02	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.24	49.5	0.0083	0.412	S
Field Blank - Ambient 6	W305170-02	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.56	62.4	0.0083	0.520	S
Field Blank - Ambient 6	W305170-02	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.17	86.7	0.0083	0.723	
Field Blank - Ambient 6	W305170-02	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ambient 6	W305170-02	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ambient 6	W305170-02	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.12	84.9	0.0083	0.707	
Field Blank - Ambient 6	W305170-02	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ambient 6	W305170-02	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.40	55.9	0.0083	0.466	S
Field Blank - Ambient 6	W305170-02	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ambient 6	W305170-02	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.50	100	0.0083	0.834	
Field Blank - Ambient 6	W305170-02	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	<b>Chrysene</b>	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ambient 6	W305170-02	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 3000	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 1	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/15/23	PO# PAH
Fax:		Client Project: Air Sampling

Sample ID			CAS		Type	RL	Result	Surr %	RL	Result	Qualifier
Client	RJLG	Analyte	Number	MW		µg/Filter	µg/Filter	REC	µg/m3	µg/m3	
Field Blank - Ambient 6	W305170-02	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ambient 6	W305170-02	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
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Int. Std = Internal Standard

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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: 08/25/23

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Air Volume (L) 3000  
 Sampling Time 1  
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Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Field Blank - Ozone In 7	W305170-03	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone In 7	W305170-03	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.64	65.4	0.0083	0.545	S
Field Blank - Ozone In 7	W305170-03	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.79	71.4	0.0083	0.595	
Field Blank - Ozone In 7	W305170-03	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.05	82.0	0.0083	0.683	
Field Blank - Ozone In 7	W305170-03	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone In 7	W305170-03	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone In 7	W305170-03	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.07	82.9	0.0083	0.690	
Field Blank - Ozone In 7	W305170-03	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone In 7	W305170-03	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.60	63.9	0.0083	0.533	S
Field Blank - Ozone In 7	W305170-03	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone In 7	W305170-03	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.44	97.6	0.0083	0.813	
Field Blank - Ozone In 7	W305170-03	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone In 7	W305170-03	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 3000	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 1	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/15/23	Sampling Date: 05/15/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID			CAS		Type	RL	Result	Surr %	RL	Result	Qualifier
Client	RJLG	Analyte	Number	MW		µg/Filter	µg/Filter	REC	µg/m3	µg/m3	
Field Blank - Ozone In 7	W305170-03	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone In 7	W305170-03	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0083	< 0.0083	

\*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 =

TIC =

X = Detected but not quantifiable

Authorized Signature: \_\_\_\_\_

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Field Blank - Ozone Out 8	W305170-04	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone Out 8	W305170-04	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.48	59.0	0.0083	0.492	S
Field Blank - Ozone Out 8	W305170-04	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.72	68.9	0.0083	0.574	S
Field Blank - Ozone Out 8	W305170-04	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.15	86.1	0.0083	0.717	
Field Blank - Ozone Out 8	W305170-04	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone Out 8	W305170-04	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone Out 8	W305170-04	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.23	89.3	0.0083	0.744	
Field Blank - Ozone Out 8	W305170-04	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone Out 8	W305170-04	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.50	59.8	0.0083	0.499	S
Field Blank - Ozone Out 8	W305170-04	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone Out 8	W305170-04	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.43	97.1	0.0083	0.809	
Field Blank - Ozone Out 8	W305170-04	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Ozone Out 8	W305170-04	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 3000	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 1	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/15/23	Sampling Date: 05/15/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID			CAS	MW	Type	RL	Result	Surr %	RL	Result	
Client	RJLG	Analyte	Number			µg/Filter	µg/Filter	REC	µg/m3	µg/m3	Qualifier
Field Blank - Ozone Out 8	W305170-04	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Ozone Out 8	W305170-04	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0083	< 0.0083	

\*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

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Field Blank - Pack Exit 9	W305170-05	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Pack Exit 9	W305170-05	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.97	78.8	0.0083	0.657	
Field Blank - Pack Exit 9	W305170-05	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.90	75.8	0.0083	0.633	
Field Blank - Pack Exit 9	W305170-05	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.03	81.1	0.0083	0.676	
Field Blank - Pack Exit 9	W305170-05	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Pack Exit 9	W305170-05	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Pack Exit 9	W305170-05	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.13	85.3	0.0083	0.711	
Field Blank - Pack Exit 9	W305170-05	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Pack Exit 9	W305170-05	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.13	85.1	0.0083	0.709	
Field Blank - Pack Exit 9	W305170-05	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Pack Exit 9	W305170-05	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.30	92.1	0.0083	0.767	
Field Blank - Pack Exit 9	W305170-05	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - Pack Exit 9	W305170-05	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	

# LABORATORY REPORT

## EPA Compendium Method TO-13

### Quartz Filters

Client:	Kansas State University	RJLG Lab #:	W305170
Address:	245 Levee Drive	Samples Received:	05/23/23
	Manhattan, KS 66502	Analysis Date:	07/28/23
Attention:	Dr. Byron Jones	Report Date:	08/25/23
Telephone:	785-532-5620	Sampling Date:	05/15/23
Fax:		PO#	PAH
		Client Project:	Air Sampling

Sample ID			CAS	MW	Type	RL	Result	Surr %	RL	Result	
Client	RJLG	Analyte	Number			µg/Filter	µg/Filter	REC	µg/m3	µg/m3	Qualifier
Field Blank - Pack Exit 9	W305170-05	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - Pack Exit 9	W305170-05	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0083	< 0.0083	

\*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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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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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3344  
 Sampling Time 20  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - Ambient 2	W305170-06	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0065	1.0392	
Baseline - Ambient 2	W305170-06	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.81	72.5	0.0065	0.4703	
Baseline - Ambient 2	W305170-06	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.87	74.8	0.0065	0.4858	
Baseline - Ambient 2	W305170-06	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.10	83.8	0.0065	0.5456	
Baseline - Ambient 2	W305170-06	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0065	1.0392	
Baseline - Ambient 2	W305170-06	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0065	1.0392	
Baseline - Ambient 2	W305170-06	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.09	83.7	0.0065	0.5430	
Baseline - Ambient 2	W305170-06	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0065	1.0392	
Baseline - Ambient 2	W305170-06	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.08	83.2	0.0065	0.5404	
Baseline - Ambient 2	W305170-06	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0065	1.0392	
Baseline - Ambient 2	W305170-06	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.31	92.3	0.0065	0.6002	
Baseline - Ambient 2	W305170-06	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0065	1.0392	
Baseline - Ambient 2	W305170-06	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0065	< 0.0065	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 3344	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 20	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/15/23	Sampling Date: 05/15/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID			CAS		Type	RL	Result	Surr %	RL	Result	Qualifier
Client	RJLG	Analyte	Number	MW		µg/Filter	µg/Filter	REC	µg/m3	µg/m3	
Baseline - Ambient 2	W305170-06	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0065	< 0.0065	
Baseline - Ambient 2	W305170-06	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0065	< 0.0065	

\*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

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4755  
 Sampling Time 20  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - Ozone In 3	W305170-07	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone In 3	W305170-07	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.67	66.9	0.0061	0.4063	S
Baseline - Ozone In 3	W305170-07	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.81	72.4	0.0061	0.4404	
Baseline - Ozone In 3	W305170-07	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.03	81.3	0.0061	0.4939	
Baseline - Ozone In 3	W305170-07	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone In 3	W305170-07	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone In 3	W305170-07	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.13	85.3	0.0061	0.5182	
Baseline - Ozone In 3	W305170-07	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone In 3	W305170-07	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.04	81.7	0.0061	0.4964	
Baseline - Ozone In 3	W305170-07	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone In 3	W305170-07	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.29	91.7	0.0061	0.5572	
Baseline - Ozone In 3	W305170-07	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone In 3	W305170-07	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0061	< 0.0061	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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 Manhattan, KS 66502  
 Attention: Dr. Byron Jones  
 Telephone: 785-532-5620  
 Fax:

Air Volume (L) 4755  
 Sampling Time 20  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID			CAS		Type	RL	Result	Surr %	RL	Result	Qualifier
Client	RJLG	Analyte	Number	MW		µg/Filter	µg/Filter	REC	µg/m3	µg/m3	
Baseline - Ozone In 3	W305170-07	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone In 3	W305170-07	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0061	< 0.0061	

\*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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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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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.

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Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

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### Quartz Filters

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

Air Volume (L) 4755  
 Sampling Time 20  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - Ozone Out 4	W305170-08	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone Out 4	W305170-08	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.65	65.9	0.0061	0.4015	S
Baseline - Ozone Out 4	W305170-08	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.65	65.8	0.0061	0.4015	S
Baseline - Ozone Out 4	W305170-08	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.08	83.0	0.0061	0.5061	
Baseline - Ozone Out 4	W305170-08	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone Out 4	W305170-08	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone Out 4	W305170-08	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.14	85.6	0.0061	0.5207	
Baseline - Ozone Out 4	W305170-08	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone Out 4	W305170-08	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.91	76.4	0.0061	0.4647	
Baseline - Ozone Out 4	W305170-08	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone Out 4	W305170-08	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.36	94.5	0.0061	0.5742	
Baseline - Ozone Out 4	W305170-08	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0061	0.9732	
Baseline - Ozone Out 4	W305170-08	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0061	< 0.0061	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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 Attention: Dr. Byron Jones  
 Telephone: 785-532-5620  
 Fax:

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 Sampling Time 20  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID			CAS		Type	RL	Result	Surr %	RL	Result	Qualifier
Client	RJLG	Analyte	Number	MW		µg/Filter	µg/Filter	REC	µg/m3	µg/m3	
Baseline - Ozone Out 4	W305170-08	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0061	< 0.0061	
Baseline - Ozone Out 4	W305170-08	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0061	< 0.0061	

\*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

Authorized Signature: \_\_\_\_\_

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4404  
 Sampling Time 20  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - Pack Exit 5	W305170-09	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0057	0.908	
Baseline - Pack Exit 5	W305170-09	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.79	71.5	0.0057	0.406	
Baseline - Pack Exit 5	W305170-09	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.82	72.9	0.0057	0.414	
Baseline - Pack Exit 5	W305170-09	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.14	85.6	0.0057	0.486	
Baseline - Pack Exit 5	W305170-09	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0057	0.908	
Baseline - Pack Exit 5	W305170-09	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0057	0.908	
Baseline - Pack Exit 5	W305170-09	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.14	85.6	0.0057	0.486	
Baseline - Pack Exit 5	W305170-09	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0057	0.908	
Baseline - Pack Exit 5	W305170-09	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.98	79.2	0.0057	0.450	
Baseline - Pack Exit 5	W305170-09	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0057	0.908	
Baseline - Pack Exit 5	W305170-09	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.34	93.7	0.0057	0.532	
Baseline - Pack Exit 5	W305170-09	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0057	0.908	
Baseline - Pack Exit 5	W305170-09	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0057	< 0.0057	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4404  
 Sampling Time 20  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID			CAS	MW	Type	RL	Result	Surr %	RL	Result	
Client	RJLG	Analyte	Number			µg/Filter	µg/Filter	REC	µg/m3	µg/m3	Qualifier
Baseline - Pack Exit 5	W305170-09	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0057	< 0.0057	
Baseline - Pack Exit 5	W305170-09	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0057	< 0.0057	

\*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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Surr = Surrogate Compound

Int. Std = Internal Standard

TIC = Tentatively Identified Compound

#### Qualifiers

c = Sample RPD failure

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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

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: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 2241  
 Sampling Time 10  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.011	1.78	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.45	57.8	0.011	0.645	S
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.76	70.5	0.011	0.786	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.20	88.0	0.011	0.981	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.011	1.78	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.011	1.78	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.29	91.6	0.011	1.02	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.011	1.78	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.83	73.2	0.011	0.817	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.011	1.78	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.36	94.5	0.011	1.05	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.011	1.78	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.011	< 0.011	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 2241  
 Sampling Time 10  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.011	< 0.011	
MJ-II - 5 ppm - APU - Ambient 10	W305170-10	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.011	< 0.011	

\*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  
 µg/m<sup>3</sup> = 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  
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 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: 08/25/23

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**LABORATORY REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

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

Air Volume (L) 2376  
 Sampling Time 11  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.68	67.3	0.0099	0.6667	S
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.81	72.2	0.0099	0.7183	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.41	96.3	0.0099	0.9563	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.13	85.2	0.0099	0.8452	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.91	76.6	0.0099	0.7579	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.57	103	0.0099	1.0198	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0099	1.5873	



# LABORATORY REPORT

## EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 2376  
 Sampling Time 11  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone In 11	W305170-11	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0099	< 0.0099	

\*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

Date:

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-13

### Quartz Filters

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

Air Volume (L) 2376  
 Sampling Time 12  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.59	63.5	0.0099	0.6310	S
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.74	69.6	0.0099	0.6905	S
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.18	87.3	0.0099	0.8651	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.12	84.8	0.0099	0.8413	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.13	85.2	0.0099	0.8452	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.48	99.1	0.0099	0.9841	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0099	1.5873	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0099	< 0.0099	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 2376	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 12	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/15/23	PO# PAH
Fax:		Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0099	< 0.0099	
MJ-II - 5 ppm - APU - Ozone Out 12	W305170-12	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0099	< 0.0099	

\*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. (Library spectrum match w/o RT match)

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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-13

### Quartz Filters

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

Air Volume (L) 1890  
 Sampling Time 13  
 Sampling Date: 05/15/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/15/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0137	2.1846	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.48	59.2	0.0137	0.8083	S
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Phenol-d6	13127-88-3	100.15	Surr	0.025	2.04	81.4	0.0137	1.1141	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.49	99.6	0.0137	1.3599	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0137	2.1846	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0137	2.1846	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.37	94.9	0.0137	1.2944	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0137	2.1846	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.03	81.2	0.0137	1.1087	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0137	2.1846	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.44	97.4	0.0137	1.3326	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0137	2.1846	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0137	< 0.0137	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 1890	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 13	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/15/23	Sampling Date: 05/15/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0137	< 0.0137	
MJ-II - 5 ppm - APU - Pack Exit 13	W305170-13	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0137	< 0.0137	

\*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 =

TIC =

X = Detected but not quantifiable

Authorized Signature: \_\_\_\_\_

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/16/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/16/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Field Blank - 14	W305170-14	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 14	W305170-14	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.96	78.4	0.0083	0.653	
Field Blank - 14	W305170-14	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.99	79.4	0.0083	0.662	
Field Blank - 14	W305170-14	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.20	88.0	0.0083	0.733	
Field Blank - 14	W305170-14	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 14	W305170-14	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 14	W305170-14	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.19	87.8	0.0083	0.731	
Field Blank - 14	W305170-14	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 14	W305170-14	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.09	83.5	0.0083	0.696	
Field Blank - 14	W305170-14	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 14	W305170-14	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.18	87.1	0.0083	0.726	
Field Blank - 14	W305170-14	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 14	W305170-14	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 3000	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 1	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/16/23	Sampling Date: 05/16/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID			CAS	MW	Type	RL	Result	Surr %	RL	Result	
Client	RJLG	Analyte	Number			µg/Filter	µg/Filter	REC	µg/m3	µg/m3	Qualifier
Field Blank - 14	W305170-14	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 14	W305170-14	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0083	< 0.0083	

\*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

Date: 08/25/23

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**LABORATORY REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

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

Air Volume (L) 6688  
 Sampling Time 25  
 Sampling Date: 05/16/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/16/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 300C Ozone In 15	W305170-15	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0037	0.6139	
Baseline - 300C Ozone In 15	W305170-15	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.31	52.3	0.0037	0.201	S
Baseline - 300C Ozone In 15	W305170-15	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.63	65.0	0.0037	0.2502	S
Baseline - 300C Ozone In 15	W305170-15	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.32	93.0	0.0037	0.356	
Baseline - 300C Ozone In 15	W305170-15	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0037	0.6139	
Baseline - 300C Ozone In 15	W305170-15	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0037	0.6139	
Baseline - 300C Ozone In 15	W305170-15	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.17	86.8	0.0037	0.333	
Baseline - 300C Ozone In 15	W305170-15	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0037	0.6139	
Baseline - 300C Ozone In 15	W305170-15	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.84	73.8	0.0037	0.2824	
Baseline - 300C Ozone In 15	W305170-15	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0037	0.6139	
Baseline - 300C Ozone In 15	W305170-15	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.41	96.6	0.0037	0.3699	
Baseline - 300C Ozone In 15	W305170-15	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0037	0.6139	
Baseline - 300C Ozone In 15	W305170-15	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0037	< 0.0037	

# LABORATORY REPORT

## EPA Compendium Method TO-13

### Quartz Filters

Client:	Kansas State University	RJLG Lab #:	W305170
Address:	245 Levee Drive	Samples Received:	05/23/23
	Manhattan, KS 66502	Analysis Date:	07/28/23
Attention:	Dr. Byron Jones	Report Date:	08/25/23
Telephone:	785-532-5620	Sampling Date:	05/16/23
Fax:		PO#	PAH
		Client Project:	Air Sampling

Sample ID			CAS		Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG	Analyte	Number	MW							
Baseline - 300C Ozone In 15	W305170-15	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0037	< 0.0037	
Baseline - 300C Ozone In 15	W305170-15	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0037	< 0.0037	

\*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

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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

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: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 6546  
 Sampling Time 25  
 Sampling Date: 05/16/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/16/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 300C Ozone Out 16	W305170-16	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0038	0.6039	
Baseline - 300C Ozone Out 16	W305170-16	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.66	66.3	0.0038	0.2506	S
Baseline - 300C Ozone Out 16	W305170-16	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.94	77.5	0.0038	0.22929	
Baseline - 300C Ozone Out 16	W305170-16	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.35	93.8	0.0038	0.3548	
Baseline - 300C Ozone Out 16	W305170-16	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0038	0.6039	
Baseline - 300C Ozone Out 16	W305170-16	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0038	0.6039	
Baseline - 300C Ozone Out 16	W305170-16	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.23	89.2	0.0038	0.3367	
Baseline - 300C Ozone Out 16	W305170-16	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0038	0.6039	
Baseline - 300C Ozone Out 16	W305170-16	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.16	86.2	0.0038	0.3261	
Baseline - 300C Ozone Out 16	W305170-16	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0038	0.6039	
Baseline - 300C Ozone Out 16	W305170-16	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.48	99.2	0.0038	0.3744	
Baseline - 300C Ozone Out 16	W305170-16	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0038	0.6039	
Baseline - 300C Ozone Out 16	W305170-16	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0038	< 0.0038	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 6546	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 25	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/16/23	Sampling Date: 05/16/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID			CAS		Type	RL	Result	Surr %	RL	Result	Qualifier
Client	RJLG	Analyte	Number	MW		µg/Filter	µg/Filter	REC	µg/m3	µg/m3	
Baseline - 300C Ozone Out 16	W305170-16	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0038	< 0.0038	
Baseline - 300C Ozone Out 16	W305170-16	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0038	< 0.0038	

\*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

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4451  
 Sampling Time 25  
 Sampling Date: 05/16/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/16/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 300C Pack Exit 17	W305170-17	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0052	0.8384	
Baseline - 300C Pack Exit 17	W305170-17	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.40	55.9	0.0052	0.2934	S
Baseline - 300C Pack Exit 17	W305170-17	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.80	72.0	0.0052	0.3773	
Baseline - 300C Pack Exit 17	W305170-17	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.27	90.6	0.0052	0.4758	
Baseline - 300C Pack Exit 17	W305170-17	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0052	0.8384	
Baseline - 300C Pack Exit 17	W305170-17	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0052	0.8384	
Baseline - 300C Pack Exit 17	W305170-17	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.18	87.4	0.0052	0.4569	
Baseline - 300C Pack Exit 17	W305170-17	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0052	0.8384	
Baseline - 300C Pack Exit 17	W305170-17	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.89	75.7	0.0052	0.3961	
Baseline - 300C Pack Exit 17	W305170-17	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0052	0.8384	
Baseline - 300C Pack Exit 17	W305170-17	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.24	89.4	0.0052	0.4695	
Baseline - 300C Pack Exit 17	W305170-17	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0052	0.8384	
Baseline - 300C Pack Exit 17	W305170-17	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0052	< 0.0052	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 4451	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 25	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/16/23	Sampling Date: 05/16/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID			CAS	MW	Type	RL	Result	Surr %	RL	Result	
Client	RJLG	Analyte	Number			µg/Filter	µg/Filter	REC	µg/m3	µg/m3	Qualifier
Baseline - 300C Pack Exit 17	W305170-17	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0052	< 0.0052	
Baseline - 300C Pack Exit 17	W305170-17	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0052	< 0.0052	

\*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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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: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 6263  
 Sampling Time 25  
 Sampling Date: 05/16/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/16/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 300C - Ozone In 18	W305170-18	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0037	0.5994	
MJ-II - 300C - Ozone In 18	W305170-18	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.72	68.9	0.0037	0.2578	S
MJ-II - 300C - Ozone In 18	W305170-18	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.89	75.6	0.0037	0.2832	
MJ-II - 300C - Ozone In 18	W305170-18	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.39	95.8	0.0037	0.3582	
MJ-II - 300C - Ozone In 18	W305170-18	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0037	0.5994	
MJ-II - 300C - Ozone In 18	W305170-18	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0037	0.5994	
MJ-II - 300C - Ozone In 18	W305170-18	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.24	89.4	0.0037	0.3357	
MJ-II - 300C - Ozone In 18	W305170-18	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0037	0.5994	
MJ-II - 300C - Ozone In 18	W305170-18	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.98	79.2	0.0037	0.2967	
MJ-II - 300C - Ozone In 18	W305170-18	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0037	0.5994	
MJ-II - 300C - Ozone In 18	W305170-18	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.54	101	0.0037	0.3806	
MJ-II - 300C - Ozone In 18	W305170-18	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0037	0.5994	
MJ-II - 300C - Ozone In 18	W305170-18	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0037	< 0.0037	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 6263  
 Sampling Time 25  
 Sampling Date: 05/16/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/16/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
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MJ-II - 300C - Ozone In 18	W305170-18	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0037	< 0.0037	
MJ-II - 300C - Ozone In 18	W305170-18	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0037	< 0.0037	

\*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  
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 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  
 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: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4524  
 Sampling Time 25  
 Sampling Date: 05/16/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/16/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
MJ-II - 300C - Pack Exit 19	W305170-19	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0052	0.8289	
MJ-II - 300C - Pack Exit 19	W305170-19	2-Fluorophenol	367-12-4	112.1	Surr	0.025	2.24	89.5	0.0052	0.4698	
MJ-II - 300C - Pack Exit 19	W305170-19	Phenol-d6	13127-88-3	100.15	Surr	0.025	2.51	100	0.0052	0.5264	
MJ-II - 300C - Pack Exit 19	W305170-19	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.44	97.6	0.0052	0.5117	
MJ-II - 300C - Pack Exit 19	W305170-19	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0052	0.8389	
MJ-II - 300C - Pack Exit 19	W305170-19	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0052	0.8389	
MJ-II - 300C - Pack Exit 19	W305170-19	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.27	90.9	0.0052	0.4761	
MJ-II - 300C - Pack Exit 19	W305170-19	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0052	0.8389	
MJ-II - 300C - Pack Exit 19	W305170-19	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.89	116	0.0052	0.6061	
MJ-II - 300C - Pack Exit 19	W305170-19	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0052	0.8389	
MJ-II - 300C - Pack Exit 19	W305170-19	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.45	97.9	0.0052	0.5138	
MJ-II - 300C - Pack Exit 19	W305170-19	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0052	0.8389	
MJ-II - 300C - Pack Exit 19	W305170-19	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0052	< 0.0052	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4524  
 Sampling Time 25  
 Sampling Date: 05/16/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/16/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID			CAS		Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG	Analyte	Number	MW							
MJ-II - 300C - Pack Exit 19	W305170-19	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0052	< 0.0052	
MJ-II - 300C - Pack Exit 19	W305170-19	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0052	< 0.0052	

\*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

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/17/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Field Blank - 20	W305170-20	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 20	W305170-20	2-Fluorophenol	367-12-4	112.1	Surr	0.025	2.01	80.2	0.0083	0.668	
Field Blank - 20	W305170-20	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.95	77.8	0.0083	0.648	
Field Blank - 20	W305170-20	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.04	81.5	0.0083	0.679	
Field Blank - 20	W305170-20	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 20	W305170-20	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 20	W305170-20	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.18	87.0	0.0083	0.725	
Field Blank - 20	W305170-20	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 20	W305170-20	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.27	90.9	0.0083	0.757	
Field Blank - 20	W305170-20	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 20	W305170-20	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.28	91.0	0.0083	0.759	
Field Blank - 20	W305170-20	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank - 20	W305170-20	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/17/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID			CAS	MW	Type	RL	Result	Surr %	RL	Result	
Client	RJLG	Analyte	Number			µg/Filter	µg/Filter	REC	µg/m3	µg/m3	Qualifier
Field Blank - 20	W305170-20	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank - 20	W305170-20	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0083	< 0.0083	

\*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  
 µg/m<sup>3</sup> = 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: 08/25/23

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**LABORATORY REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

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

Air Volume (L) 4374  
 Sampling Time 19  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 300C - Ozone In 21	W305170-21	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0043	0.6848	
Baseline - 300C - Ozone In 21	W305170-21	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.66	66.4	0.0043	0.2842	S
Baseline - 300C - Ozone In 21	W305170-21	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.90	75.8	0.0043	0.3253	
Baseline - 300C - Ozone In 21	W305170-21	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.31	92.4	0.0043	0.3955	
Baseline - 300C - Ozone In 21	W305170-21	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0043	0.6848	
Baseline - 300C - Ozone In 21	W305170-21	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0043	0.6848	
Baseline - 300C - Ozone In 21	W305170-21	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.17	87.0	0.0043	0.3715	
Baseline - 300C - Ozone In 21	W305170-21	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0043	0.6848	
Baseline - 300C - Ozone In 21	W305170-21	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.93	77.0	0.0043	0.3304	
Baseline - 300C - Ozone In 21	W305170-21	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0043	0.6848	
Baseline - 300C - Ozone In 21	W305170-21	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0043	< 0.0057	
Baseline - 300C - Ozone In 21	W305170-21	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.27	91	0.0043	0.3886	
Baseline - 300C - Ozone In 21	W305170-21	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0043	0.6848	



**LABORATORY REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

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

Air Volume (L) 4374  
 Sampling Time 19  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 300C - Ozone In 21	W305170-21	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0043	< 0.0043	
Baseline - 300C - Ozone In 21	W305170-21	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0043	< 0.0043	

\*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

Date: \_\_\_\_\_

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4924  
 Sampling Time 19  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 300C - Ozone Out 22	W305170-22	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0036	0.5712	
Baseline - 300C - Ozone Out 22	W305170-22	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.90	75.9	0.0036	0.2713	
Baseline - 300C - Ozone Out 22	W305170-22	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.97	78.9	0.0036	0.2813	
Baseline - 300C - Ozone Out 22	W305170-22	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.25	90.0	0.0036	0.3213	
Baseline - 300C - Ozone Out 22	W305170-22	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0036	0.5712	
Baseline - 300C - Ozone Out 22	W305170-22	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0036	0.5712	
Baseline - 300C - Ozone Out 22	W305170-22	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.24	89.4	0.0036	0.3199	
Baseline - 300C - Ozone Out 22	W305170-22	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0036	0.5712	
Baseline - 300C - Ozone Out 22	W305170-22	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.32	92.7	0.0036	0.3313	
Baseline - 300C - Ozone Out 22	W305170-22	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0036	0.5712	
Baseline - 300C - Ozone Out 22	W305170-22	Pyrene	129-00-0	202.25	T	0.025	0.0271		0.0036	0.0039	
Baseline - 300C - Ozone Out 22	W305170-22	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.30	91.9	0.0036	0.3284	
Baseline - 300C - Ozone Out 22	W305170-22	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	<b>Chrysene</b>	218-01-9	228.3	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0036	0.5712	
Baseline - 300C - Ozone Out 22	W305170-22	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0036	< 0.0036	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University	RJLG Lab #: W305170
Address: 245 Levee Drive	Samples Received: 05/23/23
Manhattan, KS 66502	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Report Date: 08/25/23
Telephone: 785-532-5620	PO# PAH
Fax:	Client Project: Air Sampling

Sample ID			CAS		Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG	Analyte	Number	MW							
Baseline - 300C - Ozone Out 22	W305170-22	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0036	< 0.0036	
Baseline - 300C - Ozone Out 22	W305170-22	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0036	< 0.0036	

\*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. (Library spectrum match w/o RT match)

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3592  
 Sampling Time 19  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/17/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 300C - Pack Exit 23	W305170-23	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0047	0.7586	
Baseline - 300C - Pack Exit 23	W305170-23	2-Fluorophenol	367-12-4	112.1	Surr	0.025	0.951	38.0	0.0047	0.1804	S
Baseline - 300C - Pack Exit 23	W305170-23	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.52	60.7	0.0047	0.2883	S
Baseline - 300C - Pack Exit 23	W305170-23	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.41	96.5	0.0047	0.4570	
Baseline - 300C - Pack Exit 23	W305170-23	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0047	0.7586	
Baseline - 300C - Pack Exit 23	W305170-23	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0047	0.7586	
Baseline - 300C - Pack Exit 23	W305170-23	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.21	88.4	0.0047	0.4191	
Baseline - 300C - Pack Exit 23	W305170-23	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0047	0.7586	
Baseline - 300C - Pack Exit 23	W305170-23	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.43	57.1	0.0047	0.2712	S
Baseline - 300C - Pack Exit 23	W305170-23	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0047	0.7586	
Baseline - 300C - Pack Exit 23	W305170-23	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.32	92.6	0.0047	0.4400	
Baseline - 300C - Pack Exit 23	W305170-23	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0047	0.7586	
Baseline - 300C - Pack Exit 23	W305170-23	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0047	< 0.0047	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 3592	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 19	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/17/23	Sampling Date: 05/17/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID			CAS	MW	Type	RL	Result	Surr %	RL	Result	
Client	RJLG	Analyte	Number			µg/Filter	µg/Filter	REC	µg/m3	µg/m3	Qualifier
Baseline - 300C - Pack Exit 23	W305170-23	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0047	< 0.0047	
Baseline - 300C - Pack Exit 23	W305170-23	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0047	< 0.0047	

\*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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N/A = Not Applicable

ND = Not detected. Qualitative analysis T = Target Analyte

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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 =

TIC =

X = Detected but not quantifiable

Authorized Signature: \_\_\_\_\_

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4551  
 Sampling Time 20  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/17/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
2197 - 300C - Ozone In 24	W305170-24	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0043	0.6928	
2197 - 300C - Ozone In 24	W305170-24	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.75	70.0	0.0043	0.3031	
2197 - 300C - Ozone In 24	W305170-24	Phenol-d6	13127-88-3	100.15	Surr	0.025	2.37	94.9	0.0043	0.4105	
2197 - 300C - Ozone In 24	W305170-24	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.54	101.4	0.0043	0.4399	
2197 - 300C - Ozone In 24	W305170-24	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0043	0.6928	
2197 - 300C - Ozone In 24	W305170-24	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0043	0.6928	
2197 - 300C - Ozone In 24	W305170-24	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	1.99	79.6	0.0043	0.3446	
2197 - 300C - Ozone In 24	W305170-24	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0043	0.6928	
2197 - 300C - Ozone In 24	W305170-24	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	0.0840	3.4	0.0043	0.0145	S
2197 - 300C - Ozone In 24	W305170-24	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0043	0.6928	
2197 - 300C - Ozone In 24	W305170-24	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.52	100.8	0.0043	0.4364	
2197 - 300C - Ozone In 24	W305170-24	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0043	0.6928	
2197 - 300C - Ozone In 24	W305170-24	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0043	< 0.0043	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University	RJLG Lab #: W305170
Address: 245 Levee Drive	Samples Received: 05/23/23
Manhattan, KS 66502	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/17/23
Fax:	PO# PAH
	Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
2197 - 300C - Ozone In 24	W305170-24	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0043	< 0.0043	
2197 - 300C - Ozone In 24	W305170-24	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0043	< 0.0043	

\*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

Date: 08/25/23

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-13

### Quartz Filters

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

Air Volume (L) 4719  
 Sampling Time 20  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/17/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
2197 - 300C - Ozone Out 25	W305170-25	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0058	0.9304	
2197 - 300C - Ozone Out 25	W305170-25	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.13	45.4	0.0058	0.2629	S
2197 - 300C - Ozone Out 25	W305170-25	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.39	55.7	0.0058	0.3233	S
2197 - 300C - Ozone Out 25	W305170-25	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.30	91.9	0.0058	0.5350	
2197 - 300C - Ozone Out 25	W305170-25	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0058	0.9304	
2197 - 300C - Ozone Out 25	W305170-25	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0058	0.9304	
2197 - 300C - Ozone Out 25	W305170-25	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.01	80.4	0.0058	0.4676	
2197 - 300C - Ozone Out 25	W305170-25	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0058	0.9304	
2197 - 300C - Ozone Out 25	W305170-25	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.24	49.5	0.0058	0.2884	S
2197 - 300C - Ozone Out 25	W305170-25	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0058	0.9304	
2197 - 300C - Ozone Out 25	W305170-25	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.30	91.9	0.0058	0.5350	
2197 - 300C - Ozone Out 25	W305170-25	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0058	0.9304	
2197 - 300C - Ozone Out 25	W305170-25	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0058	< 0.0058	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University	RJLG Lab #: W305170
Address: 245 Levee Drive	Samples Received: 05/23/23
Manhattan, KS 66502	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/17/23
Fax:	PO# PAH
	Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
2197 - 300C - Ozone Out 25	W305170-25	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0058	< 0.0058	
2197 - 300C - Ozone Out 25	W305170-25	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0058	< 0.0058	

\*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

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3800  
 Sampling Time 20  
 Sampling Date: 05/17/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/17/23  
 Sampling Date: 05/17/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
2197 - 300C - Pack Exit 26	W305170-26	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0053	0.8421	
2197 - 300C - Pack Exit 26	W305170-26	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.57	63.0	0.0053	0.3305	S
2197 - 300C - Pack Exit 26	W305170-26	Phenol-d6	13127-88-3	100.15	Surr	0.025	2.11	84.2	0.0053	0.4442	
2197 - 300C - Pack Exit 26	W305170-26	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.45	98.0	0.0053	0.5158	
2197 - 300C - Pack Exit 26	W305170-26	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0053	0.8421	
2197 - 300C - Pack Exit 26	W305170-26	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0053	0.8421	
2197 - 300C - Pack Exit 26	W305170-26	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.25	90.0	0.0053	0.4737	
2197 - 300C - Pack Exit 26	W305170-26	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0053	0.8421	
2197 - 300C - Pack Exit 26	W305170-26	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.97	78.6	0.0053	0.4147	
2197 - 300C - Pack Exit 26	W305170-26	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0053	0.8421	
2197 - 300C - Pack Exit 26	W305170-26	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.52	100.7	0.0053	0.5305	
2197 - 300C - Pack Exit 26	W305170-26	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0053	0.8421	
2197 - 300C - Pack Exit 26	W305170-26	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0053	< 0.0053	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 3800	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 20	Report Date: 08/17/23
Telephone: 785-532-5620	Sampling Date: 05/17/23	Sampling Date: 05/17/23
Fax:		PO# PAH
		Client Project: Air Sampling

Sample ID			CAS		Type	RL	Result	Surr %	RL	Result	Qualifier
Client	RJLG	Analyte	Number	MW		µg/Filter	µg/Filter	REC	µg/m3	µg/m3	
2197 - 300C - Pack Exit 26	W305170-26	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0053	< 0.0053	
2197 - 300C - Pack Exit 26	W305170-26	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0053	< 0.0053	

\*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

Date: 08/17/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Field Blank 30	W305170-27	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank 30	W305170-27	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.51	60.4	0.0083	0.504	S
Field Blank 30	W305170-27	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.83	73.3	0.0083	0.611	
Field Blank 30	W305170-27	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.30	92.2	0.0083	0.768	
Field Blank 30	W305170-27	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank 30	W305170-27	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank 30	W305170-27	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.25	90.2	0.0083	0.752	
Field Blank 30	W305170-27	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank 30	W305170-27	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.97	79.0	0.0083	0.658	
Field Blank 30	W305170-27	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Fluoranthene	206-44-0	202.25	T	0.025	0.0420		0.0083	0.0140	
Field Blank 30	W305170-27	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank 30	W305170-27	Pyrene	129-00-0	202.25	T	0.025	0.0309		0.0083	0.0103	
Field Blank 30	W305170-27	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.44	97.5	0.0083	0.812	
Field Blank 30	W305170-27	Benzo(a)anthracene	56-55-3	228.3	T	0.025	0.0278		0.0083	0.00928	
Field Blank 30	W305170-27	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	
Field Blank 30	W305170-27	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3000  
 Sampling Time 1  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Field Blank 30	W305170-27	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0083	< 0.0083	
Field Blank 30	W305170-27	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0083	< 0.0083	

\*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

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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

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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

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3582  
 Sampling Time 15  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 220C - Ozone In 34	W305170-28	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0072	1.1455	
Baseline - 220C - Ozone In 34	W305170-28	2-Fluorophenol	367-12-4	112.1	Surr	0.025	0.475	19.0	0.0072	0.1360	S
Baseline - 220C - Ozone In 34	W305170-28	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.06	42.4	0.0072	0.3036	S
Baseline - 220C - Ozone In 34	W305170-28	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.42	96.8	0.0072	0.6930	
Baseline - 220C - Ozone In 34	W305170-28	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0072	1.1455	
Baseline - 220C - Ozone In 34	W305170-28	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0072	1.1455	
Baseline - 220C - Ozone In 34	W305170-28	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.26	90.6	0.0072	0.6472	
Baseline - 220C - Ozone In 34	W305170-28	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0072	1.1455	
Baseline - 220C - Ozone In 34	W305170-28	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.08	43.0	0.0072	0.3093	S
Baseline - 220C - Ozone In 34	W305170-28	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0072	1.1455	
Baseline - 220C - Ozone In 34	W305170-28	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.40	96	0.0072	0.6873	
Baseline - 220C - Ozone In 34	W305170-28	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0072	1.1455	
Baseline - 220C - Ozone In 34	W305170-28	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0072	< 0.0072	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3582  
 Sampling Time 15  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 220C - Ozone In 34	W305170-28	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0072	< 0.0072	
Baseline - 220C - Ozone In 34	W305170-28	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0072	< 0.0072	

\*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  
 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  
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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.  
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Authorized Signature: \_\_\_\_\_

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3720  
 Sampling Time 15  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 220C - Ozone Out 35	W305170-29	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0069	1.0974	
Baseline - 220C - Ozone Out 35	W305170-29	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.67	66.7	0.0069	0.4582	S
Baseline - 220C - Ozone Out 35	W305170-29	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.96	78	0.0069	0.5377	
Baseline - 220C - Ozone Out 35	W305170-29	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.40	95.8	0.0069	0.6584	
Baseline - 220C - Ozone Out 35	W305170-29	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0069	1.0974	
Baseline - 220C - Ozone Out 35	W305170-29	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0069	1.0974	
Baseline - 220C - Ozone Out 35	W305170-29	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.23	89.2	0.0069	0.6118	
Baseline - 220C - Ozone Out 35	W305170-29	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0069	1.0974	
Baseline - 220C - Ozone Out 35	W305170-29	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.42	97	0.0069	0.6639	
Baseline - 220C - Ozone Out 35	W305170-29	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0069	1.0974	
Baseline - 220C - Ozone Out 35	W305170-29	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.40	96.2	0.0069	0.6584	
Baseline - 220C - Ozone Out 35	W305170-29	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0069	1.0974	
Baseline - 220C - Ozone Out 35	W305170-29	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0069	< 0.0069	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3720  
 Sampling Time 15  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID			CAS		Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG	Analyte	Number	MW							
Baseline - 220C - Ozone Out 35	W305170-29	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0069	< 0.0069	
Baseline - 220C - Ozone Out 35	W305170-29	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0069	< 0.0069	

\*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

Date: 08/25/23

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-13

### Quartz Filters

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

Air Volume (L) 3002  
 Sampling Time 15  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 220C - Pack Exit 36	W305170-30	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0083	1.33	
Baseline - 220C - Pack Exit 36	W305170-30	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.45	57.8	0.0083	0.482	S
Baseline - 220C - Pack Exit 36	W305170-30	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.97	79.0	0.0083	0.658	
Baseline - 220C - Pack Exit 36	W305170-30	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.38	95.4	0.0083	0.794	
Baseline - 220C - Pack Exit 36	W305170-30	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0083	1.33	
Baseline - 220C - CPack Exit 36	W305170-30	Naphthalene	91-20-3	128.17	T	0.025	0.0312		0.0083	0.0104	
Baseline - 220C - Pack Exit 36	W305170-30	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0083	1.33	
Baseline - 220C - Pack Exit 36	W305170-30	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.24	89.7	0.0083	0.747	
Baseline - 220C - Pack Exit 36	W305170-30	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0083	1.33	
Baseline - 220C - Pack Exit 36	W305170-30	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.09	83.8	0.0083	0.698	
Baseline - 220C - Pack Exit 36	W305170-30	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0083	1.33	
Baseline - 220C - Pack Exit 36	W305170-30	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.39	95.4	0.0083	0.795	
Baseline - 220C - Pack Exit 36	W305170-30	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0083	1.33	
Baseline - 220C - Pack Exit 36	W305170-30	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0083	< 0.0083	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 3002  
 Sampling Time 15  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Baseline - 220C - Pack Exit 36	W305170-30	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0083	< 0.0083	
Baseline - 220C - Pack Exit 36	W305170-30	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0083	< 0.0083	

\*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  
 µg/m<sup>3</sup> = 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: 08/25/23

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**LABORATORY REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

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

Air Volume (L) 5068  
 Sampling Time 20  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0051	0.8086	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.66	66.4	0.0051	0.3356	S
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.90	75.8	0.0051	0.3841	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.31	92.4	0.0051	0.4669	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0051	0.8086	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0051	0.8086	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.17	87.0	0.0051	0.4386	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0051	0.8086	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.93	77.0	0.0051	0.3901	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0049	0.8086	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.27	91	0.0049	0.4589	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0049	0.8086	



# LABORATORY REPORT

## EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 5068  
 Sampling Time 20  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0049	< 0.0051	
Skydrol 220C - 5ppmW - Ozone In 37	W305170-31	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0049	< 0.0051	

\*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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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  
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 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:

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4892  
 Sampling Time 20  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0051	0.818	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	2-Fluorophenol	367-12-4	112.1	Surr	0.025	1.90	75.9	0.0051	0.388	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.97	78.9	0.0051	0.403	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.25	90.0	0.0051	0.460	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0051	0.818	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0051	0.818	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.24	89.4	0.0051	0.457	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0051	0.818	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	2.32	92.7	0.0051	0.474	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0051	0.818	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Pyrene	129-00-0	202.25	T	0.025	0.0271		0.0051	0.00554	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.30	91.9	0.0051	0.470	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	<b>Chrysene</b>	218-01-9	228.3	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0051	0.818	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0051	< 0.0051	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client: Kansas State University		RJLG Lab #: W305170
Address: 245 Levee Drive		Samples Received: 05/23/23
Manhattan, KS 66502	Air Volume (L) 4892	Analysis Date: 07/28/23
Attention: Dr. Byron Jones	Sampling Time 20	Report Date: 08/25/23
Telephone: 785-532-5620	Sampling Date: 05/18/23	PO# PAH
Fax:		Client Project: Air Sampling

Sample ID			CAS		Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG	Analyte	Number	MW							
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0051	< 0.0051	
Skydrol 220C - 5ppmW - Ozone Out 38	W305170-32	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0051	< 0.0051	

\*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. (Library spectrum match w/o RT match)

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

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

Air Volume (L) 4109  
 Sampling Time 20  
 Sampling Date: 05/18/23

RJLG Lab #: W305170  
 Samples Received: 05/23/23  
 Analysis Date: 07/28/23  
 Report Date: 08/25/23  
 Sampling Date: 05/18/23  
 PO# PAH  
 Client Project: Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	1,4-Dichlorobenzene-d4	3355-82-1	151.02	Int. Std	0.025	4.00		0.0066	1.0485	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	2-Fluorophenol	367-12-4	112.1	Surr	0.025	0.951	38.0	0.0066	0.2493	S
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Phenol-d6	13127-88-3	100.15	Surr	0.025	1.52	60.7	0.0066	0.3984	S
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Nitrobenzene-d5	4165-60-0	128.14	Surr	0.025	2.41	96.5	0.0066	0.6317	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Naphthalene-d8	1146-65-2	136.22	Int. Std	0.025	4.00		0.0066	1.0485	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Naphthalene	91-20-3	128.17	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	2-Methylnaphthalene	91-57-6	142.2	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	1-Methylnaphthalene	1321-94-4	142.2	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Acenaphthene-d10	15067-26-2	164.27	Int. Std	0.025	4.00		0.0066	1.0485	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	2-Fluorobiphenyl	321-60-8	172.2	Surr	0.025	2.21	88.4	0.0066	0.5793	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Biphenyl	92-52-4	154.21	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Acenaphthylene	208-96-8	152.19	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Acenaphthene	83-32-9	154.21	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Dibenzofuran	132-64-9	138.19	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Fluorene	86-73-7	166.22	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Phenanthrene-d10	1517-22-2	188.29	Int. Std	0.025	4.00		0.0066	1.0485	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	2,4,6-Tribromophenol	118-79-6	330.8	Surr	0.025	1.43	57.1	0.0066	0.3748	S
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Phenanthrene	85-01-8	178.23	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Anthracene	120-12-7	178.23	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Fluoranthene	206-44-0	202.25	T	0.025	< 0.025		0.0061	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Chrysene-d12	1719-03-5	240.4	Int. Std	0.025	4.00		0.0061	1.0485	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Pyrene	129-00-0	202.25	T	0.025	< 0.025		0.0061	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Terphenyl-d14	1718-51-0	244.4	Surr	0.025	2.32	92.6	0.0061	0.6081	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Benzo(a)anthracene	56-55-3	228.3	T	0.025	< 0.025		0.0061	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Chrysene	218-01-9	228.3	T	0.025	< 0.025		0.0061	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Perylene-d12	1520-96-3	264.4	Int. Std	0.025	4.00		0.0061	1.0485	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Benzo(b)fluoranthene	205-99-2	252.3	T	0.025	< 0.025		0.0061	< 0.0066	

## LABORATORY REPORT

### EPA Compendium Method TO-13

### Quartz Filters

Client:	Kansas State University	RJLG Lab #:	W305170
Address:	245 Levee Drive	Samples Received:	05/23/23
	Manhattan, KS 66502	Analysis Date:	07/28/23
Attention:	Dr. Byron Jones	Report Date:	08/25/23
Telephone:	785-532-5620	Sampling Date:	05/18/23
Fax:		PO#	PAH
		Client Project:	Air Sampling

Sample ID		Analyte	CAS Number	MW	Type	RL µg/Filter	Result µg/Filter	Surr % REC	RL µg/m3	Result µg/m3	Qualifier
Client	RJLG										
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	7,12-Dimethylbenz(a)anthracene	57-97-6	256.3	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Benzo(k)fluoranthene	207-08-9	252.3	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Benzo(a)pyrene	50-32-8	252.3	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	3-Methylcholanthrene	56-49-5	268.4	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Dibenzo(a,j)acridine	224-42-0	279.3	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Indeno(1,2,3-c,d)pyrene	193-39-5	276.3	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Dibenz(a,h)anthracene	53-70-3	278.3	T	0.025	< 0.025		0.0066	< 0.0066	
Skydrol 220C - 5ppmW - Pack Exit 39	W305170-33	Benzo(g,h,i)perylene	191-24-2	276.3	T	0.025	< 0.025		0.0066	< 0.0066	

\*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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ND = Not detected. Qualitative analysis T = Target Analyte

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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

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TIC =

X = Detected but not quantifiable

Authorized Signature:

Laboratory Technical Manager - Dr. Joe Sears

Date: 08/25/23

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RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

QC Report for Samples W305170-01 through W305170-20

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CCV1	11.744	12655087	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CCV1	7.792	9744658	2500	2480	99.0	70-130		
Phenol-d6	13127-88-3	Surr	CCV1	10.731	10091494	2500	2460	98.4	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CCV1	13.881	10228724	2500	2460	98.3	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CCV1	16.815	48505882	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CCV1	16.897	33176986	2500	2500	100	70-130		
2-Methylnaphthalene	91-57-6	T	CCV1	20.041	20742952	2500	2510	100	70-130		
1-Methylnaphthalene	1321-94-4	T	CCV1	20.460	20237928	2500	2520	101	70-130		
Acenaphthene-d10	15067-26-2	Int. Std	CCV1	24.758	23889873	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CCV1	21.885	21695919	2500	2500	100	70-130		
Biphenyl	92-52-4	T	CCV1	22.272	24000226	2500	2500	100	70-130		
Acenaphthylene	208-96-8	T	CCV1	24.060	28604206	2500	2520	101	70-130		
Acenaphthene	83-32-9	T	CCV1	24.892	18583034	2500	2570	103	70-130		
Dibenzofuran	132-64-9	T	CCV1	25.740	24150355	2500	2470	98.9	70-130		
Fluorene	86-73-7	T	CCV1	27.317	19774134	2500	2510	100	70-130		
Phenanthrene-d10	1517-22-2	Int. Std	CCV1	31.610	38681696	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CCV1	28.472	1732514	2500	2680	107	70-130		
Phenanthrene	85-01-8	T	CCV1	31.711	27919281	2500	2500	100.0	70-130		
Anthracene	120-12-7	T	CCV1	31.956	27025874	2500	2490	99.6	70-130		
Fluoranthene	206-44-0	T	CCV1	37.243	27905704	2500	2490	99.6	70-130		
Chrysene-d12	1719-03-5	Int. Std	CCV1	43.961	29158510	4000	4000	100	70-130		
Pyrene	129-00-0	T	CCV1	38.227	29904791	2500	2540	101	70-130		
Terphenyl-d14	1718-51-0	Surr	CCV1	39.398	19608991	2500	2540	102	70-130		
Benzo(a)anthracene	56-55-3	T	CCV1	43.914	25301122	2500	2460	98.4	70-130		
Chrysene	218-01-9	T	CCV1	44.065	25196973	2500	2480	99.4	70-130		
Perylene-d12	1520-96-3	Int. Std	CCV1	50.104	27935094	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CCV1	48.603	25244041	2500	2580	103	70-130		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CCV1	48.665	11116702	2500	2490	99.4	70-130		
Benzo(k)fluoranthene	207-08-9	T	CCV1	48.723	25686375	2500	2570	103	70-130		
Benzo(a)pyrene	50-32-8	T	CCV1	49.858	18628735	2500	2630	105	70-130		
3-Methylcholanthrene	56-49-5	T	CCV1	51.348	7150739	2500	2570	103	70-130		
Dibenzo(a,j)acridine	224-42-0	T	CCV1	53.458	10417541	2500	2650	106	70-130		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CCV1	53.957	13621859	2500	2710	109	70-130		
Dibenz(a,h)anthracene	53-70-3	T	CCV1	54.104	13703005	2500	2650	106	70-130		
Benzo(g,h,i)perylene	191-24-2	T	CCV1	54.798	15456151	2500	2580	103	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CB-S1	11.749	12900292	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CB-S1	7.799	9498207	2500	2370	94.7	70-130		
Phenol-d6	13127-88-3	Surr	CB-S1	10.744	8756284	2500	2100	84.0	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CB-S1	13.887	9586440	2500	2260	90.5	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CB-S1	16.813	49492130	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CB-S1						-		
2-Methylnaphthalene	91-57-6	T	CB-S1						-		
1-Methylnaphthalene	1321-94-4	T	CB-S1						-		
Acenaphthene-d10	15067-26-2	Int. Std	CB-S1	24.786	23002721	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CB-S1	21.917	19834595	2500	2370	95.0	70-130		
Biphenyl	92-52-4	T	CB-S1						-		
Acenaphthylene	208-96-8	T	CB-S1						-		



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**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
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 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Acenaphthene	83-32-9	T	CB-S1						-		
Dibenzofuran	132-64-9	T	CB-S1						-		
Fluorene	86-73-7	T	CB-S1						-		
Phenanthrene-d10	1517-22-2	Int. Std	CB-S1	31.640	32123249	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CB-S1	28.609	534234	2500	1290	51.6	70-130		
Phenanthrene	85-01-8	T	CB-S1						-		
Anthracene	120-12-7	T	CB-S1						-		
Fluoranthene	206-44-0	T	CB-S1						-		
Chrysene-d12	1719-03-5	Int. Std	CB-S1	43.978	23884806	4000	4000	100	70-130		
Pyrene	129-00-0	T	CB-S1						-		
Terphenyl-d14	1718-51-0	Surr	CB-S1	39.414	16916974	2500	2670	107	70-130		
Benzo(a)anthracene	56-55-3	T	CB-S1						-		
Chrysene	218-01-9	T	CB-S1						-		
Perylene-d12	1520-96-3	Int. Std	CB-S1	50.122	19327924	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CB-S1						-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CB-S1						-		
Benzo(k)fluoranthene	207-08-9	T	CB-S1						-		
Benzo(a)pyrene	50-32-8	T	CB-S1						-		
3-Methylcholanthrene	56-49-5	T	CB-S1						-		
Dibenzo(a,j)acridine	224-42-0	T	CB-S1						-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CB-S1						-		
Dibenz(a,h)anthracene	53-70-3	T	CB-S1						-		
Benzo(g,h,i)perylene	191-24-2	T	CB-S1						-		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	RL1	11.744	12797646	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	RL1	7.845	64095	25.0	31.7	127	60-140		
Phenol-d6	13127-88-3	Surr	RL1	10.884	50372	25.0	38.9	156	60-140		S
Nitrobenzene-d5	4165-60-0	Surr	RL1	13.982	69815	25.0	38.7	155	60-140		S
Naphthalene-d8	1146-65-2	Int. Std	RL1	16.813	48401715	4000	4000	100	70-130		
Naphthalene	91-20-3	T	RL1	16.900	341726	25.0	32.9	131	60-140		
2-Methylnaphthalene	91-57-6	T	RL1	20.205	141161	25.0	28.8	115	60-140		
1-Methylnaphthalene	1321-94-4	T	RL1	20.584	167666	25.0	31.5	126	60-140		
Acenaphthene-d10	15067-26-2	Int. Std	RL1	24.786	21254550	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	RL1	21.990	141378	25.0	31.0	124	60-140		
Biphenyl	92-52-4	T	RL1	22.388	114506	25.0	22.3	89.4	60-140		
Acenaphthylene	208-96-8	T	RL1	24.117	174582	25.0	36.0	144	60-140		R
Acenaphthene	83-32-9	T	RL1	24.930	143424	25.0	26.4	105	60-140		
Dibenzofuran	132-64-9	T	RL1	25.961	159068	25.0	59.4	237	60-140		R
Fluorene	86-73-7	T	RL1	27.479	115973	25.0	36.2	145	60-140		R
Phenanthrene-d10	1517-22-2	Int. Std	RL1	31.648	29253957	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	RL1	28.985	2143	25.0	44.8	179	60-140		S
Phenanthrene	85-01-8	T	RL1	31.751	203689	25.0	35.3	141	60-140		R
Anthracene	120-12-7	T	RL1	32.091	105756	25.0	33.4	134	60-140		
Fluoranthene	206-44-0	T	RL1	37.401	140026	25.0	36.9	148	60-140		R
Chrysene-d12	1719-03-5	Int. Std	RL1	43.978	23788793	4000	4000	100	70-130		
Pyrene	129-00-0	T	RL1	38.360	161926	25.0	32.0	128	60-140		
Terphenyl-d14	1718-51-0	Surr	RL1	39.489	115098	25.0	35.6	142	60-140		S
Benzo(a)anthracene	56-55-3	T	RL1	43.962	172641	25.0	78.4	314	60-140		R
Chrysene	218-01-9	T	RL1	44.087	227386	25.0	26.3	105	60-140		
Perylene-d12	1520-96-3	Int. Std	RL1	50.116	19024635	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	RL1	48.663	75163	25.0	40.0	160	60-140		R
7,12-Dimethylbenz(a)anthracene	57-97-6	T	RL1	48.695	33603	25.0	41.5	166	60-140		R
Benzo(k)fluoranthene	207-08-9	T	RL1	48.782	84859	25.0	34.0	136	60-140		



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**Quartz Filters**

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 785-532-5620

**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Benzo(a)pyrene	50-32-8	T	RL1	49.888	40609	25.0	38.5	154	60-140		R
3-Methylcholanthrene	56-49-5	T	RL1	51.526	12877	25.0	40.8	163	60-140		R
Dibenzo(a,j)acridine	224-42-0	T	RL1	54.006	12965	25.0	44.3	177	60-140		R
Indeno(1,2,3-c,d)pyrene	193-39-5	T	RL1	54.380	22279	25.0	31.8	127	60-140		
Dibenz(a,h)anthracene	53-70-3	T	RL1	54.608	18895	25.0	38.8	155	60-140		R
Benzo(g,h,i)perylene	191-24-2	T	RL1	55.085	40525	25.0	34.4	138	60-140		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	RL2	11.742	11303830	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	RL2	7.838	128555	50.0	52.0	104	60-140		
Phenol-d6	13127-88-3	Surr	RL2	10.837	88367	50.0	50.8	102	60-140		
Nitrobenzene-d5	4165-60-0	Surr	RL2	13.950	113764	50.0	52.6	105	60-140		
Naphthalene-d8	1146-65-2	Int. Std	RL2	16.813	41974707	4000	4000	100	70-130		
Naphthalene	91-20-3	T	RL2	16.900	559209	50.0	55.7	111	60-140		
2-Methylnaphthalene	91-57-6	T	RL2	20.180	241654	50.0	45.4	90.8	60-140		
1-Methylnaphthalene	1321-94-4	T	RL2	20.567	293997	50.0	52.8	106	60-140		
Acenaphthene-d10	15067-26-2	Int. Std	RL2	24.786	18641637	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	RL2	21.970	284939	50.0	54.7	109	60-140		
Biphenyl	92-52-4	T	RL2	22.368	301875	50.0	49.2	98.4	60-140		
Acenaphthylene	208-96-8	T	RL2	24.117	296526	50.0	52.1	104	60-140		
Acenaphthene	83-32-9	T	RL2	24.930	280282	50.0	53.7	107	60-140		
Dibenzofuran	132-64-9	T	RL2	25.929	268621	50.0	76.0	152	60-140		R
Fluorene	86-73-7	T	RL2	27.455	195485	50.0	51.3	103	60-140		
Phenanthrene-d10	1517-22-2	Int. Std	RL2	31.648	24503729	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	RL2	28.931	3835	50.0	53.1	106	60-140		
Phenanthrene	85-01-8	T	RL2	31.751	323239	50.0	56.8	114	60-140		
Anthracene	120-12-7	T	RL2	32.083	165226	50.0	44.4	88.9	60-140		
Fluoranthene	206-44-0	T	RL2	37.388	236173	50.0	53.5	107	60-140		
Chrysene-d12	1719-03-5	Int. Std	RL2	43.978	19563843	4000	4000	100	70-130		
Pyrene	129-00-0	T	RL2	38.341	272181	50.0	49.5	98.9	60-140		
Terphenyl-d14	1718-51-0	Surr	RL2	39.483	192130	50.0	54.3	109	60-140		
Benzo(a)anthracene	56-55-3	T	RL2	43.957	235142	50.0	91.6	183	60-140		R
Chrysene	218-01-9	T	RL2	44.087	360042	50.0	51.8	104	60-140		
Perylene-d12	1520-96-3	Int. Std	RL2	50.116	16035269	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	RL2	48.663	135871	50.0	52.8	106	60-140		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	RL2	48.690	56082	50.0	52.2	104	60-140		
Benzo(k)fluoranthene	207-08-9	T	RL2	48.782	169200	50.0	50.9	102	60-140		
Benzo(a)pyrene	50-32-8	T	RL2	49.894	68137	50.0	48.5	96.9	60-140		
3-Methylcholanthrene	56-49-5	T	RL2	51.516	22359	50.0	51.3	103	60-140		
Dibenzo(a,j)acridine	224-42-0	T	RL2	53.957	18911	50.0	50.7	101	60-140		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	RL2	54.342	46897	50.0	47.4	94.8	60-140		
Dibenz(a,h)anthracene	53-70-3	T	RL2	54.624	31920	50.0	46.7	93.4	60-140		
Benzo(g,h,i)perylene	191-24-2	T	RL2	55.048	72084	50.0	48.7	97.5	60-140		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	BG30075-BS1	11.744	12655087	4000	4000	100	70-130	0.0	
2-Fluorophenol	367-12-4	Surr	BG30075-BS1	7.792	9744658	2500	2110	84.4	70-130	0.8	
Phenol-d6	13127-88-3	Surr	BG30075-BS1	10.731	10091494	2500	2490	99.7	70-130	0.9	
Nitrobenzene-d5	4165-60-0	Surr	BG30075-BS1	13.881	10228724	2500	2420	96.8	70-130	0.4	
Naphthalene-d8	1146-65-2	Int. Std	BG30075-BS1	16.815	48505882	4000	4000	100	70-130	0.0	
Naphthalene	91-20-3	T	BG30075-BS1	16.897	33176986	2500	2320	92.8	70-130	0.6	
2-Methylnaphthalene	91-57-6	T	BG30075-BS1	20.041	20742952	2500	2350	93.9	70-130	0.5	



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**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

1-Methylnaphthalene	1321-94-4	T	BG30075-BS1	20.460	20237928	2500	2330	93.0	70-130	0.4	
Acenaphthene-d10	15067-26-2	Int. Std	BG30075-BS1	24.758	23889873	4000	4000	100	70-130	0.0	
2-Fluorobiphenyl	321-60-8	Surr	BG30075-BS1	21.885	21695919	2500	2240	89.5	70-130	0.6	
Biphenyl	92-52-4	T	BG30075-BS1	22.272	24000226	2500	2290	91.6	70-130	0.7	
Acenaphthylene	208-96-8	T	BG30075-BS1	24.060	28604206	2500	2300	91.9	70-130	1.1	
Acenaphthene	83-32-9	T	BG30075-BS1	24.892	18583034	2500	2270	90.7	70-130	1.1	
Dibenzofuran	132-64-9	T	BG30075-BS1	25.740	24150355	2500	2370	94.7	70-130	1.1	
Fluorene	86-73-7	T	BG30075-BS1	27.317	19774134	2500	2530	101	70-130	0.0	
Phenanthrene-d10	1517-22-2	Int. Std	BG30075-BS1	31.610	38681696	4000	4000	100	70-130	0.0	
2,4,6-Tribromophenol	118-79-6	Surr	BG30075-BS1	28.472	1732514	2500	2640	106	70-130	3.8	
Phenanthrene	85-01-8	T	BG30075-BS1	31.711	27919281	2500	2360	94.3	70-130	0.7	
Anthracene	120-12-7	T	BG30075-BS1	31.956	27025874	2500	2330	93.3	70-130	0.9	
Fluoranthene	206-44-0	T	BG30075-BS1	37.243	27905704	2500	2840	113	70-130	24.8	
Chrysene-d12	1719-03-5	Int. Std	BG30075-BS1	43.961	29158510	4000	4000	100	70-130	0.0	
Pyrene	129-00-0	T	BG30075-BS1	38.227	29904791	2500	2190	87.7	70-130	3.2	
Terphenyl-d14	1718-51-0	Surr	BG30075-BS1	39.398	19608991	2500	2400	96.0	70-130	2.0	
Benzo(a)anthracene	56-55-3	T	BG30075-BS1	43.914	25301122	2500	2360	94.6	70-130	0.7	
Chrysene	218-01-9	T	BG30075-BS1	44.065	25196973	2500	2390	95.8	70-130	0.4	
Perylene-d12	1520-96-3	Int. Std	BG30075-BS1	50.104	27935094	4000	4000	100	70-130	0.0	
Benzo(b)fluoranthene	205-99-2	T	BG30075-BS1	48.603	25244041	2500	2270	90.9	70-130	6.6	
7,12-Dimethylbenz(a)anthracene	57-97-6	T	BG30075-BS1	48.665	11116702	2500	2270	90.8	70-130	3.8	
Benzo(k)fluoranthene	207-08-9	T	BG30075-BS1	48.723	25686375	2500	2350	94.0	70-130	3.3	
Benzo(a)pyrene	50-32-8	T	BG30075-BS1	49.858	18628735	2500	2560	102	70-130	0.0	
3-Methylcholanthrene	56-49-5	T	BG30075-BS1	51.348	7150739	2500	2890	116	70-130	2.6	
Dibenzo(a,j)acridine	224-42-0	T	BG30075-BS1	53.458	10417541	2500	2780	111	70-130	5.3	
Indeno(1,2,3-c,d)pyrene	193-39-5	T	BG30075-BS1	53.957	13621859	2500	2710	109	70-130	4.5	
Dibenz(a,h)anthracene	53-70-3	T	BG30075-BS1	54.104	13703005	2500	2690	107	70-130	4.6	
Benzo(g,h,i)perylene	191-24-2	T	BG30075-BS1	54.798	15456151	2500	2600	104	70-130	4.7	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	BG30075-BSD1	11.739	4581826	4000	4000	100	70-130	0.0	
2-Fluorophenol	367-12-4	Surr	BG30075-BSD1	7.785	3027843	2500	2130	85.1	70-130	0.8	
Phenol-d6	13127-88-3	Surr	BG30075-BSD1	10.738	3666718	2500	2470	98.8	70-130	0.9	
Nitrobenzene-d5	4165-60-0	Surr	BG30075-BSD1	13.879	3660723	2500	2430	97.2	70-130	0.4	
Naphthalene-d8	1146-65-2	Int. Std	BG30075-BSD1	16.814	18426870	4000	4000	100	70-130	0.0	
Naphthalene	91-20-3	T	BG30075-BSD1	16.898	11753626	2500	2340	93.4	70-130	0.6	
2-Methylnaphthalene	91-57-6	T	BG30075-BSD1	20.057	7408610	2500	2360	94.4	70-130	0.5	
1-Methylnaphthalene	1321-94-4	T	BG30075-BSD1	20.471	7125155	2500	2330	93.4	70-130	0.4	
Acenaphthene-d10	15067-26-2	Int. Std	BG30075-BSD1	24.764	9568407	4000	4000	100	70-130	0.0	
2-Fluorobiphenyl	321-60-8	Surr	BG30075-BSD1	21.898	7813108	2500	2250	90.0	70-130	0.6	
Biphenyl	92-52-4	T	BG30075-BSD1	22.284	8841318	2500	2300	92.2	70-130	0.7	
Acenaphthylene	208-96-8	T	BG30075-BSD1	24.070	10559673	2500	2320	92.9	70-130	1.1	
Acenaphthene	83-32-9	T	BG30075-BSD1	24.898	6645328	2500	2290	91.7	70-130	1.1	
Dibenzofuran	132-64-9	T	BG30075-BSD1	25.748	9159696	2500	2340	93.7	70-130	1.1	
Fluorene	86-73-7	T	BG30075-BSD1	27.322	7972534	2500	2520	101	70-130	0.0	
Phenanthrene-d10	1517-22-2	Int. Std	BG30075-BSD1	31.609	21598475	4000	4000	100	70-130	0.0	
2,4,6-Tribromophenol	118-79-6	Surr	BG30075-BSD1	28.485	906774	2500	2560	102	70-130	3.8	
Phenanthrene	85-01-8	T	BG30075-BSD1	31.712	14819623	2500	2380	95.0	70-130	0.7	
Anthracene	120-12-7	T	BG30075-BSD1	31.956	14251795	2500	2350	94.1	70-130	0.9	
Fluoranthene	206-44-0	T	BG30075-BSD1	37.240	22720903	2500	3620	145	70-130	24.8	R
Chrysene-d12	1719-03-5	Int. Std	BG30075-BSD1	43.956	28769508	4000	4000	100	70-130	0.0	
Pyrene	129-00-0	T	BG30075-BSD1	38.224	24655207	2500	2120	84.9	70-130	3.2	
Terphenyl-d14	1718-51-0	Surr	BG30075-BSD1	39.391	17930964	2500	2350	94.1	70-130	2.0	
Benzo(a)anthracene	56-55-3	T	BG30075-BSD1	43.913	24143674	2500	2380	95.3	70-130	0.7	



2710 North 20th Avenue, Pasco WA 99301

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**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Chrysene	218-01-9	T	BG30075-BSD1	44.065	24066982	2500	2400	96.2	70-130	0.4	
Perylene-d12	1520-96-3	Int. Std	BG30075-BSD1	50.102	29163403	4000	4000	100	70-130	0.0	
Benzo(b)fluoranthene	205-99-2	T	BG30075-BSD1	48.603	24823724	2500	2430	97.1	70-130	6.6	
7,12-Dimethylbenz(a)anthracene	57-97-6	T	BG30075-BSD1	48.663	11007189	2500	2360	94.3	70-130	3.8	
Benzo(k)fluoranthene	207-08-9	T	BG30075-BSD1	48.722	25385320	2500	2430	97.2	70-130	3.3	
Benzo(a)pyrene	50-32-8	T	BG30075-BSD1	49.854	18815417	2500	2560	102	70-130	0.0	
3-Methylcholanthrene	56-49-5	T	BG30075-BSD1	51.343	9182210	2500	2990	119	70-130	2.6	
Dibenzo(a,j)acridine	224-42-0	T	BG30075-BSD1	53.453	12630006	2500	2930	117	70-130	5.3	
Indeno(1,2,3-c,d)pyrene	193-39-5	T	BG30075-BSD1	53.952	15183856	2500	2840	114	70-130	4.5	
Dibenz(a,h)anthracene	53-70-3	T	BG30075-BSD1	54.098	15517469	2500	2810	112	70-130	4.6	
Benzo(g,h,i)perylene	191-24-2	T	BG30075-BSD1	54.792	17376720	2500	2740	109	70-130	4.7	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	BG30075-MRL1	11.741	3617637	4000	4000	100			
2-Fluorophenol	367-12-4	Surr	BG30075-MRL1	7.792	1810567	2500	1610	64.6			
Phenol-d6	13127-88-3	Surr	BG30075-MRL1	10.758	2052122	2500	1760	70.3			
Nitrobenzene-d5	4165-60-0	Surr	BG30075-MRL1	13.895	2679501	2500	2250	90.2			
Naphthalene-d8	1146-65-2	Int. Std	BG30075-MRL1	16.820	14496129	4000	4000	100			
Naphthalene	91-20-3	T	BG30075-MRL1	16.907	229458	50.0	64.9	130			
2-Methylnaphthalene	91-57-6	T	BG30075-MRL1	20.172	102150	50.0	52.9	106			
1-Methylnaphthalene	1321-94-4	T	BG30075-MRL1	20.567	94195	50.0	49.7	99.4			
Acenaphthene-d10	15067-26-2	Int. Std	BG30075-MRL1	24.792	6746918	4000	4000	100			
2-Fluorobiphenyl	321-60-8	Surr	BG30075-MRL1	21.943	5400188	2500	2210	88.2			
Biphenyl	92-52-4	T	BG30075-MRL1	22.342	121808	50.0	53.8	108			
Acenaphthylene	208-96-8	T	BG30075-MRL1	24.123	111689	50.0	53.4	107			
Acenaphthene	83-32-9	T	BG30075-MRL1	24.936	89088	50.0	47.6	95.3			
Dibenzofuran	132-64-9	T	BG30075-MRL1	25.858	98764	50.0	76.6	153			R
Fluorene	86-73-7	T	BG30075-MRL1	27.408	92087	50.0	60.8	122			
Phenanthrene-d10	1517-22-2	Int. Std	BG30075-MRL1	31.632	12783988	4000	4000	100			
2,4,6-Tribromophenol	118-79-6	Surr	BG30075-MRL1	28.540	311997	2500	1730	69.1			
Phenanthrene	85-01-8	T	BG30075-MRL1	31.737	169037	50.0	56.9	114			
Anthracene	120-12-7	T	BG30075-MRL1	32.012	129127	50.0	56.3	113			
Fluoranthene	206-44-0	T	BG30075-MRL1	37.273	337734	50.0	111	222			R
Chrysene-d12	1719-03-5	Int. Std	BG30075-MRL1	43.957	29153508	4000	4000	100			
Pyrene	129-00-0	T	BG30075-MRL1	38.229	434701	50.0	51.9	104			
Terphenyl-d14	1718-51-0	Surr	BG30075-MRL1	39.395	17094211	2500	2210	88.6			
Benzo(a)anthracene	56-55-3	T	BG30075-MRL1	43.919	523098	50.0	108	216			R
Chrysene	218-01-9	T	BG30075-MRL1	44.065	519094	50.0	50.0	100			
Perylene-d12	1520-96-3	Int. Std	BG30075-MRL1	50.106	26656339	4000	4000	100			
Benzo(b)fluoranthene	205-99-2	T	BG30075-MRL1	48.641	392462	50.0	70.4	141			R
7,12-Dimethylbenz(a)anthracene	57-97-6	T	BG30075-MRL1	48.674	143303	50.0	63.8	128			
Benzo(k)fluoranthene	207-08-9	T	BG30075-MRL1	48.755	425753	50.0	65.9	132			
Benzo(a)pyrene	50-32-8	T	BG30075-MRL1	49.867	240712	50.0	71.0	142			R
3-Methylcholanthrene	56-49-5	T	BG30075-MRL1	51.408	19344	50.0	41.5	83.0			
Dibenzo(a,j)acridine	224-42-0	T	BG30075-MRL1	53.621	114497	50.0	90.5	181			R
Indeno(1,2,3-c,d)pyrene	193-39-5	T	BG30075-MRL1	54.098	124832	50.0	63.0	126			
Dibenz(a,h)anthracene	53-70-3	T	BG30075-MRL1	54.239	143128	50.0	73.4	147			R
Benzo(g,h,i)perylene	191-24-2	T	BG30075-MRL1	54.901	220024	50.0	71.4	143			R

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	BG30075-BLK1	11.739	5838665	4000	4000	100	70-130		



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 245 Levee Drive  
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 785-532-5620

**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

2-Fluorophenol	367-12-4	Surr	BG30075-BLK1	7.785	2777898	2500	1540	61.4	70-130		S
Phenol-d6	13127-88-3	Surr	BG30075-BLK1	10.751	3266396	2500	1730	69.4	70-130		S
Nitrobenzene-d5	4165-60-0	Surr	BG30075-BLK1	13.887	3982419	2500	2080	83.1	70-130		
Naphthalene-d8	1146-65-2	Int. Std	BG30075-BLK1	16.813	23009497	4000	4000	100	70-130		
Naphthalene	91-20-3	T	BG30075-BLK1	16.900	53847		15.6	-	-		B
2-Methylnaphthalene	91-57-6	T	BG30075-BLK1					-	-		
1-Methylnaphthalene	1321-94-4	T	BG30075-BLK1					-	-		
Acenaphthene-d10	15067-26-2	Int. Std	BG30075-BLK1	24.786	10838013	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	BG30075-BLK1	21.930	8981097	2500	2280	91.3	70-130		
Biphenyl	92-52-4	T	BG30075-BLK1					-	-		
Acenaphthylene	208-96-8	T	BG30075-BLK1					-	-		
Acenaphthene	83-32-9	T	BG30075-BLK1					-	-		
Dibenzofuran	132-64-9	T	BG30075-BLK1					-	-		
Fluorene	86-73-7	T	BG30075-BLK1					-	-		
Phenanthrene-d10	1517-22-2	Int. Std	BG30075-BLK1	31.624	18497718	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	BG30075-BLK1	28.540	409468	2500	1610	64.2	70-130		S
Phenanthrene	85-01-8	T	BG30075-BLK1					-	-		
Anthracene	120-12-7	T	BG30075-BLK1					-	-		
Fluoranthene	206-44-0	T	BG30075-BLK1					-	-		
Chrysene-d12	1719-03-5	Int. Std	BG30075-BLK1	43.962	25707717	4000	4000	100	70-130		
Pyrene	129-00-0	T	BG30075-BLK1					-	-		
Terphenyl-d14	1718-51-0	Surr	BG30075-BLK1	39.400	15073829	2500	2220	88.6	70-130		
Benzo(a)anthracene	56-55-3	T	BG30075-BLK1					-	-		
Chrysene	218-01-9	T	BG30075-BLK1					-	-		
Perylene-d12	1520-96-3	Int. Std	BG30075-BLK1	50.105	23131739	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	BG30075-BLK1					-	-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	BG30075-BLK1					-	-		
Benzo(k)fluoranthene	207-08-9	T	BG30075-BLK1					-	-		
Benzo(a)pyrene	50-32-8	T	BG30075-BLK1					-	-		
3-Methylcholanthrene	56-49-5	T	BG30075-BLK1					-	-		
Dibenzo(a,j)acridine	224-42-0	T	BG30075-BLK1					-	-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	BG30075-BLK1					-	-		
Dibenz(a,h)anthracene	53-70-3	T	BG30075-BLK1					-	-		
Benzo(g,h,i)perylene	191-24-2	T	BG30075-BLK1					-	-		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CCV2	11.742	13444578	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CCV2	7.785	10628704	2500	2540	102	70-130		
Phenol-d6	13127-88-3	Surr	CCV2	10.731	11234575	2500	2580	103	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CCV2	13.879	11063811	2500	2500	100	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CCV2	16.814	51403967	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CCV2	16.896	35065505	2500	2500	99.9	70-130		
2-Methylnaphthalene	91-57-6	T	CCV2	20.041	21955296	2500	2510	100	70-130		
1-Methylnaphthalene	1321-94-4	T	CCV2	20.459	21400860	2500	2510	100	70-130		
Acenaphthene-d10	15067-26-2	Int. Std	CCV2	24.757	25747971	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CCV2	21.884	23312661	2500	2490	99.7	70-130		
Biphenyl	92-52-4	T	CCV2	22.270	25684956	2500	2490	99.5	70-130		
Acenaphthylene	208-96-8	T	CCV2	24.060	30894136	2500	2520	101	70-130		
Acenaphthene	83-32-9	T	CCV2	24.892	19909664	2500	2550	102	70-130		
Dibenzofuran	132-64-9	T	CCV2	25.738	25974723	2500	2470	98.7	70-130		
Fluorene	86-73-7	T	CCV2	27.316	21358740	2500	2510	100	70-130		
Phenanthrene-d10	1517-22-2	Int. Std	CCV2	31.609	41182651	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CCV2	28.471	2180441	2500	3010	120	70-130		
Phenanthrene	85-01-8	T	CCV2	31.710	29636454	2500	2490	99.7	70-130		



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 245 Levee Drive  
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 785-532-5620

**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Anthracene	120-12-7	T	CCV2	31.954	29028871	2500	2510	101	70-130		
Fluoranthene	206-44-0	T	CCV2	37.241	30091327	2500	2520	101	70-130		
Chrysene-d12	1719-03-5	Int. Std	CCV2	43.957	31139804	4000	4000	100	70-130		
Pyrene	129-00-0	T	CCV2	38.225	32005590	2500	2540	102	70-130		
Terphenyl-d14	1718-51-0	Surr	CCV2	39.395	21176519	2500	2570	103	70-130		
Benzo(a)anthracene	56-55-3	T	CCV2	43.913	27446929	2500	2500	99.9	70-130		
Chrysene	218-01-9	T	CCV2	44.065	27311428	2500	2520	101	70-130		
Perylene-d12	1520-96-3	Int. Std	CCV2	50.103	30765737	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CCV2	48.609	26597822	2500	2470	98.6	70-130		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CCV2	48.665	12246958	2500	2490	99.4	70-130		
Benzo(k)fluoranthene	207-08-9	T	CCV2	48.722	27712031	2500	2510	101	70-130		
Benzo(a)pyrene	50-32-8	T	CCV2	49.857	20932372	2500	2670	107	70-130		
3-Methylcholanthrene	56-49-5	T	CCV2	51.347	9254382	2500	2890	116	70-130		
Dibenzo(a,j)acridine	224-42-0	T	CCV2	53.458	13959884	2500	3020	121	70-130		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CCV2	53.957	16622756	2500	2920	117	70-130		
Dibenz(a,h)anthracene	53-70-3	T	CCV2	54.104	16802879	2500	2870	115	70-130		
Benzo(g,h,i)perylene	191-24-2	T	CCV2	54.798	18728736	2500	2780	111	70-130		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CB-S2	11.747	12816207	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CB-S2	7.799	9539844	2500	2390	95.8	70-130		
Phenol-d6	13127-88-3	Surr	CB-S2	10.744	8695269	2500	2100	83.9	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CB-S2	13.887	9764920	2500	2320	92.7	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CB-S2	16.813	49408331	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CB-S2					-	-		
2-Methylnaphthalene	91-57-6	T	CB-S2					-	-		
1-Methylnaphthalene	1321-94-4	T	CB-S2					-	-		
Acenaphthene-d10	15067-26-2	Int. Std	CB-S2	24.780	23194354	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CB-S2	21.917	20235256	2500	2400	96.1	70-130		
Biphenyl	92-52-4	T	CB-S2					-	-		
Acenaphthylene	208-96-8	T	CB-S2					-	-		
Acenaphthene	83-32-9	T	CB-S2					-	-		
Dibenzofuran	132-64-9	T	CB-S2					-	-		
Fluorene	86-73-7	T	CB-S2					-	-		
Phenanthrene-d10	1517-22-2	Int. Std	CB-S2	31.640	32443799	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CB-S2	28.583	922551	2500	1940	77.4	70-130		
Phenanthrene	85-01-8	T	CB-S2					-	-		
Anthracene	120-12-7	T	CB-S2					-	-		
Fluoranthene	206-44-0	T	CB-S2					-	-		
Chrysene-d12	1719-03-5	Int. Std	CB-S2	43.978	26003473	4000	4000	100	70-130		
Pyrene	129-00-0	T	CB-S2					-	-		
Terphenyl-d14	1718-51-0	Surr	CB-S2	39.408	17571495	2500	2550	102	70-130		
Benzo(a)anthracene	56-55-3	T	CB-S2					-	-		
Chrysene	218-01-9	T	CB-S2					-	-		
Perylene-d12	1520-96-3	Int. Std	CB-S2	50.116	23098019	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CB-S2					-	-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CB-S2					-	-		
Benzo(k)fluoranthene	207-08-9	T	CB-S2					-	-		
Benzo(a)pyrene	50-32-8	T	CB-S2					-	-		
3-Methylcholanthrene	56-49-5	T	CB-S2					-	-		
Dibenzo(a,j)acridine	224-42-0	T	CB-S2					-	-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CB-S2					-	-		
Dibenz(a,h)anthracene	53-70-3	T	CB-S2					-	-		
Benzo(g,h,i)perylene	191-24-2	T	CB-S2					-	-		



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**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CCV3	11.740	14104165	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CCV3	7.785	11270290	2500	2570	103	70-130		
Phenol-d6	13127-88-3	Surr	CCV3	10.724	11929319	2500	2610	104	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CCV3	13.877	11729733	2500	2530	101	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CCV3	16.811	54296972	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CCV3	16.894	36934953	2500	2490	99.6	70-130		
2-Methylnaphthalene	91-57-6	T	CCV3	20.036	23351900	2500	2520	101	70-130		
1-Methylnaphthalene	1321-94-4	T	CCV3	20.457	22669393	2500	2520	101	70-130		
Acenaphthene-d10	15067-26-2	Int. Std	CCV3	24.755	27377105	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CCV3	21.881	24803804	2500	2490	99.8	70-130		
Biphenyl	92-52-4	T	CCV3	22.268	27290041	2500	2490	99.4	70-130		
Acenaphthylene	208-96-8	T	CCV3	24.057	33010954	2500	2530	101	70-130		
Acenaphthene	83-32-9	T	CCV3	24.892	21014533	2500	2530	101	70-130		
Dibenzofuran	132-64-9	T	CCV3	25.735	27717446	2500	2480	99.0	70-130		
Fluorene	86-73-7	T	CCV3	27.312	22899487	2500	2530	101	70-130		
Phenanthrene-d10	1517-22-2	Int. Std	CCV3	31.607	43857027	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CCV3	28.467	2450917	2500	3120	125	70-130		
Phenanthrene	85-01-8	T	CCV3	31.708	31630442	2500	2500	99.9	70-130		
Anthracene	120-12-7	T	CCV3	31.951	31069806	2500	2530	101	70-130		
Fluoranthene	206-44-0	T	CCV3	37.240	32264917	2500	2540	102	70-130		
Chrysene-d12	1719-03-5	Int. Std	CCV3	43.957	33549786	4000	4000	100	70-130		
Pyrene	129-00-0	T	CCV3	38.222	34292786	2500	2530	101	70-130		
Terphenyl-d14	1718-51-0	Surr	CCV3	39.393	22782891	2500	2560	103	70-130		
Benzo(a)anthracene	56-55-3	T	CCV3	43.913	29550128	2500	2500	99.9	70-130		
Chrysene	218-01-9	T	CCV3	44.065	29080562	2500	2490	99.7	70-130		
Perylene-d12	1520-96-3	Int. Std	CCV3	50.100	33744039	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CCV3	48.603	30050328	2500	2540	102	70-130		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CCV3	48.663	13582227	2500	2510	101	70-130		
Benzo(k)fluoranthene	207-08-9	T	CCV3	48.722	30257998	2500	2500	100	70-130		
Benzo(a)pyrene	50-32-8	T	CCV3	49.855	23332221	2500	2710	108	70-130		
3-Methylcholanthrene	56-49-5	T	CCV3	51.342	10809923	2500	3030	121	70-130		
Dibenzo(a,j)acridine	224-42-0	T	CCV3	53.453	16193271	2500	3130	125	70-130		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CCV3	53.952	19088913	2500	3020	121	70-130		
Dibenz(a,h)anthracene	53-70-3	T	CCV3	54.098	19662505	2500	3010	120	70-130		
Benzo(g,h,i)perylene	191-24-2	T	CCV3	54.793	21050362	2500	2840	113	70-130		
Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CB-S3	11.745	13358504	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CB-S3	7.792	10014324	2500	2410	96.4	70-130		
Phenol-d6	13127-88-3	Surr	CB-S3	10.738	9254601	2500	2140	85.7	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CB-S3	13.887	10261875	2500	2340	93.5	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CB-S3	16.814	52290628	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CB-S3					-	-		
2-Methylnaphthalene	91-57-6	T	CB-S3					-	-		
1-Methylnaphthalene	1321-94-4	T	CB-S3					-	-		
Acenaphthene-d10	15067-26-2	Int. Std	CB-S3	24.780	25033228	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CB-S3	21.910	21265017	2500	2340	93.6	70-130		
Biphenyl	92-52-4	T	CB-S3					-	-		
Acenaphthylene	208-96-8	T	CB-S3					-	-		



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**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Acenaphthene	83-32-9	T	CB-S3					-	-		
Dibenzofuran	132-64-9	T	CB-S3					-	-		
Fluorene	86-73-7	T	CB-S3					-	-		
Phenanthrene-d10	1517-22-2	Int. Std	CB-S3	31.640	35475232	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CB-S3	28.561	1232367	2500	2240	89.5	70-130		
Phenanthrene	85-01-8	T	CB-S3					-	-		
Anthracene	120-12-7	T	CB-S3					-	-		
Fluoranthene	206-44-0	T	CB-S3					-	-		
Chrysene-d12	1719-03-5	Int. Std	CB-S3	43.973	27995683	4000	4000	100	70-130		
Pyrene	129-00-0	T	CB-S3					-	-		
Terphenyl-d14	1718-51-0	Surr	CB-S3	39.408	19003096	2500	2560	102	70-130		
Benzo(a)anthracene	56-55-3	T	CB-S3					-	-		
Chrysene	218-01-9	T	CB-S3					-	-		
Perylene-d12	1520-96-3	Int. Std	CB-S3	50.111	26273725	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CB-S3					-	-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CB-S3					-	-		
Benzo(k)fluoranthene	207-08-9	T	CB-S3					-	-		
Benzo(a)pyrene	50-32-8	T	CB-S3					-	-		
3-Methylcholanthrene	56-49-5	T	CB-S3					-	-		
Dibenzo(a,j)acridine	224-42-0	T	CB-S3					-	-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CB-S3					-	-		
Dibenz(a,h)anthracene	53-70-3	T	CB-S3					-	-		
Benzo(g,h,i)perylene	191-24-2	T	CB-S3					-	-		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CCV4	11.731	13080404	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CCV4	7.772	10468645	2500	2570	103	70-130		
Phenol-d6	13127-88-3	Surr	CCV4	10.711	11200122	2500	2640	106	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CCV4	13.869	11040712	2500	2570	103	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CCV4	16.804	50566896	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CCV4	16.886	34475150	2500	2500	99.8	70-130		
2-Methylnaphthalene	91-57-6	T	CCV4	20.032	21591732	2500	2510	100	70-130		
1-Methylnaphthalene	1321-94-4	T	CCV4	20.450	21011918	2500	2510	100	70-130		
Acenaphthene-d10	15067-26-2	Int. Std	CCV4	24.749	25659863	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CCV4	21.876	23267942	2500	2500	99.9	70-130		
Biphenyl	92-52-4	T	CCV4	22.262	25699761	2500	2500	99.9	70-130		
Acenaphthylene	208-96-8	T	CCV4	24.051	30717158	2500	2520	101	70-130		
Acenaphthene	83-32-9	T	CCV4	24.886	19179441	2500	2470	98.7	70-130		
Dibenzofuran	132-64-9	T	CCV4	25.730	26377751	2500	2530	101	70-130		
Fluorene	86-73-7	T	CCV4	27.307	21748935	2500	2570	103	70-130		
Phenanthrene-d10	1517-22-2	Int. Std	CCV4	31.603	43318460	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CCV4	28.462	2377251	2500	3080	123	70-130		
Phenanthrene	85-01-8	T	CCV4	31.703	30748016	2500	2460	98.5	70-130		
Anthracene	120-12-7	T	CCV4	31.946	30107459	2500	2480	99.1	70-130		
Fluoranthene	206-44-0	T	CCV4	37.237	31597739	2500	2520	101	70-130		
Chrysene-d12	1719-03-5	Int. Std	CCV4	43.958	33376358	4000	4000	100	70-130		
Pyrene	129-00-0	T	CCV4	38.220	33615904	2500	2490	99.7	70-130		
Terphenyl-d14	1718-51-0	Surr	CCV4	39.387	22468984	2500	2540	102	70-130		
Benzo(a)anthracene	56-55-3	T	CCV4	43.913	29348397	2500	2520	101	70-130		
Chrysene	218-01-9	T	CCV4	44.060	28559287	2500	2460	98.4	70-130		
Perylene-d12	1520-96-3	Int. Std	CCV4	50.100	33558591	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CCV4	48.603	29050420	2500	2470	98.7	70-130		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CCV4	48.662	12986541	2500	2420	96.7	70-130		
Benzo(k)fluoranthene	207-08-9	T	CCV4	48.722	29758051	2500	2470	99.0	70-130		

**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

 Kansas State University  
 245 Levee Drive  
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 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-01 through W305170-20**

 RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Benzo(a)pyrene	50-32-8	T	CCV4	49.853	22815389	2500	2670	107	70-130		
3-Methylcholanthrene	56-49-5	T	CCV4	51.340	9550994	2500	2770	111	70-130		
Dibenzo(a,j)acridine	224-42-0	T	CCV4	53.453	14906141	2500	2980	119	70-130		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CCV4	53.952	17961656	2500	2900	116	70-130		
Dibenz(a,h)anthracene	53-70-3	T	CCV4	54.095	17124827	2500	2730	109	70-130		
Benzo(g,h,i)perylene	191-24-2	T	CCV4	54.793	19744869	2500	2710	108	70-130		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CB-S4	11.745	13159849	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CB-S4	7.792	9697010	2500	2370	94.8	70-130		
Phenol-d6	13127-88-3	Surr	CB-S4	10.738	9164886	2500	2150	86.1	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CB-S4	13.887	9756756	2500	2260	90.2	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CB-S4	16.813	50639917	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CB-S4					-	-		
2-Methylnaphthalene	91-57-6	T	CB-S4					-	-		
1-Methylnaphthalene	1321-94-4	T	CB-S4					-	-		
Acenaphthene-d10	15067-26-2	Int. Std	CB-S4	24.773	23808188	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CB-S4	21.910	20563502	2500	2380	95.1	70-130		
Biphenyl	92-52-4	T	CB-S4					-	-		
Acenaphthylene	208-96-8	T	CB-S4					-	-		
Acenaphthene	83-32-9	T	CB-S4					-	-		
Dibenzofuran	132-64-9	T	CB-S4					-	-		
Fluorene	86-73-7	T	CB-S4					-	-		
Phenanthrene-d10	1517-22-2	Int. Std	CB-S4	31.632	33434417	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CB-S4	28.566	1019596	2500	2040	81.5	70-130		
Phenanthrene	85-01-8	T	CB-S4					-	-		
Anthracene	120-12-7	T	CB-S4					-	-		
Fluoranthene	206-44-0	T	CB-S4					-	-		
Chrysene-d12	1719-03-5	Int. Std	CB-S4	43.967	25745354	4000	4000	100	70-130		
Pyrene	129-00-0	T	CB-S4					-	-		
Terphenyl-d14	1718-51-0	Surr	CB-S4	39.408	17734208	2500	2600	104	70-130		
Benzo(a)anthracene	56-55-3	T	CB-S4					-	-		
Chrysene	218-01-9	T	CB-S4					-	-		
Perylene-d12	1520-96-3	Int. Std	CB-S4	50.111	22971726	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CB-S4					-	-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CB-S4					-	-		
Benzo(k)fluoranthene	207-08-9	T	CB-S4					-	-		
Benzo(a)pyrene	50-32-8	T	CB-S4					-	-		
3-Methylcholanthrene	56-49-5	T	CB-S4					-	-		
Dibenzo(a,j)acridine	224-42-0	T	CB-S4					-	-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CB-S4					-	-		
Dibenz(a,h)anthracene	53-70-3	T	CB-S4					-	-		
Benzo(g,h,i)perylene	191-24-2	T	CB-S4					-	-		



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**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-01 through W305170-20**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

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

d = %RPD failure

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

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 Instability

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

08/25/23

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.



RJ LeeGroup, Inc. | Columbia Basin Analytical Laboratory

2710 North 20th Avenue, Pasco WA 99301

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**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
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 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CCV3	11.740	14104165	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CCV3	7.785	11270290	2500	2570	103	70-130		
Phenol-d6	13127-88-3	Surr	CCV3	10.724	11929319	2500	2610	104	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CCV3	13.877	11729733	2500	2530	101	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CCV3	16.811	54296972	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CCV3	16.894	36934953	2500	2490	99.6	70-130		
2-Methylnaphthalene	91-57-6	T	CCV3	20.036	23351900	2500	2520	101	70-130		
1-Methylnaphthalene	1321-94-4	T	CCV3	20.457	22669393	2500	2520	101	70-130		
Acenaphthene-d10	15067-26-2	Int. Std	CCV3	24.755	27377105	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CCV3	21.881	24803804	2500	2490	99.8	70-130		
Biphenyl	92-52-4	T	CCV3	22.268	27290041	2500	2490	99.4	70-130		
Acenaphthylene	208-96-8	T	CCV3	24.057	33010954	2500	2530	101	70-130		
Acenaphthene	83-32-9	T	CCV3	24.892	21014533	2500	2530	101	70-130		
Dibenzofuran	132-64-9	T	CCV3	25.735	27717446	2500	2480	99.0	70-130		
Fluorene	86-73-7	T	CCV3	27.312	22899487	2500	2530	101	70-130		
Phenanthrene-d10	1517-22-2	Int. Std	CCV3	31.607	43857027	4000	4000	100	70-130		X
2,4,6-Tribromophenol	118-79-6	Surr	CCV3	28.467	2450917	2500	3120	125	70-130		
Phenanthrene	85-01-8	T	CCV3	31.708	31630442	2500	2500	99.9	70-130		
Anthracene	120-12-7	T	CCV3	31.951	31069806	2500	2530	101	70-130		
Fluoranthene	206-44-0	T	CCV3	37.240	32264917	2500	2540	102	70-130		
Chrysene-d12	1719-03-5	Int. Std	CCV3	43.957	33549786	4000	4000	100	70-130		
Pyrene	129-00-0	T	CCV3	38.222	34292786	2500	2530	101	70-130		
Terphenyl-d14	1718-51-0	Surr	CCV3	39.393	22782891	2500	2560	103	70-130		
Benzo(a)anthracene	56-55-3	T	CCV3	43.913	29550128	2500	2500	99.9	70-130		
Chrysene	218-01-9	T	CCV3	44.065	29080562	2500	2490	99.7	70-130		
Perylene-d12	1520-96-3	Int. Std	CCV3	50.100	33744039	4000	4000	100	70-130		X
Benzo(b)fluoranthene	205-99-2	T	CCV3	48.603	30050328	2500	2540	102	70-130		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CCV3	48.663	13582227	2500	2510	101	70-130		
Benzo(k)fluoranthene	207-08-9	T	CCV3	48.722	30257998	2500	2500	100	70-130		
Benzo(a)pyrene	50-32-8	T	CCV3	49.855	23332221	2500	2710	108	70-130		
3-Methylcholanthrene	56-49-5	T	CCV3	51.342	10809923	2500	3030	121	70-130		
Dibenzo(a,j)acridine	224-42-0	T	CCV3	53.453	16193271	2500	3130	125	70-130		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CCV3	53.952	19088913	2500	3020	121	70-130		
Dibenz(a,h)anthracene	53-70-3	T	CCV3	54.098	19662505	2500	3010	120	70-130		
Benzo(g,h,i)perylene	191-24-2	T	CCV3	54.793	21050362	2500	2840	113	70-130		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CB-S3	11.745	13358504	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CB-S3	7.792	10014324	2500	2410	96.4	70-130		
Phenol-d6	13127-88-3	Surr	CB-S3	10.738	9254601	2500	2140	85.7	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CB-S3	13.887	10261875	2500	2340	93.5	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CB-S3	16.814	52290628	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CB-S3						-		
2-Methylnaphthalene	91-57-6	T	CB-S3						-		
1-Methylnaphthalene	1321-94-4	T	CB-S3						-		
Acenaphthene-d10	15067-26-2	Int. Std	CB-S3	24.780	25033228	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CB-S3	21.910	21265017	2500	2340	93.6	70-130		
Biphenyl	92-52-4	T	CB-S3						-		
Acenaphthylene	208-96-8	T	CB-S3						-		



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**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
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Acenaphthene	83-32-9	T	CB-S3						-		
Dibenzofuran	132-64-9	T	CB-S3						-		
Fluorene	86-73-7	T	CB-S3						-		
Phenanthrene-d10	1517-22-2	Int. Std	CB-S3	31.640	35475232	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CB-S3	28.561	1232367	2500	2240	89.5	70-130		
Phenanthrene	85-01-8	T	CB-S3						-		
Anthracene	120-12-7	T	CB-S3						-		
Fluoranthene	206-44-0	T	CB-S3						-		
Chrysene-d12	1719-03-5	Int. Std	CB-S3	43.973	27995683	4000	4000	100	70-130		
Pyrene	129-00-0	T	CB-S3						-		
Terphenyl-d14	1718-51-0	Surr	CB-S3	39.408	19003096	2500	2560	102	70-130		
Benzo(a)anthracene	56-55-3	T	CB-S3						-		
Chrysene	218-01-9	T	CB-S3						-		
Perylene-d12	1520-96-3	Int. Std	CB-S3	50.111	26273725	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CB-S3						-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CB-S3						-		
Benzo(k)fluoranthene	207-08-9	T	CB-S3						-		
Benzo(a)pyrene	50-32-8	T	CB-S3						-		
3-Methylcholanthrene	56-49-5	T	CB-S3						-		
Dibenzo(a,j)acridine	224-42-0	T	CB-S3						-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CB-S3						-		
Dibenz(a,h)anthracene	53-70-3	T	CB-S3						-		
Benzo(g,h,i)perylene	191-24-2	T	CB-S3						-		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	RL1	11.744	12797646	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	RL1	7.845	64095	25.0	31.7	127	60-140		
Phenol-d6	13127-88-3	Surr	RL1	10.884	50372	25.0	38.9	156	60-140		SZ
Nitrobenzene-d5	4165-60-0	Surr	RL1	13.982	69815	25.0	38.7	155	60-140		S
Naphthalene-d8	1146-65-2	Int. Std	RL1	16.813	48401715	4000	4000	100	70-130		
Naphthalene	91-20-3	T	RL1	16.900	341726	25.0	32.9	131	60-140		
2-Methylnaphthalene	91-57-6	T	RL1	20.205	141161	25.0	28.8	115	60-140		
1-Methylnaphthalene	1321-94-4	T	RL1	20.584	167666	25.0	31.5	126	60-140		
Acenaphthene-d10	15067-26-2	Int. Std	RL1	24.786	21254550	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	RL1	21.990	141378	25.0	31.0	124	60-140		
Biphenyl	92-52-4	T	RL1	22.388	114506	25.0	22.3	89.4	60-140		
Acenaphthylene	208-96-8	T	RL1	24.117	174582	25.0	36.0	144	60-140		R
Acenaphthene	83-32-9	T	RL1	24.930	143424	25.0	26.4	105	60-140		
Dibenzofuran	132-64-9	T	RL1	25.961	159068	25.0	59.4	237	60-140		R
Fluorene	86-73-7	T	RL1	27.479	115973	25.0	36.2	145	60-140		R
Phenanthrene-d10	1517-22-2	Int. Std	RL1	31.648	29253957	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	RL1	28.985	2143	25.0	44.8	179	60-140		SZ
Phenanthrene	85-01-8	T	RL1	31.751	203689	25.0	35.3	141	60-140		R
Anthracene	120-12-7	T	RL1	32.091	105756	25.0	33.4	134	60-140		
Fluoranthene	206-44-0	T	RL1	37.401	140026	25.0	36.9	148	60-140		R
Chrysene-d12	1719-03-5	Int. Std	RL1	43.978	23788793	4000	4000	100	70-130		
Pyrene	129-00-0	T	RL1	38.360	161926	25.0	32.0	128	60-140		
Terphenyl-d14	1718-51-0	Surr	RL1	39.489	115098	25.0	35.6	142	60-140		S
Benzo(a)anthracene	56-55-3	T	RL1	43.962	172641	25.0	78.4	314	60-140		R
Chrysene	218-01-9	T	RL1	44.087	227386	25.0	26.3	105	60-140		
Perylene-d12	1520-96-3	Int. Std	RL1	50.116	19024635	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	RL1	48.663	75163	25.0	40.0	160	60-140		R
7,12-Dimethylbenz(a)anthracene	57-97-6	T	RL1	48.695	33603	25.0	41.5	166	60-140		R
Benzo(k)fluoranthene	207-08-9	T	RL1	48.782	84859	25.0	34.0	136	60-140		



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 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
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Benzo(a)pyrene	50-32-8	T	RL1	49.888	40609	25.0	38.5	154	60-140		R
3-Methylcholanthrene	56-49-5	T	RL1	51.526	12877	25.0	40.8	163	60-140		R
Dibenzo(a,j)acridine	224-42-0	T	RL1	54.006	12965	25.0	44.3	177	60-140		RZ
Indeno(1,2,3-c,d)pyrene	193-39-5	T	RL1	54.380	22279	25.0	31.8	127	60-140		
Dibenz(a,h)anthracene	53-70-3	T	RL1	54.608	18895	25.0	38.8	155	60-140		R
Benzo(g,h,i)perylene	191-24-2	T	RL1	55.085	40525	25.0	34.4	138	60-140		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	RL2	11.742	11303830	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	RL2	7.838	128555	50.0	52.0	104	60-140		
Phenol-d6	13127-88-3	Surr	RL2	10.837	88367	50.0	50.8	102	60-140		
Nitrobenzene-d5	4165-60-0	Surr	RL2	13.950	113764	50.0	52.6	105	60-140		
Naphthalene-d8	1146-65-2	Int. Std	RL2	16.813	41974707	4000	4000	100	70-130		
Naphthalene	91-20-3	T	RL2	16.900	559209	50.0	55.7	111	60-140		
2-Methylnaphthalene	91-57-6	T	RL2	20.180	241654	50.0	45.4	90.8	60-140		
1-Methylnaphthalene	1321-94-4	T	RL2	20.567	293997	50.0	52.8	106	60-140		
Acenaphthene-d10	15067-26-2	Int. Std	RL2	24.786	18641637	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	RL2	21.970	284939	50.0	54.7	109	60-140		
Biphenyl	92-52-4	T	RL2	22.368	301875	50.0	49.2	98.4	60-140		
Acenaphthylene	208-96-8	T	RL2	24.117	296526	50.0	52.1	104	60-140		
Acenaphthene	83-32-9	T	RL2	24.930	280282	50.0	53.7	107	60-140		
Dibenzofuran	132-64-9	T	RL2	25.929	268621	50.0	76.0	152	60-140		R
Fluorene	86-73-7	T	RL2	27.455	195485	50.0	51.3	103	60-140		
Phenanthrene-d10	1517-22-2	Int. Std	RL2	31.648	24503729	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	RL2	28.931	3835	50.0	53.1	106	60-140		Z
Phenanthrene	85-01-8	T	RL2	31.751	323239	50.0	56.8	114	60-140		
Anthracene	120-12-7	T	RL2	32.083	165226	50.0	44.4	88.9	60-140		
Fluoranthene	206-44-0	T	RL2	37.388	236173	50.0	53.5	107	60-140		
Chrysene-d12	1719-03-5	Int. Std	RL2	43.978	19563843	4000	4000	100	70-130		
Pyrene	129-00-0	T	RL2	38.341	272181	50.0	49.5	98.9	60-140		
Terphenyl-d14	1718-51-0	Surr	RL2	39.483	192130	50.0	54.3	109	60-140		
Benzo(a)anthracene	56-55-3	T	RL2	43.957	235142	50.0	91.6	183	60-140		R
Chrysene	218-01-9	T	RL2	44.087	360042	50.0	51.8	104	60-140		
Perylene-d12	1520-96-3	Int. Std	RL2	50.116	16035269	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	RL2	48.663	135871	50.0	52.8	106	60-140		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	RL2	48.690	56082	50.0	52.2	104	60-140		
Benzo(k)fluoranthene	207-08-9	T	RL2	48.782	169200	50.0	50.9	102	60-140		
Benzo(a)pyrene	50-32-8	T	RL2	49.894	68137	50.0	48.5	96.9	60-140		
3-Methylcholanthrene	56-49-5	T	RL2	51.516	22359	50.0	51.3	103	60-140		
Dibenzo(a,j)acridine	224-42-0	T	RL2	53.957	18911	50.0	50.7	101	60-140		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	RL2	54.342	46897	50.0	47.4	94.8	60-140		
Dibenz(a,h)anthracene	53-70-3	T	RL2	54.624	31920	50.0	46.7	93.4	60-140		Z
Benzo(g,h,i)perylene	191-24-2	T	RL2	55.048	72084	50.0	48.7	97.5	60-140		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	BG30075-BS2	11.740	14104165	4000	4000	100	70-130	0.0	
2-Fluorophenol	367-12-4	Surr	BG30075-BS2	7.785	11270290	2500	2140	85.6	70-130	4.5	
Phenol-d6	13127-88-3	Surr	BG30075-BS2	10.724	11929319	2500	2450	97.9	70-130	3.1	
Nitrobenzene-d5	4165-60-0	Surr	BG30075-BS2	13.877	11729733	2500	2270	90.6	70-130	5.8	
Naphthalene-d8	1146-65-2	Int. Std	BG30075-BS2	16.811	54296972	4000	4000	100	70-130	0.0	
Naphthalene	91-20-3	T	BG30075-BS2	16.894	36934953	2500	2200	88.2	70-130	3.8	
2-Methylnaphthalene	91-57-6	T	BG30075-BS2	20.036	23351900	2500	2240	89.5	70-130	3.0	



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**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

1-Methylnaphthalene	1321-94-4	T	BG30075-BS2	20.457	22669393	2500	2230	89.4	70-130	2.6	
Acenaphthene-d10	15067-26-2	Int. Std	BG30075-BS2	24.755	27377105	4000	4000	100	70-130	0.0	
2-Fluorobiphenyl	321-60-8	Surr	BG30075-BS2	21.881	24803804	2500	2160	86.6	70-130	5.2	
Biphenyl	92-52-4	T	BG30075-BS2	22.268	27290041	2500	2230	89.1	70-130	4.6	
Acenaphthylene	208-96-8	T	BG30075-BS2	24.057	33010954	2500	2240	89.4	70-130	3.6	
Acenaphthene	83-32-9	T	BG30075-BS2	24.892	21014533	2500	2140	85.5	70-130	3.1	
Dibenzofuran	132-64-9	T	BG30075-BS2	25.735	27717446	2500	2270	91.0	70-130	2.3	
Fluorene	86-73-7	T	BG30075-BS2	27.312	22899487	2500	2400	96.0	70-130	1.2	
Phenanthrene-d10	1517-22-2	Int. Std	BG30075-BS2	31.607	43857027	4000	4000	100	70-130	0.0	X
2,4,6-Tribromophenol	118-79-6	Surr	BG30075-BS2	28.467	2450917	2500	2900	116	70-130	0.0	
Phenanthrene	85-01-8	T	BG30075-BS2	31.708	31630442	2500	2320	92.7	70-130	2.7	
Anthracene	120-12-7	T	BG30075-BS2	31.951	31069806	2500	2300	91.9	70-130	3.2	
Fluoranthene	206-44-0	T	BG30075-BS2	37.240	32264917	2500	2650	106	70-130	12.4	
Chrysene-d12	1719-03-5	Int. Std	BG30075-BS2	43.957	33549786	4000	4000	100	70-130	0.0	
Pyrene	129-00-0	T	BG30075-BS2	38.222	34292786	2500	2220	88.6	70-130	0.3	
Terphenyl-d14	1718-51-0	Surr	BG30075-BS2	39.393	22782891	2500	2350	94.0	70-130	2.4	
Benzo(a)anthracene	56-55-3	T	BG30075-BS2	43.913	29550128	2500	2380	95.2	70-130	3.1	
Chrysene	218-01-9	T	BG30075-BS2	44.065	29080562	2500	2350	94.0	70-130	3.3	
Perylene-d12	1520-96-3	Int. Std	BG30075-BS2	50.100	33744039	4000	4000	100	70-130	0.0	X
Benzo(b)fluoranthene	205-99-2	T	BG30075-BS2	48.603	30050328	2500	2320	92.8	70-130	4.5	
7,12-Dimethylbenz(a)anthracene	57-97-6	T	BG30075-BS2	48.663	13582227	2500	2300	92.0	70-130	3.6	
Benzo(k)fluoranthene	207-08-9	T	BG30075-BS2	48.722	30257998	2500	2340	93.6	70-130	1.9	
Benzo(a)pyrene	50-32-8	T	BG30075-BS2	49.855	23332221	2500	2540	102	70-130	1.9	
3-Methylcholanthrene	56-49-5	T	BG30075-BS2	51.342	10809923	2500	2950	118	70-130	5.0	
Dibenzo(a,j)acridine	224-42-0	T	BG30075-BS2	53.453	16193271	2500	3120	125	70-130	1.6	
Indeno(1,2,3-c,d)pyrene	193-39-5	T	BG30075-BS2	53.952	19088913	2500	2930	117	70-130	2.5	
Dibenz(a,h)anthracene	53-70-3	T	BG30075-BS2	54.098	19662505	2500	2880	115	70-130	1.7	
Benzo(g,h,i)perylene	191-24-2	T	BG30075-BS2	54.793	21050362	2500	2730	109	70-130	2.7	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	BG30075-BSD2	11.740	8033450	4000	4000	100	70-130	0.0	
2-Fluorophenol	367-12-4	Surr	BG30075-BSD2	7.792	5588171	2500	2240	89.5	70-130	4.5	
Phenol-d6	13127-88-3	Surr	BG30075-BSD2	10.738	6569623	2500	2520	101	70-130	3.1	
Nitrobenzene-d5	4165-60-0	Surr	BG30075-BSD2	13.879	6340249	2500	2400	96.0	70-130	5.8	
Naphthalene-d8	1146-65-2	Int. Std	BG30075-BSD2	16.810	31721478	4000	4000	100	70-130	0.0	
Naphthalene	91-20-3	T	BG30075-BSD2	16.893	19839891	2500	2290	91.6	70-130	3.8	
2-Methylnaphthalene	91-57-6	T	BG30075-BSD2	20.041	12447848	2500	2300	92.2	70-130	3.0	
1-Methylnaphthalene	1321-94-4	T	BG30075-BSD2	20.461	12055319	2500	2290	91.8	70-130	2.6	
Acenaphthene-d10	15067-26-2	Int. Std	BG30075-BSD2	24.755	16057576	4000	4000	100	70-130	0.0	
2-Fluorobiphenyl	321-60-8	Surr	BG30075-BSD2	21.885	13290480	2500	2280	91.2	70-130	5.2	
Biphenyl	92-52-4	T	BG30075-BSD2	22.272	15018701	2500	2330	93.3	70-130	4.6	
Acenaphthylene	208-96-8	T	BG30075-BSD2	24.059	17689908	2500	2320	92.7	70-130	3.6	
Acenaphthene	83-32-9	T	BG30075-BSD2	24.895	10721148	2500	2200	88.2	70-130	3.1	
Dibenzofuran	132-64-9	T	BG30075-BSD2	25.737	15157865	2500	2330	93.1	70-130	2.3	
Fluorene	86-73-7	T	BG30075-BSD2	27.312	12888019	2500	2430	97.2	70-130	1.2	
Phenanthrene-d10	1517-22-2	Int. Std	BG30075-BSD2	31.604	28590830	4000	4000	100	70-130	0.0	
2,4,6-Tribromophenol	118-79-6	Surr	BG30075-BSD2	28.473	1441817	2500	2910	116	70-130	0.0	
Phenanthrene	85-01-8	T	BG30075-BSD2	31.706	19606791	2500	2380	95.2	70-130	2.7	
Anthracene	120-12-7	T	BG30075-BSD2	31.949	19010384	2500	2370	94.9	70-130	3.2	
Fluoranthene	206-44-0	T	BG30075-BSD2	37.235	24952085	2500	3010	120	70-130	12.4	
Chrysene-d12	1719-03-5	Int. Std	BG30075-BSD2	43.953	30019161	4000	4000	100	70-130	0.0	
Pyrene	129-00-0	T	BG30075-BSD2	38.221	26760083	2500	2210	88.3	70-130	0.3	
Terphenyl-d14	1718-51-0	Surr	BG30075-BSD2	39.387	19142729	2500	2410	96.3	70-130	2.4	
Benzo(a)anthracene	56-55-3	T	BG30075-BSD2	43.908	25673593	2500	2450	98.2	70-130	3.1	



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**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
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Chrysene	218-01-9	T	BG30075-BSD2	44.060	25388527	2500	2430	97.2	70-130	3.3	
Perylene-d12	1520-96-3	Int. Std	BG30075-BSD2	50.096	31330254	4000	4000	100	70-130	0.0	X
Benzo(b)fluoranthene	205-99-2	T	BG30075-BSD2	48.598	26659856	2500	2430	97.1	70-130	4.5	
7,12-Dimethylbenz(a)anthracene	57-97-6	T	BG30075-BSD2	48.658	11965103	2500	2390	95.4	70-130	3.6	
Benzo(k)fluoranthene	207-08-9	T	BG30075-BSD2	48.717	26772992	2500	2390	95.4	70-130	1.9	
Benzo(a)pyrene	50-32-8	T	BG30075-BSD2	49.851	20713023	2500	2610	104	70-130	1.9	
3-Methylcholanthrene	56-49-5	T	BG30075-BSD2	51.337	10422782	2500	3110	124	70-130	5.0	
Dibenzo(a,j)acridine	224-42-0	T	BG30075-BSD2	53.447	15270810	2500	3170	127	70-130	1.6	
Indeno(1,2,3-c,d)pyrene	193-39-5	T	BG30075-BSD2	53.947	17591353	2500	3000	120	70-130	2.5	
Dibenz(a,h)anthracene	53-70-3	T	BG30075-BSD2	54.093	17500375	2500	2910	117	70-130	1.7	
Benzo(g,h,i)perylene	191-24-2	T	BG30075-BSD2	54.787	19245550	2500	2800	112	70-130	2.7	

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	BG30075-MRL2	11.738	6317087	4000	4000	100			X
2-Fluorophenol	367-12-4	Surr	BG30075-MRL2	7.785	3428389	2500	1750	70.0			
Phenol-d6	13127-88-3	Surr	BG30075-MRL2	10.744	3859676	2500	1890	75.7			
Nitrobenzene-d5	4165-60-0	Surr	BG30075-MRL2	13.887	4679600	2500	2250	90.2			
Naphthalene-d8	1146-65-2	Int. Std	BG30075-MRL2	16.813	24941239	4000	4000	100			
Naphthalene	91-20-3	T	BG30075-MRL2	16.893	366438	50.0	60.7	121			
2-Methylnaphthalene	91-57-6	T	BG30075-MRL2	20.135	186549	50.0	55.5	111			
1-Methylnaphthalene	1321-94-4	T	BG30075-MRL2	20.535	162412	50.0	49.8	99.6			
Acenaphthene-d10	15067-26-2	Int. Std	BG30075-MRL2	24.779	11663640	4000	4000	100			X
2-Fluorobiphenyl	321-60-8	Surr	BG30075-MRL2	21.917	9594289	2500	2270	90.6			
Biphenyl	92-52-4	T	BG30075-MRL2	22.315	204358	50.0	52.5	105			
Acenaphthylene	208-96-8	T	BG30075-MRL2	24.104	208134	50.0	56.1	112			
Acenaphthene	83-32-9	T	BG30075-MRL2	24.917	143963	50.0	44.8	89.6			
Dibenzofuran	132-64-9	T	BG30075-MRL2	25.827	177360	50.0	52.2	104			
Fluorene	86-73-7	T	BG30075-MRL2	27.384	162800	50.0	61.7	123			
Phenanthrene-d10	1517-22-2	Int. Std	BG30075-MRL2	31.616	22648741	4000	4000	100			
2,4,6-Tribromophenol	118-79-6	Surr	BG30075-MRL2	28.513	770900	2500	2210	88.2			
Phenanthrene	85-01-8	T	BG30075-MRL2	31.719	327115	50.0	53.4	107			
Anthracene	120-12-7	T	BG30075-MRL2	31.989	220376	50.0	55.0	110			
Fluoranthene	206-44-0	T	BG30075-MRL2	37.268	384433	50.0	78.6	157			R
Chrysene-d12	1719-03-5	Int. Std	BG30075-MRL2	43.951	28161227	4000	4000	100			
Pyrene	129-00-0	T	BG30075-MRL2	38.229	464223	50.0	55.8	112			
Terphenyl-d14	1718-51-0	Surr	BG30075-MRL2	39.393	16879050	2500	2260	90.6			
Benzo(a)anthracene	56-55-3	T	BG30075-MRL2	43.913	470483	50.0	65.0	130			
Chrysene	218-01-9	T	BG30075-MRL2	44.065	450852	50.0	44.9	89.7			
Perylene-d12	1520-96-3	Int. Std	BG30075-MRL2	50.095	26168699	4000	4000	100			
Benzo(b)fluoranthene	205-99-2	T	BG30075-MRL2	48.636	377520	50.0	69.5	139			
7,12-Dimethylbenz(a)anthracene	57-97-6	T	BG30075-MRL2	48.674	128732	50.0	61.0	122			
Benzo(k)fluoranthene	207-08-9	T	BG30075-MRL2	48.750	404717	50.0	64.5	129			
Benzo(a)pyrene	50-32-8	T	BG30075-MRL2	49.867	209954	50.0	66.3	133			
3-Methylcholanthrene	56-49-5	T	BG30075-MRL2	51.408	4342	50.0	33.3	66.6			
Dibenzo(a,j)acridine	224-42-0	T	BG30075-MRL2	53.616	128822	50.0	98.3	197			R
Indeno(1,2,3-c,d)pyrene	193-39-5	T	BG30075-MRL2	54.087	139766	50.0	68.8	138			
Dibenz(a,h)anthracene	53-70-3	T	BG30075-MRL2	54.234	164401	50.0	80.6	161			R
Benzo(g,h,i)perylene	191-24-2	T	BG30075-MRL2	54.896	238524	50.0	76.6	153			R

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	BG30075-BLK2	11.736	6550119	4000	4000	100	70-130		X



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**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

2-Fluorophenol	367-12-4	Surr	BG30075-BLK2	7.779	4337795	2500	2130	85.3	70-130		
Phenol-d6	13127-88-3	Surr	BG30075-BLK2	10.744	4418514	2500	2090	83.4	70-130		
Nitrobenzene-d5	4165-60-0	Surr	BG30075-BLK2	13.887	4992055	2500	2320	92.7	70-130		
Naphthalene-d8	1146-65-2	Int. Std	BG30075-BLK2	16.813	26219013	4000	4000	100	70-130		
Naphthalene	91-20-3	T	BG30075-BLK2	16.900	77881		17.9	-	-		B
2-Methylnaphthalene	91-57-6	T	BG30075-BLK2					-	-		
1-Methylnaphthalene	1321-94-4	T	BG30075-BLK2					-	-		
Acenaphthene-d10	15067-26-2	Int. Std	BG30075-BLK2	24.773	12603481	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	BG30075-BLK2	21.917	10230869	2500	2240	89.4	70-130		
Biphenyl	92-52-4	T	BG30075-BLK2					-	-		
Acenaphthylene	208-96-8	T	BG30075-BLK2					-	-		
Acenaphthene	83-32-9	T	BG30075-BLK2					-	-		
Dibenzofuran	132-64-9	T	BG30075-BLK2					-	-		
Fluorene	86-73-7	T	BG30075-BLK2					-	-		
Phenanthrene-d10	1517-22-2	Int. Std	BG30075-BLK2	31.616	22493406	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	BG30075-BLK2	28.513	886875	2500	2450	98.0	70-130		
Phenanthrene	85-01-8	T	BG30075-BLK2					-	-		
Anthracene	120-12-7	T	BG30075-BLK2					-	-		
Fluoranthene	206-44-0	T	BG30075-BLK2					-	-		
Chrysene-d12	1719-03-5	Int. Std	BG30075-BLK2	43.951	27387669	4000	4000	100	70-130		
Pyrene	129-00-0	T	BG30075-BLK2					-	-		
Terphenyl-d14	1718-51-0	Surr	BG30075-BLK2	39.389	16341289	2500	2250	90.1	70-130		
Benzo(a)anthracene	56-55-3	T	BG30075-BLK2					-	-		
Chrysene	218-01-9	T	BG30075-BLK2					-	-		
Perylene-d12	1520-96-3	Int. Std	BG30075-BLK2	50.100	26395371	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	BG30075-BLK2					-	-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	BG30075-BLK2					-	-		
Benzo(k)fluoranthene	207-08-9	T	BG30075-BLK2					-	-		
Benzo(a)pyrene	50-32-8	T	BG30075-BLK2					-	-		
3-Methylcholanthrene	56-49-5	T	BG30075-BLK2					-	-		
Dibenzo(a,j)acridine	224-42-0	T	BG30075-BLK2					-	-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	BG30075-BLK2					-	-		
Dibenz(a,h)anthracene	53-70-3	T	BG30075-BLK2					-	-		
Benzo(g,h,i)perylene	191-24-2	T	BG30075-BLK2					-	-		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CCV4	11.731	13080404	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CCV4	7.772	10468645	2500	2570	103	70-130		
Phenol-d6	13127-88-3	Surr	CCV4	10.711	11200122	2500	2640	106	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CCV4	13.869	11040712	2500	2570	103	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CCV4	16.804	50566896	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CCV4	16.886	34475150	2500	2500	99.8	70-130		
2-Methylnaphthalene	91-57-6	T	CCV4	20.032	21591732	2500	2510	100	70-130		
1-Methylnaphthalene	1321-94-4	T	CCV4	20.450	21011918	2500	2510	100	70-130		
Acenaphthene-d10	15067-26-2	Int. Std	CCV4	24.749	25659863	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CCV4	21.876	23267942	2500	2500	99.9	70-130		
Biphenyl	92-52-4	T	CCV4	22.262	25699761	2500	2500	99.9	70-130		
Acenaphthylene	208-96-8	T	CCV4	24.051	30717158	2500	2520	101	70-130		
Acenaphthene	83-32-9	T	CCV4	24.886	19179441	2500	2470	98.7	70-130		
Dibenzofuran	132-64-9	T	CCV4	25.730	26377751	2500	2530	101	70-130		
Fluorene	86-73-7	T	CCV4	27.307	21748935	2500	2570	103	70-130		
Phenanthrene-d10	1517-22-2	Int. Std	CCV4	31.603	43318460	4000	4000	100	70-130		X
2,4,6-Tribromophenol	118-79-6	Surr	CCV4	28.462	2377251	2500	3080	123	70-130		
Phenanthrene	85-01-8	T	CCV4	31.703	30748016	2500	2460	98.5	70-130		



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**Quartz Filters**

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 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Anthracene	120-12-7	T	CCV4	31.946	30107459	2500	2480	99.1	70-130		
Fluoranthene	206-44-0	T	CCV4	37.237	31597739	2500	2520	101	70-130		
Chrysene-d12	1719-03-5	Int. Std	CCV4	43.958	33376358	4000	4000	100	70-130		
Pyrene	129-00-0	T	CCV4	38.220	33615904	2500	2490	99.7	70-130		
Terphenyl-d14	1718-51-0	Surr	CCV4	39.387	22468984	2500	2540	102	70-130		
Benzo(a)anthracene	56-55-3	T	CCV4	43.913	29348397	2500	2520	101	70-130		
Chrysene	218-01-9	T	CCV4	44.060	28559287	2500	2460	98.4	70-130		
Perylene-d12	1520-96-3	Int. Std	CCV4	50.100	33558591	4000	4000	100	70-130		X
Benzo(b)fluoranthene	205-99-2	T	CCV4	48.603	29050420	2500	2470	98.7	70-130		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CCV4	48.662	12986541	2500	2420	96.7	70-130		
Benzo(k)fluoranthene	207-08-9	T	CCV4	48.722	29758051	2500	2470	99.0	70-130		
Benzo(a)pyrene	50-32-8	T	CCV4	49.853	22815389	2500	2670	107	70-130		
3-Methylcholanthrene	56-49-5	T	CCV4	51.340	9550994	2500	2770	111	70-130		
Dibenzo(a,j)acridine	224-42-0	T	CCV4	53.453	14906141	2500	2980	119	70-130		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CCV4	53.952	17961656	2500	2900	116	70-130		
Dibenz(a,h)anthracene	53-70-3	T	CCV4	54.095	17124827	2500	2730	109	70-130		
Benzo(g,h,i)perylene	191-24-2	T	CCV4	54.793	19744869	2500	2710	108	70-130		

Analyte	CAS No.	QC Sample ID	Analyte	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CB-S4	11.745	13159849	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CB-S4	7.792	9697010	2500	2370	94.8	70-130		
Phenol-d6	13127-88-3	Surr	CB-S4	10.738	9164886	2500	2150	86.1	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CB-S4	13.887	9756756	2500	2260	90.2	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CB-S4	16.813	50639917	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CB-S4					-	-		
2-Methylnaphthalene	91-57-6	T	CB-S4					-	-		
1-Methylnaphthalene	1321-94-4	T	CB-S4					-	-		
Acenaphthene-d10	15067-26-2	Int. Std	CB-S4	24.773	23808188	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CB-S4	21.910	20563502	2500	2380	95.1	70-130		
Biphenyl	92-52-4	T	CB-S4					-	-		
Acenaphthylene	208-96-8	T	CB-S4					-	-		
Acenaphthene	83-32-9	T	CB-S4					-	-		
Dibenzofuran	132-64-9	T	CB-S4					-	-		
Fluorene	86-73-7	T	CB-S4					-	-		
Phenanthrene-d10	1517-22-2	Int. Std	CB-S4	31.632	33434417	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CB-S4	28.566	1019596	2500	2040	81.5	70-130		
Phenanthrene	85-01-8	T	CB-S4					-	-		
Anthracene	120-12-7	T	CB-S4					-	-		
Fluoranthene	206-44-0	T	CB-S4					-	-		
Chrysene-d12	1719-03-5	Int. Std	CB-S4	43.967	25745354	4000	4000	100	70-130		
Pyrene	129-00-0	T	CB-S4					-	-		
Terphenyl-d14	1718-51-0	Surr	CB-S4	39.408	17734208	2500	2600	104	70-130		
Benzo(a)anthracene	56-55-3	T	CB-S4					-	-		
Chrysene	218-01-9	T	CB-S4					-	-		
Perylene-d12	1520-96-3	Int. Std	CB-S4	50.111	22971726	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CB-S4					-	-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CB-S4					-	-		
Benzo(k)fluoranthene	207-08-9	T	CB-S4					-	-		
Benzo(a)pyrene	50-32-8	T	CB-S4					-	-		
3-Methylcholanthrene	56-49-5	T	CB-S4					-	-		
Dibenzo(a,j)acridine	224-42-0	T	CB-S4					-	-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CB-S4					-	-		
Dibenz(a,h)anthracene	53-70-3	T	CB-S4					-	-		
Benzo(g,h,i)perylene	191-24-2	T	CB-S4					-	-		



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**Quartz Filters**

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 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
	3355-82-1	Int. Std	CCV5 Not Run					#VALUE!	70-130		RXYZ
	367-12-4	Surr	CCV5 Not Run					#VALUE!	70-130		SZ
	13127-88-3	Surr	CCV5 Not Run					#VALUE!	70-130		SZ
	4165-60-0	Surr	CCV5 Not Run					#VALUE!	70-130		SZ
	1146-65-2	Int. Std	CCV5 Not Run					#VALUE!	70-130		RXYZ
	91-20-3	T	CCV5 Not Run					#VALUE!	70-130		RZ
	91-57-6	T	CCV5 Not Run					#VALUE!	70-130		RZ
	1321-94-4	T	CCV5 Not Run					#VALUE!	70-130		RZ
	15067-26-2	Int. Std	CCV5 Not Run					#VALUE!	70-130		RXYZ
	321-60-8	Surr	CCV5 Not Run					#VALUE!	70-130		SZ
	92-52-4	T	CCV5 Not Run					#VALUE!	70-130		RZ
	208-96-8	T	CCV5 Not Run					#VALUE!	70-130		RZ
	83-32-9	T	CCV5 Not Run					#VALUE!	70-130		RZ
	132-64-9	T	CCV5 Not Run					#VALUE!	70-130		RZ
	86-73-7	T	CCV5 Not Run					#VALUE!	70-130		RZ
	1517-22-2	Int. Std	CCV5 Not Run					#VALUE!	70-130		RXYZ
	118-79-6	Surr	CCV5 Not Run					#VALUE!	70-130		SZ
	85-01-8	T	CCV5 Not Run					#VALUE!	70-130		RZ
	120-12-7	T	CCV5 Not Run					#VALUE!	70-130		RZ
	206-44-0	T	CCV5 Not Run					#VALUE!	70-130		RZ
	1719-03-5	Int. Std	CCV5 Not Run					#VALUE!	70-130		RXYZ
	129-00-0	T	CCV5 Not Run					#VALUE!	70-130		RZ
	1718-51-0	Surr	CCV5 Not Run					#VALUE!	70-130		SZ
	56-55-3	T	CCV5 Not Run					#VALUE!	70-130		RZ
	218-01-9	T	CCV5 Not Run					#VALUE!	70-130		RZ
	1520-96-3	Int. Std	CCV5 Not Run					#VALUE!	70-130		RXYZ
	205-99-2	T	CCV5 Not Run					#VALUE!	70-130		RZ
	57-97-6	T	CCV5 Not Run					#VALUE!	70-130		RZ
	207-08-9	T	CCV5 Not Run					#VALUE!	70-130		RZ
	50-32-8	T	CCV5 Not Run					#VALUE!	70-130		RZ
	56-49-5	T	CCV5 Not Run					#VALUE!	70-130		RZ
	224-42-0	T	CCV5 Not Run					#VALUE!	70-130		RZ
	193-39-5	T	CCV5 Not Run					#VALUE!	70-130		RZ
	53-70-3	T	CCV5 Not Run					#VALUE!	70-130		RZ
	191-24-2	T	CCV5 Not Run					#VALUE!	70-130		RZ
Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CCB5	11.744	13102389	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CCB5	7.792	9454917	2500	2320	92.8	70-130		
Phenol-d6	13127-88-3	Surr	CCB5	10.738	8699011	2500	2050	82.1	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CCB5	13.887	9585332	2500	2230	89.1	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CCB5	16.807	49974116	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CCB5					-	-		
2-Methylnaphthalene	91-57-6	T	CCB5					-	-		
1-Methylnaphthalene	1321-94-4	T	CCB5					-	-		
Acenaphthene-d10	15067-26-2	Int. Std	CCB5	24.773	23792817	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CCB5	21.910	20491501	2500	2370	94.9	70-130		
Biphenyl	92-52-4	T	CCB5					-	-		
Acenaphthylene	208-96-8	T	CCB5					-	-		



2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Acenaphthene	83-32-9	T	CCB5					-	-		
Dibenzofuran	132-64-9	T	CCB5					-	-		
Fluorene	86-73-7	T	CCB5					-	-		
Phenanthrene-d10	1517-22-2	Int. Std	CCB5	31.624	33825255	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CCB5	28.567	930993	2500	1890	75.6	70-130		
Phenanthrene	85-01-8	T	CCB5					-	-		
Anthracene	120-12-7	T	CCB5					-	-		
Fluoranthene	206-44-0	T	CCB5					-	-		
Chrysene-d12	1719-03-5	Int. Std	CCB5	43.968	25505919	4000	4000	100	70-130		
Pyrene	129-00-0	T	CCB5					-	-		
Terphenyl-d14	1718-51-0	Surr	CCB5	39.408	18178844	2500	2690	108	70-130		
Benzo(a)anthracene	56-55-3	T	CCB5					-	-		
Chrysene	218-01-9	T	CCB5					-	-		
Perylene-d12	1520-96-3	Int. Std	CCB5	50.111	20939765	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CCB5					-	-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CCB5					-	-		
Benzo(k)fluoranthene	207-08-9	T	CCB5					-	-		
Benzo(a)pyrene	50-32-8	T	CCB5					-	-		
3-Methylcholanthrene	56-49-5	T	CCB5					-	-		
Dibenzo(a,j)acridine	224-42-0	T	CCB5					-	-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CCB5					-	-		
Dibenz(a,h)anthracene	53-70-3	T	CCB5					-	-		
Benzo(g,h,i)perylene	191-24-2	T	CCB5					-	-		

Analyte	CAS No.	QC Analyte Type	QC Sample Type	Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CCV6	11.737	13488057	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CCV6	7.779	10720708	2500	2560	102	70-130		
Phenol-d6	13127-88-3	Surr	CCV6	10.718	11143337	2500	2550	102	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CCV6	13.874	11148915	2500	2510	101	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CCV6	16.807	51279887	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CCV6	16.890	34893190	2500	2490	99.6	70-130		
2-Methylnaphthalene	91-57-6	T	CCV6	20.035	21900474	2500	2510	100	70-130		
1-Methylnaphthalene	1321-94-4	T	CCV6	20.452	21349086	2500	2510	100	70-130		
Acenaphthene-d10	15067-26-2	Int. Std	CCV6	24.750	25745974	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CCV6	21.877	23320743	2500	2490	99.8	70-130		
Biphenyl	92-52-4	T	CCV6	22.264	25680812	2500	2490	99.5	70-130		
Acenaphthylene	208-96-8	T	CCV6	24.052	30818301	2500	2520	101	70-130		
Acenaphthene	83-32-9	T	CCV6	24.891	19702625	2500	2530	101	70-130		
Dibenzofuran	132-64-9	T	CCV6	25.731	26207660	2500	2510	100	70-130		
Fluorene	86-73-7	T	CCV6	27.309	21633069	2500	2540	102	70-130		
Phenanthrene-d10	1517-22-2	Int. Std	CCV6	31.603	42195685	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CCV6	28.463	2244944	2500	3020	121	70-130		
Phenanthrene	85-01-8	T	CCV6	31.704	30231605	2500	2490	99.4	70-130		
Anthracene	120-12-7	T	CCV6	31.946	29687748	2500	2510	100	70-130		
Fluoranthene	206-44-0	T	CCV6	37.235	31201732	2500	2550	102	70-130		
Chrysene-d12	1719-03-5	Int. Std	CCV6	43.952	33019297	4000	4000	100	70-130		
Pyrene	129-00-0	T	CCV6	38.218	33327758	2500	2500	99.9	70-130		
Terphenyl-d14	1718-51-0	Surr	CCV6	39.387	22121666	2500	2530	101	70-130		
Benzo(a)anthracene	56-55-3	T	CCV6	43.907	28995874	2500	2520	101	70-130		
Chrysene	218-01-9	T	CCV6	44.059	28409566	2500	2470	98.9	70-130		
Perylene-d12	1520-96-3	Int. Std	CCV6	50.096	32569877	4000	4000	100	70-130		X
Benzo(b)fluoranthene	205-99-2	T	CCV6	48.597	28391682	2500	2490	99.4	70-130		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CCV6	48.658	12887321	2500	2470	98.8	70-130		
Benzo(k)fluoranthene	207-08-9	T	CCV6	48.716	28936473	2500	2480	99.2	70-130		



2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

Benzo(a)pyrene	50-32-8	T	CCV6	49.851	22183887	2500	2680	107	70-130		
3-Methylcholanthrene	56-49-5	T	CCV6	51.338	9434120	2500	2810	112	70-130		
Dibenzo(a,j)acridine	224-42-0	T	CCV6	53.446	13860444	2500	2890	116	70-130		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CCV6	53.951	16717891	2500	2820	113	70-130		
Dibenz(a,h)anthracene	53-70-3	T	CCV6	54.097	17173628	2500	2790	112	70-130		
Benzo(g,h,i)perylene	191-24-2	T	CCV6	54.792	18608418	2500	2650	106	70-130		

Analyte	CAS No.	QC Sample ID		Ret. Time	Peak Area	Expected ng/mL	Result ng/mL	%REC	Range %REC	%RPD	Qualifier
1,4-Dichlorobenzene-d4	3355-82-1	Int. Std	CB-S6	11.744	13282339	4000	4000	100	70-130		
2-Fluorophenol	367-12-4	Surr	CB-S6	7.792	9708784	2500	2350	94.0	70-130		
Phenol-d6	13127-88-3	Surr	CB-S6	10.731	8858383	2500	2060	82.5	70-130		
Nitrobenzene-d5	4165-60-0	Surr	CB-S6	13.887	9782097	2500	2240	89.6	70-130		
Naphthalene-d8	1146-65-2	Int. Std	CB-S6	16.807	50637157	4000	4000	100	70-130		
Naphthalene	91-20-3	T	CB-S6					-	-		
2-Methylnaphthalene	91-57-6	T	CB-S6					-	-		
1-Methylnaphthalene	1321-94-4	T	CB-S6					-	-		
Acenaphthene-d10	15067-26-2	Int. Std	CB-S6	24.773	23832961	4000	4000	100	70-130		
2-Fluorobiphenyl	321-60-8	Surr	CB-S6	21.903	20951925	2500	2420	96.8	70-130		
Biphenyl	92-52-4	T	CB-S6					-	-		
Acenaphthylene	208-96-8	T	CB-S6					-	-		
Acenaphthene	83-32-9	T	CB-S6					-	-		
Dibenzofuran	132-64-9	T	CB-S6					-	-		
Fluorene	86-73-7	T	CB-S6					-	-		
Phenanthrene-d10	1517-22-2	Int. Std	CB-S6	31.632	34021268	4000	4000	100	70-130		
2,4,6-Tribromophenol	118-79-6	Surr	CB-S6	28.561	1149264	2500	2190	87.7	70-130		
Phenanthrene	85-01-8	T	CB-S6					-	-		
Anthracene	120-12-7	T	CB-S6					-	-		
Fluoranthene	206-44-0	T	CB-S6					-	-		
Chrysene-d12	1719-03-5	Int. Std	CB-S6	43.968	25559812	4000	4000	100	70-130		
Pyrene	129-00-0	T	CB-S6					-	-		
Terphenyl-d14	1718-51-0	Surr	CB-S6	39.408	16582248	2500	2450	98.0	70-130		
Benzo(a)anthracene	56-55-3	T	CB-S6					-	-		
Chrysene	218-01-9	T	CB-S6					-	-		
Perylene-d12	1520-96-3	Int. Std	CB-S6	50.105	22047420	4000	4000	100	70-130		
Benzo(b)fluoranthene	205-99-2	T	CB-S6					-	-		
7,12-Dimethylbenz(a)anthracene	57-97-6	T	CB-S6					-	-		
Benzo(k)fluoranthene	207-08-9	T	CB-S6					-	-		
Benzo(a)pyrene	50-32-8	T	CB-S6					-	-		
3-Methylcholanthrene	56-49-5	T	CB-S6					-	-		
Dibenzo(a,j)acridine	224-42-0	T	CB-S6					-	-		
Indeno(1,2,3-c,d)pyrene	193-39-5	T	CB-S6					-	-		
Dibenz(a,h)anthracene	53-70-3	T	CB-S6					-	-		
Benzo(g,h,i)perylene	191-24-2	T	CB-S6					-	-		

Comments: MDLs and RLs have been adjusted for analysis volumes and dilution factors.



2710 North 20th Avenue, Pasco WA 99301

Tel: (509) 792-1955

**QUALITY CONTROL REPORT**  
**EPA Compendium Method TO-13**  
**Quartz Filters**

Kansas State University  
 245 Levee Drive  
 Manhattan, KS 66502  
 Dr. Byron Jones  
 785-532-5620

**QC Report for Samples W305170-21 through W305170-33**

RJ Lee Group Project: W305170  
 Samples Received: 5/23/2023  
 Analysis Date: 7/28/2023  
 Report Date: 8/25/2023  
 Sampling Date: 5/15/2023  
 Purchase Order No.: PAH  
 Client Project: Air Sampling

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

d = %RPD failure

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

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 Instability

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

08/25/23

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.

## WORK ORDER

Printed: 5/23/2023 4:15:38PM  
Page 92 of 139

W305170

RJ Lee Group Inc

**Client:** Kansas State University  
**Project:** Air Sampling  
**COC #:** PAH

**PO #:** 2022004-20-FAA-1

**Project Manager:** L. Joe Sears  
**Project Number:** KSU Institute for Env Research  
**SDG Number:**

**Report To:**

Kansas State University  
 Byron Jones  
 245 Levee Drive  
 Manhattan, KS 66502  
 Phone: (785) 410-0625  
 Fax:

**Invoice To:**

Kansas State University  
 Accounts Payable  
 245 Levee Drive  
 Manhattan, KS 66502  
 Phone: (602) 359-7868  
 Fax:

**Date Due:** 7/7/2023 (30 day TAT)

**Received By:** JJ Furlong

**Date Received:** 05/23/23 10:45

**Logged In By:** JJ Furlong

**Date Logged In:** 05/23/23 13:55

Samples Received at: 15.1°C  
 Custody Seals No  
 Containers Intact Yes  
 COC/Labels Agree Yes  
 Preservation Confirmed No  
 Received On Ice Yes

RJLG ID	Sample Name	Analysis	Matrix	Date Sampled	TAT	Date Due
W305170-01	Shipping Blank 1	TO-13	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-02	Field Blank - Ambient 6	TO-13	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-03	Field Blank - Ozone In 7	TO-13	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-04	Field Blank - Ozone Out 8	TO-13	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-05	Field Blank - Pack Exit 9	TO-13	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-06	Baseline - Ambient 2	TO-13 Comments: 252.1365 L	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-07	Baseline - Ozone In 3	TO-13 Comments: 332.1404 L	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-08	Baseline - Ozone Out 4	TO-13 Comments: 332.1404 L	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-09	Baseline - Pack Exit 5	TO-13 Comments: 298.715 L	Air/Emissions w/ V	5/15/2023	30	7/7/2023

## WORK ORDER

Printed: 5/23/2023 4:15:38PM  
Page 93 of 139

W305170

RJ Lee Group Inc

**Client:** Kansas State University  
**Project:** Air Sampling  
**COC #:** PAH

**PO #:** 2022004-20-FAA-1

**Project Manager:** L. Joe Sears  
**Project Number:** KSU Institute for Env Research  
**SDG Number:**

RJLG ID	Sample Name	Analysis	Matrix	Date Sampled	TAT	Date Due
W305170-10	MJ-II - 5 ppm - APU - Ambient 10	TO-13 <b>Comments:</b> 130.27 L	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-11	MJ-II - 5 ppm - APU - Ozone In 11	TO-13 <b>Comments:</b> 228.413 L	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-12	MJ-II - 5 ppm - APU - Ozone Out 12	TO-13 <b>Comments:</b> 249.178 L	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-13	MJ-II - 5 ppm - APU - Pack Exit 13	TO-13 <b>Comments:</b> 158.217 L	Air/Emissions w/ V	5/15/2023	30	7/7/2023
W305170-14	Field Blank 14	TO-13	Air/Emissions w/ V	5/16/2023	30	7/7/2023
W305170-15	Baseline - 300 C - Ozone In 15	TO-13	Air/Emissions w/ V	5/16/2023	30	7/7/2023
W305170-16	Baseline - 300 C - Ozone Out 16	TO-13	Air/Emissions w/ V	5/16/2023	30	7/7/2023
W305170-17	Baseline - 300 C - Pack Exit 17	TO-13	Air/Emissions w/ V	5/16/2023	30	7/7/2023
W305170-18	MJ-II - 300 C - Ozone In 18	TO-13	Air/Emissions w/ V	5/16/2023	30	7/7/2023
W305170-19	MJ-II - 300 C - Pack Exit 19	TO-13	Air/Emissions w/ V	5/16/2023	30	7/7/2023
W305170-20	Field Blank 20	TO-13	Air/Emissions w/ V	5/17/2023	30	7/7/2023
W305170-21	Baseline - 300 C - Ozone In 21	TO-13	Air/Emissions w/ V	5/17/2023	30	7/7/2023
W305170-22	Baseline - 300 C - Ozone Out 22	TO-13	Air/Emissions w/ V	5/17/2023	30	7/7/2023
W305170-23	Baseline - 300 C - Pack Exit 23	TO-13	Air/Emissions w/ V	5/17/2023	30	7/7/2023
W305170-24	2197 - 300 C - Ozone In 24	TO-13	Air/Emissions w/ V	5/17/2023	30	7/7/2023

## WORK ORDER

Printed: 5/23/2023 4:15:38PM  
Page 94 of 139

W305170

RJ Lee Group Inc

**Client:** Kansas State University  
**Project:** Air Sampling  
**COC #:** PAH**PO #:** 2022004-20-FAA-1**Project Manager:** L. Joe Sears  
**Project Number:** KSU Institute for Env Research  
**SDG Number:**

RJLG ID	Sample Name	Analysis	Matrix	Date Sampled	TAT	Date Due
W305170-25	2197 - 300 C - Ozone Out 25	TO-13	Air/Emissions w/ V	5/17/2023	30	7/7/2023
W305170-26	2197 - 300 C - Pack Exit 26	TO-13	Air/Emissions w/ V	5/17/2023	30	7/7/2023
W305170-27	Field Blank 27	TO-13	Air/Emissions w/ V	5/18/2023	30	7/7/2023
W305170-28	Baseline - 220C - Ozone In 28	TO-13	Air/Emissions w/ V	5/18/2023	30	7/7/2023
W305170-29	Baseline - 220C - Ozone Out 29	TO-13	Air/Emissions w/ V	5/18/2023	30	7/7/2023
W305170-30	Baseline - 220C - Pack Exit 30	TO-13	Air/Emissions w/ V	5/18/2023	30	7/7/2023
W305170-31	Skydrol - 220C - Ozone In 31	TO-13	Air/Emissions w/ V	5/18/2023	30	7/7/2023
W305170-32	Skydrol - 220C - Ozone Out 32	TO-13	Air/Emissions w/ V	5/18/2023	30	7/7/2023
W305170-33	Skydrol - 220C - Pack Exit 33	TO-13	Air/Emissions w/ V	5/18/2023	30	7/7/2023

## Request for Environmental and IH Laboratory Analytical Services

W305176

Page 1 of 4

ATTENTION TO: Joe Seery					Purchase Order No.: 2272794		Client Job No.:	
Project No.:		Client No.:		Date Results Needed:		Rush Charges Authorized? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Tab Use Only		Logged In By:		Sample Purpose: Information <input type="checkbox"/> Regulatory <input checked="" type="checkbox"/> Accreditation (please list below):		15.1		
Temperature Upon Receipt (Chem Only) _____ °C		Therm ID No. _____		Sample ID #:				
Name: JORDAN JONES		Company: KSV		Sample Purpose: A <input type="checkbox"/> B <input type="checkbox"/> Other <input type="checkbox"/>				
Address:		City, State, Zip:		Matrix: WW=Wastewater GW=Groundwater Water S=Soil/Sludge E=Extract		Container: P=Plastic G=Glass W=Wipe A=Air (filter or tube)		
Phone:		Fax:		Preservation: Unpres H <sub>2</sub> SO <sub>4</sub> 4°C HCl NaOH Na <sub>2</sub> SO <sub>4</sub>		SW=Surface Water DW=Drinking Water		
Email Results To: jones@ksv.edu		Richard Forrester		Analysis Requested		Pres. Upon Receipt (Y/N)		
Name: _____		If a hard copy of invoice is needed, check here		PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter		Matrix		
Company: _____						Container Type		
Address: _____						pH		
City, State, Zip: _____						No. Containers		
Phone: _____								
Fax: _____								
Special Instructions								
Client Sample ID		Sample #		Sample Collection Date		Sample Collection Time		
Shipping Blank		1		May 15th 2023		N/A		
Field Blank - Ambient		6		May 15th 2023		N/A		
Field Blank - Ozone In		7		May 15th 2023		N/A		
Field Blank - Ozone Out		8		May 15th 2023		N/A		
Field Blank - Coalescer		9		May 15th 2023		N/A		
Baseline - Ambient		2		May 15th 2023		252.1365 L		
Baseline - Ozone In		3		May 15th 2023		332.1404 L		
Baseline - Ozone Out		4		May 15th 2023		332.1404 L		
Baseline - Coalescer		5		May 15th 2023		298.715 L		
MU-II - 5 ppm - Ambient		10		May 15th 2023		130.27 L		
MU-II - 5 ppm - Ozone In		11		May 15th 2023		228.413 L		
MU-II - 5 ppm - Ozone Out		12		May 15th 2023		249.178 L		
MU-II - 5 ppm - APU - Coalescer		13		May 15th 2023		158.217 L		
Chain of Custody		Relinquished By (Signature): J. Jones		Date: May 20, 2023		Time: 0900		
Relinquished By (Print Name): J. Jones		Relinquished To:		Chain of Custody		Received By (Signature): [Signature]		
Company Name: [Signature]		Method of Shipment:		Received By (Print Name): [Signature]		Date: 05/20/23		
Chain of Custody		Relinquished By (Signature): [Signature]		Date: _____		Time: _____		
Relinquished By (Print Name): [Signature]		Relinquished To:		Received By (Signature): [Signature]		Date: _____		
Company Name: _____		Method of Shipment:		Received By (Print Name): [Signature]		Time: _____		

Pennsylvania - HQ  
350 Hochberg Road  
Monroeville, PA 15146Washington  
Columbia Basin Analytical Laboratories  
2710 North 20th Avenue  
Pasco, WA 99301

Page 7 of 4

 **RJ LEE GROUP**  
DELIVERING SCIENTIFIC RESOLUTION

# Request for Environmental and IH Laboratory Analytical Services

W1305170

Page 3 of 4

ATTENTION TO: <u>JOE Searcy</u>		Purchase Order No.: <u>2272794</u>		Client Job No.:	
Project No.: _____		Date Results Needed: <u>Per Quote</u>		Rush Charges Authorized? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Date Logged In: _____		Sample Purpose: Information <input type="checkbox"/> Regulatory <input checked="" type="checkbox"/> Accreditation (please list below):		Container: <u>15.11</u>	
Temperature Upon Receipt (Chem Only) _____ °C Therm ID No. _____		System ID #: _____		Matrix: <u>WW=Wastewater</u>	
Name: <u>JOHN JONES</u>		DOH Source #: _____		Matrix: <u>GW=Groundwater</u>	
Company: <u>ESU</u>		Multiple Sources #: _____		Matrix: <u>Water</u>	
Address: _____		Sample Purpose: A <input type="checkbox"/> B <input type="checkbox"/> Other <input type="checkbox"/>		Matrix: <u>S=Soil/Sludge</u>	
City, State, Zip: _____		Preservation: <u>Unpres</u>		Matrix: <u>E=Extract</u>	
Phone: _____		HNO <sub>3</sub>		Matrix: <u>O=Oil</u>	
Fax: _____		NaOH		Matrix: <u>X=Other</u>	
Email Results To: <u>john.jones@esu.com</u>		Na <sub>2</sub> SO <sub>4</sub>		Matrix: <u>SW=Surface Water</u>	
Name: _____		Other		Matrix: <u>DW=Drinking Water</u>	
Company: _____		Analysis Requested		Matrix: <u>P=Plastic</u>	
Address: _____		PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter		Matrix: <u>G=Glass</u>	
City, State, Zip: _____		Pres. Upon Receipt (Y/N)		Matrix: <u>W=Wipe</u>	
Phone: _____		Preservation		Matrix: <u>A=Air (filter or tube)</u>	
Fax: _____		Matrix		pH	
Special Instructions		Container Type		No. Containers	
Client Sample ID		Sample #		Sample Collection Date	
Field Blank		20		May 17th 2023	
Baseline - 300 C - Ozone In		21		May 17th 2023	
Baseline - 300 C - Ozone Out		22		May 17th 2023	
Baseline - 300 C - Coalescer		23		May 17th 2023	
2197 - 300 C - Ozone In		24		May 17th 2023	
2197 - 300 C - Ozone Out		25		May 17th 2023	
2197 - 300 C - Coalescer		26		May 17th 2023	
Chain of Custody		Relinquished By (Signature): <u>P. Searcy</u>		Date: <u>May 28 2023</u> Time: <u>0900</u>	
Relinquished By (Print Name): <u>P. Searcy</u>		Relinquished To: _____		Relinquished To: _____	
Company Name: _____		Method of Shipment: _____		Method of Shipment: _____	
Chain of Custody		Relinquished By (Signature): _____		Date: _____ Time: _____	
Relinquished By (Print Name): _____		Relinquished To: _____		Relinquished To: _____	
Company Name: _____		Method of Shipment: _____		Method of Shipment: _____	

Pennsylvania - HQ  
350 Hochberg Road  
Monroeville, PA 15146

Washington  
Columbia Basin Analytical Laboratories  
2710 North 20th Avenue  
Pasco, WA 99301

# Request for Environmental and IH Laboratory Analytical Services

W305170

Page 4 of 4

ATTENTION TO: Joe Seeno		Project No.:		Client No.:		Purchase Order No.: 2272784		Client Job No.:	
Job Use: 05 Only		Date Logged In: _____		Logged In By: _____		Date Results Needed: Per Quote		Rush Charges Authorized? (check one) <input type="checkbox"/> YES <input type="checkbox"/> NO	
Temperature Upon Receipt (Chem Only) _____ °C		Therm ID No. _____		Drinking Water Sample Only		Sample Purpose: Information <input type="checkbox"/> Regulatory <input type="checkbox"/> Accreditation (please list below):		Container: P=Plastic G=Glass W=Water A=Air (filter or tube)	
Name: BYRON JONES		Company: KSO		Address: _____		City, State, Zip: _____		Phone: _____ Fax: _____	
Email Results To: jseeno@kso.com		Name: _____		Company: _____		Address: _____		City, State, Zip: _____	
Report Results To: _____		Name: _____		Company: _____		Address: _____		City, State, Zip: _____	
Invoice To: _____		Address: _____		City, State, Zip: _____		Phone: _____		Fax: _____	
Special Instructions: _____		Client Sample ID		Sample #		Sample Collection Date		Sample Collection Time	
Field Blank		27		May 18th 2023		N/A		N/A	
Baseline - 220 C - Ozone In		28		May 18th 2023		15:43		15 min	
Baseline - 220 C - Ozone Out		29		May 18th 2023		15:43		15 min	
Baseline - 220 C - Coalescer		30		May 18th 2023		15:43		15 min	
Skydrol 220 C - Ozone In		31		May 18th 2023		17:07		20 min	
Skydrol 220 C - Ozone Out		32		May 18th 2023		17:07		20 min	
Skydrol 220 C - Coalescer		33		May 18th 2023		17:07		20 min	
Chain of Custody		Relinquished By (Signature): S. Fickel		Date: May 24 2023		Time: 20:23		Chain of Custody	
Relinquished By (Print Name): STEPHANIE FICKEL		Relinquished To: _____		Date: _____		Time: _____		Chain of Custody	
Company Name: _____		Method of Shipment: _____		Date: _____		Time: _____		Chain of Custody	
Relinquished By (Signature): _____		Date: _____		Time: _____		Chain of Custody		Chain of Custody	
Relinquished By (Print Name): _____		Date: _____		Time: _____		Chain of Custody		Chain of Custody	
Company Name: _____		Method of Shipment: _____		Date: _____		Time: _____		Chain of Custody	



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

PA 09/20/2019

May 16 <sup>th</sup> 2023	N/A	Field Blank
N/A	N/A	N/A
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 14	N/A
N/A	N/A	N/A

May 16 <sup>th</sup> 2023	5:32 pm	Ozone In
MJ-II – 300 C	Fluid Injection Rate – 5ppmW	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 18	Total Sample Volume
Sample Temp 24.4 C	Sample Duration 25 min	Sample Flow Rate

May 16 <sup>th</sup> 2023	3:20 pm	Ozone In
Baseline –300 C	Fluid Injection Rate – 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 15	Total Sample Volume -
Sample Temp 120.5 C	Sample Duration 25 min	Sample Flow Rate -

May 16 <sup>th</sup> 2023	5:32 pm	Coalescer
MJ-II – 300 C	Fluid Injection Rate - 5ppmW	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 19	Total Sample Volume
Sample Temp 28.7	Sample Duration 25 min	Sample Flow Rate

May 16 <sup>th</sup> 2023	3:20 pm	Ozone Out
Baseline –300 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 16	Total Sample Volume
Sample Temp 131.5 C	Sample Duration 25 min	Sample Flow Rate

May 16 <sup>th</sup> 2023	15:20	Coalescer
Baseline –300 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 17	Total Sample Volume
Sample Temp 28.6 C	Sample Duration 25 min	Sample Flow Rate

May 17 <sup>th</sup> 2023	N/A	Field Blank
N/A	N/A	N/A
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 20	N/A
N/A	N/A	N/A

May 17 <sup>th</sup> 2023	12:24	Ozone In
Eastman 2197 300 C	Fluid Injection Rate – 5 ppmW	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 24	Total Sample Volume
Sample Temp 87.8 C	Sample Duration 25 min	Sample Flow Rate

May 17 <sup>th</sup> 2023	10:28	Ozone In
Baseline 300 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 21	Total Sample Volume
Sample Temp 25.7	Sample Duration 27 min	Sample Flow Rate

May 17 <sup>th</sup> 2023	12:24	Ozone Out
Eastman 2197 300 C	Fluid Injection Rate – 5 ppmW	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 25	Total Sample Volume
Sample Temp 31.2 C	Sample Duration 25 min	Sample Flow Rate

May 17 <sup>th</sup> 2023	10:28	Ozone Out
Baseline 300 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 22	Total Sample Volume
Sample Temp 148.5	Sample Duration 27 min	Sample Flow Rate

May 17 <sup>th</sup> 2023	12:24	Coalescer
Eastman 2197 300 C	Fluid Injection Rate – 5 ppmW	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 26	Total Sample Volume
Sample Temp 31.5 C	Sample Duration 25 min	Sample Flow Rate

May 17 <sup>th</sup> 2023	10:28	Coalescer
Baseline 300 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 23	Total Sample Volume
Sample Temp 30.8	Sample Duration 27 min	Sample Flow Rate

May 18 <sup>th</sup> 2023	N/A	Field Blank
N/A	N/A	N/A
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 27	N/A
N/A	N/A	N/A

May 18 <sup>th</sup> 2023	5:07 pm	Ozone In
Skydrol 220 C	Fluid Injection Rate – 5ppmW	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 31	Total Sample Volume
Sample Temp 67.8 C	Sample Duration 20 min	Sample Flow Rate

May 18 <sup>th</sup> 2023	3:43 pm	Ozone In
Baseline 220 C	Fluid Injection Rate – 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 28	Total Sample Volume
Sample Temp 70.4 C	Sample Duration 15 min	Sample Flow Rate

May 18 <sup>th</sup> 2023	5:07 pm	Ozone Out
Skydrol 220 C	Fluid Injection Rate – 5 ppmW	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 32	Total Sample Volume
Sample Temp 119.6 C	Sample Duration 20 min	Sample Flow Rate

May 18 <sup>th</sup> 2023	3:43 pm	Ozone Out
Baseline 220 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 29	Total Sample Volume
Sample Temp 119.3 C	Sample Duration 15 min	Sample Flow Rate

May 18 <sup>th</sup> 2023	5:07 pm	Coalescer
Skydrol 220 C	Fluid Injection Rate – 5 ppmW	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 33	Total Sample Volume
Sample Temp 21.6 C	Sample Duration 20 min	Sample Flow Rate

May 18 <sup>th</sup> 2023	3:43 pm	Coalescer
Baseline 220 C	Fluid Injection Rate - 0	Bleed Air Exit Temp
PAHs by method TO-13A Mod. Dual 102 mm Quartz Filter	Sample # 30	Total Sample Volume
Sample Temp 19.3 C	Sample Duration 15 min	Sample Flow Rate

## Air Volumes for EPA TO-13

CoC Update Received on 08/22/23 From Dr. Fox via e-mail

## PAH Samples

Client Sample ID	Sample #	Sample Collection Date	Sample Start Time	Total Collection Time (min)	Air Volume ( Liters)	MagnaHelic Sample Temp (°C)		Baro
Shipping Blank	1	May 15th 2023	N/A	N/A	N/A	N/A	N/A	
Field Blank - Ambient6	2	May 15th 2023	N/A	N/A	N/A	N/A	N/A	
Field Blank - Ozone In7	3	May 15th 2023	N/A	N/A	N/A	N/A	N/A	
Field Blank - Ozone Out8	4	May 15th 2023	N/A	N/A	N/A	N/A	N/A	
Field Blank - Pack Exit9	5	May 15th 2023	N/A	N/A	N/A	N/A	N/A	
Baseline - Ambient 2	6	May 15th 2023		3:24:00 PM 20 min	3849	28	24.49	30.14
Baseline - Ozone In 3	7	May 15th 2023		3:37:00 PM 20 min	4110	50	182.18	30.14
Baseline - Ozone Out 4	8	May 15th 2023		3:37:00 PM 20 min	4110	50	182.22	30.14
Baseline - Pack Exit 5	9	May 15th 2023		3:26:00 PM 20 min	4404	40	37.12	30.14
MJ-II - 5 ppm - APU - Ambient 10	10	May 15th 2023		5:37:00 PM 10 min	2241	30	24.4	30.1
MJ-II - 5 ppm - APU - Ozone In 11	11	May 15th 2023		5:37:00 PM 10 min	2520	80	182.18	30.1
MJ-II - 5 ppm - APU - Ozone Out 12	12	May 15th 2023		5:37:00 PM 10 min	2520	80	182.2	30.1
MJ-II- 5 ppm - APU - Pack Exit 13	13	May 15th 2023		5:37:00 PM 10 min	1831	26	37.12	30.1
FieldBlank-14	14	May 16th 2023	N/A	N/A	N/A	N/A	N/A	
Baseline - 300 C - Ozone In15	15	May 16th 2023		3:20:00 PM 25 min	6516	75	120.5	→ Valve broke/melted.
Baseline - 300 C - Ozone Out16	16	May 16th 2023		3:20:00 PM 25 min	6624	80	131.5	
Baseline - 300 C Pack Exit 17	17	May 16th 2023		3:32:00 PM 25 min	4771	28	28.6	
MJ-II - 300 C - 5ppmW - Ozone In18	18	May 16th 2023		5:02:00 PM 25 min	6673	80	124.4	
MJ-II - 300 C - 5ppmW - Pack Exit19	19	May 16th 2023		5:32:00 PM 25 min	4768	28	28.7	
Field Blank20	20	May 17th 2023	N/A	N/A	N/A	N/A	N/A	
Baseline - 300 C - Ozone In21	21	May 17th 2023		10:28:00 AM 27 min	5841	58	125.7	
Baseline - 300 C - Ozone Out22	22	May 17th 2023		10:28:00 AM 27 min	7003	80	148.5	
Baseline 300 C - Pack Exit 23	23	May 17th 2023		10:28:00 AM 27 min	5273	28	30.8	
2197 - 300 C - 5ppmW - Ozone In24	24	May 17th 2023		12:24:00PM 25 min	5774	50	82.4	
2197 - 300 C - 5ppmW - Ozone Out25	25	May 17th 2023		12:24:00 PM 25 min	4299	63	139	
2197 - 300 C - 5ppmW - Pack Exit26	26	May 17th 2023		12:24:00 PM 25 min	4750	28	29.9	
Field Blank 30	27	May 18th 2023	N/A	N/A	N/A	N/A	N/A	
Baseline - 220C - Ozone In 34	28	May 18th 2023		3:43:00 PM 15 min	3492	50	70.4	
Baseline - 220C - Ozone Out 35	29	May 18th 2023		3:43:00 PM 15 min	3645	63	119.3	
Baseline 220C - Pack Exit36	30	May 18th 2023		3:43:00 PM 15 min	3002	30	19.3	
Skydrol - 220C - 5ppmW - Ozone In37	31	May 18th 2023		5:07:00 PM 20 min	4947	57	67.8	
Skydrol - 220C -5ppmW -OzoneOut38	32	May 18th 2023		5:07:00 PM 20 min	4925	65	119.6	
Skydrol - 220C - 5ppmW - Pack Exit39	33	May 18th 2023		5:07:00 PM 20 min	3815	27	21.6	

# **Appendix 1**

## **Chromatograms**

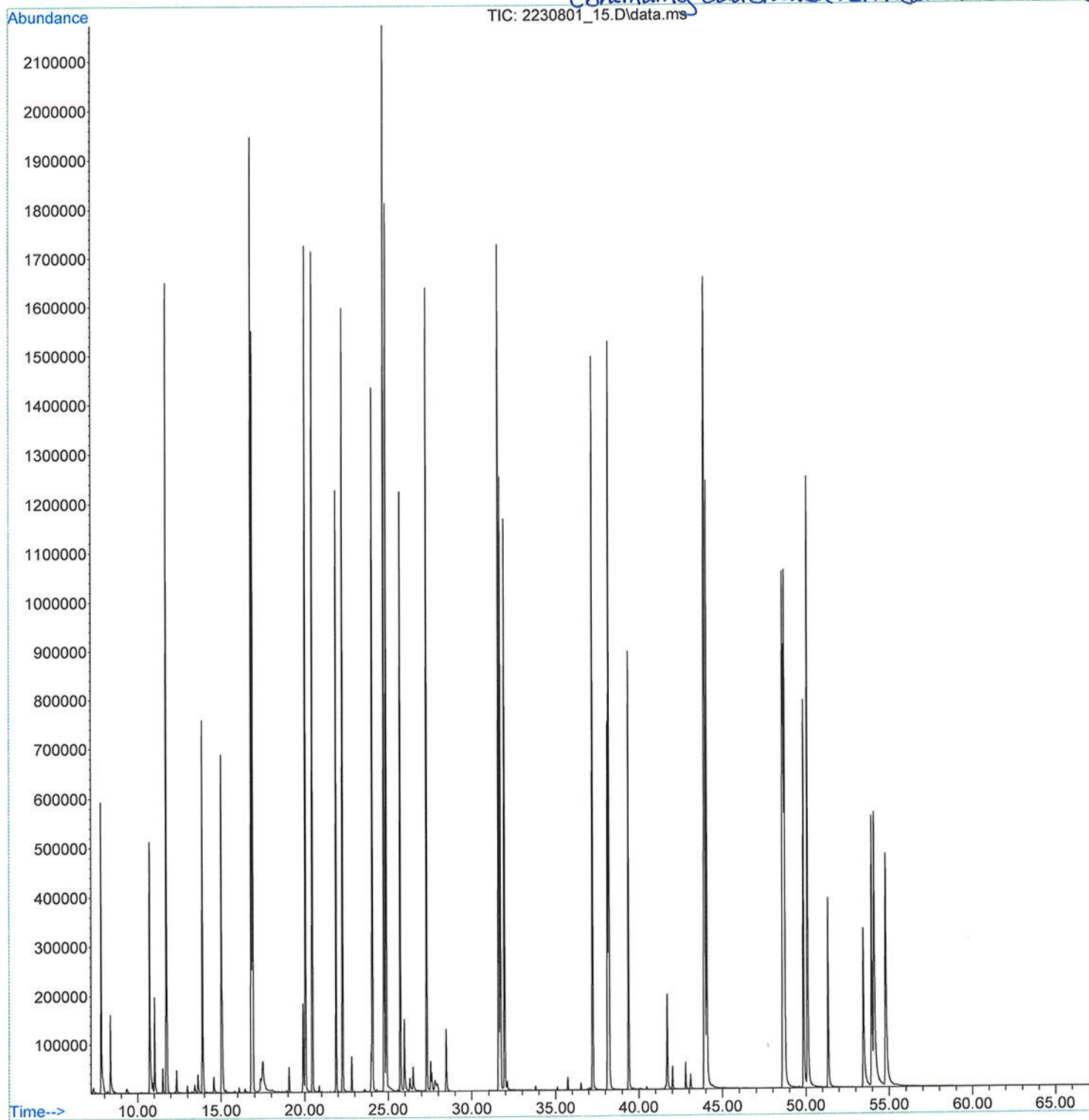
### **A Continuing Calibration Verification Standard**

### **A Calibration Blank with Internal Standards and Surrogates**

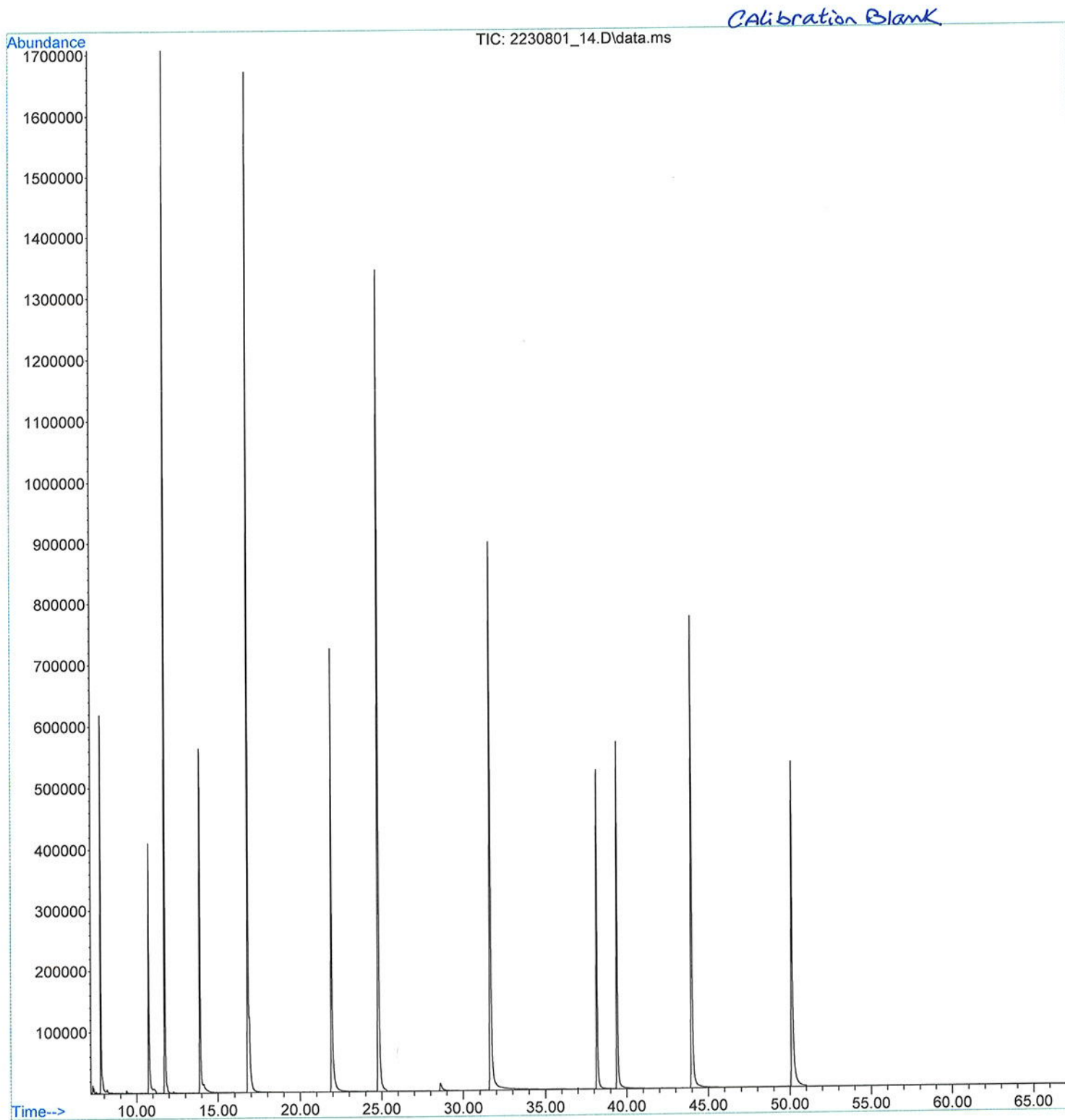
### **Each Sample**

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Operator : LJS  
Acquired : 2 Aug 2023 3:47 am using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: CCV1  
Misc Info :  
Vial Number: 14

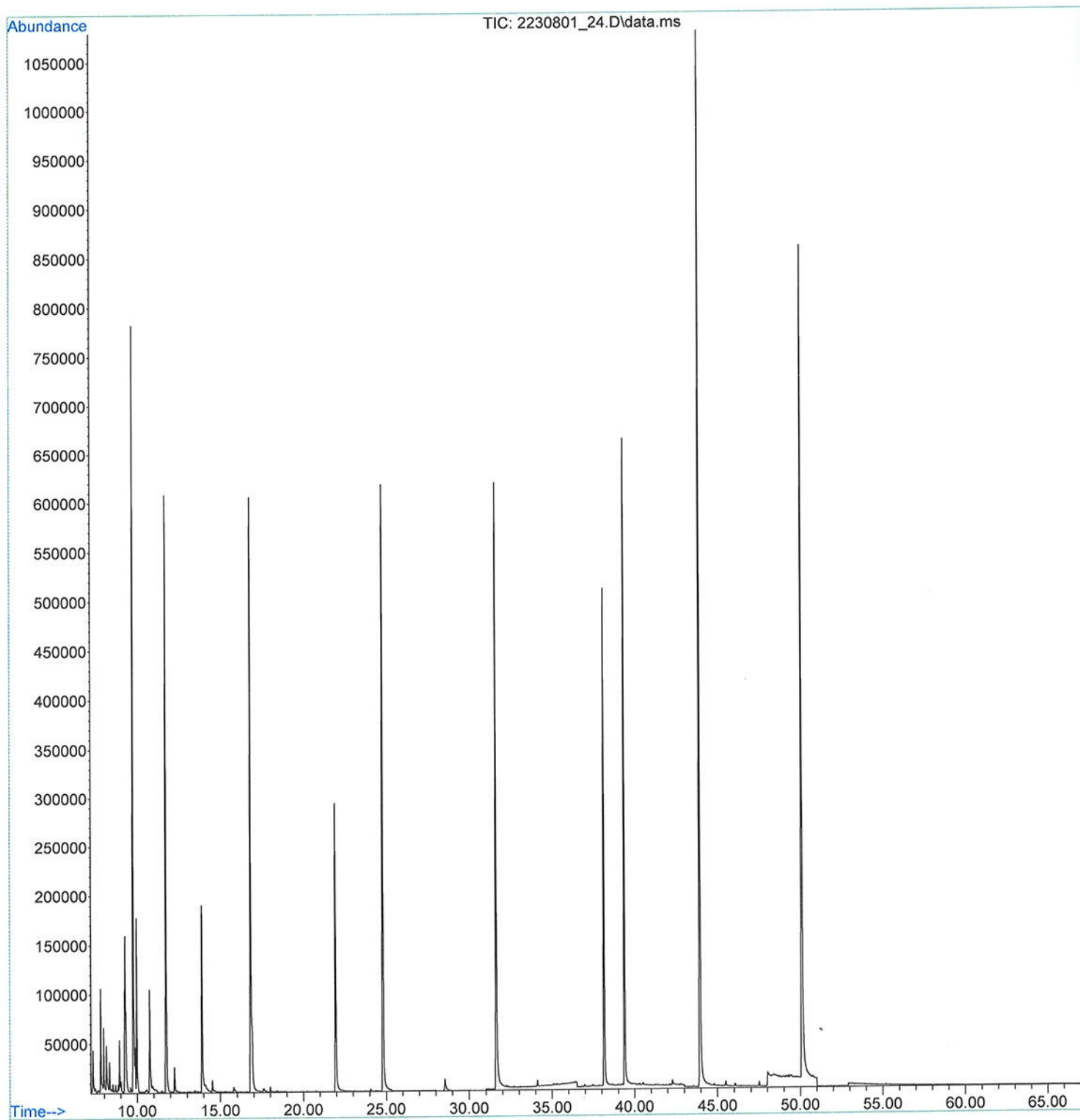
*Continuing Calibration Verification Standard*



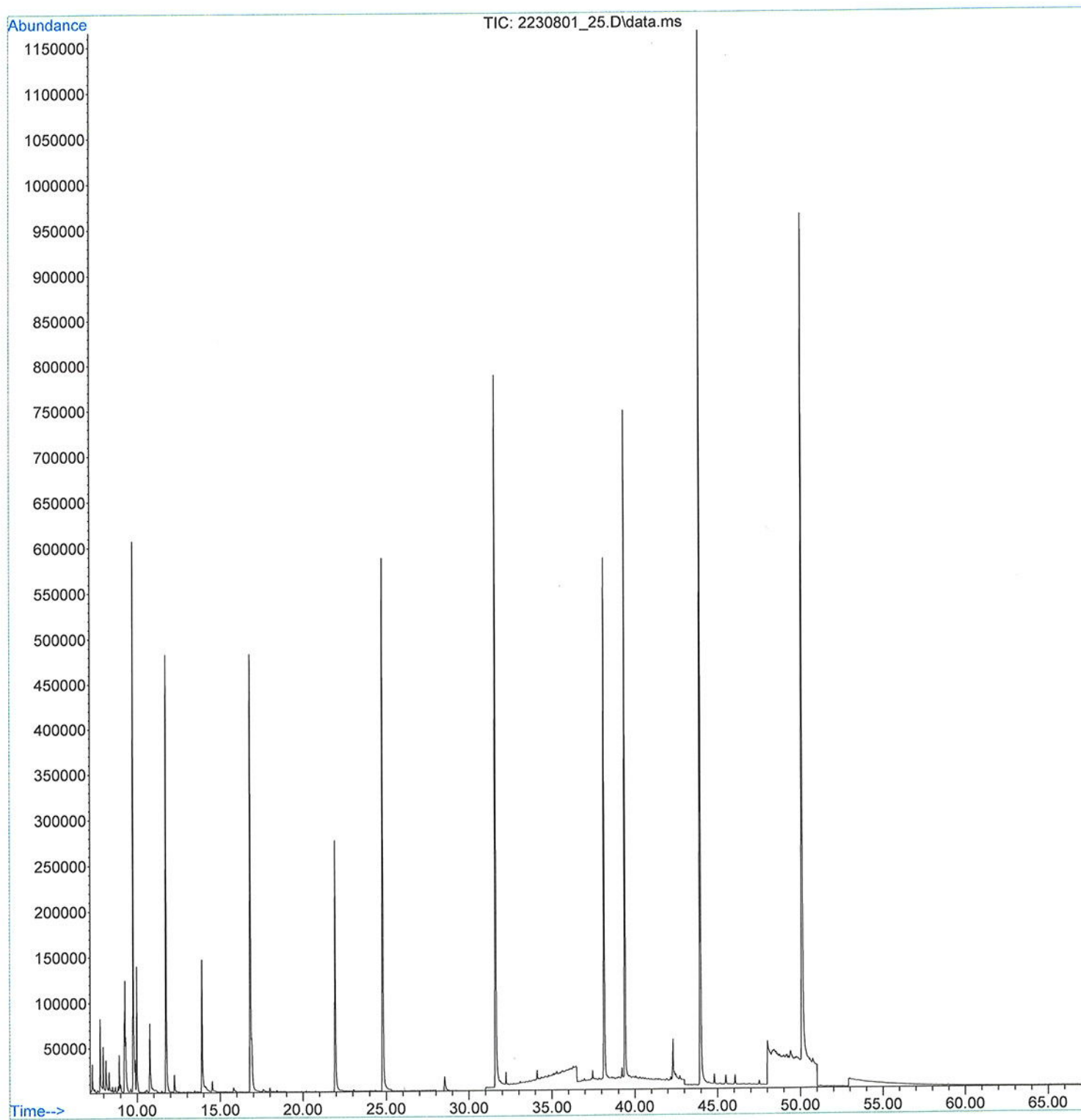
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Instrument : GCMS-02  
Sample Name: CB-S1  
Misc Info :  
Vial Number: 13



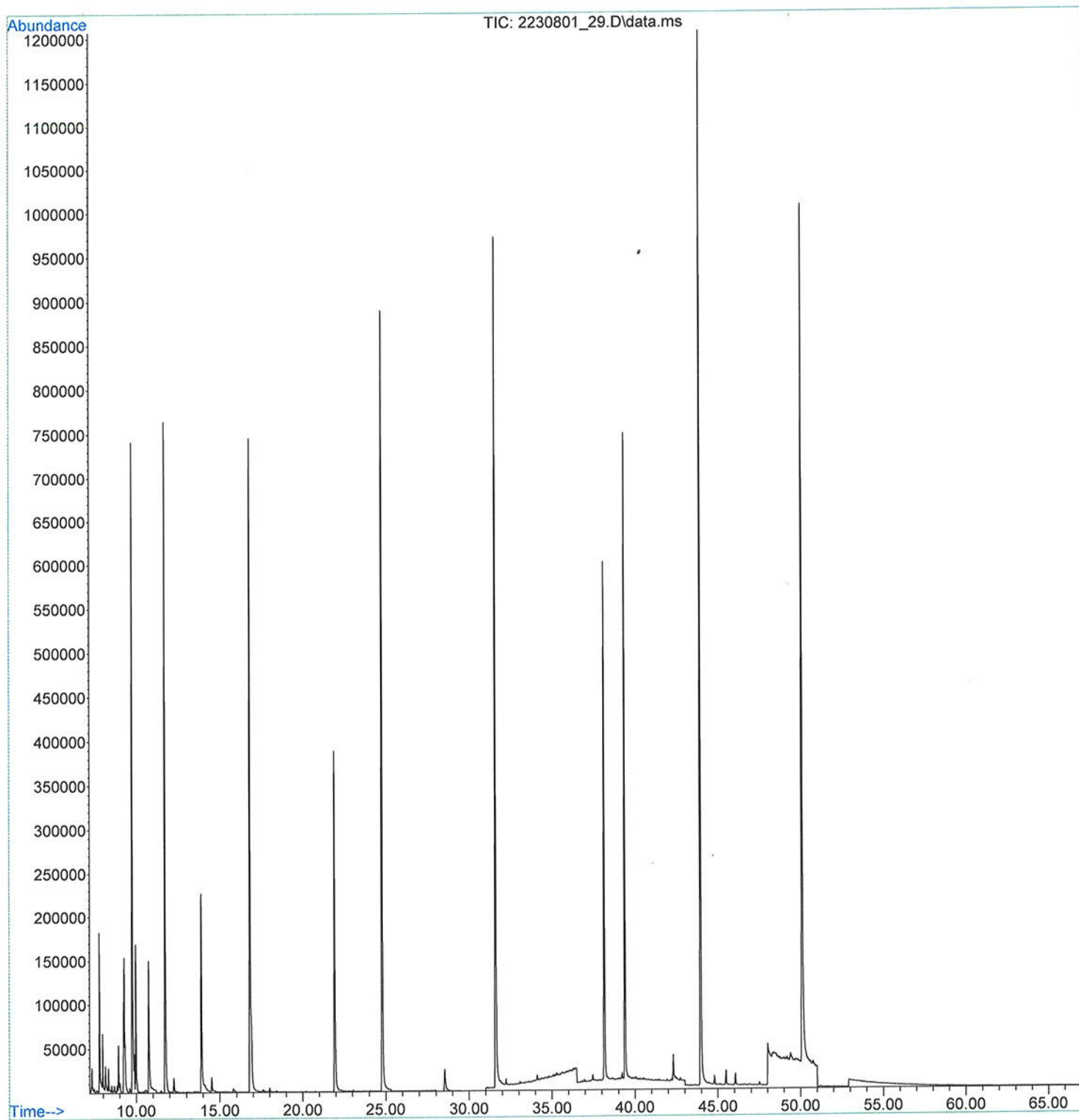
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Operator : LJS  
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Instrument : GCMS-02  
Sample Name: W305169-01  
Misc Info : *5170-01*  
Vial Number: 22



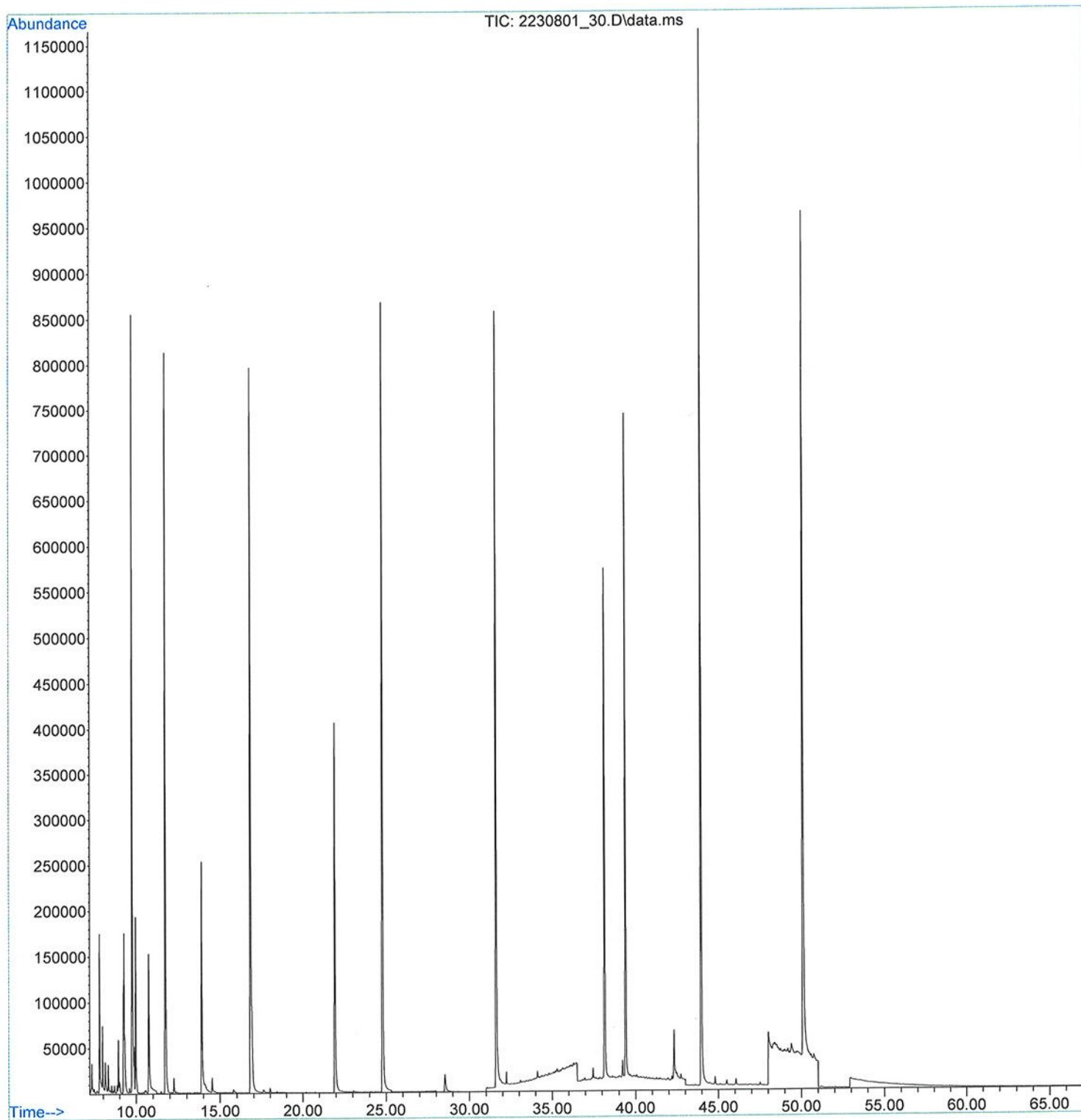
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Instrument : GCMS-02  
Sample Name: W305169-02-  
Misc Info : 5170-02  
Vial Number: 23



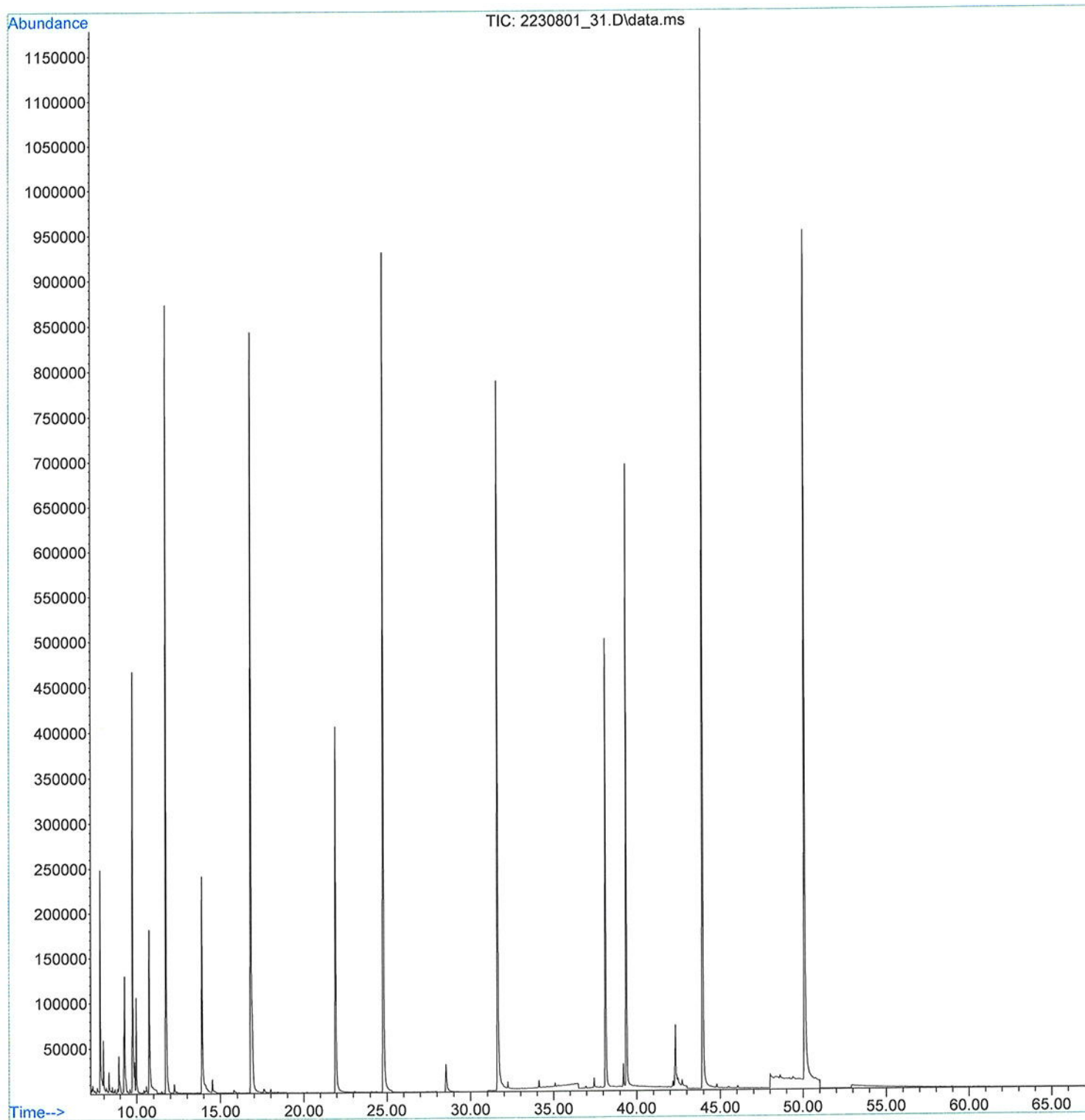
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Operator : LJS  
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Instrument : GCMS-02  
Sample Name: W305169-03  
Misc Info : *5170-03*  
Vial Number: 24



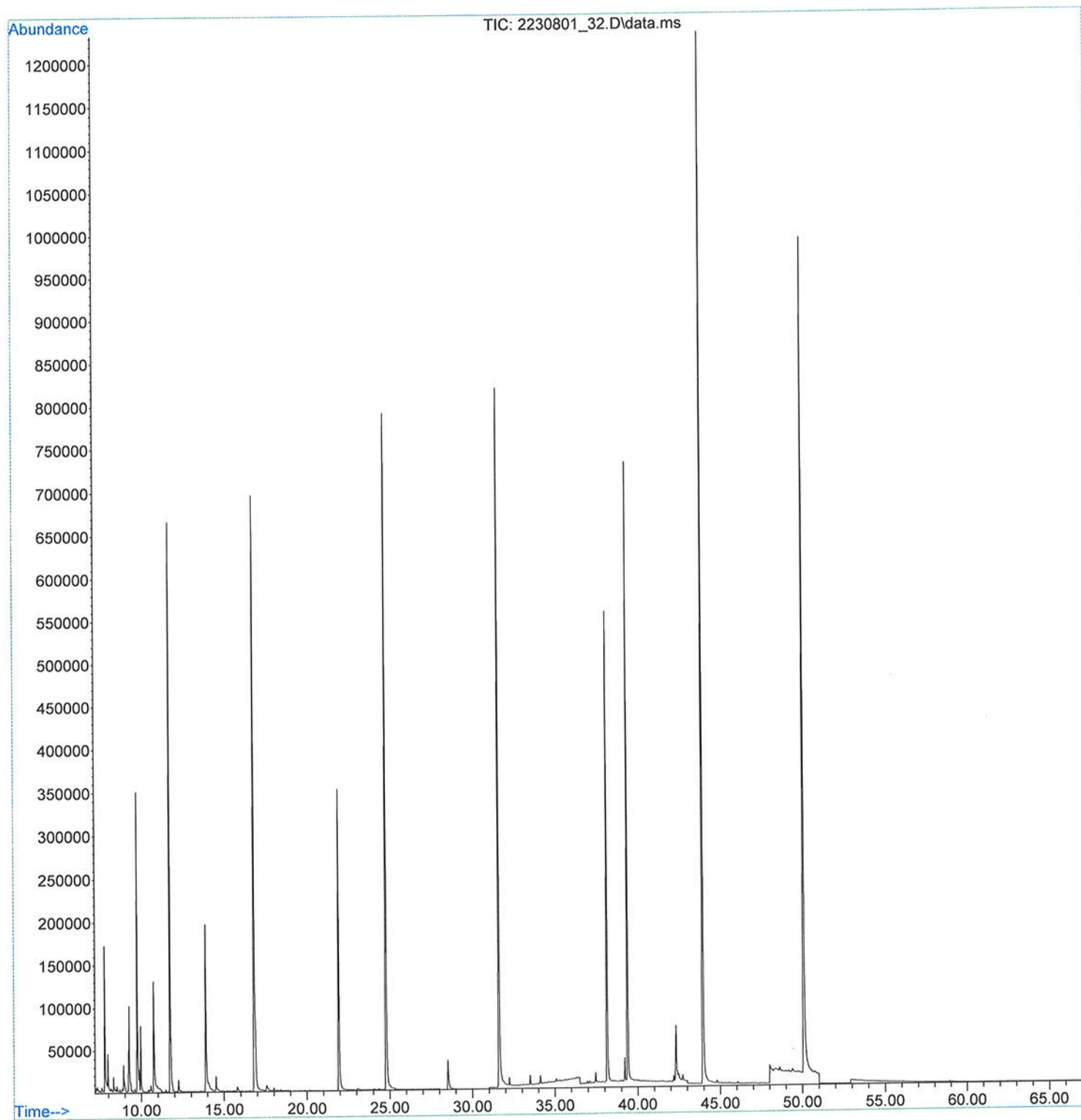
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Instrument : GCMS-02  
Sample Name: W305169-04  
Misc Info : 5170-04  
Vial Number: 25



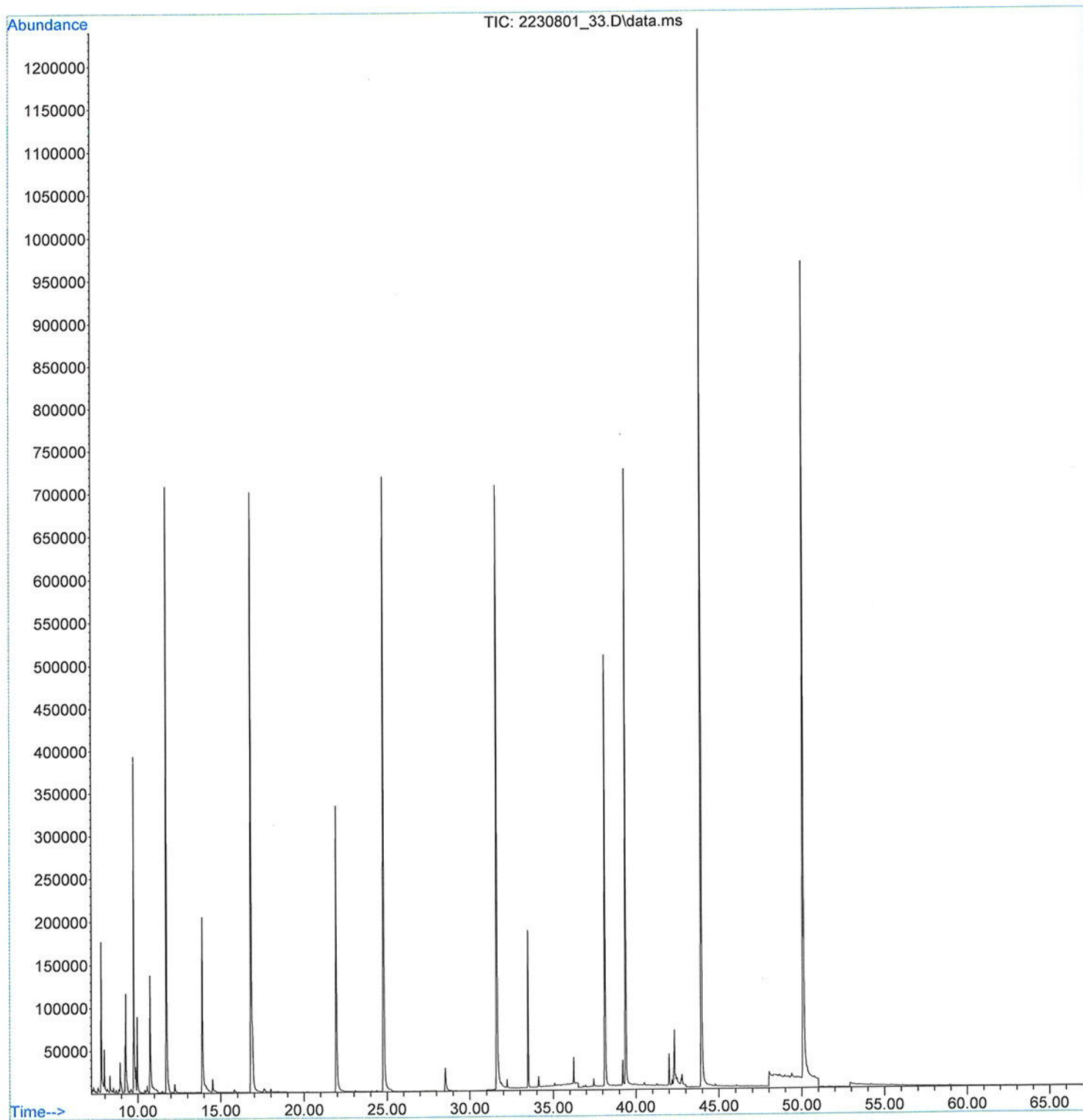
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Sample Name: W305169-05  
Misc Info : *5170-05*  
Vial Number: 26



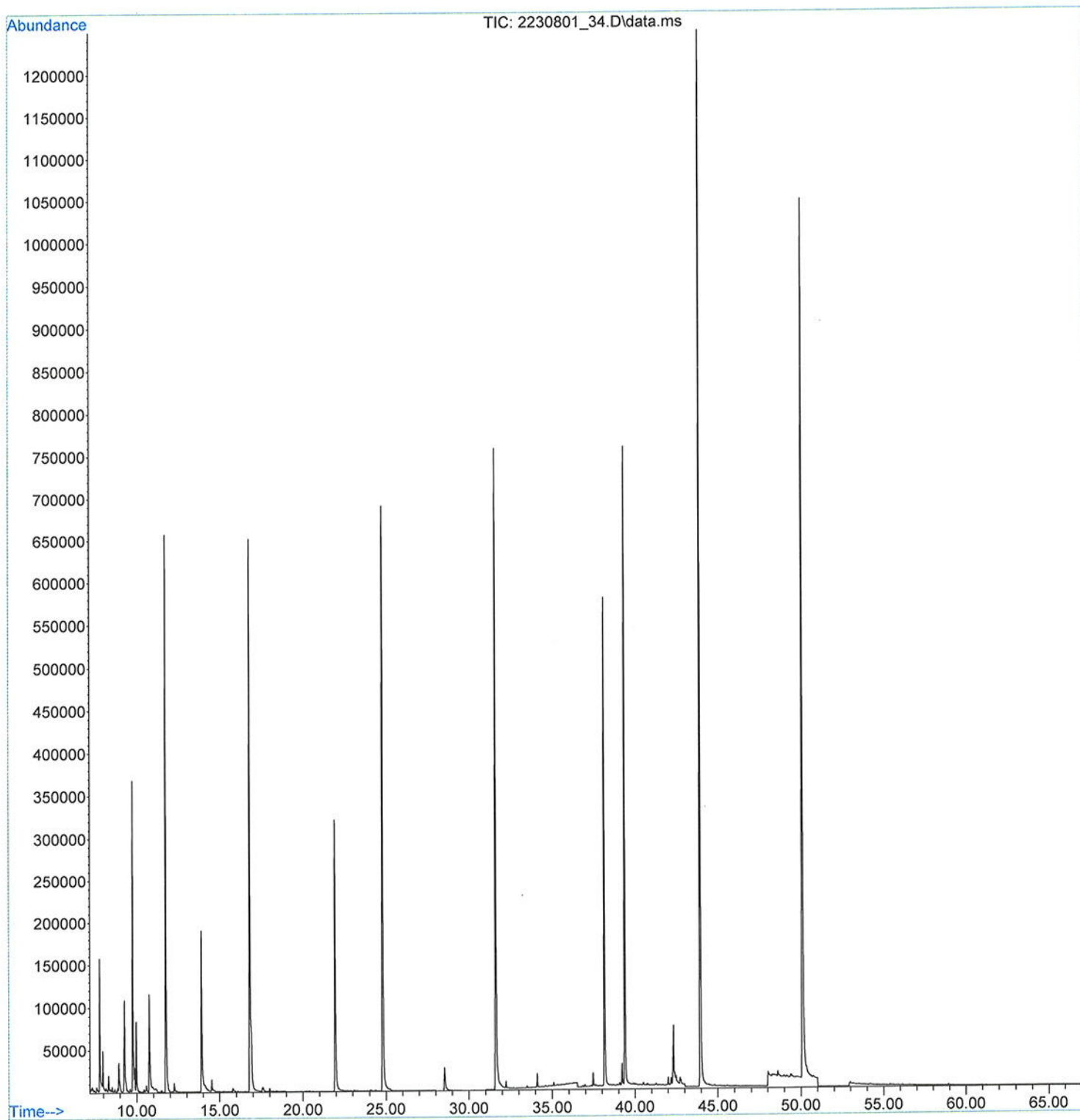
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Instrument : GCMS-02  
Sample Name: W305169-06  
Misc Info : 5170-04  
Vial Number: 27



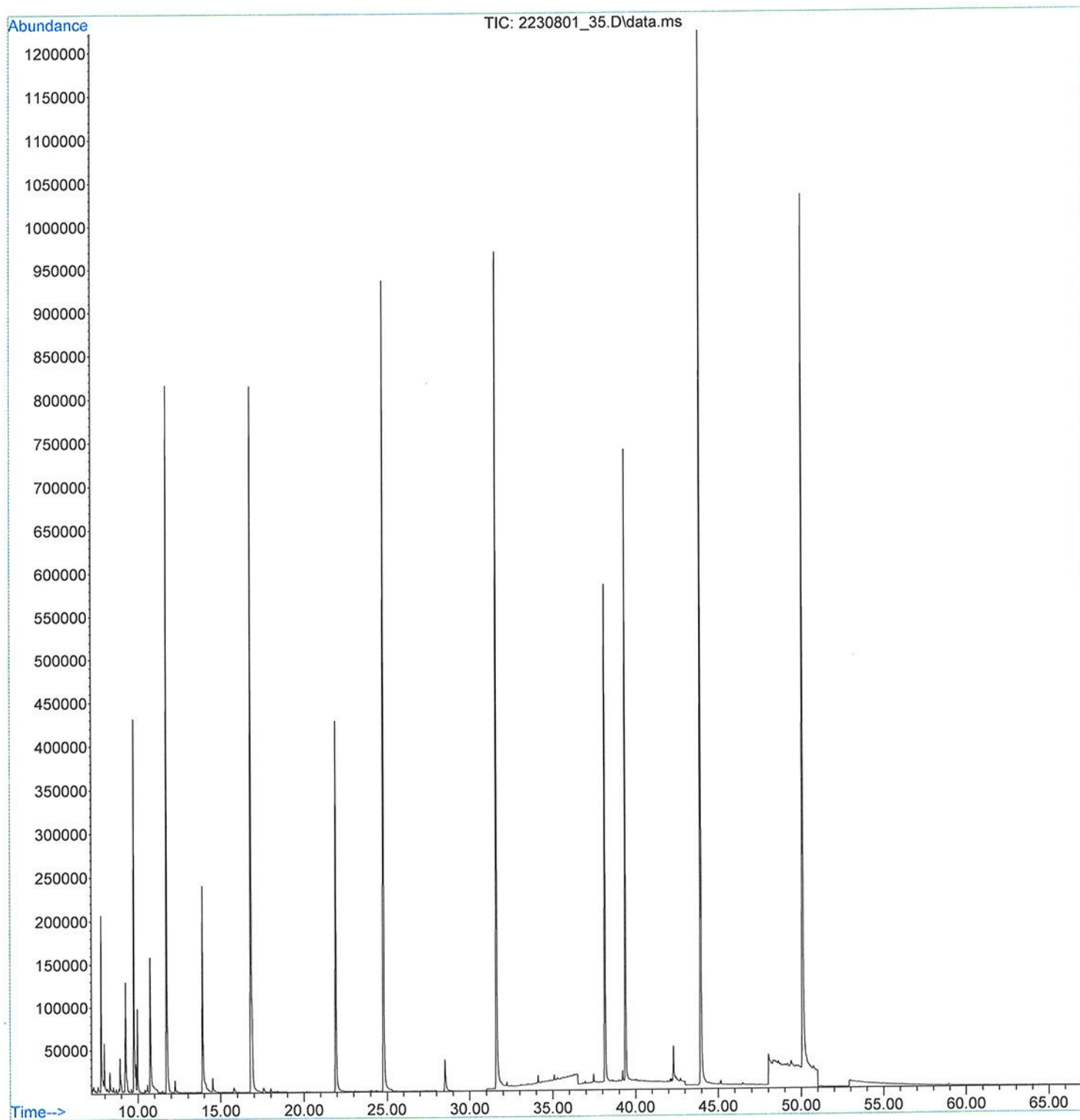
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Instrument : GCMS-02  
Sample Name: W305169-07  
Misc Info : 5170-07  
Vial Number: 28



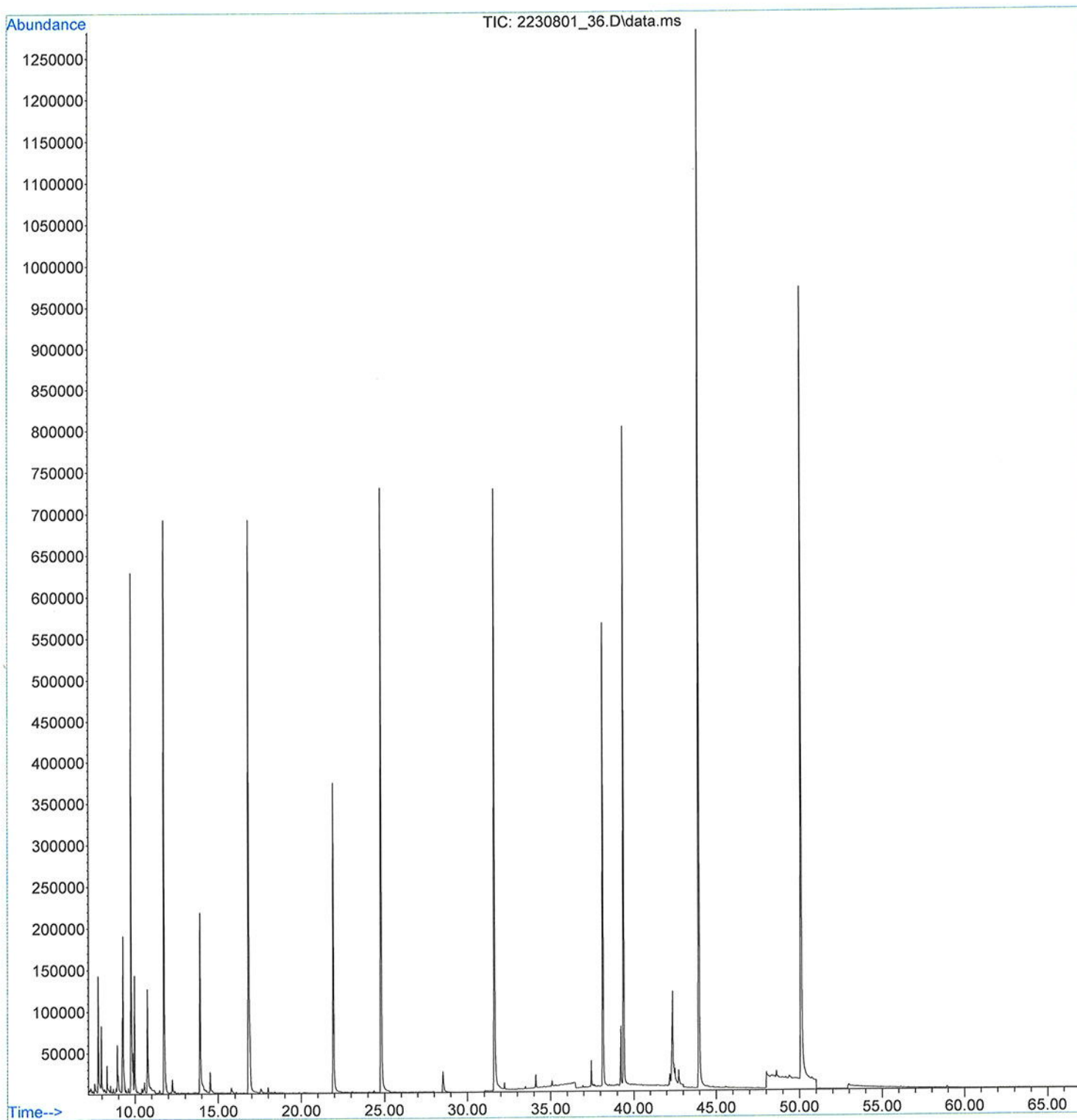
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Instrument : GCMS-02  
Sample Name: W305169-08  
Misc Info : *5170-08*  
Vial Number: 29



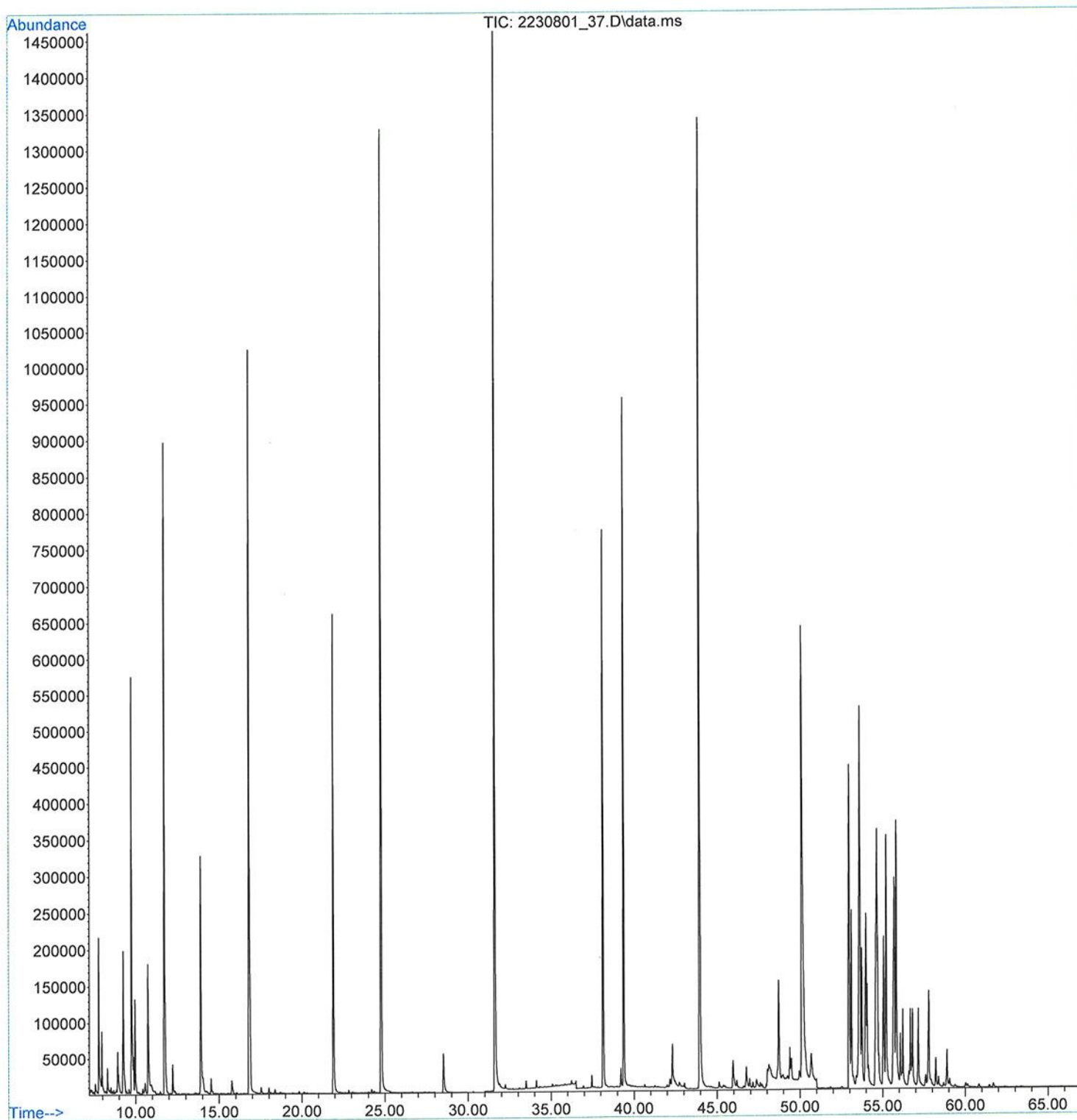
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Instrument : GCMS-02  
Sample Name: W305169-09  
Misc Info : *5170-09*  
Vial Number: 30



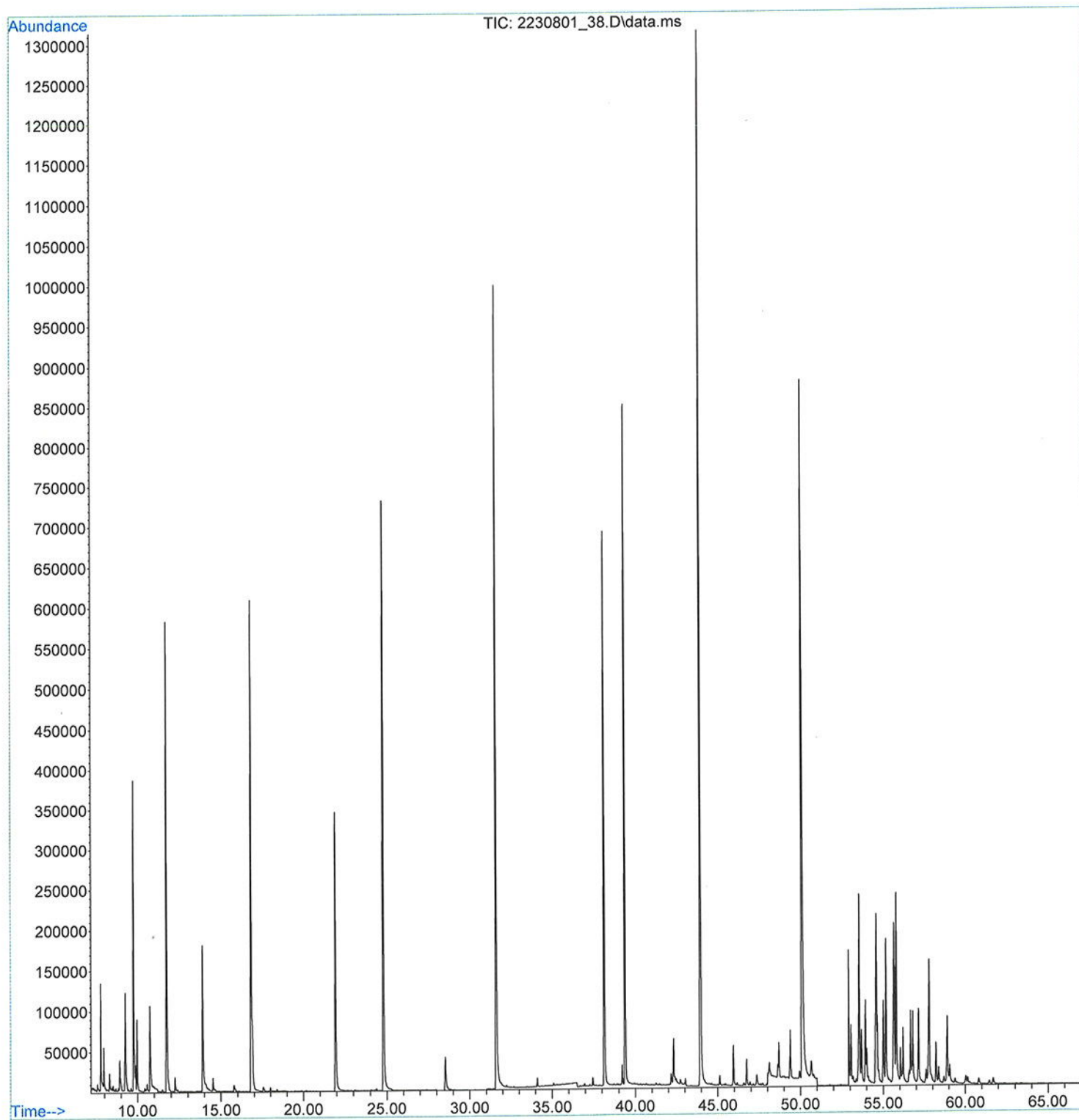
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Instrument : GCMS-02  
Sample Name: W305169-10-  
Misc Info : 5170-10  
Vial Number: 31



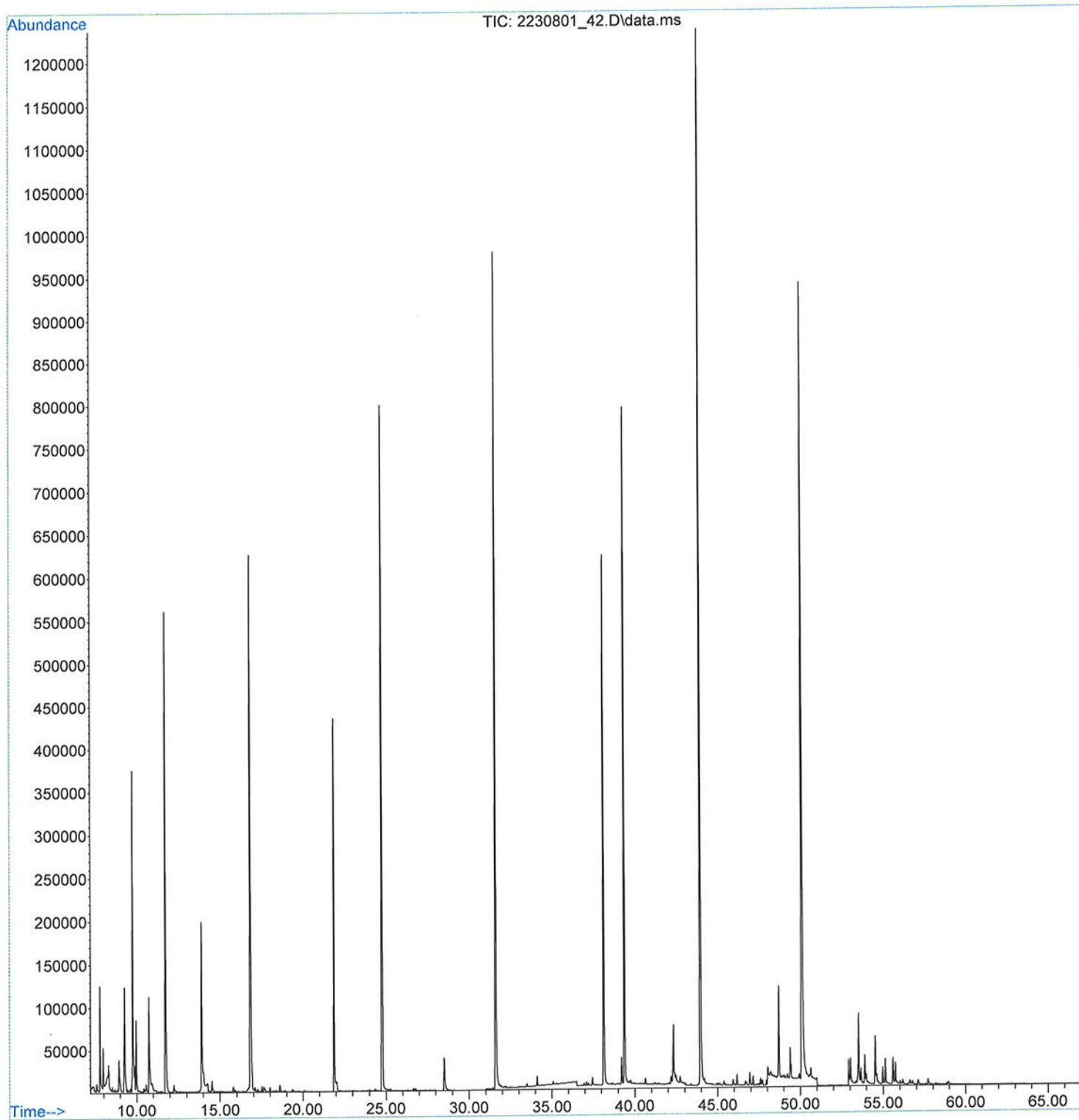
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Operator : LJS  
Acquired : 3 Aug 2023 8:42 am using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-11  
Misc Info : 5170-11  
Vial Number: 32



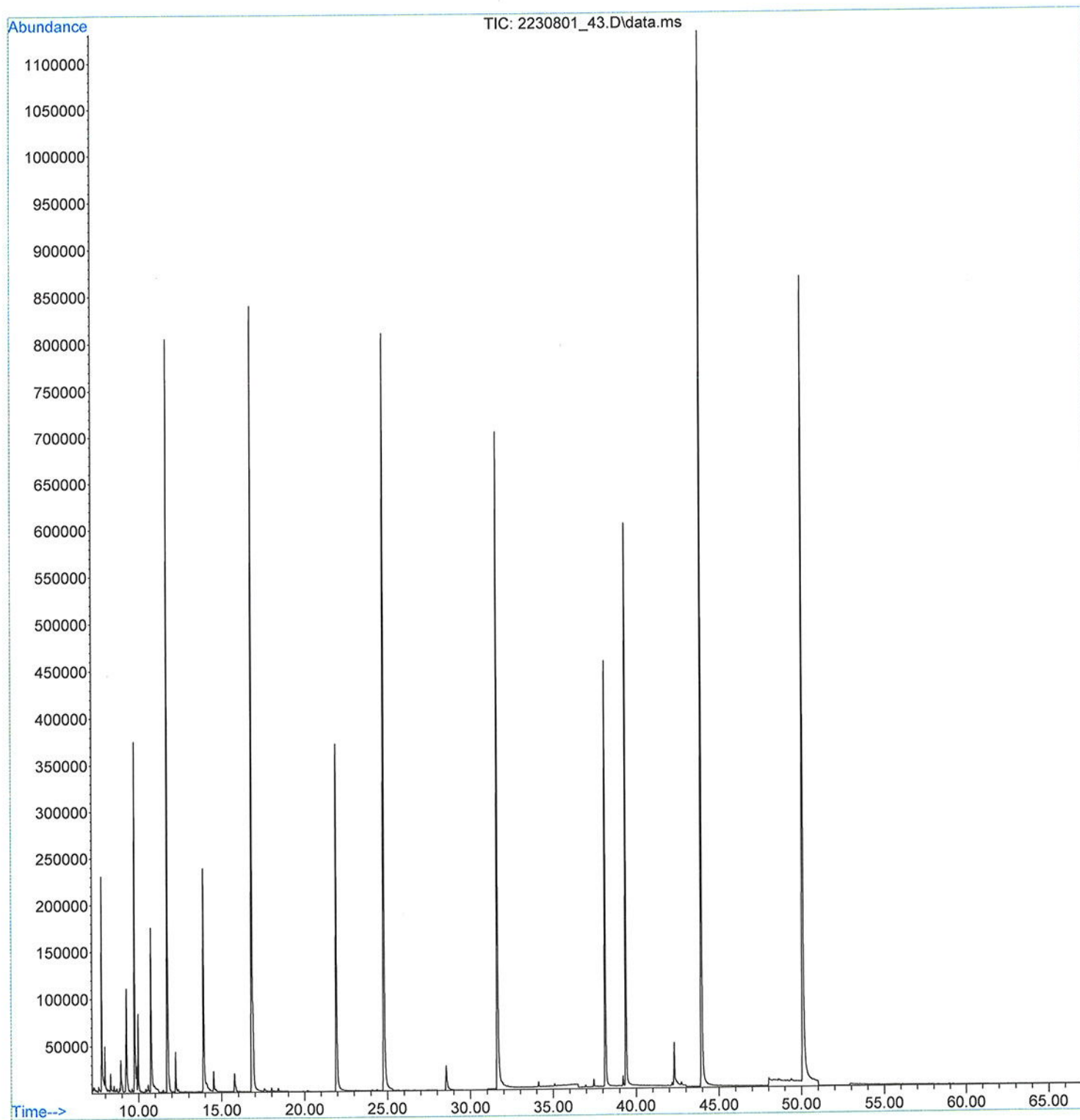
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Instrument : GCMS-02  
Sample Name: W305169-12  
Misc Info : 5170-12  
Vial Number: 33



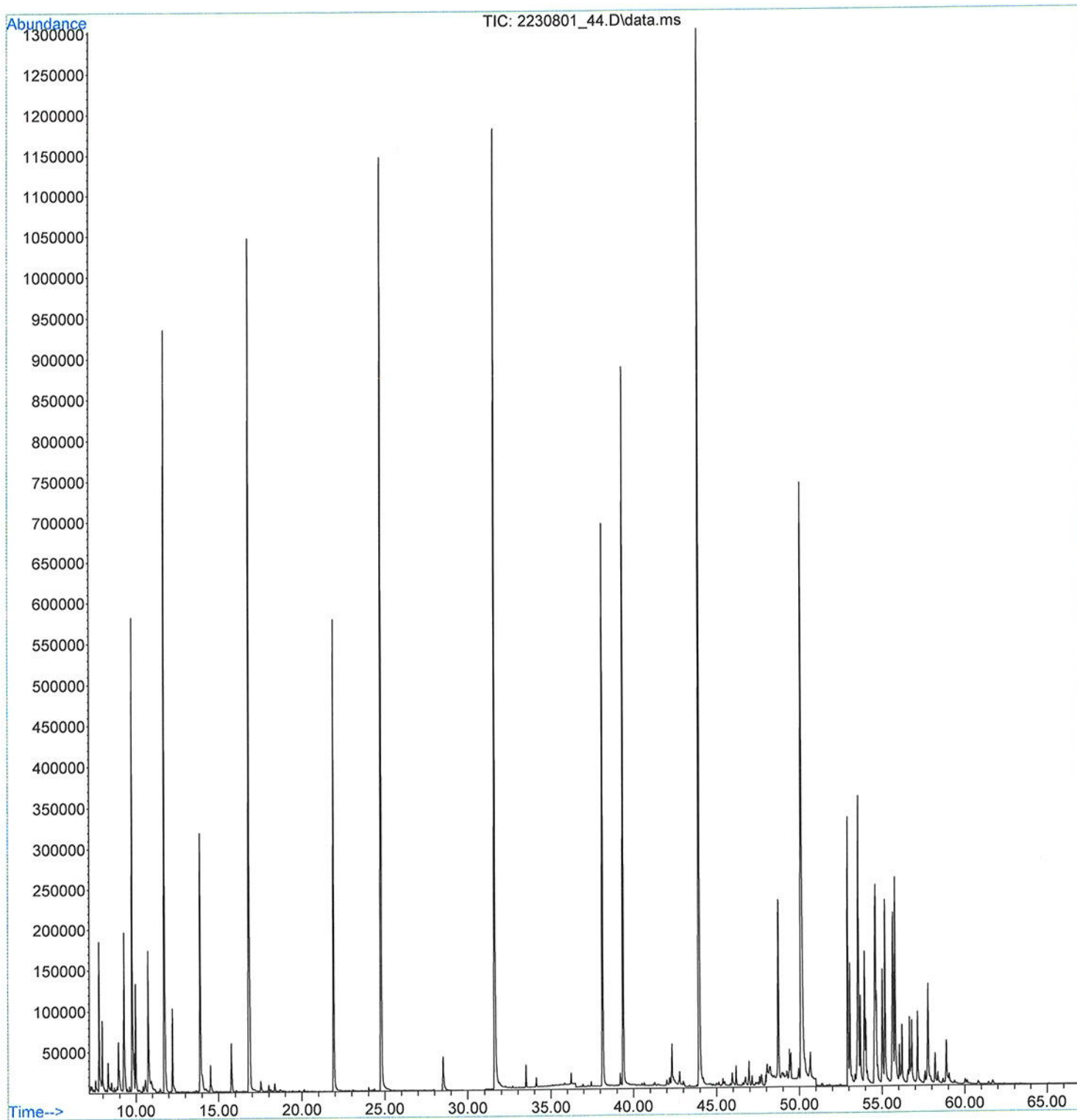
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Acquired : 3 Aug 2023 3:15 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305469-13  
Misc Info : 5170-13  
Vial Number: 34



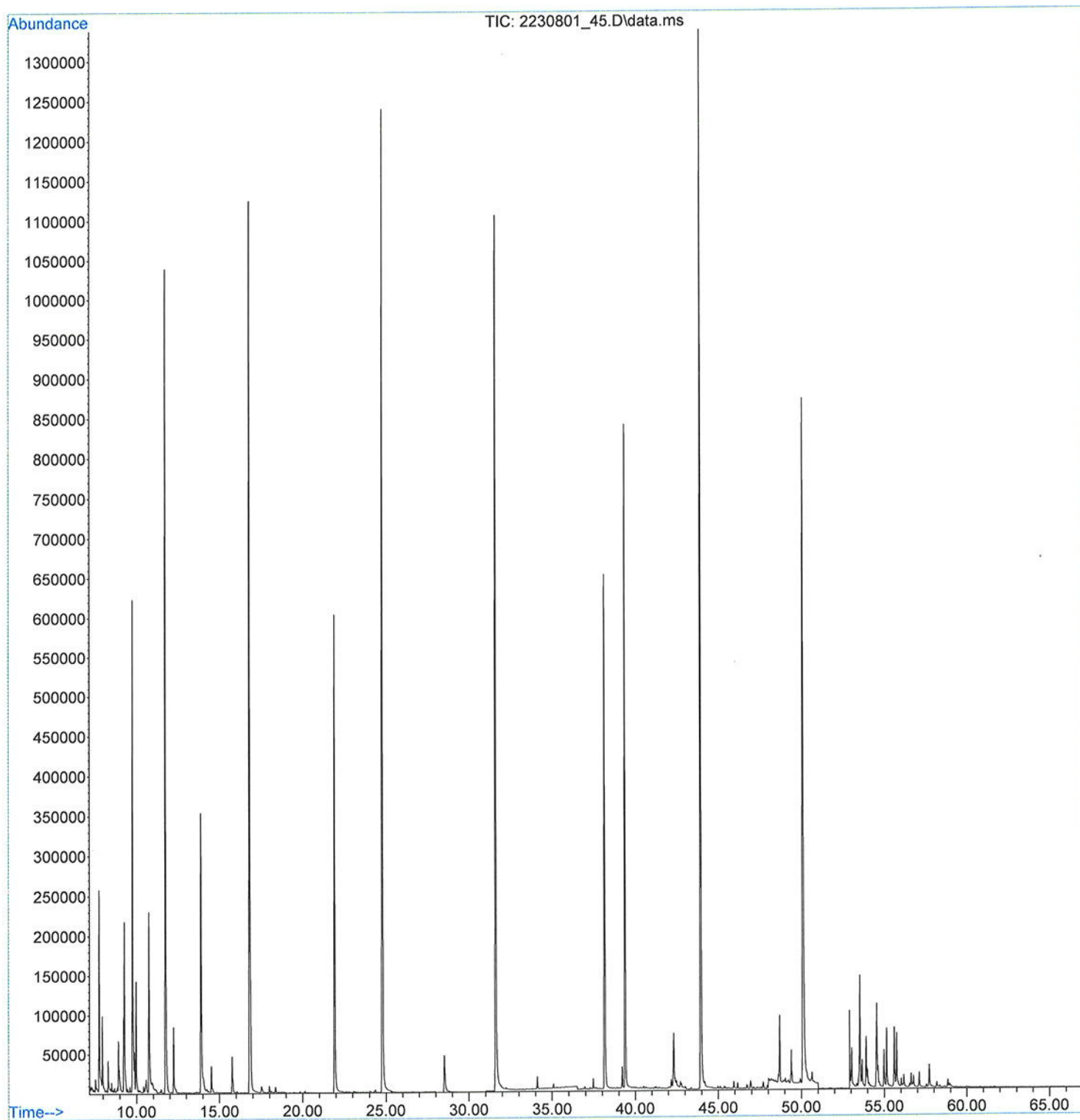
File :C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_43.D  
Operator : LJS  
Acquired : 3 Aug 2023 4:33 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-14-  
Misc Info : 5170-14  
Vial Number: 35



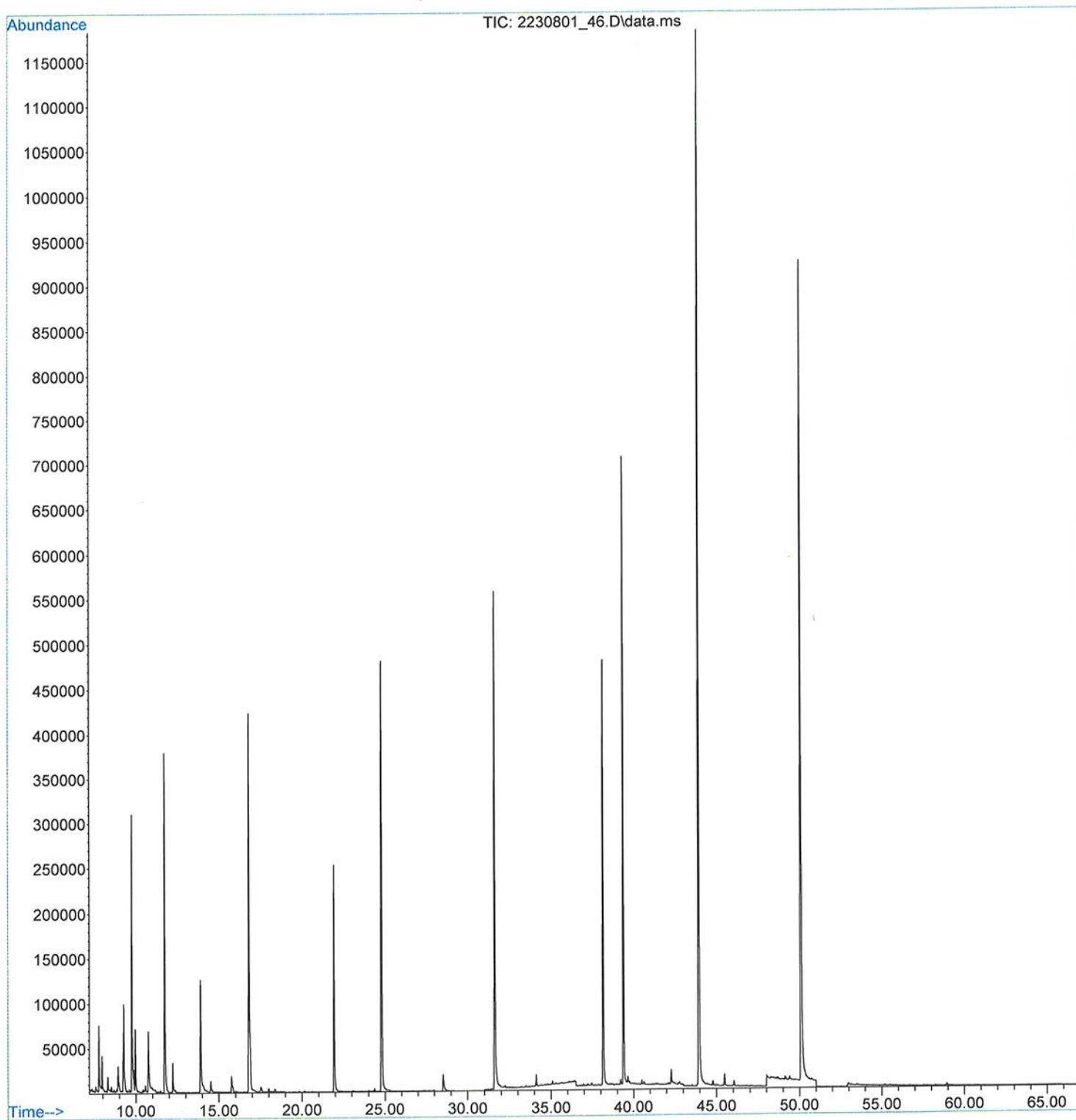
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_44.D  
Operator : LJS  
Acquired : 3 Aug 2023 5:51 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-15  
Misc Info : 5170-15  
Vial Number: 36



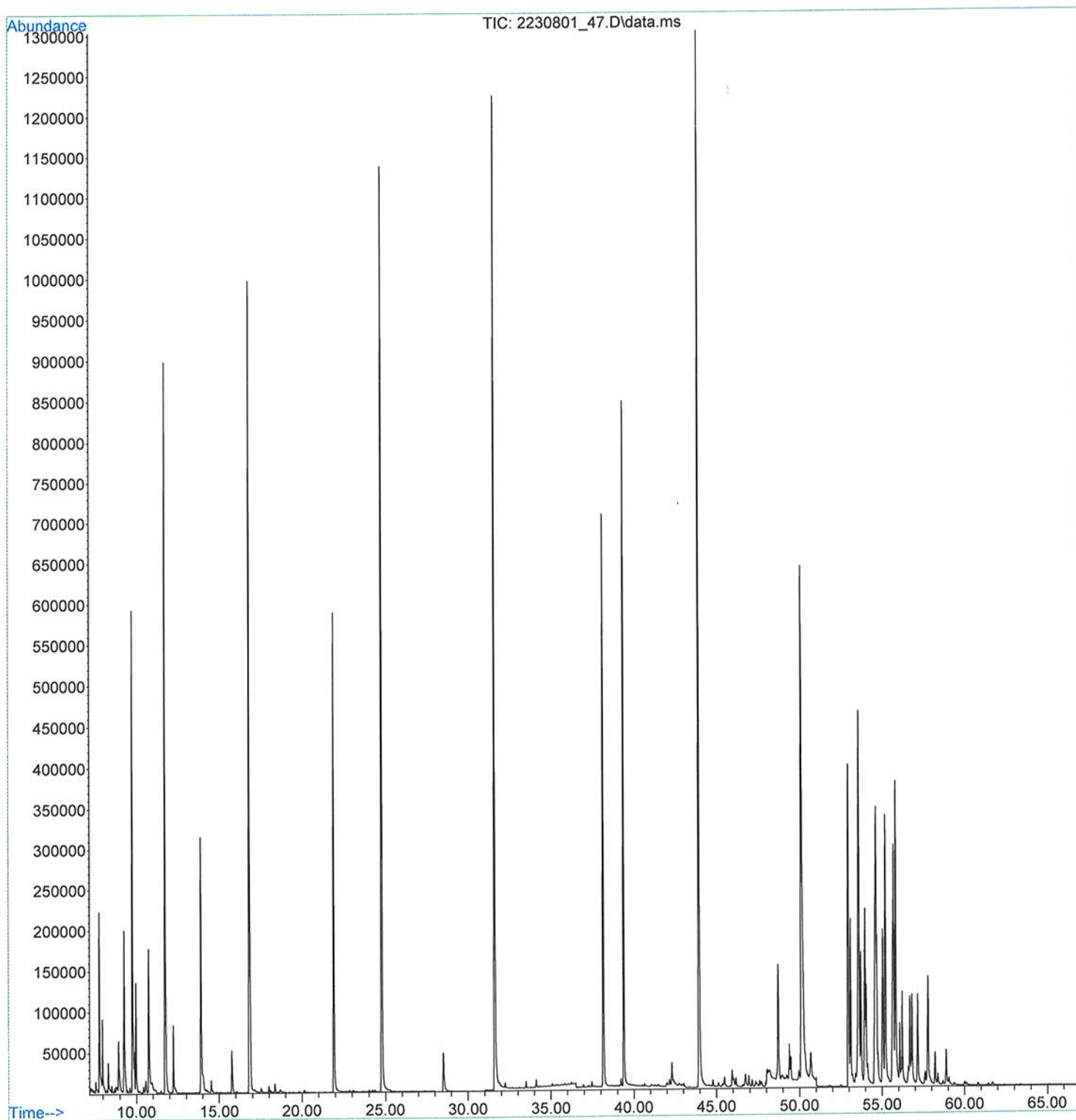
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_45.D  
Operator : LJS  
Acquired : 3 Aug 2023 7:10 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-16  
Misc Info : 5170-16  
Vial Number: 37



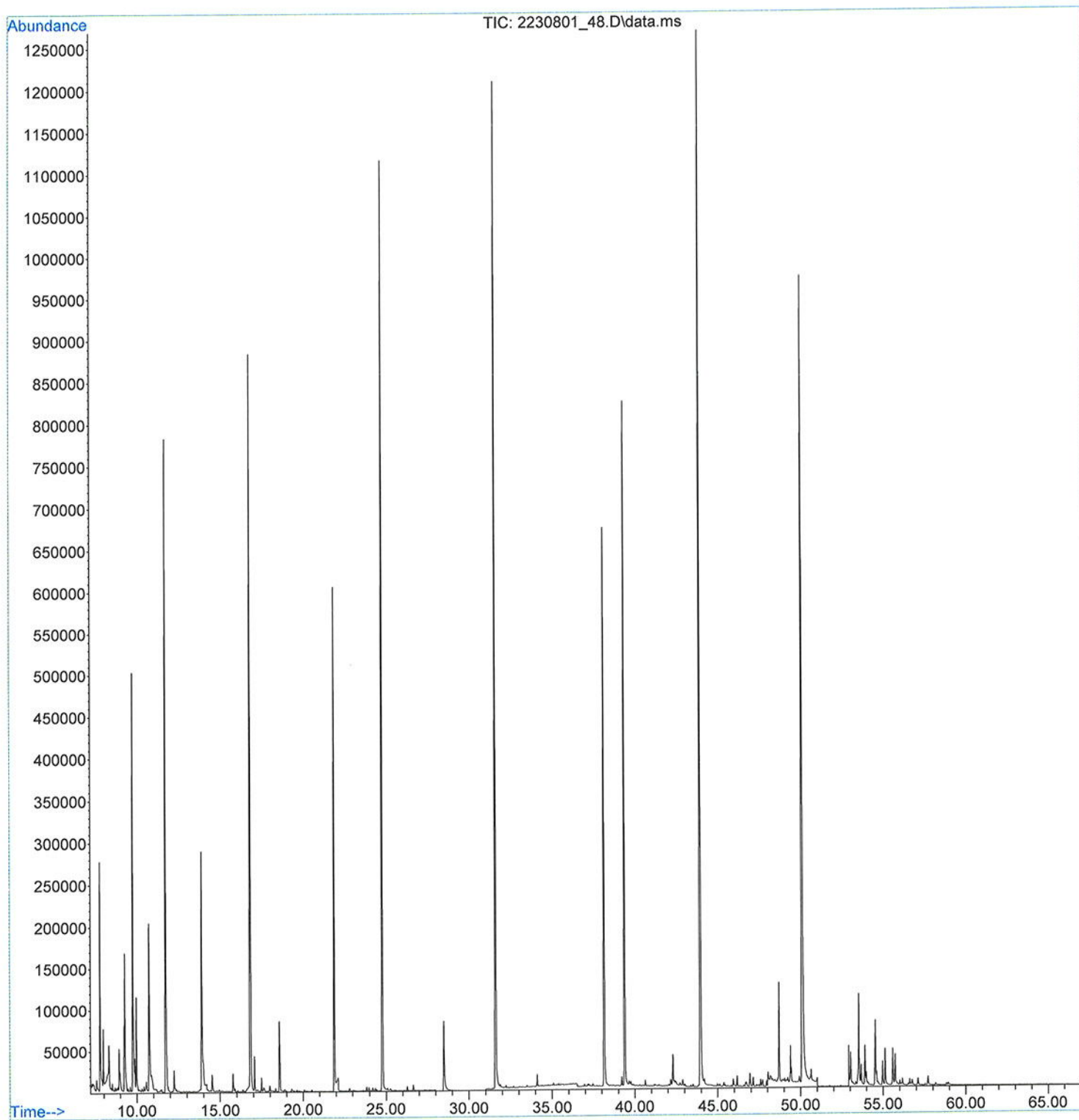
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_46.D  
Operator : LJS  
Acquired : 3 Aug 2023 8:29 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-17  
Misc Info : 5170-17  
Vial Number: 38



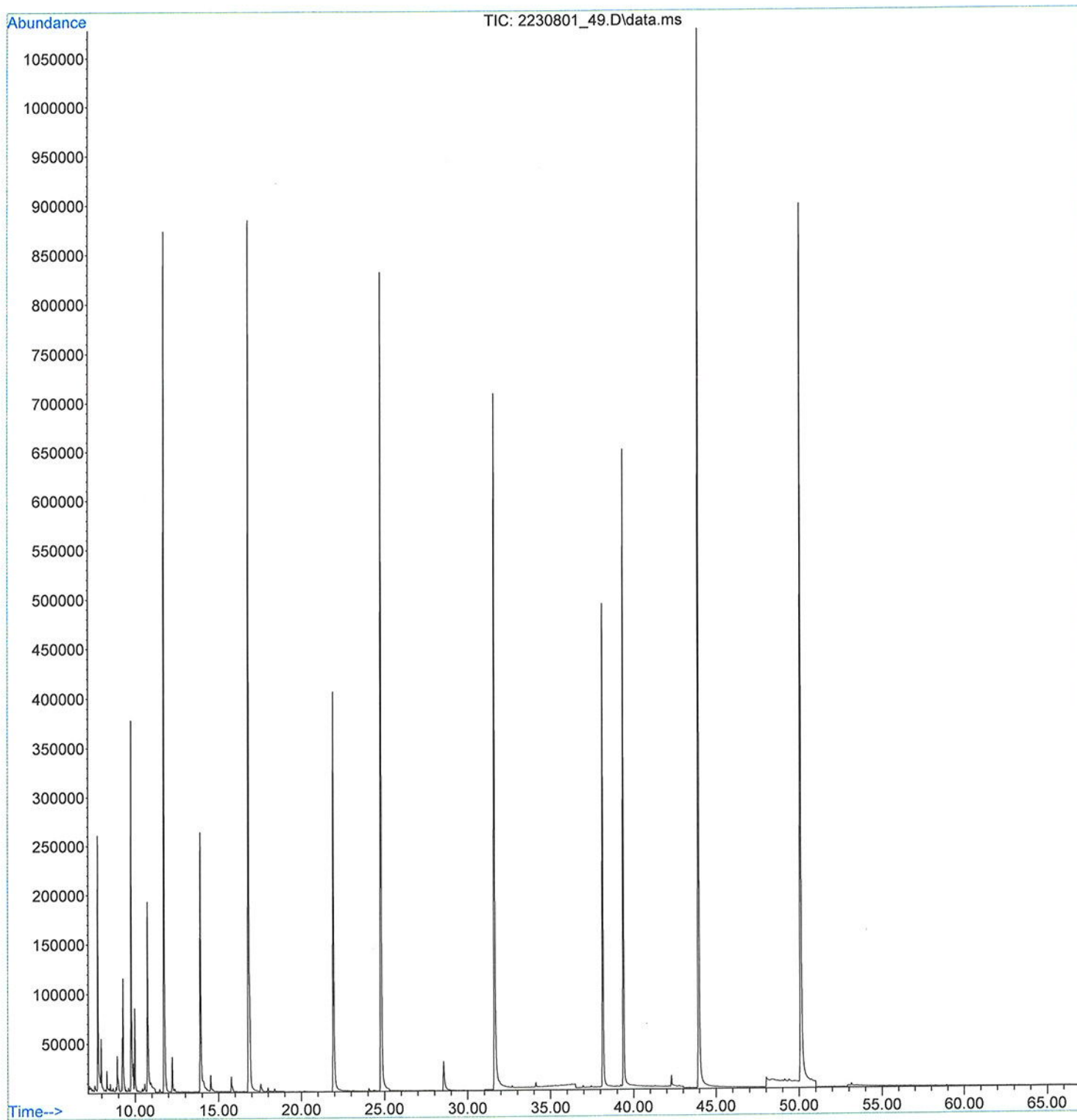
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_47.D  
Operator : LJS  
Acquired : 3 Aug 2023 9:48 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-18  
Misc Info : *5170-18*  
Vial Number: 39



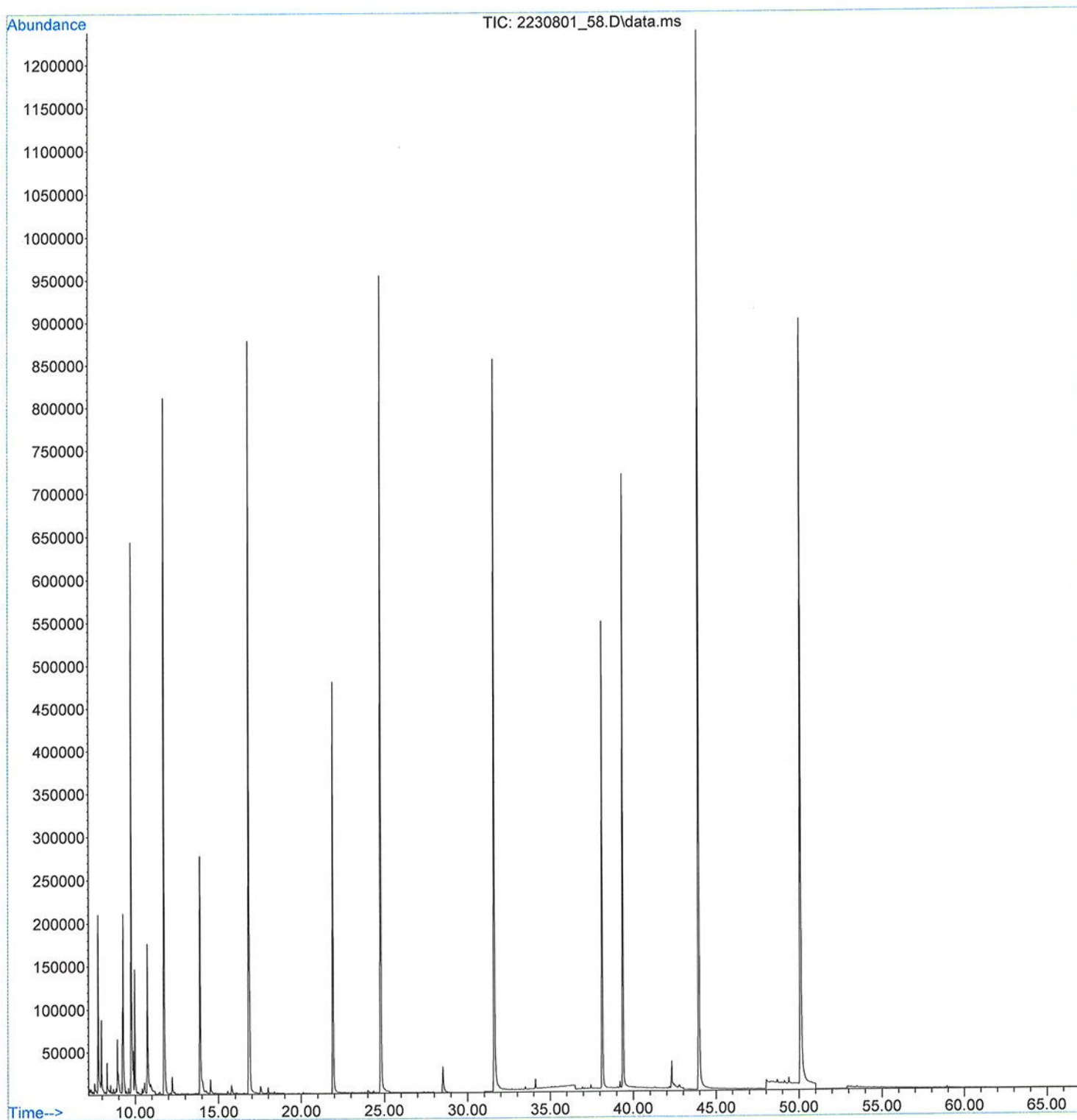
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_48.D  
Operator : LJS  
Acquired : 3 Aug 2023 11:06 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-19  
Misc Info : 5170-19  
Vial Number: 40



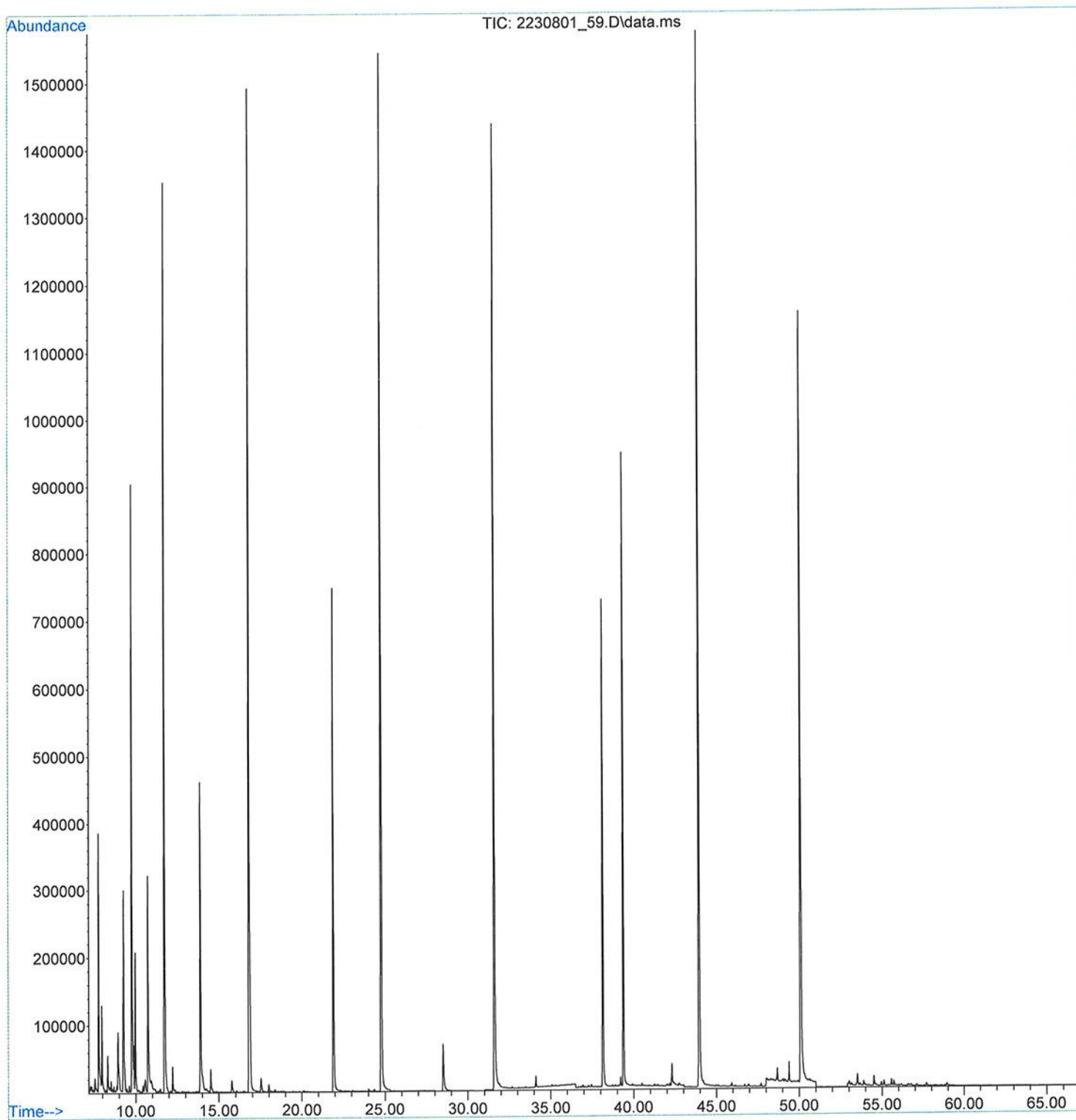
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_49.D  
Operator : LJS  
Acquired : 4 Aug 2023 12:25 am using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-20  
Misc Info : 5170-20  
Vial Number: 41



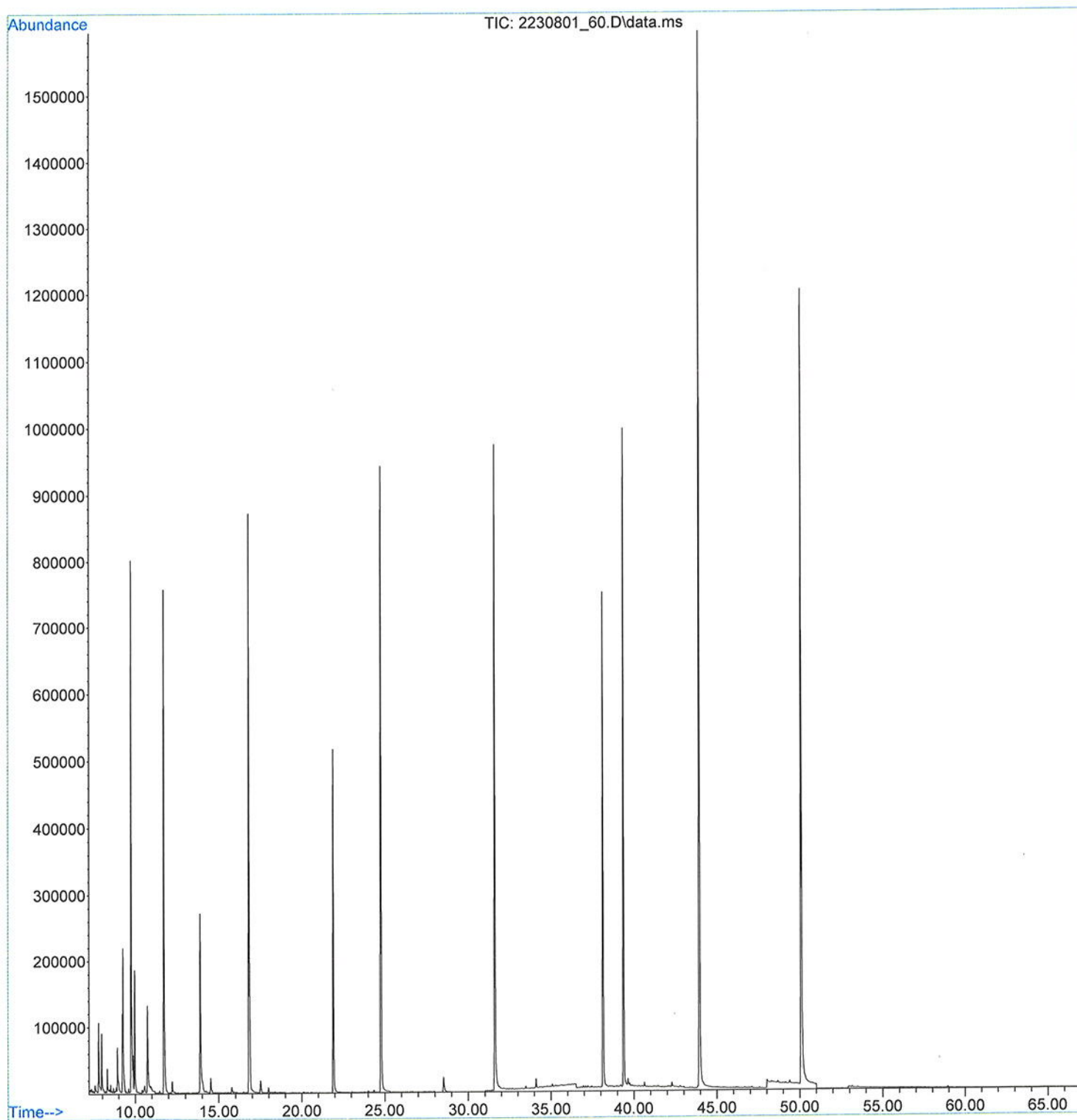
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_58.D  
Operator : LJS  
Acquired : 4 Aug 2023 3:10 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-24  
Misc Info : *570-21*  
Vial Number: 47



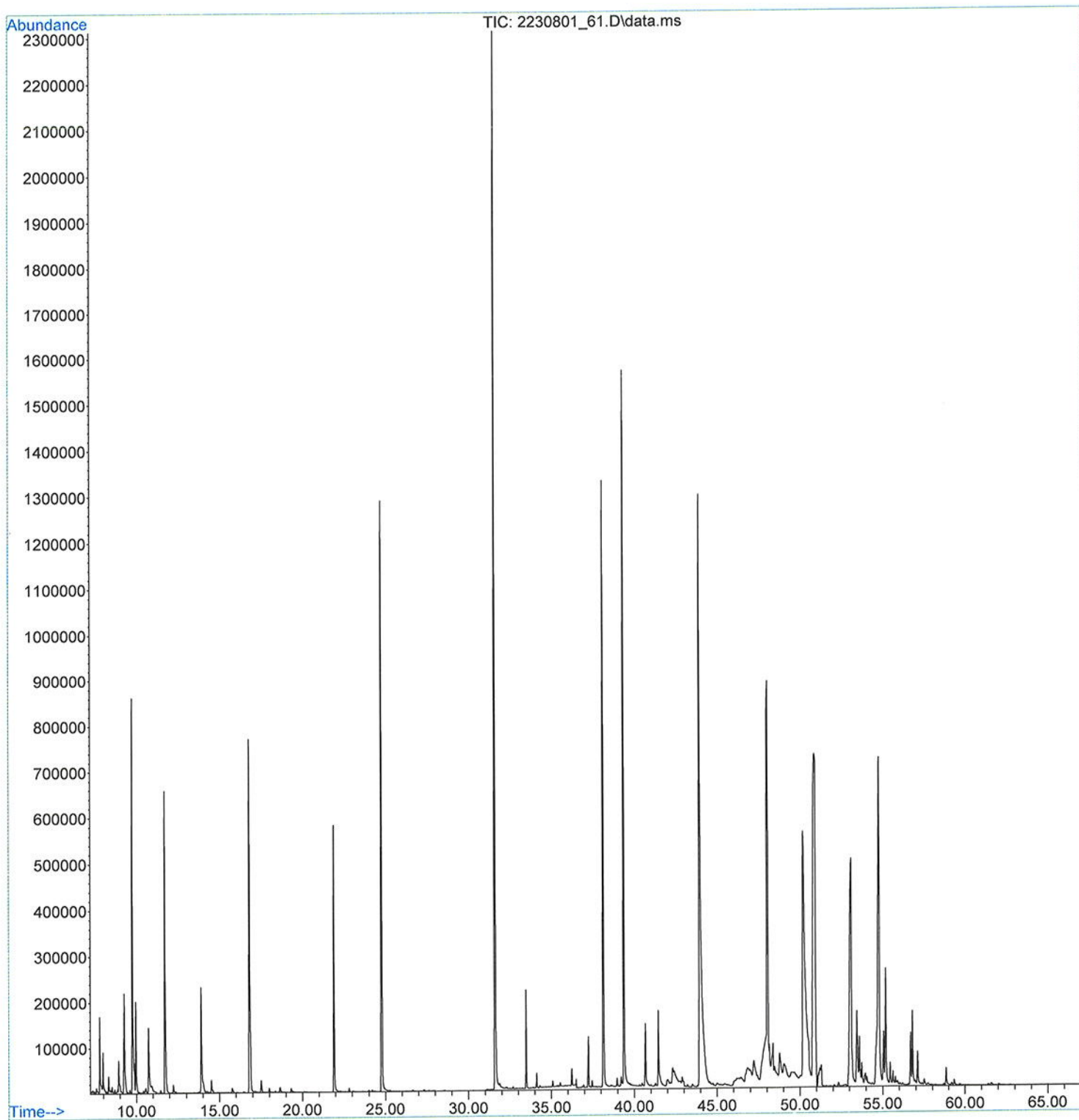
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_59.D  
Operator : LJS  
Acquired : 4 Aug 2023 4:29 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-22  
Misc Info : *5170-22*  
Vial Number: 48



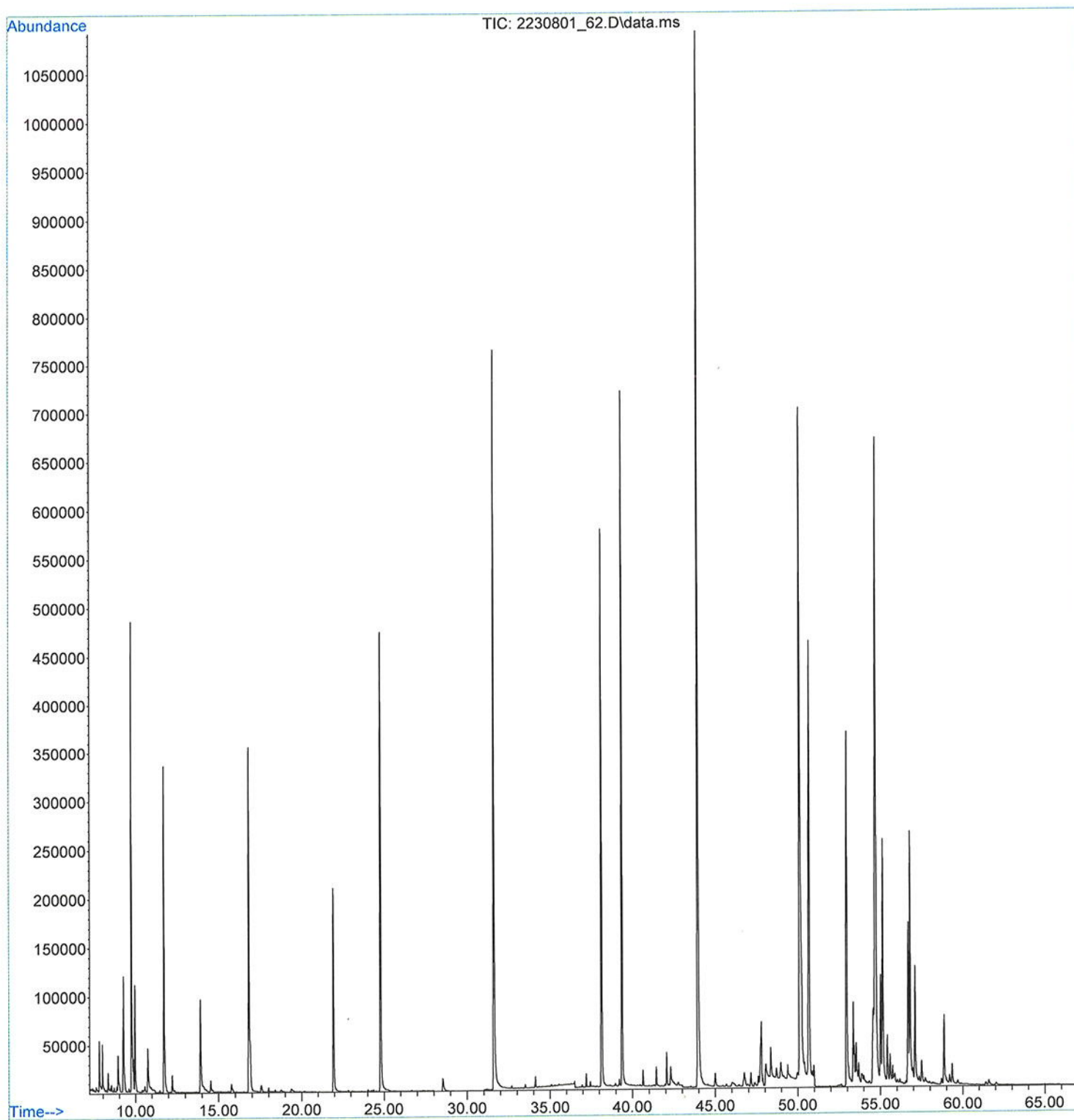
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_60.D  
Operator : LJS  
Acquired : 4 Aug 2023 5:48 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-23  
Misc Info : *5170-23*  
Vial Number: 49



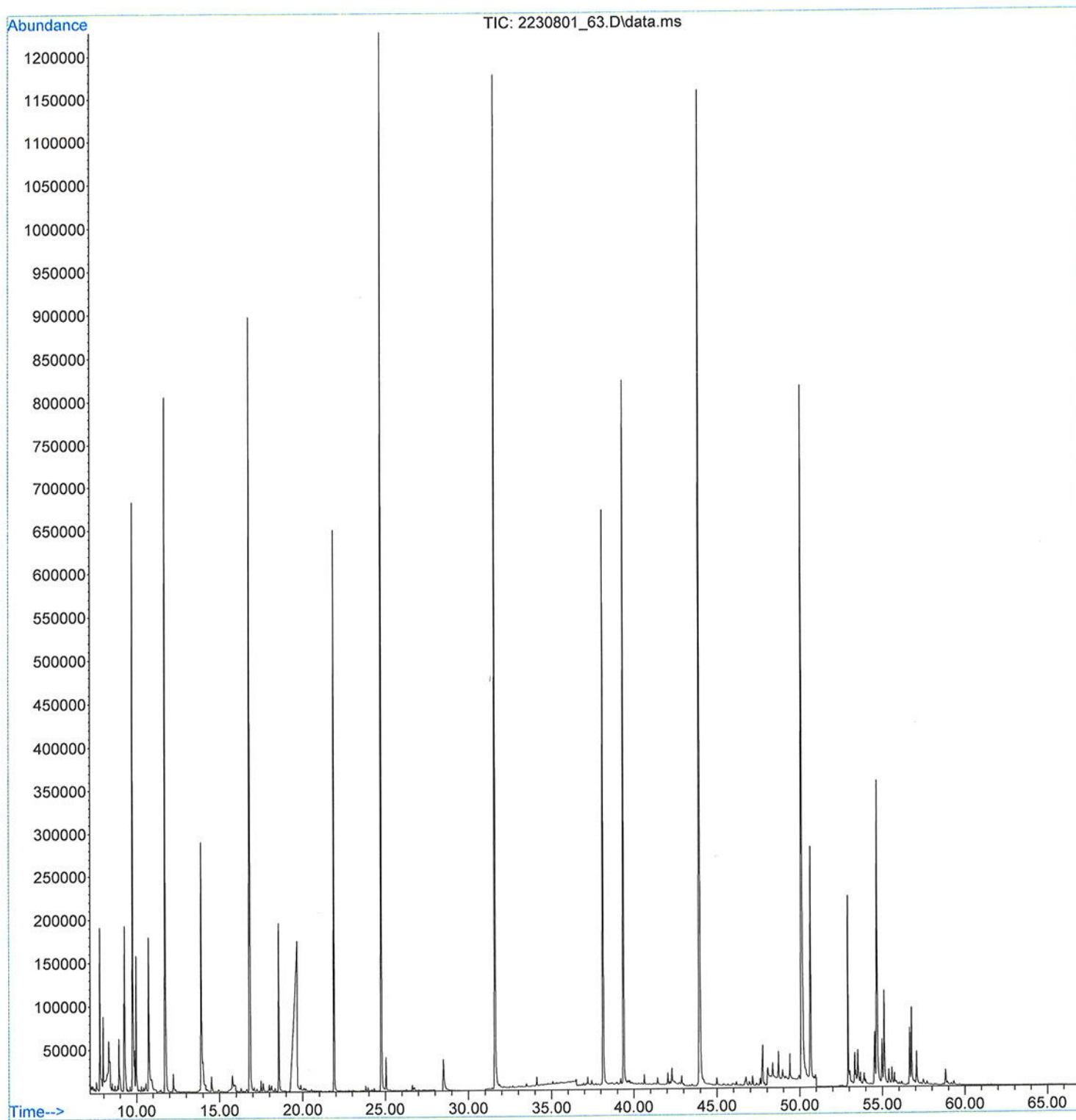
File :C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_61.D  
Operator : LJS  
Acquired : 4 Aug 2023 7:06 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-24  
Misc Info : *5170-24*  
Vial Number: 50



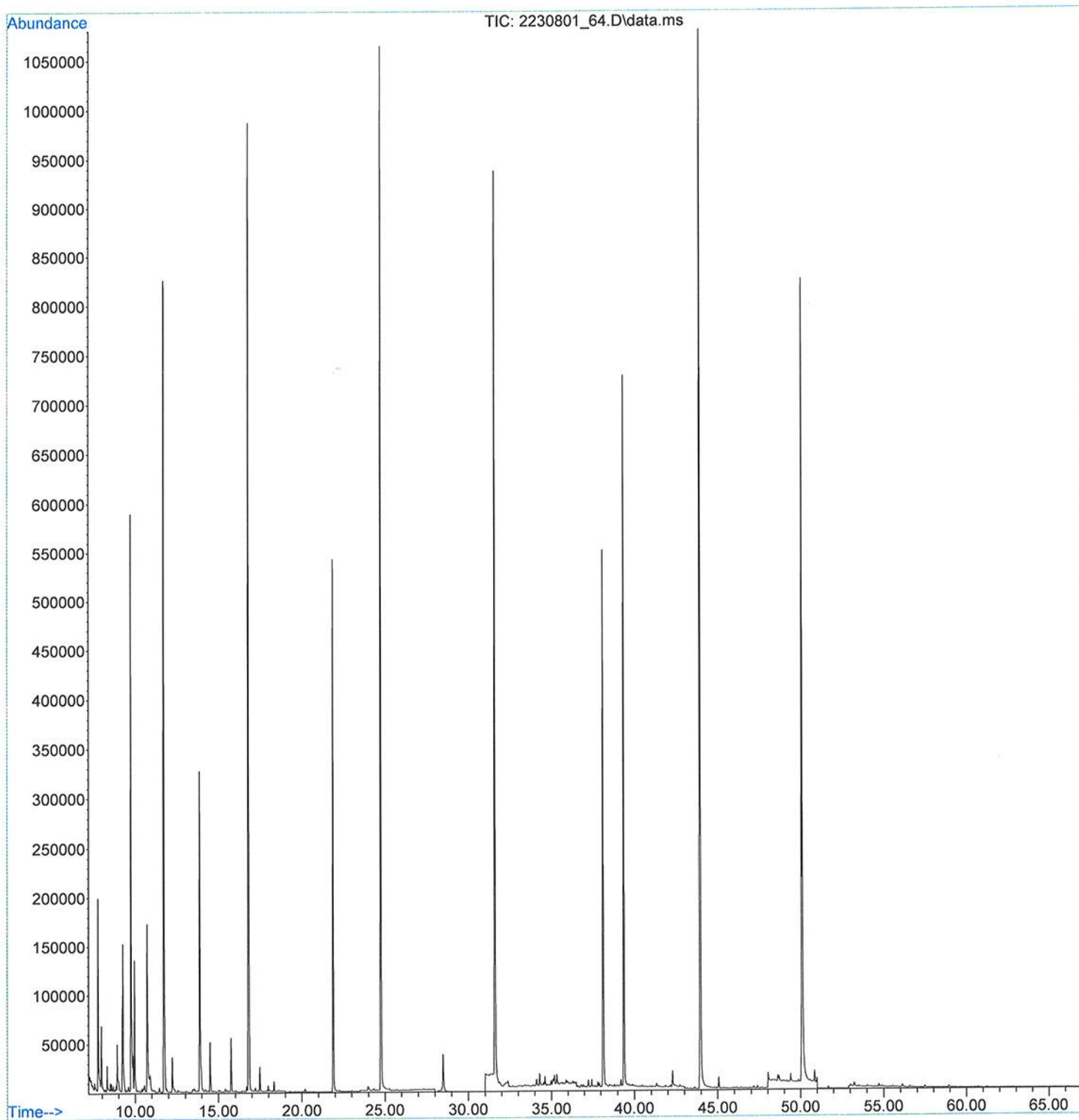
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_62.D  
Operator : LJS  
Acquired : 4 Aug 2023 8:25 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-25.  
Misc Info : *5170-25*  
Vial Number: 51



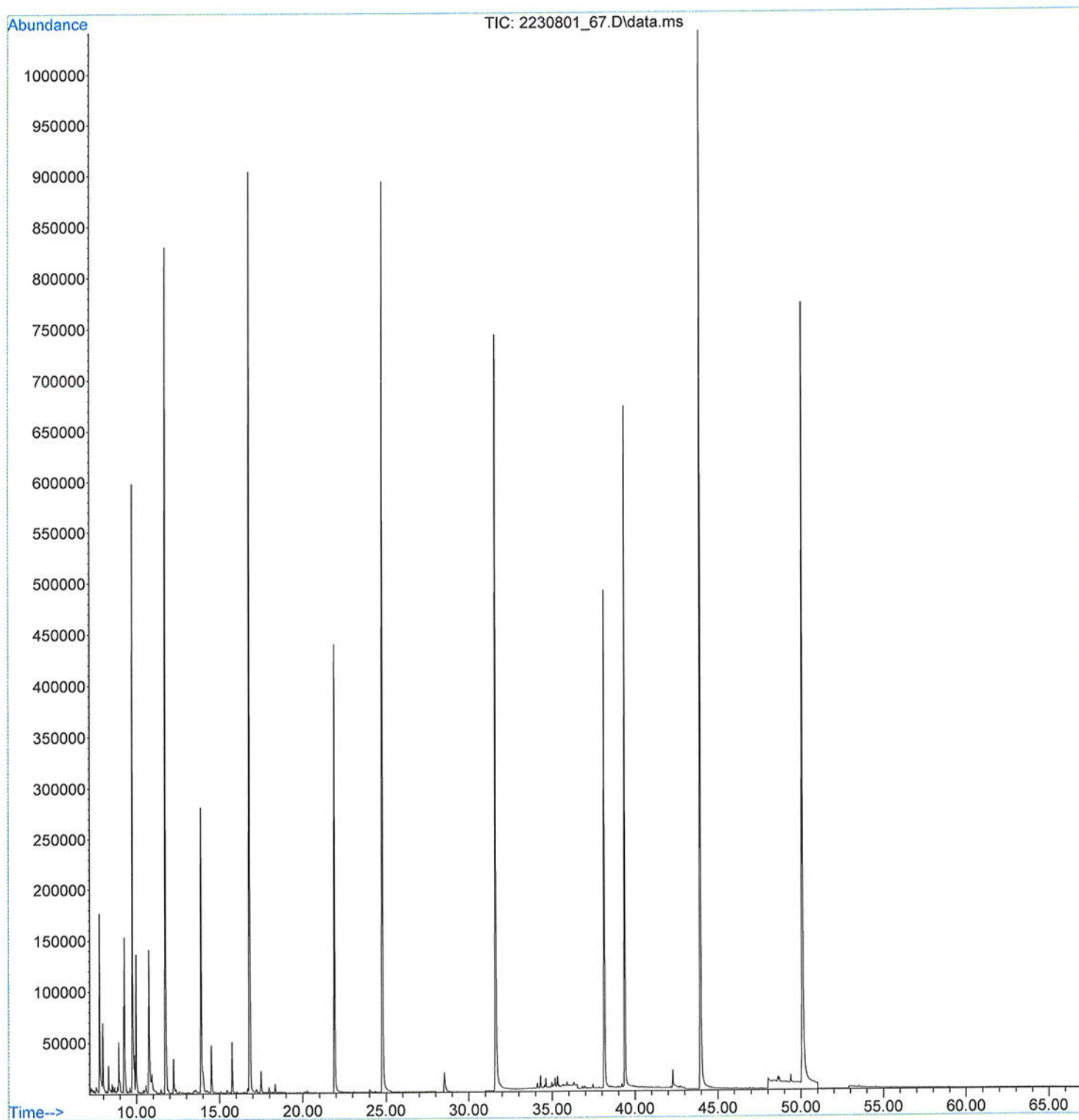
File :C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_63.D  
Operator : LJS  
Acquired : 4 Aug 2023 9:44 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-26  
Misc Info : 5170-26  
Vial Number: 52



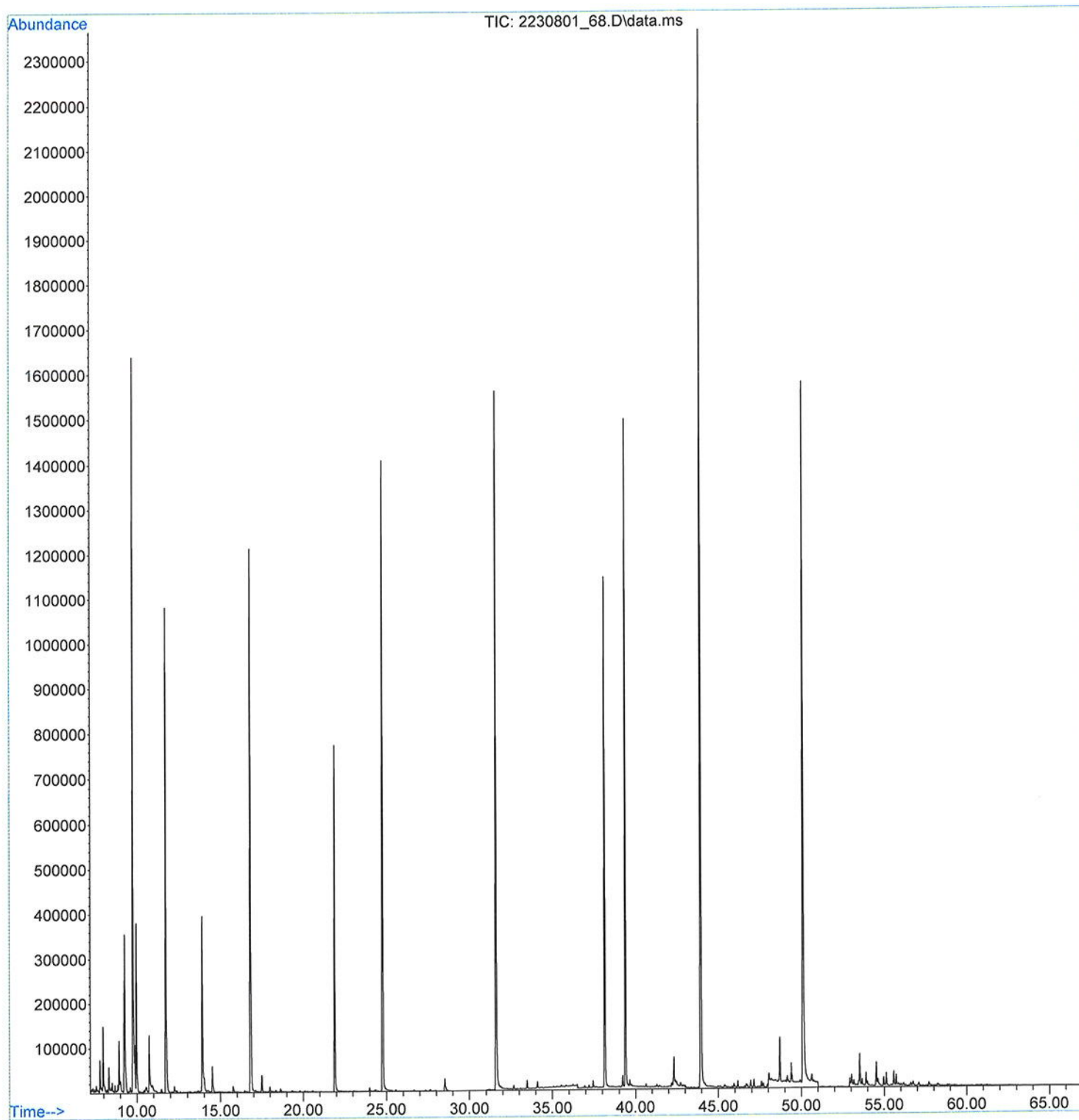
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_64.D  
Operator : LJS  
Acquired : 6 Aug 2023 9:45 am using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-27  
Misc Info : 5170-27  
Vial Number: 53



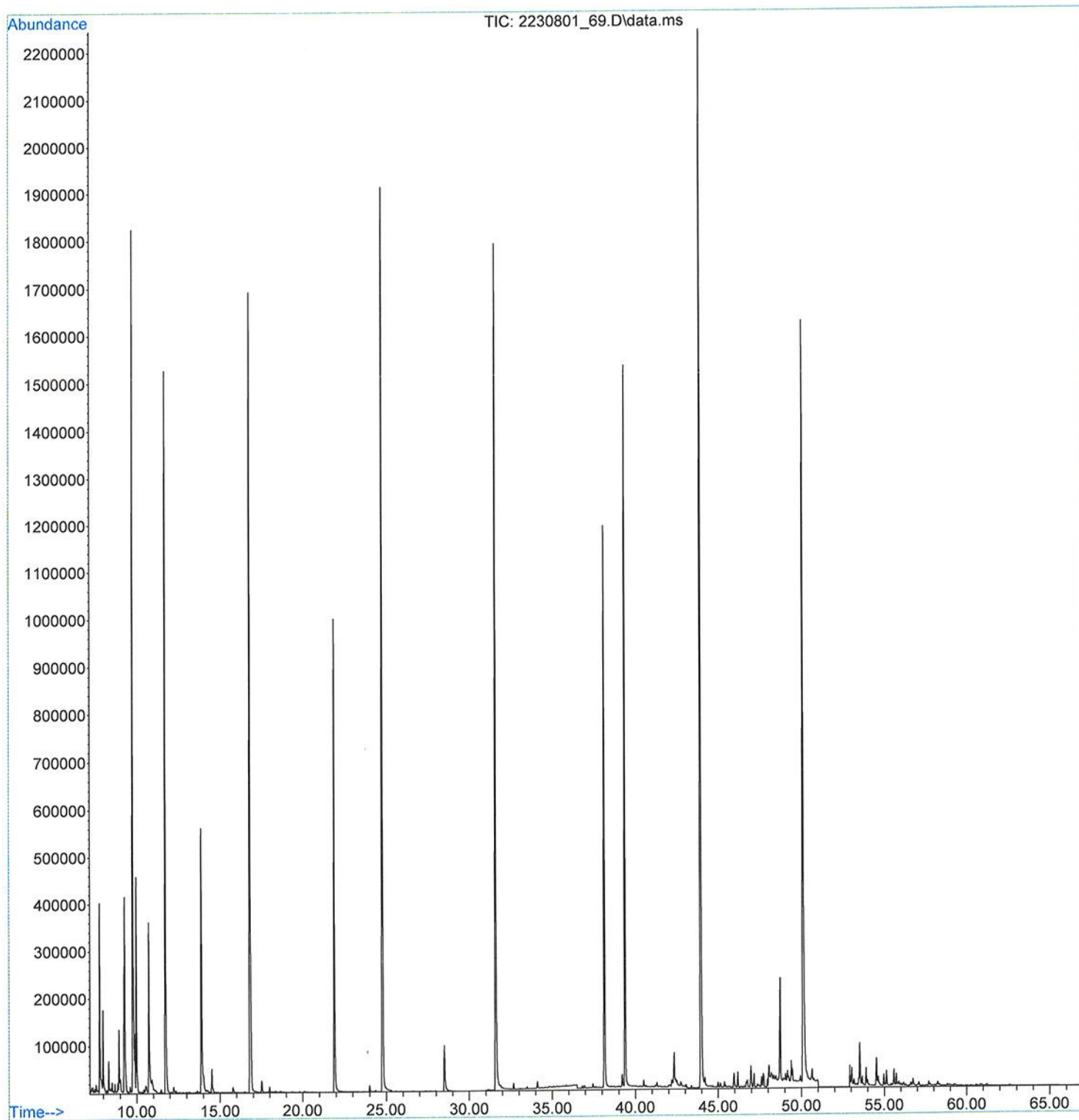
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_67.D  
Operator : LJS  
Acquired : 6 Aug 2023 1:39 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: ~~W305169-27~~  
Misc Info : *W305170-27*  
Vial Number: 53



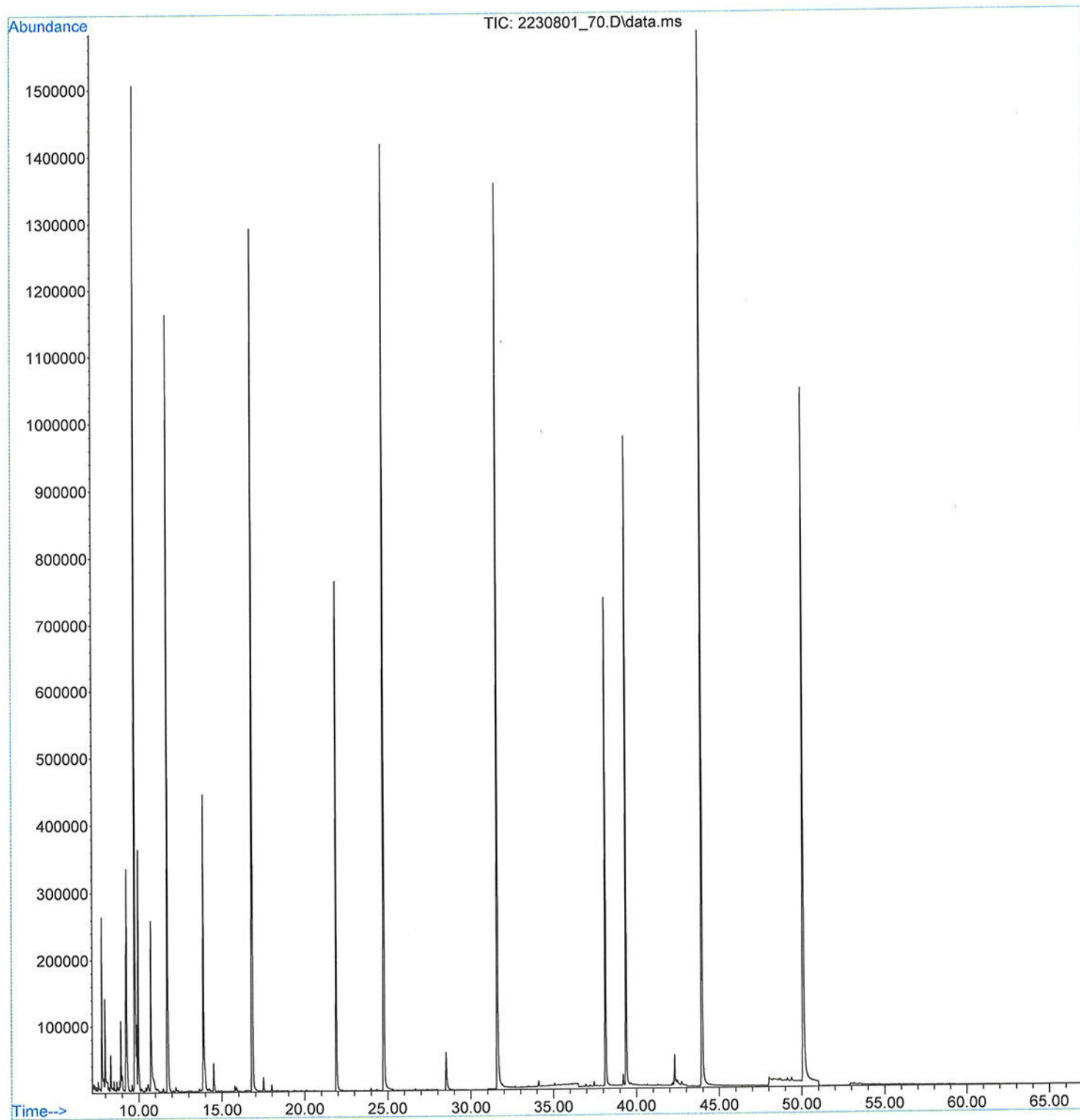
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_68.D  
Operator : LJS  
Acquired : 6 Aug 2023 2:58 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-28  
Misc Info : *5170-28*  
Vial Number: 54



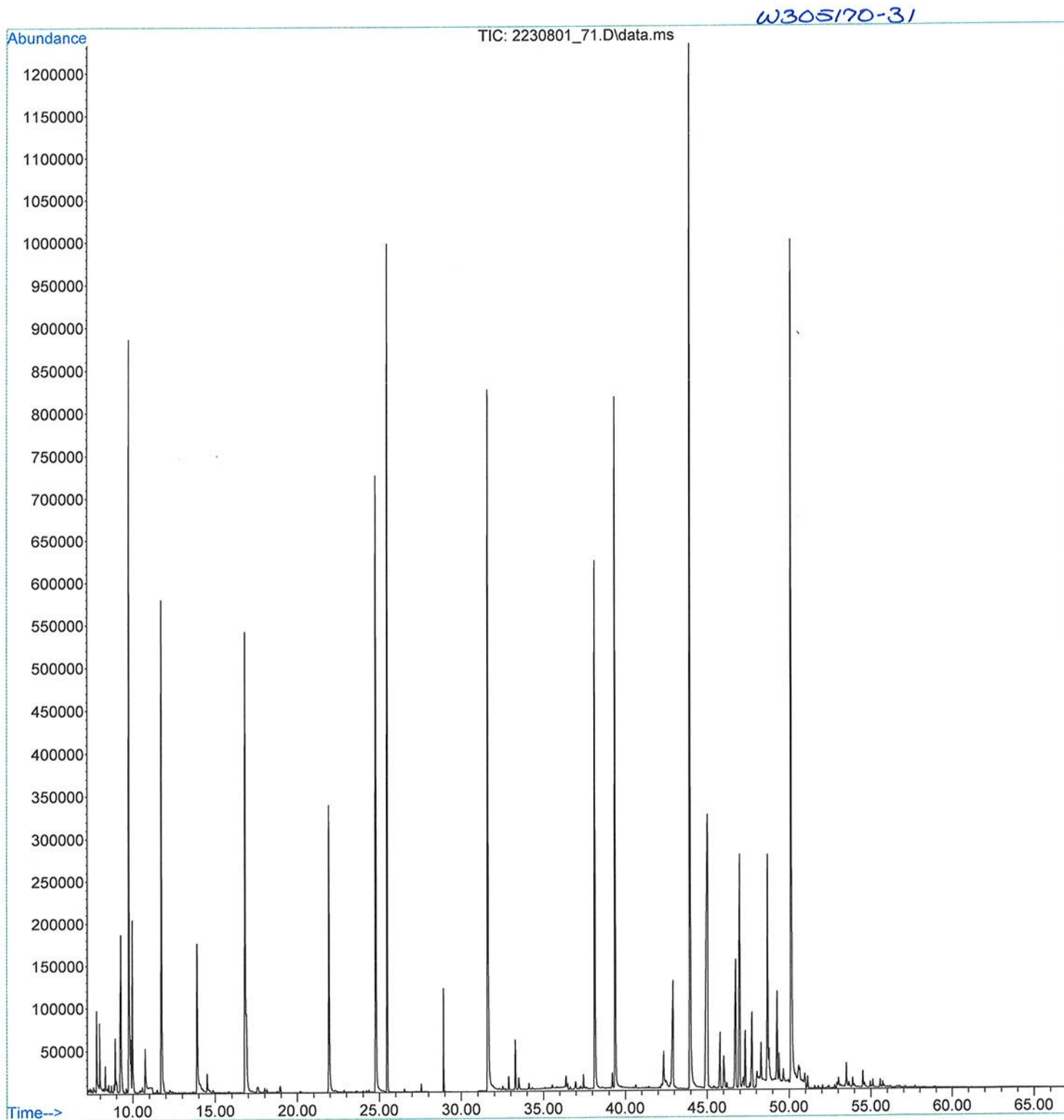
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_69.D  
Operator : LJS  
Acquired : 6 Aug 2023 4:16 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-29  
Misc Info : *5170-29*  
Vial Number: 55



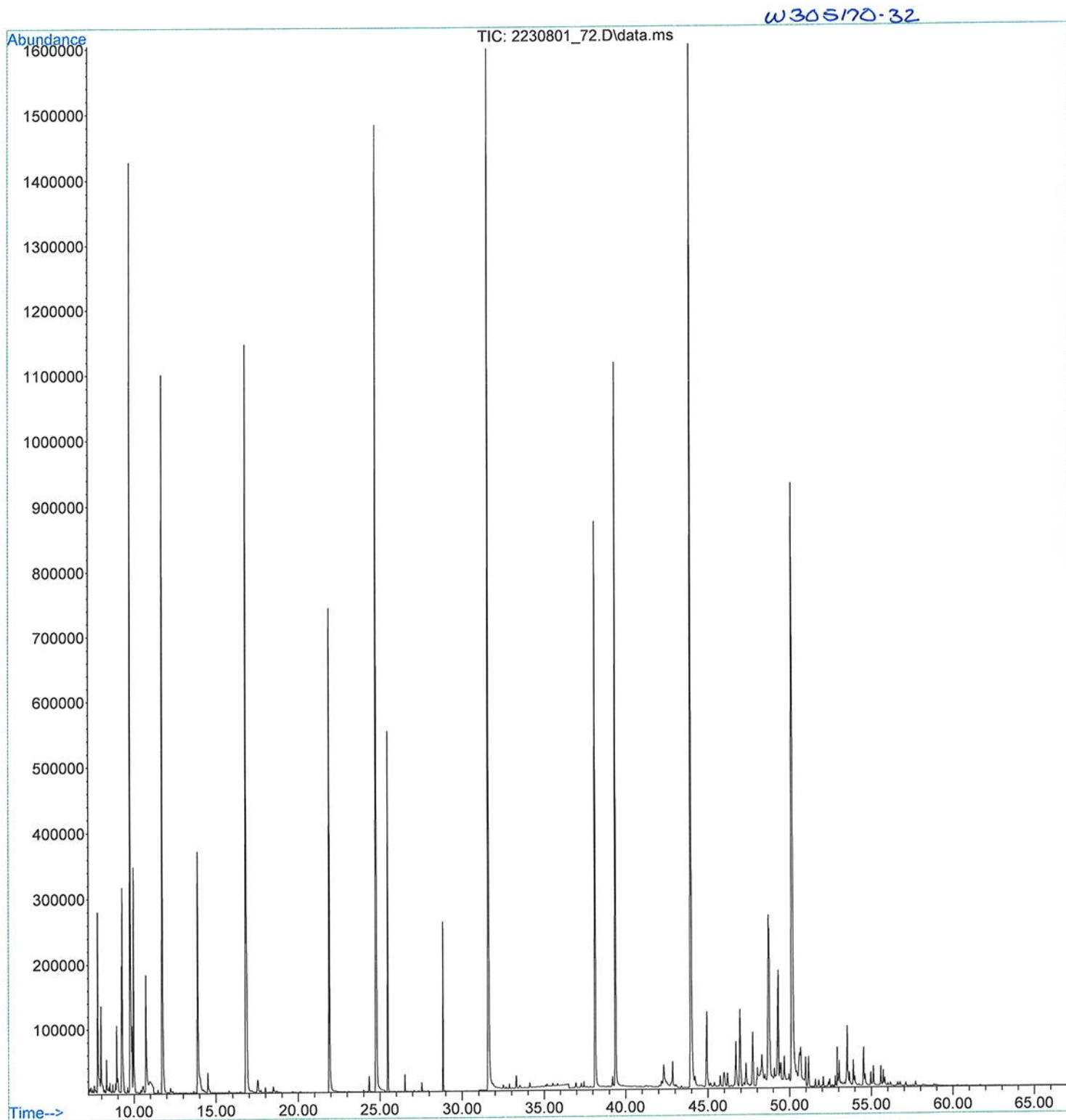
File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_70.D  
Operator : LJS  
Acquired : 6 Aug 2023 5:35 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-30  
Misc Info : *5170-30*  
Vial Number: 56



File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_71.D  
Operator : LJS  
Acquired : 6 Aug 2023 6:53 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-31  
Misc Info : *5170-31*  
Vial Number: 57



File : C:\msdchem\1\data\GC\_MS\_\_02\2023\2230801A\2230801\_72.D  
Operator : LJS  
Acquired : 6 Aug 2023 8:12 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-32  
Misc Info :  
Vial Number: 58



File : C:\msdchem\1\data\GC\_MS\_02\2023\2230801A\2230801\_73.D  
Operator : LJS  
Acquired : 6 Aug 2023 9:31 pm using AcqMethod PAH\_A02.M  
Instrument : GCMS-02  
Sample Name: W305169-33  
Misc Info :  
Vial Number: 59

