



17 March 2023

Mr. Andy Smith  
Washington State Department of Ecology  
PO Box 47775  
Olympia, Washington 98504-7775

Subject: 2023 Long-Term Groundwater Monitoring Report  
Former Strebor Property, Cleanup Site ID 2615, Facility/Site ID 34822454  
Tetra Pak Vancouver  
Vancouver, Washington  
Ecology VCP File No. SW0377  
KJ 2165020\*22

Dear Mr. Smith:

This letter report summarizes the results of the 2023 long-term groundwater monitoring event conducted by Blaine Tech Services (BTS) on 31 January 2023 at the former Strebor property (Site). The Site is located at 3125 Thompson Avenue in Vancouver, Washington (see Figure 1).

Investigation and cleanup activities have been conducted at the Site under the Voluntary Cleanup Program (VCP) (VCP No. SW0377) through the Washington State Department of Ecology (Ecology). Cleanup activities consisted of impacted soil removal and an engineered asphalt cap and cover. A restrictive covenant was recorded for the Site on 7 August 2012, and in December 2012, Ecology determined that no further remedial action (NFA) is necessary at the Site (Ecology 2012). Ecology's NFA determination was based on characterization of the Site, establishment of cleanup standards, selection, and implementation of the cleanup action, post cleanup institutional and engineering controls, and long-term groundwater monitoring. Post-cleanups controls and monitoring included compliance with institutional and engineered controls (e.g., restrictions on the use of groundwater and maintenance of the asphalt cap) and performance of confirmational monitoring.

The purpose of long-term groundwater monitoring at the Site is to confirm the effectiveness of the implemented remedy and to assess that the remedy remains protective of groundwater. Groundwater monitoring was implemented in first quarter 2009 and is ongoing in general accordance with the *Long-Term Groundwater Monitoring Plan* (Long-Term Monitoring Plan; Kennedy/Jenks Consultants, Inc. 2009). Under the long-term monitoring plan, groundwater monitoring events are conducted every 18 months. Seven monitoring wells (MW-1 through MW-3 and MW-5 through MW-8) are part of the long-term monitoring plan. Monitoring well locations are shown on Figure 2.

Monitoring well MW-3 was originally installed as a stickup well located in a parking and truck loading area of the parking lot (Figure 2). In the past, a vehicle collided with MW-3, bending the well casing. In 2018, Tetra Pak converted MW-3 to a flush-mount well to reduce the risk of future vehicle collisions. Due to the modifications, the top of casing elevation is not currently available.



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The MW-3 well modifications and a potential well obstruction were previously noted during the 2019 and 2021 sampling events. During the 2021 sampling event, a closed-circuit television (CCTV) survey of well MW-3 was performed to assess the current condition of well MW-3 following conversion to a flush mounted well. The CCTV survey confirmed that the well casing is damaged approximately 42.5 feet below ground surface. Due to this obstruction, standard groundwater sampling equipment cannot be used to access or sample well MW-3. Due to the damaged casing, Tetra Pak proposed that sampling of well MW-3 be discontinued, and the well be decommissioned in accordance with WAC 173-160-460. The remaining wells will continue to be monitored in accordance with the Long-Term Monitoring Plan. Neither pentachlorophenol nor isomers of tetrachlorophenol and trichlorophenol have been reported above laboratory reporting limits in well MW-3 since December 2006.

## 2023 Field Activities

Activities completed during the 2023 groundwater monitoring event were conducted in general accordance with the Long-Term Monitoring Plan. These activities consisted of:

- Measuring depths to groundwater on 31 January 2023 in monitoring wells MW-1, MW-2, MW-3, MW-5, MW-6, MW-7, and MW-8. Depth to groundwater measured at monitoring well MW-3 could not be converted to groundwater elevation as the casing had been modified and the current top of casing elevation was not available. Monitoring well MW-1 was dry during the 2023 sampling event.
- Collecting groundwater samples from five monitoring wells using low flow methodology with a bladder pump (MW-2, MW-5, MW-6, MW-7, and MW-8) on 31 January 2023. Insufficient water was available in monitoring well MW-1 for sampling. The groundwater samples were collected following purging the wells and stabilization of temperature, pH, conductivity, and dissolved oxygen in the purge water.
- Submitting groundwater samples to PACE Analytical Laboratories (PACE) in Mt. Juliet Tennessee, for analysis of pentachlorophenol and all isomers of tetrachlorophenol and trichlorophenol using U.S. Environmental Protection Agency (EPA) Method 8270D.

## Groundwater Elevations

Groundwater was measured at depths between 4.99 (monitoring well MW-2) and 5.17 feet (monitoring well MW-8) above mean sea level (MSL). The results of groundwater level measurements are summarized in Table 1 and shown on Figure 2. The groundwater elevations in the monitoring wells were within 0.18 foot of each other, indicating the gradient is relatively shallow, consistent with historical groundwater gradients. For this reason, groundwater elevation contours are not plotted on Figure 2. Though the gradient is shallow, to the extent that a groundwater flow direction exists at the Site, water levels measured in 2023 indicate that the direction of flow is generally to the west.



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## Groundwater Sampling Results

Groundwater analytical results from the January 2023 event and previous sampling events are summarized in Table 2. A copy of the laboratory analytical report from the January 2023 event is included in Attachment A. Copies of field forms (e.g., purge and sample forms) are included in Attachment B.

Based on the analytical results for the January 2023 sampling event, pentachlorophenol, tetrachlorophenol, and trichlorophenol compounds were not detected above the laboratory reporting limits in the samples collected. These compounds were also not detected in samples collected during the previous four sampling events.

## Data Quality

A duplicate groundwater sample (DUP-1) was collected from monitoring well MW-5 for analysis of pentachlorophenol, tetrachlorophenol, and trichlorophenol. These constituents were not detected above the laboratory reporting limits in the primary or duplicate sample.

Analysis of 2,3,5,6 tetrachlorophenol was not originally completed by the laboratory. By the time lab report results were provided and the deficiency identified, the sample hold time for analysis extraction had passed. Samples collected from monitoring wells MW-2, MW-5, MW-6, and MW-7 were analyzed for 2,3,5,6 tetrachlorophenol outside of hold time. Insufficient sample volume remained from the sample collected from MW-8 to conduct the analysis. 2,3,5,6 tetrachlorophenol results are included in Table 2 with appropriate data flags indicating that the samples were extracted outside of hold time.

Kennedy/Jenks Consultants, Inc. reviewed the laboratory quality control data included with the laboratory report and found that, except for the 2,3,5,6 tetrachlorophenol data, no laboratory data quality issues associated with the 31 January 2023 sampling event. A data validation report is included in Attachment A.

## Conclusion

Groundwater monitoring results indicate that the remedial actions at the Site continue to be effective at protecting groundwater quality at the Site and constituents of concern (COCs) have not been detected above laboratory reporting limits since 2010. Ecology's 5-year review was conducted in late 2017 for the Site and concluded that "remedial actions conducted at the Site continue to be protective of the human health and the environment" (Ecology 2018). Tetra Pak requests that Ecology evaluate a reduction in sampling frequency to once every 5 years during the next 5-year review, expected to occur in 2023.



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## Future Sampling Activities

The next long-term groundwater monitoring event is scheduled for third quarter 2024. This event will consist of sampling monitoring wells MW-1, MW-2, MW-5, MW-6, and MW-8 for analysis of pentachlorophenol, tetrachlorophenol, and trichlorophenol by EPA Method 8270D, unless an alternative schedule is approved by Ecology. Sampling will not occur at monitoring well MW-3.

Please feel free to call Shaelyn Thomas at (503) 423-4033 with any questions regarding this report.

Very truly yours,

Kennedy/Jenks Consultants, Inc

A handwritten signature in black ink that reads "Shaelyn Thomas".

Shaelyn Thomas  
Project Manager

A handwritten signature in black ink that reads "Michael Juszynski".

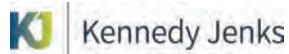
Michael Juszynski  
Principal

### Attachments:

- Table 1 Water Level Measurements
- Table 2 Summary of SVOC Groundwater Analytical Results
- Figure 1 Site Vicinity Map
- Figure 2 Groundwater Elevation Map – January 31, 2023

- Attachment A Laboratory Analytical and Data Validation Reports
- Attachment B Groundwater Sampling and Purge Forms

cc: Larry Price, Tetra Pak  
Robert B. Lowry, Kell Alterman & Runstein, LLP



Mr. Andy Smith

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## References

Kennedy/Jenks Consultants, Inc. 2009. Long-Term Groundwater Monitoring Plan, Former Strebor Site. 9 January 2009.

Washington State Department of Ecology. 2007. Opinion under WAC 173-340-515(5) on Remedial Action(s) for the Tetra Pak Hazardous Waste Site. Washington State Department of Ecology. 5 April 2007.

Washington State Department of Ecology. 2012. No Further Action at the Following Site: Site Name: Tetra Pak; Site Address: 3125 Thompson Avenue, Vancouver; Facility/Site No.: 34822454; Cleanup Site ID No.: 2615; VCP Project No.: SW0377. Washington State Department of Ecology. 27 December 2012.

Washington State Department of Ecology. 2018. Periodic Review Report Draft: Tetra Pak, Facility Site ID# 34822454, Cleanup Site ID#: 2615. Washington State Department of Ecology. July 2018.

## Tables

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Table 1: Water Level Measurements

Well	Date	TOC Elevation (ft msl) <sup>(a)</sup>	Depth to Water (ft) <sup>(b)</sup>	Water Elevation (ft msl) <sup>(c)</sup>
MW-1	02/19/02	54.40	48.62	5.78
	02/27/02		47.73	6.67
	03/25/02		48.78	5.62
	04/18/02		43.55	10.85
	05/28/02		45.70	8.70
	08/19/02		49.45	4.95
	11/18/02		49.64	4.76
	02/25/03		48.23	6.17
	06/15/06		42.38	12.02
	07/06/06		48.27	6.13
	12/28/06		45.36	9.04
	09/23/08		DRY	DRY
	01/06/09		45.04	9.36
	04/28/09		45.01	9.39
	02/16/10		48.60	5.80
	07/13/10		47.46	6.94
	03/19/12		44.01	10.39
	09/30/13		49.50	4.90
	07/28/15		DRY	DRY
	01/31/17		47.72	6.68
	07/17/19		49.09	5.31
	07/07/21		DRY	DRY
	01/31/23		DRY	DRY
MW-2	10/08/01	51.44	48.10	3.34
	02/19/02		45.73	5.71
	02/27/02		44.72	6.72
	03/25/02		45.80	5.64
	04/18/02		40.55	10.89
	05/28/02		42.78	8.66
	08/19/02		46.55	4.89
	11/18/02		46.73	4.71
	02/25/03		45.32	6.12
	06/15/06		39.47	11.97
	07/06/06		45.35	6.09
	12/28/06		42.37	9.07
	09/23/08		48.04	3.40
	01/06/09		42.09	9.35
	04/28/09		42.07	9.37
	02/16/10		45.71	5.73
	07/13/10		44.56	6.88
	03/19/12		41.07	10.37
	09/30/13		46.55	4.89
	07/28/15		47.22	4.22
	01/31/17		44.82	6.62
	07/17/19		46.21	5.23
	07/07/21		45.93	5.51
	01/31/23		46.45	4.99
MW-3	10/08/01	53.38	50.28	3.10
	02/19/02		47.53	5.85
	02/27/02		46.70	6.68
	03/25/02		47.79	5.59
	04/18/02		42.78	10.60
	05/28/02		44.68	8.70
	08/19/02		48.43	4.95
	11/18/02		48.63	4.75

Table 1: Water Level Measurements

Well	Date	TOC Elevation (ft msl) <sup>(a)</sup>	Depth to Water (ft) <sup>(b)</sup>	Water Elevation (ft msl) <sup>(c)</sup>
MW-3 (cont)	02/24/03		47.23	6.15
	06/15/06		41.32	12.06
	07/06/06		47.28	6.10
	12/28/06		44.37	9.01
	09/23/08		49.97	3.41
	01/06/09		44.01	9.37
	04/28/09		43.99	9.39
	02/16/10		47.61	5.77
	07/13/10		46.45	6.93
	03/19/12		43.00	10.38
	09/30/13		48.49	4.89
	07/28/15		49.10	4.28
	01/31/17		46.43	6.95
	07/17/19		NM	NM
MW-5	07/07/21		NM	NM
	01/31/23		NM	NM
MW-5	10/08/01	51.17	48.05	3.12
	02/19/02		45.52	5.65
	02/27/02		44.42	6.75
	03/25/02		45.50	5.67
	04/18/02		40.24	10.93
	05/28/02		42.46	8.71
	08/19/02		46.25	4.92
	11/18/02		46.42	4.75
	02/25/03		45.02	6.15
	06/15/06		39.19	11.98
	07/06/06		45.02	6.15
	12/28/06		42.07	9.10
	09/23/08		47.75	3.42
	01/06/09		41.76	9.41
	04/28/09		41.74	9.43
	02/16/10		45.39	5.78
	07/13/10		44.26	6.91
	03/19/12		40.77	10.40
	09/30/13		46.28	4.89
	07/28/15		46.80	4.37
	01/31/17		44.52	5.27
	07/17/19		45.90	5.27
	07/07/21		45.57	5.60
	01/31/23		46.15	5.02
MW-6	04/18/02	49.94	38.92	11.02
	05/28/02		41.45	8.49
	08/19/02		44.92	5.02
	11/18/02		45.10	4.84
	02/24/03		43.73	6.21
	06/15/06		37.78	12.16
	07/06/06		43.75	6.19
	12/28/06		40.81	9.13
	09/23/08		46.44	3.50
	01/06/09		40.50	9.44
	04/28/09		40.44	9.50
	02/16/10		45.05	4.89
	07/13/10		42.91	7.03
	03/19/12		39.55	10.39
	09/30/13		44.96	4.98
	07/28/15		45.60	4.34
	01/31/17		43.17	6.77

Table 1: Water Level Measurements

Well	Date	TOC Elevation (ft msl) <sup>(a)</sup>	Depth to Water (ft) <sup>(b)</sup>	Water Elevation (ft msl) <sup>(c)</sup>
	07/17/19		44.57	5.37
	07/07/21		44.24	5.70
	01/31/23		44.78	5.16
MW-7	08/07/02	49.76	44.39	5.37
	08/19/02		44.80	4.96
	11/18/02		44.97	4.79
	02/25/03		43.55	6.21
	09/23/08		46.31	3.45
	01/06/09		40.31	9.45
	04/28/09		40.28	9.48
	02/16/10		43.95	5.81
	07/13/10		42.77	6.99
	03/19/12		39.29	10.47
	09/30/13		44.84	4.92
	07/28/15		NM <sup>(d)</sup>	NM
	01/31/17		NM	NM
MW-8	07/17/19		44.41	5.35
	07/07/21		44.14	5.62
	01/31/23		44.67	5.09
	02/25/03	48.42	42.18	6.24
	06/15/06		36.35	12.07
	07/06/06		42.22	6.20
	12/28/06		39.32	9.10
	09/23/08		44.95	3.47
	01/06/09		38.98	9.44
	04/28/09		38.96	9.46
	02/16/10		42.64	5.78
	07/13/10		41.40	7.02
	03/19/12		37.96	10.46
	09/30/13		43.45	4.97
	07/28/15		44.10	4.32
	01/31/17		41.68	6.74
	07/17/19		43.04	5.38
	07/07/21		42.79	5.63
	01/31/23		43.25	5.17

**Notes:**

- (a) Top of casing (TOC) elevations reported in feet (ft) above mean sea level (msl).
- (b) Depth to water measured in feet below TOC.
- (c) Water elevation calculated as the difference between the TOC elevation and the depth to water.
- (d) NM = Not measured



Table 2: Summary of SVOC Groundwater Analytical Results

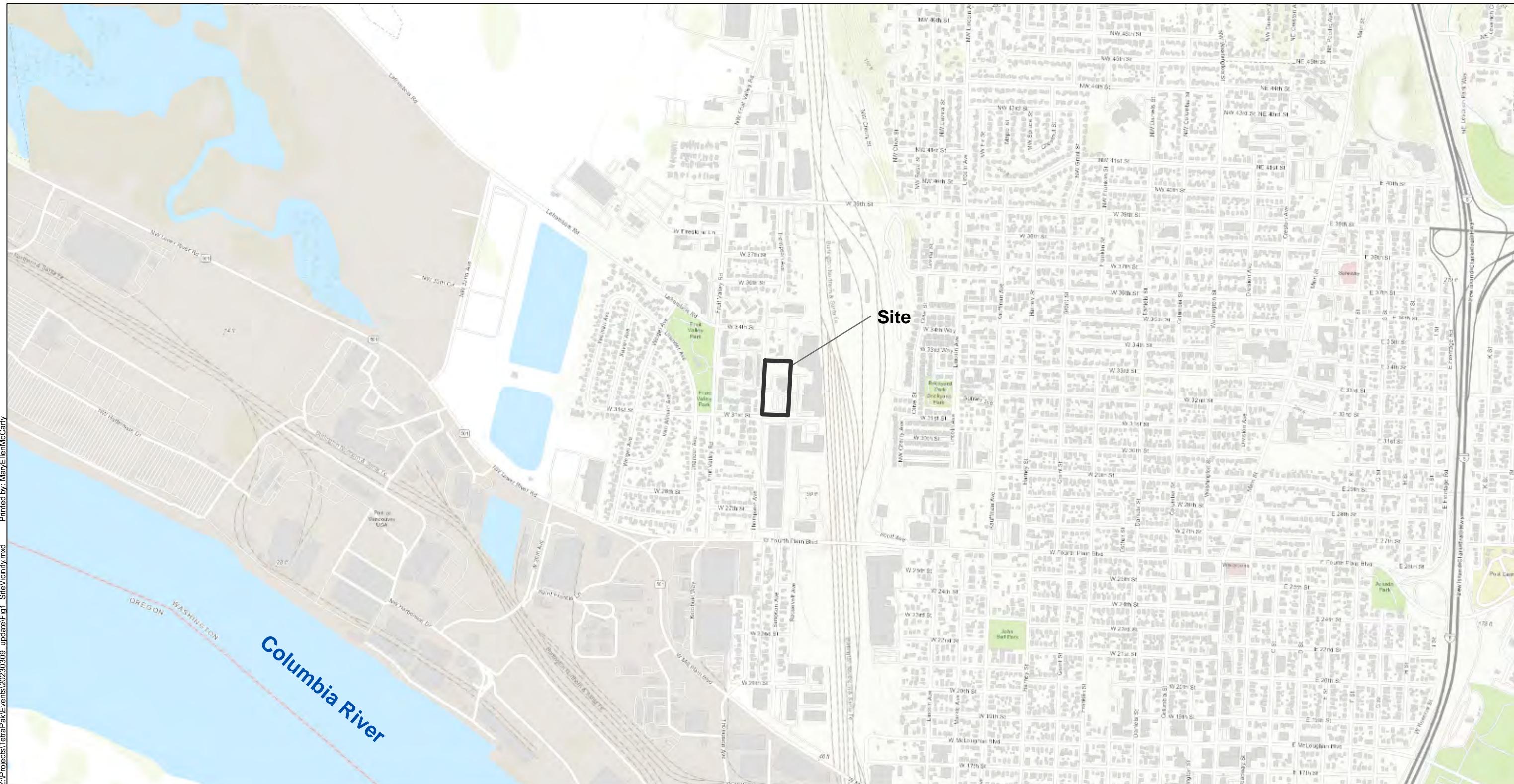
Monitoring		Semivolatile Organic Compounds ( $\mu\text{g/l}$ ) <sup>(a,b)</sup>						Monitoring	
Well Number	Date Sampled	Pentachloro-phenol $\mu\text{g/l}$	2,3,4,6 Tetrachloro-phenol $\mu\text{g/l}$	2,3,5,6 Tetrachloro-phenol $\mu\text{g/l}$	2,4,5 Trichloro-phenol $\mu\text{g/l}$	2,4,6 Trichloro-phenol $\mu\text{g/l}$	Well Number	Date Sampled	
MW-6	04/18/02	<0.8	NA	NA	NA	NA	MW-6	04/18/02	
	08/20/02	<0.813	NA	NA	<0.813	<0.813		08/20/02	
	11/18/02	<0.8	NA	NA	<1.6	<1.6		11/18/02	
	02/24/03	<0.19	NA	NA	<0.19	<0.19		02/24/03	
	07/06/06	<b>0.16 J</b>	<0.12	<0.059	<0.058	<0.092		07/06/06	
	12/28/06	<b>0.21 J</b>	<0.0083	<0.018	<0.0085	<0.01		12/28/06	
	01/06/09	<0.33	<0.33	<0.19	<0.19	<0.29		01/06/09	
	07/13/10	<b>0.074 J B</b>	<0.0082	<0.012	<0.0094	<0.013		07/13/10	
	03/19/12	<0.935	<0.374	<0.374	<0.472	<0.472		03/19/12	
	09/30/13	<0.472	<0.189	<0.189	<0.189	<0.189		09/30/13	
	07/28/15	<0.476	<0.190	<0.190	<0.190	<0.190		07/28/15	
	01/31/17	<0.200	<0.100	<0.100	<0.100	<0.100		01/31/17	
	07/17/19	<0.128	<0.0641	<0.0641	<0.0641	<0.0641		07/17/19	
	07/07/21	<0.0952	<0.0476	<0.0476	<0.0476	<0.0476		07/07/21	
	01/31/23	<0.313	<0.231	<10.0 R <sup>(n)</sup>	<0.109	<0.100		01/31/23	
MW-7	08/07/02	<b>0.412 J</b>	NA	NA	<0.8	<0.8	MW-7	08/07/02	
	08/20/02	<b>0.347 J</b>	NA	NA	<0.8	<0.8		08/20/02	
	11/19/02	<b>7.58</b>	NA	NA	<1.6	<1.6		11/19/02	
	02/25/03	<0.191	NA	NA	<0.191	<0.191		02/25/03	
	01/06/09	<0.34	<0.34	<0.19	<0.19	<0.29		01/06/09	
	09/30/13	<0.481	<0.192	<0.192	<0.192	<0.192		09/30/13	
	07/17/19	<0.103/<0.105	<0.0515/<0.0526	<0.0515/<0.0526	<0.0515/<0.0526	<0.0515/<0.0526		07/17/19	
	07/07/21	<0.0952	<0.0476	<0.0476	<0.0476	<0.0476		07/07/21	
	01/31/23	<0.313	<0.231	<10.0 R <sup>(n)</sup>	<0.109	<0.100		01/31/23	
MW-8	02/25/03	<0.189	NA	NA	<0.189	<0.189	MW-8	02/25/03	
	07/06/06	<0.11	<0.11	<0.055	<0.054	<0.087		07/06/06	
	12/28/06	<b>0.16 J</b>	<0.0081	<0.018	<0.0083	<0.0098		12/28/06	
	01/06/09	<0.34	<0.34	<0.19	<0.19	<0.29		01/06/09	
	07/13/10	<0.011	<0.0083	<0.012	<0.0096	<0.014		07/13/10	
	03/19/12	<0.935	<0.374	<0.374	<0.472	<0.472		03/19/12	
	09/30/13	<0.476	<0.190	<0.190	<0.190	<0.190		09/30/13	
	07/28/15	<0.476/<0.476 <sup>(f)</sup>	<0.190/<0.190	<0.190/<0.190	<0.190/<0.190	<0.190/<0.190		07/28/15	
	01/31/17	<0.227	<0.114	<0.114	<0.114	<0.114		01/31/17	
	07/17/19	<0.0943	<0.0472	<0.0472	<0.0472	<0.0472		07/17/19	
	07/07/21	<0.0952	0.0476	0.0476	0.0476	0.0476		07/07/21	
	01/31/23	<0.313	<0.231	NA	<0.109	<0.100		01/31/23	
MTCA Method B Cleanup Level <sup>(i)</sup>		0.22	NL <sup>(j)</sup>	NL	NL	4	MTCA Method B Cleanup Level <sup>(i)</sup>		

**Notes:**

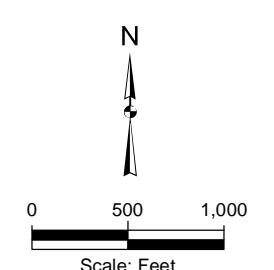
- (a) Results are reported in micrograms per liter ( $\mu\text{g/l}$ ).
- (b) Samples were analyzed for selected semivolatile organic compounds by US Environmental Protection Agency (EPA) Method 8270D.
- (c) "<" denotes analyte was not detected above the indicated detection limit.
- (d) NA = not analyzed
- (e) J denotes positively identified, but numerical value is an estimated quantity.
- (f) Second value is result from a field duplicate sample.
- (g) B = pentachlorophenol identified in the laboratory blank sample at an estimated concentration of 0.0735  $\mu\text{g/l}$ .
- (h) NS = Not sampled, insufficient water available for sampling
- (i) Model Toxics Control Act (MTCA) Method B Groundwater CLARC (dated July 2015), the pentachlorophenol Method B cleanup level prior to 2011 was
- (j) NL = Not listed in the CLARC Information System
- (k) K denotes estimated maximum possible concentration
- (l) J denotes estimated value below laboratory reporting limit.
- (m) Dioxin concentrations are reported in picograms per liter (pg/L)
- (n) R denotes rejected value due to samples extracted outside of hold time.
- Bold** values indicate analyte was detected above the indicated laboratory detection limit.
- Highlighted values indicate detection above MTCA Method B screening value.

## Figures

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Notes  
1. All locations are approximate



K Kennedy Jenkins

Tetra Pak Materials LP  
Vancouver, Washington  
2165020\*22

**Figure 1**  
**Site Vicinity Map**

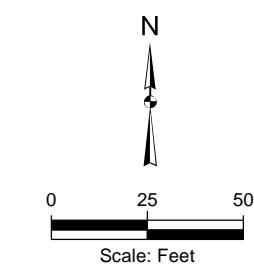
March 2023



### Legend

- MW-5 Monitoring Well ID
- 5.27 Groundwater Elevation (ft msl)
- NM Groundwater Elevation Not Measured

Notes  
1. All locations are approximate



**KJ** Kennedy Jenks

Tetra Pak Materials LP  
Vancouver, Washington  
2165020\*22

**Figure 2**  
**Groundwater Elevations**  
31 January, 2023  
March 2023

## Attachment A

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Laboratory Analytical and Data Validation Reports



# ANALYTICAL REPORT

February 06, 2023

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>GI

<sup>8</sup>AI

<sup>9</sup>SC

## Kennedy Jenks - Portland, OR

Sample Delivery Group: L1581698

Samples Received: 02/02/2023

Project Number:

Description:

Report To: Shaelyn Thomas  
421 SW 6th Avenue  
Suite 1000  
Portland, OR 97204

Entire Report Reviewed By:

Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

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ACCOUNT:

Kennedy Jenks - Portland, OR

PROJECT:

SDG:

L1581698

DATE/TIME:

02/06/23 09:30

PAGE:

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# SAMPLE SUMMARY

			Collected by Rich Palmer	Collected date/time 01/31/23 10:54	Received date/time 02/02/23 10:30	
<b>MW-2 L1581698-01 GW</b>	Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270E		WG1999823	1	02/04/23 06:08	02/05/23 00:23	ADF
				Collected by Rich Palmer	Collected date/time 01/31/23 10:10	Received date/time 02/02/23 10:30
<b>MW-5 L1581698-02 GW</b>	Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270E		WG1999823	1	02/04/23 06:08	02/05/23 00:44	ADF
				Collected by Rich Palmer	Collected date/time 01/31/23 12:08	Received date/time 02/02/23 10:30
<b>MW-6 L1581698-03 GW</b>	Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270E		WG1999823	1	02/04/23 06:08	02/05/23 01:05	ADF
				Collected by Rich Palmer	Collected date/time 01/31/23 11:31	Received date/time 02/02/23 10:30
<b>MW-7 L1581698-04 GW</b>	Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270E		WG1999823	1	02/04/23 06:08	02/05/23 01:26	ADF
				Collected by Rich Palmer	Collected date/time 01/31/23 13:02	Received date/time 02/02/23 10:30
<b>MW-8 L1581698-05 GW</b>	Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270E		WG1999823	1	02/04/23 06:08	02/05/23 01:47	ADF
				Collected by Rich Palmer	Collected date/time 01/31/23 12:00	Received date/time 02/02/23 10:30
<b>DUP-1 L1581698-06 GW</b>	Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270E		WG1999823	1	02/04/23 06:08	02/05/23 02:08	ADF
						Mt. Juliet, TN

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford  
Project Manager

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> GI
- <sup>8</sup> AI
- <sup>9</sup> Sc



MW-2

Collected date/time: 01/31/23 10:54

## SAMPLE RESULTS - 01

L1581698

## Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch	
2,3,4,6-Tetrachlorophenol	U	J4	0.231	10.0	1	02/05/2023 00:23	<a href="#">WG1999823</a>	<sup>1</sup> Cp
(S) 2-Fluorophenol	20.8			10.0-120		02/05/2023 00:23	<a href="#">WG1999823</a>	<sup>2</sup> Tc
(S) Phenol-d5	15.1			10.0-120		02/05/2023 00:23	<a href="#">WG1999823</a>	<sup>3</sup> Ss
(S) Nitrobenzene-d5	55.4			10.0-127		02/05/2023 00:23	<a href="#">WG1999823</a>	<sup>4</sup> Cn
(S) 2-Fluorobiphenyl	58.5			10.0-130		02/05/2023 00:23	<a href="#">WG1999823</a>	<sup>5</sup> Sr
(S) 2,4,6-Tribromophenol	50.3			10.0-155		02/05/2023 00:23	<a href="#">WG1999823</a>	<sup>6</sup> Qc
(S) p-Terphenyl-d14	61.3			10.0-128		02/05/2023 00:23	<a href="#">WG1999823</a>	<sup>7</sup> Gl
								<sup>8</sup> Al
								<sup>9</sup> Sc



MW-5

Collected date/time: 01/31/23 10:10

## SAMPLE RESULTS - 02

L1581698

## Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result ug/l	<u>Qualifier</u>	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	<u>Batch</u>	
2,3,4,6-Tetrachlorophenol	U	J4	0.231	10.0	1	02/05/2023 00:44	<a href="#">WG1999823</a>	<sup>1</sup> Cp
(S) 2-Fluorophenol	26.6			10.0-120		02/05/2023 00:44	<a href="#">WG1999823</a>	<sup>2</sup> Tc
(S) Phenol-d5	18.4			10.0-120		02/05/2023 00:44	<a href="#">WG1999823</a>	<sup>3</sup> Ss
(S) Nitrobenzene-d5	62.2			10.0-127		02/05/2023 00:44	<a href="#">WG1999823</a>	<sup>4</sup> Cn
(S) 2-Fluorobiphenyl	65.5			10.0-130		02/05/2023 00:44	<a href="#">WG1999823</a>	<sup>5</sup> Sr
(S) 2,4,6-Tribromophenol	67.0			10.0-155		02/05/2023 00:44	<a href="#">WG1999823</a>	<sup>6</sup> Qc
(S) p-Terphenyl-d14	71.8			10.0-128		02/05/2023 00:44	<a href="#">WG1999823</a>	<sup>7</sup> Gl
								<sup>8</sup> Al
								<sup>9</sup> Sc

## Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch	
Acenaphthene	U		0.0886	1.00	1	02/05/2023 01:05	WG1999823	<sup>1</sup> Cp
Acenaphthylene	U		0.0921	1.00	1	02/05/2023 01:05	WG1999823	<sup>2</sup> Tc
Anthracene	U		0.0804	1.00	1	02/05/2023 01:05	WG1999823	<sup>3</sup> Ss
Benzo(a)anthracene	U		0.199	1.00	1	02/05/2023 01:05	WG1999823	<sup>4</sup> Cn
Benzo(b)fluoranthene	U		0.130	1.00	1	02/05/2023 01:05	WG1999823	<sup>5</sup> Sr
Benzo(k)fluoranthene	U		0.120	1.00	1	02/05/2023 01:05	WG1999823	<sup>6</sup> Qc
Benzo(g,h,i)perylene	U		0.121	1.00	1	02/05/2023 01:05	WG1999823	<sup>7</sup> Gl
Benzo(a)pyrene	U		0.0381	1.00	1	02/05/2023 01:05	WG1999823	<sup>8</sup> Al
Bis(2-chlorethoxy)methane	U		0.116	10.0	1	02/05/2023 01:05	WG1999823	<sup>9</sup> Sc
Bis(2-chloroethyl)ether	U		0.137	10.0	1	02/05/2023 01:05	WG1999823	
2,2-Oxybis(1-Chloropropane)	U		0.210	10.0	1	02/05/2023 01:05	WG1999823	
4-Bromophenyl-phenylether	U		0.0877	10.0	1	02/05/2023 01:05	WG1999823	
2-Chloronaphthalene	U		0.0648	1.00	1	02/05/2023 01:05	WG1999823	
4-Chlorophenyl-phenylether	U		0.0926	10.0	1	02/05/2023 01:05	WG1999823	
Chrysene	U		0.130	1.00	1	02/05/2023 01:05	WG1999823	
Dibenz(a,h)anthracene	U		0.0644	1.00	1	02/05/2023 01:05	WG1999823	
3,3-Dichlorobenzidine	U		0.212	10.0	1	02/05/2023 01:05	WG1999823	
2,4-Dinitrotoluene	U		0.0983	10.0	1	02/05/2023 01:05	WG1999823	
2,6-Dinitrotoluene	U		0.250	10.0	1	02/05/2023 01:05	WG1999823	
Fluoranthene	U		0.102	1.00	1	02/05/2023 01:05	WG1999823	
Fluorene	U		0.0844	1.00	1	02/05/2023 01:05	WG1999823	
Hexachlorobenzene	U		0.0755	1.00	1	02/05/2023 01:05	WG1999823	
Hexachloro-1,3-butadiene	U		0.0968	10.0	1	02/05/2023 01:05	WG1999823	
Hexachlorocyclopentadiene	U		0.0598	10.0	1	02/05/2023 01:05	WG1999823	
Hexachloroethane	U		0.127	10.0	1	02/05/2023 01:05	WG1999823	
Indeno(1,2,3-cd)pyrene	U		0.279	1.00	1	02/05/2023 01:05	WG1999823	
Isophorone	U		0.143	10.0	1	02/05/2023 01:05	WG1999823	
Naphthalene	0.170	J	0.159	1.00	1	02/05/2023 01:05	WG1999823	
Nitrobenzene	U		0.297	10.0	1	02/05/2023 01:05	WG1999823	
n-Nitrosodimethylamine	U		0.998	10.0	1	02/05/2023 01:05	WG1999823	
n-Nitrosodiphenylamine	U		2.37	10.0	1	02/05/2023 01:05	WG1999823	
n-Nitrosodi-n-propylamine	U		0.261	10.0	1	02/05/2023 01:05	WG1999823	
Phenanthere	U		0.112	1.00	1	02/05/2023 01:05	WG1999823	
Pyridine	U		0.627	10.0	1	02/05/2023 01:05	WG1999823	
Benzylbutyl phthalate	U		0.765	3.00	1	02/05/2023 01:05	WG1999823	
Bis(2-ethylhexyl)phthalate	U		0.895	3.00	1	02/05/2023 01:05	WG1999823	
Di-n-butyl phthalate	U		0.453	3.00	1	02/05/2023 01:05	WG1999823	
Diethyl phthalate	U		0.287	3.00	1	02/05/2023 01:05	WG1999823	
Dimethyl phthalate	U		0.260	3.00	1	02/05/2023 01:05	WG1999823	
Di-n-octyl phthalate	U		0.932	3.00	1	02/05/2023 01:05	WG1999823	
Pyrene	U		0.107	1.00	1	02/05/2023 01:05	WG1999823	
1,2,4-Trichlorobenzene	U		0.0698	10.0	1	02/05/2023 01:05	WG1999823	
4-Chloro-3-methylphenol	U		0.131	10.0	1	02/05/2023 01:05	WG1999823	
2-Chlorophenol	U		0.133	10.0	1	02/05/2023 01:05	WG1999823	
2,4-Dichlorophenol	U		0.102	10.0	1	02/05/2023 01:05	WG1999823	
2,4-Dimethylphenol	U		0.0636	10.0	1	02/05/2023 01:05	WG1999823	
4,6-Dinitro-2-methylphenol	U		1.12	10.0	1	02/05/2023 01:05	WG1999823	
2,4-Dinitrophenol	U		5.93	10.0	1	02/05/2023 01:05	WG1999823	
2-Methylphenol	U		0.0929	10.0	1	02/05/2023 01:05	WG1999823	
3&4-Methyl Phenol	U		0.168	10.0	1	02/05/2023 01:05	WG1999823	
2-Nitrophenol	U		0.117	10.0	1	02/05/2023 01:05	WG1999823	
4-Nitrophenol	U		0.143	10.0	1	02/05/2023 01:05	WG1999823	
Pentachlorophenol	U		0.313	10.0	1	02/05/2023 01:05	WG1999823	
Phenol	U		4.33	10.0	1	02/05/2023 01:05	WG1999823	
2,4,6-Trichlorophenol	U		0.100	10.0	1	02/05/2023 01:05	WG1999823	
2,4,5-Trichlorophenol	U		0.109	10.0	1	02/05/2023 01:05	WG1999823	

MW-6

Collected date/time: 01/31/23 12:08

## SAMPLE RESULTS - 03

L1581698

## Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result ug/l	<u>Qualifier</u>	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	<u>Batch</u>	
2,3,4,6-Tetrachlorophenol	U	J4	0.231	10.0	1	02/05/2023 01:05	<a href="#">WG1999823</a>	<sup>1</sup> Cp
(S) 2-Fluorophenol	18.2			10.0-120		02/05/2023 01:05	<a href="#">WG1999823</a>	<sup>2</sup> Tc
(S) Phenol-d5	12.9			10.0-120		02/05/2023 01:05	<a href="#">WG1999823</a>	<sup>3</sup> Ss
(S) Nitrobenzene-d5	51.7			10.0-127		02/05/2023 01:05	<a href="#">WG1999823</a>	<sup>4</sup> Cn
(S) 2-Fluorobiphenyl	54.2			10.0-130		02/05/2023 01:05	<a href="#">WG1999823</a>	<sup>5</sup> Sr
(S) 2,4,6-Tribromophenol	43.5			10.0-155		02/05/2023 01:05	<a href="#">WG1999823</a>	<sup>6</sup> Qc
(S) p-Terphenyl-d14	53.7			10.0-128		02/05/2023 01:05	<a href="#">WG1999823</a>	<sup>7</sup> Gl
								<sup>8</sup> Al
								<sup>9</sup> Sc



MW-7

Collected date/time: 01/31/23 11:31

## SAMPLE RESULTS - 04

L1581698

## Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result ug/l	<u>Qualifier</u>	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	<u>Batch</u>	
2,3,4,6-Tetrachlorophenol	U	J4	0.231	10.0	1	02/05/2023 01:26	<a href="#">WG1999823</a>	<sup>1</sup> Cp
(S) 2-Fluorophenol	24.4			10.0-120		02/05/2023 01:26	<a href="#">WG1999823</a>	<sup>2</sup> Tc
(S) Phenol-d5	16.1			10.0-120		02/05/2023 01:26	<a href="#">WG1999823</a>	<sup>3</sup> Ss
(S) Nitrobenzene-d5	49.6			10.0-127		02/05/2023 01:26	<a href="#">WG1999823</a>	<sup>4</sup> Cn
(S) 2-Fluorobiphenyl	52.1			10.0-130		02/05/2023 01:26	<a href="#">WG1999823</a>	<sup>5</sup> Sr
(S) 2,4,6-Tribromophenol	58.5			10.0-155		02/05/2023 01:26	<a href="#">WG1999823</a>	<sup>6</sup> Qc
(S) p-Terphenyl-d14	63.1			10.0-128		02/05/2023 01:26	<a href="#">WG1999823</a>	<sup>7</sup> Gl
								<sup>8</sup> Al
								<sup>9</sup> Sc



MW-8

Collected date/time: 01/31/23 13:02

## SAMPLE RESULTS - 05

L1581698

## Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch	
2,3,4,6-Tetrachlorophenol	U	J4	0.231	10.0	1	02/05/2023 01:47	WG1999823	<sup>1</sup> Cp
(S) 2-Fluorophenol	20.8			10.0-120		02/05/2023 01:47	WG1999823	<sup>2</sup> Tc
(S) Phenol-d5	15.8			10.0-120		02/05/2023 01:47	WG1999823	<sup>3</sup> Ss
(S) Nitrobenzene-d5	56.5			10.0-127		02/05/2023 01:47	WG1999823	<sup>4</sup> Cn
(S) 2-Fluorobiphenyl	56.0			10.0-130		02/05/2023 01:47	WG1999823	<sup>5</sup> Sr
(S) 2,4,6-Tribromophenol	58.2			10.0-155		02/05/2023 01:47	WG1999823	<sup>6</sup> Qc
(S) p-Terphenyl-d14	61.5			10.0-128		02/05/2023 01:47	WG1999823	<sup>7</sup> Gl
								<sup>8</sup> Al
								<sup>9</sup> Sc



DUP-1

Collected date/time: 01/31/23 12:00

## SAMPLE RESULTS - 06

L1581698

## Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	<u>Batch</u>	
2,3,4,6-Tetrachlorophenol	U	J4	0.231	10.0	1	02/05/2023 02:08	<a href="#">WG1999823</a>	<sup>1</sup> Cp
(S) 2-Fluorophenol	27.3			10.0-120		02/05/2023 02:08	<a href="#">WG1999823</a>	<sup>2</sup> Tc
(S) Phenol-d5	18.3			10.0-120		02/05/2023 02:08	<a href="#">WG1999823</a>	<sup>3</sup> Ss
(S) Nitrobenzene-d5	56.7			10.0-127		02/05/2023 02:08	<a href="#">WG1999823</a>	<sup>4</sup> Cn
(S) 2-Fluorobiphenyl	62.3			10.0-130		02/05/2023 02:08	<a href="#">WG1999823</a>	<sup>5</sup> Sr
(S) 2,4,6-Tribromophenol	67.0			10.0-155		02/05/2023 02:08	<a href="#">WG1999823</a>	<sup>6</sup> Qc
(S) p-Terphenyl-d14	66.0			10.0-128		02/05/2023 02:08	<a href="#">WG1999823</a>	<sup>7</sup> Gl
								<sup>8</sup> Al
								<sup>9</sup> Sc

## QUALITY CONTROL SUMMARY

[L1581698-01,02,03,04,05,06](#)

## Method Blank (MB)

(MB) R3887608-2 02/04/23 21:56

Analyte	MB Result ug/l	<u>MB Qualifier</u>	MB MDL ug/l	MB RDL ug/l	1 Cp
Acenaphthene	U		0.0886	1.00	
Acenaphthylene	U		0.0921	1.00	
Anthracene	U		0.0804	1.00	
Benzo(a)anthracene	U		0.199	1.00	
Benzo(b)fluoranthene	U		0.130	1.00	
Benzo(k)fluoranthene	U		0.120	1.00	
Benzo(g,h,i)perylene	U		0.121	1.00	
Benzo(a)pyrene	U		0.0381	1.00	
Bis(2-chlorethoxy)methane	U		0.116	10.0	
Bis(2-chloroethyl)ether	U		0.137	10.0	
2,2-oxybis(1-chloropropane)	U		0.210	10.0	
4-Bromophenyl-phenylether	U		0.0877	10.0	
2-Chloronaphthalene	U		0.0648	1.00	
4-Chlorophenyl-phenylether	U		0.0926	10.0	
Chrysene	U		0.130	1.00	
Dibenz(a,h)anthracene	U		0.0644	1.00	
3,3-Dichlorobenzidine	U		0.212	10.0	
2,4-Dinitrotoluene	U		0.0983	10.0	
2,6-Dinitrotoluene	U		0.250	10.0	
Fluoranthene	U		0.102	1.00	
Fluorene	U		0.0844	1.00	
Hexachlorobenzene	U		0.0755	1.00	
Hexachloro-1,3-butadiene	U		0.0968	10.0	
Hexachlorocyclopentadiene	U		0.0598	10.0	
Hexachloroethane	U		0.127	10.0	
Indeno(1,2,3-cd)pyrene	U		0.279	1.00	
Isophorone	U		0.143	10.0	
Naphthalene	U		0.159	1.00	
Nitrobenzene	U		0.297	10.0	
n-Nitrosodimethylamine	U		0.998	10.0	
n-Nitrosodiphenylamine	U		2.37	10.0	
n-Nitrosodi-n-propylamine	U		0.261	10.0	
Phenanthrene	U		0.112	1.00	
Pyridine	U		0.627	10.0	
Benzylbutyl phthalate	U		0.765	3.00	
Bis(2-ethylhexyl)phthalate	U		0.895	3.00	
Di-n-butyl phthalate	U		0.453	3.00	
Diethyl phthalate	U		0.287	3.00	
Dimethyl phthalate	U		0.260	3.00	
Di-n-octyl phthalate	U		0.932	3.00	

## QUALITY CONTROL SUMMARY

[L1581698-01,02,03,04,05,06](#)

## Method Blank (MB)

(MB) R3887608-2 02/04/23 21:56

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l	<sup>1</sup> Cp
Pyrene	U		0.107	1.00	<sup>2</sup> Tc
1,2,4-Trichlorobenzene	U		0.0698	10.0	<sup>3</sup> Ss
4-Chloro-3-methylphenol	U		0.131	10.0	<sup>4</sup> Cn
2-Chlorophenol	U		0.133	10.0	<sup>5</sup> Sr
2,4-Dichlorophenol	U		0.102	10.0	<sup>6</sup> Qc
2,4-Dimethylphenol	U		0.0636	10.0	<sup>7</sup> Gl
4,6-Dinitro-2-methylphenol	U		1.12	10.0	<sup>8</sup> Al
2,4-Dinitrophenol	U		5.93	10.0	<sup>9</sup> Sc
2-Methylphenol	U		0.0929	10.0	
3&4-Methyl Phenol	U		0.168	10.0	
2-Nitrophenol	U		0.117	10.0	
4-Nitrophenol	U		0.143	10.0	
Pentachlorophenol	U		0.313	10.0	
Phenol	U		4.33	10.0	
2,4,6-Trichlorophenol	U		0.100	10.0	
2,4,5-Trichlorophenol	U		0.109	10.0	
2,3,4,6-Tetrachlorophenol	U		0.231	10.0	
(S) 2-Fluorophenol	26.2		10.0-120		
(S) Phenol-d5	17.3		10.0-120		
(S) Nitrobenzene-d5	52.2		10.0-127		
(S) 2-Fluorobiphenyl	59.1		10.0-130		
(S) 2,4,6-Tribromophenol	51.0		10.0-155		
(S) p-Terphenyl-d14	71.8		10.0-128		

## Laboratory Control Sample (LCS)

(LCS) R3887608-1 02/04/23 21:35

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	50.0	40.4	80.8	41.0-120	
Acenaphthylene	50.0	43.5	87.0	43.0-120	
Anthracene	50.0	42.2	84.4	45.0-120	
Benzo(a)anthracene	50.0	47.3	94.6	47.0-120	
Benzo(b)fluoranthene	50.0	45.0	90.0	46.0-120	
Benzo(k)fluoranthene	50.0	42.9	85.8	46.0-120	
Benzo(g,h,i)perylene	50.0	51.6	103	48.0-121	
Benzo(a)pyrene	50.0	49.3	98.6	47.0-120	
Bis(2-chlorethoxy)methane	50.0	37.1	74.2	33.0-120	
Bis(2-chloroethyl)ether	50.0	32.8	65.6	23.0-120	

## QUALITY CONTROL SUMMARY

[L1581698-01,02,03,04,05,06](#)

## Laboratory Control Sample (LCS)

(LCS) R3887608-1 02/04/23 21:35

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
2,2-oxybis(1-chloropropane)	50.0	31.5	63.0	28.0-120	
4-Bromophenyl-phenylether	50.0	42.5	85.0	45.0-120	
2-Chloronaphthalene	50.0	38.8	77.6	37.0-120	
4-Chlorophenyl-phenylether	50.0	41.7	83.4	44.0-120	
Chrysene	50.0	46.5	93.0	48.0-120	
Dibenz(a,h)anthracene	50.0	51.2	102	47.0-120	
3,3-Dichlorobenzidine	100	87.1	87.1	44.0-120	
2,4-Dinitrotoluene	50.0	46.9	93.8	49.0-124	
2,6-Dinitrotoluene	50.0	46.2	92.4	46.0-120	
Fluoranthene	50.0	49.6	99.2	51.0-120	
Fluorene	50.0	43.0	86.0	47.0-120	
Hexachlorobenzene	50.0	39.3	78.6	44.0-120	
Hexachloro-1,3-butadiene	50.0	27.7	55.4	19.0-120	
Hexachlorocyclopentadiene	50.0	26.5	53.0	15.0-120	
Hexachloroethane	50.0	29.2	58.4	15.0-120	
Indeno(1,2,3-cd)pyrene	50.0	49.0	98.0	49.0-122	
Isophorone	50.0	36.9	73.8	36.0-120	
Naphthalene	50.0	29.8	59.6	27.0-120	
Nitrobenzene	50.0	33.7	67.4	27.0-120	
n-Nitrosodimethylamine	50.0	30.9	61.8	10.0-120	
n-Nitrosodiphenylamine	50.0	37.5	75.0	47.0-120	
n-Nitrosodi-n-propylamine	50.0	38.6	77.2	31.0-120	
Phenanthrene	50.0	47.4	94.8	46.0-120	
Pyridine	50.0	9.12	18.2	10.0-120	
Benzylbutyl phthalate	50.0	52.5	105	43.0-121	
Bis(2-ethylhexyl)phthalate	50.0	48.9	97.8	43.0-122	
Di-n-butyl phthalate	50.0	52.4	105	49.0-121	
Diethyl phthalate	50.0	46.1	92.2	48.0-122	
Dimethyl phthalate	50.0	45.0	90.0	48.0-120	
Di-n-octyl phthalate	50.0	56.7	113	42.0-125	
Pyrene	50.0	47.1	94.2	47.0-120	
1,2,4-Trichlorobenzene	50.0	28.7	57.4	24.0-120	
4-Chloro-3-methylphenol	50.0	37.9	75.8	40.0-120	
2-Chlorophenol	50.0	26.3	52.6	25.0-120	
2,4-Dichlorophenol	50.0	31.9	63.8	36.0-120	
2,4-Dimethylphenol	50.0	30.1	60.2	33.0-120	
4,6-Dinitro-2-methylphenol	50.0	54.3	109	38.0-138	
2,4-Dinitrophenol	50.0	44.4	88.8	10.0-120	
2-Methylphenol	50.0	24.8	49.6	28.0-120	
3&4-Methyl Phenol	50.0	24.1	48.2	31.0-120	

ACCOUNT:

Kennedy Jenks - Portland, OR

PROJECT:

SDG:

DATE/TIME:

L1581698

PAGE:

19 of 23

## Laboratory Control Sample (LCS)

(LCS) R3887608-1 02/04/23 21:35

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
2-Nitrophenol	50.0	30.9	61.8	31.0-120	
4-Nitrophenol	50.0	21.2	42.4	10.0-120	
Pentachlorophenol	50.0	37.8	75.6	23.0-120	
Phenol	50.0	12.5	25.0	10.0-120	
2,4,6-Trichlorophenol	50.0	41.0	82.0	42.0-120	
2,4,5-Trichlorophenol	50.0	43.9	87.8	44.0-120	
2,3,4,6-Tetrachlorophenol	50.0	86.6	173	42.0-132	J4
(S) 2-Fluorophenol		30.9		10.0-120	
(S) Phenol-d5		21.5		10.0-120	
(S) Nitrobenzene-d5		61.5		10.0-127	
(S) 2-Fluorobiphenyl		79.2		10.0-130	
(S) 2,4,6-Tribromophenol		82.0		10.0-155	
(S) p-Terphenyl-d14		82.4		10.0-128	

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

**Results Disclaimer -** Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.	<sup>1</sup> Cp
RDL	Reported Detection Limit.	<sup>2</sup> Tc
Rec.	Recovery.	<sup>3</sup> Ss
RPD	Relative Percent Difference.	<sup>4</sup> Cn
SDG	Sample Delivery Group.	<sup>5</sup> Sr
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.	<sup>6</sup> Qc
U	Not detected at the Reporting Limit (or MDL where applicable).	<sup>7</sup> Gl
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.	<sup>8</sup> Al
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.	<sup>9</sup> Sc
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.	
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.	
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.	
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.	
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.	
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.	
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.	
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.	
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.	

### Qualifier      Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.

# ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey—NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio—VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Company Name/Address:

**Kennedy Jenks - Portland, OR**

421 SW 6th Avenue  
Suite 1000  
Portland, OR 97204

Report to:  
**Shaelyn Thomas**

Project Description:

City/State Collected:	Please Circle: PT MT CT ET
--------------------------	-------------------------------

Phone: 503-423-4033

Client Project #

Lab Project #  
**KENJENPOR-TETRAPAK**

Collected by (print):

*Rich Palmer*

Site/Facility ID #

P.O. #

Collected by (signature):

*Rich Palmer*

Rush? (Lab MUST Be Notified)

Quote #

- Same Day     Five Day  
 Next Day     5 Day (Rad Only)  
 Two Day     10 Day (Rad Only)  
 Three Day

Date Results Needed

No.  
of  
Cntrs

Immediately  
Packed on Ice N  Y

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

SVOCs 8270 \* 100ml Amb NoPres

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Remarks	Sample # (lab only)
MW-1	grab	GW		1/31/23				
MW-2	grab	GW		1/31/23	1054	2 X	-01	
MW-3	grab	GW		1/31/23				
MW-5	grab	GW		1/31/23	1010	2 X	-03	
MW-6	grab	GW		1/31/23	1208	2 X	-03	
MW-7	grab	GW		1/31/23	1131	2 X	-04	
MW-8	grab	GW		1/31/23	1302	2 X	-05	
Dup - 1	grab	GW		1/31/23	1200	2 X	-06	

\* Matrix:

SS - Soil   AIR - Air   F - Filter  
 GW - Groundwater   B - Bioassay

Remarks: \*SVOCs 8270 including Pentachlorophenol and all Tetrachlorophenols and Trichlorophenols.

WW - WasteWater  
 DW - Drinking Water  
 OT - Other \_\_\_\_\_

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:  
 UPS  FedEx  Courier \_\_\_\_\_

Tracking #

*6094 5458 0530*

Sample Receipt Checklist	
COC Seal Present/Intact: <input type="checkbox"/> NP <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
COC Signed/Accurate: <input type="checkbox"/> <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Bottles arrive intact: <input type="checkbox"/> <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Correct bottles used: <input type="checkbox"/> <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Sufficient volume sent: <input type="checkbox"/> <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
If Applicable	
VOA Zero Headspace: <input type="checkbox"/> <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Preservation Correct/Checked: <input type="checkbox"/> <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
RAD Screen <0.5 mR/hr: <input type="checkbox"/> <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	

Relinquished by: (Signature)  
*Rich Palmer*

Date: *1/31/23* Time: *14:00*

Received by: (Signature)

Trip Blank Received: Yes /  No

*O*  
HCl / MeOH  
TBR

Relinquished by: (Signature)

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

Received by: (Signature)

Temp: *0.7 °C* Bottles Received:

*NSAG*  
12

Relinquished by: (Signature)

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

Received for lab by: (Signature)

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

*2/1/23*  
1030

If preservation required by Login: Date/Time

Condition:  
NCF /  OK

Chain of Custody Page **1** of **1**

**Pace**  
PEOPLE ADVANCING SCIENCE

**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:  
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1581698****G150**Acctnum: **KENJENPOR**Template: **T222891**Prelogin: **P974783**PM: **110 - Brian Ford**PB: **KP 1/13/23**

Shipped Via:

Remarks	Sample # (lab only)
---------	---------------------

## Data Validation Report

**Site/Facility Name:** Vancouver

**Laboratory Sample Delivery Group:** L1581698

**Laboratory Report Date:** 2023-02-06

**Date Validated:** 2023-03-07

**Laboratory Name:** Pace Analytical Services, Mt.Juliet, TN

**Laboratory Location:** Mt. Juliet, TN

**Table 1. Data Validation Summary**

Quality Control Element	Item Checked?	Issue Noted?	Data Qualified?
Chain of Custody	X		
Sample Preservation	X		
Holding Time	X		
Method Blanks	X		
Trip Blanks	NA		
Laboratory Control Samples	X	X	
Matrix Spikes	NA		
Surrogate Recovery	X		
Laboratory Duplicates	NA		
Field Blank Samples	NA		
Field Duplicate Samples	X		
Chromatograms Provided	NA		
Dissolved Metals Field Filtered	NA		
Other Issues or Information	X	X	

## Data Validation Details

### Trip Blanks

Trip blanks were not collected or associated with this sample delivery group.

### Laboratory Control Samples

Lab Sample ID: (LCS) R3887608-1 Batch: WG1999823

2,3,4,6-Tetrachlorophenol was recovered above the laboratory acceptance criteria at 173%. The associated samples were not detected, no action taken.

### Matrix Spikes

Project specific matrix spikes were not analyzed for samples in this sample delivery group.

### Laboratory Duplicates

Laboratory duplicates were not required by the methods in this sample delivery group.

### Field Blank Samples

Field blanks (i.e. equipment blank, field blank, rinsate blank) were not collected or associated with this sample delivery group.

### Field Duplicate Samples

The RPDs for the duplicate pair MW-5-20230131 and DUP-1-20230131 were 0.0%, there were no detections. The RPDs were within acceptance criteria, no action taken.

### Chromatograms Provided

Petroleum analyses were not performed for this sample delivery group.

### Dissolved Metals Field Filtered

Dissolved metals were not analyzed for samples in this sample delivery group.

### Other Issues or Information

Dates added to sample IDs for uniqueness.

Method 8270E list was missing analyte 2,3,5,6-Tetrachlorophenol which was sub-contracted to Pace Analytical Gulf Coast, Baton Rouge, LA. Reference SDG L1584369 for 2,3,5,6-Tetrachlorophenol results and data validation.

**Data Usability Statement:**

Based on the data validation review, the data are acceptable as delivered. The findings with respect to the quality assurance/quality control (QA/QC) data identified in this report do not adversely affect the use of the analytical results.

**Table 2. Description of samples**

Sample ID	Sample Date	Lab Sample ID	Sample Type	Matrix	SW8270E
DUP-1-20230131	2023-01-31	L1581698-06	FD	WG	X
MW-2-20230131	2023-01-31	L1581698-01	N	WG	X
MW-5-20230131	2023-01-31	L1581698-02	N	WG	X
MW-6-20230131	2023-01-31	L1581698-03	N	WG	X
MW-7-20230131	2023-01-31	L1581698-04	N	WG	X
MW-8-20230131	2023-01-31	L1581698-05	N	WG	X

**Table 3. Parent sample identification**

Sample ID	Parent Sample ID	Sample Type
DUP-1-20230131	MW-5-20230131	FD

**Table 4. Data that have been qualified are listed below.**

Sample ID	Lab Sample ID	Analytic Method	CasRN	Parameter Name	Validated Result	Unit	Validator Reason
Not applicable							

**Abbreviations**

- FD Field Duplicate Sample
- N Normal Environmental Sample
- NA Not Applicable
- WG Ground Water
- X Item checked



# ANALYTICAL REPORT

February 16, 2023

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Gl

<sup>6</sup>Al

<sup>7</sup>Sc

## Kennedy Jenks - Portland, OR

Sample Delivery Group: L1584369

Samples Received: 02/02/2023

Project Number:

Description:

Report To: Shaelyn Thomas  
421 SW 6th Avenue  
Suite 1000  
Portland, OR 97204

Entire Report Reviewed By:

Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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Tc: Table of Contents	2	<sup>2</sup> Tc
Ss: Sample Summary	3	<sup>3</sup> Ss
Cn: Case Narrative	4	<sup>4</sup> Cn
Gl: Glossary of Terms	5	<sup>5</sup> Gl
Al: Accreditations & Locations	6	<sup>6</sup> Al
Sc: Sample Chain of Custody	7	<sup>7</sup> Sc

# SAMPLE SUMMARY

<b>MW-2 L1584369-01 GW</b>	Collected by	Collected date/time	Received date/time			
	Rich Palmer	01/31/23 10:54	02/02/23 10:30			
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2005099	1	02/16/23 00:00	02/16/23 00:00	-	Baton Rouge, LA 70820
<b>MW-5 L1584369-02 GW</b>			Collected by	Collected date/time	Received date/time	
			Rich Palmer	01/31/23 10:10	02/02/23 10:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2005099	1	02/16/23 00:00	02/16/23 00:00	-	Baton Rouge, LA 70820
<b>MW-6 L1584369-03 GW</b>			Collected by	Collected date/time	Received date/time	
			Rich Palmer	01/31/23 12:08	02/02/23 10:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2005099	1	02/16/23 00:00	02/16/23 00:00	-	Baton Rouge, LA 70820
<b>MW-7 L1584369-04 GW</b>			Collected by	Collected date/time	Received date/time	
			Rich Palmer	01/31/23 11:31	02/02/23 10:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2005099	1	02/16/23 00:00	02/16/23 00:00	-	Baton Rouge, LA 70820
<b>DUP-1 L1584369-06 GW</b>			Collected by	Collected date/time	Received date/time	
			Rich Palmer	01/31/23 12:00	02/02/23 10:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Subcontracted Analyses	WG2005099	1	02/16/23 00:00	02/16/23 00:00	-	Baton Rouge, LA 70820

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Gl
- 6 Al
- 7 Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford  
Project Manager

## Project Narrative

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MW-8: no sample volume remaining, could not be analyzed.

L1584369 -01, -02, -03, -04, -06 contains subout data that is included after the chain of custody.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Gl

<sup>6</sup> Al

<sup>7</sup> Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

SDG	Sample Delivery Group.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier      Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Gl

<sup>6</sup> Al

<sup>7</sup> Sc

# ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey—NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio—VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Gl

<sup>6</sup> Al

<sup>7</sup> Sc

Company Name/Address: <b>Kennedy Jenks - Portland, OR</b>		Billing Information:		Pres Chk	Analysis / Container / Preservative						Chain of Custody	Page <u>1</u> of <u>1</u>	
421 SW 6th Avenue Suite 1000 Portland, OR 97204													
Report to: <b>Shaelyn Thomas</b>		Email To: <b>ShaelynThomas@kennedyjenks.com;labdata@kennedyjenks.com</b>											
Project Description:		City/State Collected:		Please Circle: PT MT CT ET									
Phone: 503-423-4033		Client Project #		Lab Project # <b>KENJENPOR-TETRAPAK</b>									
Collected by (print): <i>Rich Palmer</i>	Site/Facility ID #		P.O. #										
Collected by (signature): <i>Rich Palmer</i>	Rush? (Lab MUST Be Notified)		Quote #										
Immediately Packed on Ice N <u>Y</u>	Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day <input type="checkbox"/>		Date Results Needed				No. of Cntrs						
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time								
<i>RW - MW-1</i>	grab	GW		<i>1/31/23</i>									
<i>MW-2</i>	grab	GW		<i>1/31/23</i>	<i>1054</i>	2	X					<i>01 - 01</i>	
<i>RW - MW-3</i>	grab	GW		<i>1/31/23</i>		2	X					<i>02 - 02</i>	
<i>MW-5</i>	grab	GW		<i>1/31/23</i>	<i>1010</i>	2	X					<i>03 - 03</i>	
<i>MW-6</i>	grab	GW		<i>1/31/23</i>	<i>1208</i>	2	X					<i>04 - 04</i>	
<i>MW-7</i>	grab	GW		<i>1/31/23</i>	<i>1131</i>	2	X					<i>05 - 05</i>	
<i>MW-8</i>	grab	GW		<i>1/31/23</i>	<i>1302</i>	2	X					<i>06 - 06</i>	
<i>Dup - 1</i>	grab	GW		<i>1/31/23</i>	<i>1200</i>	2	X						
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other _____		Remarks: *SVOCS 8270 including Pentachlorophenol and all Tetrachlorophenols and Trichlorophenols.								pH _____	Temp _____	Sample Receipt Checklist	
		Samples returned via: UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier _____		Tracking # <b>6094 5456 0530</b>		Flow _____				Other _____	COC Seal Present/Intact: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N		
Relinquished by : (Signature) <i>Rich Palmer</i>		Date: <b>1/31/23</b>	Time: <b>14:00</b>	Received by: (Signature)		Trip Blank Received: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				HCl / MeOH TBR	COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
Relinquished by : (Signature)		Date: _____	Time: _____	Received by: (Signature)		Temp: <b>0.7 °C</b> Bottles Received: <b>12</b>				If preservation required by Login: Date/Time	Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		
Relinquished by : (Signature)		Date: _____	Time: _____	Received for lab by: (Signature)		Date: <b>2/2/23</b>	Time: <b>1030</b>	Hold: _____		Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N			
										Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N			
										If Applicable			
										VOA Zero Headspace: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			
										Preservation Correct/Checked: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			
										RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N			
										Condition: <input checked="" type="checkbox"/> NCF / <input type="checkbox"/> OK			

## L1581698 KENJENPOR re-log

R5

Please re-log all samples for SUB8270MISC with comment 2,3,5,6 Tetrachlorophenol only as R5 due 02/27.

will be analyzed out of hold.

**Time estimate:** oh

### Members

 Brian Ford  Jimmy Huckaba



LELAP Certificate Number: 01955  
A2LA Accredited (DoD ELAP-QSM 5.4) Certificate Number: 6429.01

# ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast  
7979 Innovation Park Dr.  
Baton Rouge, LA 70820  
(225) 769-4900

Report Date 02/16/2023

Report # 223021409



Project WG2005099 L1584369

Samples Collected 1/31/23

<i>Deliver To</i>	<i>Additional Recipients</i>
Brian Ford	SuboutTeam, Pace Analytical Services
Pace Analytical Services, Inc	Jimmy Huckaba, Pace Analytical Services, Inc.
12065 Lebanon Road	Angela Ford, Pace Analytical Services, Inc.
Mount Juliet, TN 37122	



## Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

### Common Abbreviations that may be Utilized in this Report

<b>ND</b>	Indicates the result was Not Detected at the specified reporting limit
<b>NO</b>	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
<b>DO</b>	Indicates the result was Diluted Out
<b>MI</b>	Indicates the result was subject to Matrix Interference
<b>TNTC</b>	Indicates the result was Too Numerous To Count
<b>SUBC</b>	Indicates the analysis was Sub-Contracted
<b>FLD</b>	Indicates the analysis was performed in the Field
<b>DL</b>	Detection Limit
<b>LOD</b>	Limit of Detection
<b>LOQ</b>	Limit of Quantitation
<b>RE</b>	Re-analysis
<b>CF</b>	HPLC or GC Confirmation
<b>00:01</b>	Reported as a time equivalent to 12:00 AM

### Reporting Flags that may be Utilized in this Report

<b>J or I</b>	Indicates the result is between the MDL and LOQ
<b>J</b>	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
<b>U</b>	Indicates the compound was analyzed for but not detected
<b>B or V</b>	Indicates the analyte was detected in the associated Method Blank
<b>Q</b>	Indicates a non-compliant QC Result (See Q Flag Application Report)
*	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
<b>E</b>	Organics - The result is estimated because it exceeded the instrument calibration range
<b>E</b>	Metals - % difference for the serial dilution is > 10%
<b>L</b>	Reporting Limits adjusted to meet risk-based limit.
<b>P</b>	RPD between primary and confirmation result is greater than 40
<b>DL</b>	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature  
Pace Gulf Coast Report 223021409

## Certifications

<b>Certification</b>	<b>Certification Number</b>
A2LA Accredited (DoD ELAP-QSM 5.4)	6429.01
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234



## Case Narrative

**Client:** Pace Analytical Services      **Report:** 223021409

Pace Analytical Gulf Coast received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

### COC ANOMALIES

COC Anomalies\Changes - Samples were received outside of the extraction holding time (Ruth Welsh(Do Not 02/15/2023 06:43)

### SEMI-VOLATILES MASS SPECTROMETRY

In the EPA-8270 analysis of sample 22302140903 (MW-6), the surrogate solution was inadvertently added twice in the prep phase. The amount spiked was adjusted in the LIMS to reflect this and all spike recoveries were acceptable so no corrective action was taken

## Sample Summary

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22302140901	MW-2	Water	1/31/23 10:54	2/14/23 09:54
22302140902	MW-5	Water	1/31/23 10:10	2/14/23 09:54
22302140903	MW-6	Water	1/31/23 12:08	2/14/23 09:54
22302140904	MW-7	Water	1/31/23 11:31	2/14/23 09:54
22302140905	DUP-1	Water	1/31/23 12:00	2/14/23 09:54



**Report#:** 223021409  
**Project ID:** WG2005099 L1584369

**Report Date:** 02/16/2023

## Detect Summary

No analytes were detected for analyses performed by Pace Gulf Coast.



## Sample Results

<b>MW-2</b>	<b>Collect Date</b>	01/31/2023 10:54	<b>Lab ID</b>	22302140901
	<b>Receive Date</b>	02/14/2023 09:54	<b>Matrix</b>	Water

### EPA 8270D RVT

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b>	<b>Run Date</b>	<b>Run Batch</b>	<b>Analyst</b>	<b>%Moisture</b>
02/15/23 07:00	759825	EPA 3510C RV	1	02/16/23 12:32	759953	SMH	NA
<b>CAS#</b>	<b>Parameter</b>		<b>Result</b>	<b>LOQ</b>			<b>Units</b>
935-95-5	2,3,5,6-Tetrachlorophenol		ND	10.0			ug/L
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc Spiked</b>	<b>Conc Rec</b>	<b>Units</b>	<b>%Recovery</b>	<b>%Rec Limits</b>
4165-60-0	Nitrobenzene-d5		50	39.2	ug/L	78	44 - 120
321-60-8	2-Fluorobiphenyl		50	33.8	ug/L	68	44 - 119
1718-51-0	Terphenyl-d14		50	57	ug/L	114	50 - 134
4165-62-2	Phenol-d5		100	35.6	ug/L	36	10 - 120
367-12-4	2-Fluorophenol		100	51.1	ug/L	51	19 - 119
118-79-6	2,4,6-Tribromophenol		100	79.5	ug/L	80	43 - 140

<b>MW-5</b>	<b>Collect Date</b>	01/31/2023 10:10	<b>Lab ID</b>	22302140902
	<b>Receive Date</b>	02/14/2023 09:54	<b>Matrix</b>	Water

### EPA 8270D RVT

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b>	<b>Run Date</b>	<b>Run Batch</b>	<b>Analyst</b>	<b>%Moisture</b>
02/15/23 07:00	759825	EPA 3510C RV	1	02/16/23 12:53	759953	SMH	NA
<b>CAS#</b>	<b>Parameter</b>		<b>Result</b>	<b>LOQ</b>			<b>Units</b>
935-95-5	2,3,5,6-Tetrachlorophenol		ND	10.0			ug/L
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc Spiked</b>	<b>Conc Rec</b>	<b>Units</b>	<b>%Recovery</b>	<b>%Rec Limits</b>
4165-60-0	Nitrobenzene-d5		50	41	ug/L	82	44 - 120
321-60-8	2-Fluorobiphenyl		50	35.8	ug/L	72	44 - 119
1718-51-0	Terphenyl-d14		50	57.1	ug/L	114	50 - 134
4165-62-2	Phenol-d5		100	36.3	ug/L	36	10 - 120
367-12-4	2-Fluorophenol		100	52	ug/L	52	19 - 119
118-79-6	2,4,6-Tribromophenol		100	76	ug/L	76	43 - 140

<b>MW-6</b>	<b>Collect Date</b>	01/31/2023 12:08	<b>Lab ID</b>	22302140903
	<b>Receive Date</b>	02/14/2023 09:54	<b>Matrix</b>	Water

### EPA 8270D RVT

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b>	<b>Run Date</b>	<b>Run Batch</b>	<b>Analyst</b>	<b>%Moisture</b>
02/15/23 07:00	759825	EPA 3510C RV	1	02/16/23 13:14	759953	SMH	NA
<b>CAS#</b>	<b>Parameter</b>		<b>Result</b>	<b>LOQ</b>			<b>Units</b>
935-95-5	2,3,5,6-Tetrachlorophenol		ND	10.0			ug/L
<b>CAS#</b>	<b>Surrogate</b>		<b>Conc Spiked</b>	<b>Conc Rec</b>	<b>Units</b>	<b>%Recovery</b>	<b>%Rec Limits</b>
4165-60-0	Nitrobenzene-d5		100	84.2	ug/L	84	44 - 120
321-60-8	2-Fluorobiphenyl		100	71.1	ug/L	71	44 - 119
1718-51-0	Terphenyl-d14		100	106	ug/L	106	50 - 134
4165-62-2	Phenol-d5		200	80.5	ug/L	40	10 - 120
367-12-4	2-Fluorophenol		200	113	ug/L	57	19 - 119
118-79-6	2,4,6-Tribromophenol		200	156	ug/L	78	43 - 140

## Sample Results

<b>MW-7</b>	<b>Collect Date</b>	01/31/2023 11:31	<b>Lab ID</b>	22302140904
	<b>Receive Date</b>	02/14/2023 09:54	<b>Matrix</b>	Water

### EPA 8270D RVT

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b>	<b>Run Date</b>	<b>Run Batch</b>	<b>Analyst</b>	<b>%Moisture</b>
02/15/23 07:00	759825	EPA 3510C RV	1	02/16/23 13:35	759953	SMH	NA

<b>CAS#</b>	<b>Parameter</b>	<b>Result</b>	<b>LOQ</b>	<b>Units</b>		
935-95-5	2,3,5,6-Tetrachlorophenol	ND	10.0	ug/L		
<b>CAS#</b>	<b>Surrogate</b>	<b>Conc Spiked</b>	<b>Conc Rec</b>	<b>Units</b>	<b>%Recovery</b>	<b>%Rec Limits</b>
4165-60-0	Nitrobenzene-d5	50	39.3	ug/L	79	44 - 120
321-60-8	2-Fluorobiphenyl	50	33.8	ug/L	68	44 - 119
1718-51-0	Terphenyl-d14	50	52.5	ug/L	105	50 - 134
4165-62-2	Phenol-d5	100	33.5	ug/L	34	10 - 120
367-12-4	2-Fluorophenol	100	49.5	ug/L	50	19 - 119
118-79-6	2,4,6-Tribromophenol	100	77.2	ug/L	77	43 - 140

<b>DUP-1</b>	<b>Collect Date</b>	01/31/2023 12:00	<b>Lab ID</b>	22302140905
	<b>Receive Date</b>	02/14/2023 09:54	<b>Matrix</b>	Water

### EPA 8270D RVT

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b>	<b>Run Date</b>	<b>Run Batch</b>	<b>Analyst</b>	<b>%Moisture</b>
02/15/23 07:00	759825	EPA 3510C RV	1	02/16/23 13:56	759953	SMH	NA
<b>CAS#</b>	<b>Parameter</b>	<b>Result</b>	<b>LOQ</b>	<b>Units</b>			
935-95-5	2,3,5,6-Tetrachlorophenol	ND	10.0	ug/L			
<b>CAS#</b>	<b>Surrogate</b>	<b>Conc Spiked</b>	<b>Conc Rec</b>	<b>Units</b>	<b>%Recovery</b>	<b>%Rec Limits</b>	
4165-60-0	Nitrobenzene-d5	50	36.7	ug/L	73	44 - 120	
321-60-8	2-Fluorobiphenyl	50	30.8	ug/L	62	44 - 119	
1718-51-0	Terphenyl-d14	50	56.7	ug/L	113	50 - 134	
4165-62-2	Phenol-d5	100	30.3	ug/L	30	10 - 120	
367-12-4	2-Fluorophenol	100	45.6	ug/L	46	19 - 119	
118-79-6	2,4,6-Tribromophenol	100	77.2	ug/L	77	43 - 140	

## GC/MS Semi-Volatiles QC Summary

<b>Analytical Batch</b> 759953	Client ID Lab ID	MB759825 2451456
<b>Prep Batch</b> 759825	Sample Type Prep Date	MB 02/15/23 07:00
<b>Prep Method</b> EPA 3510C RV	Analysis Date Matrix	02/16/23 09:44 Water
EPA 8270D RVT	Units Result	ug/L LOQ
2,3,5,6-Tetrachlorophenol	935-95-5	ND 10.0
<b>Surrogate</b>	<b>CAS#</b>	<b>Rec</b> %R
2,4,6-Tribromophenol	118-79-6	55.9 56
2-Fluorobiphenyl	321-60-8	27.4 55
2-Fluorophenol	367-12-4	41.3 41
Nitrobenzene-d5	4165-60-0	31.4 63
Phenol-d5	4165-62-2	27.6 28
Terphenyl-d14	1718-51-0	45.9 92

Client ID: 4367 - Pace Analytical Services

SDG: 223021409



## CHAIN-OF-CUSTODY / Analytical Request

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed.

## Section A

## Required Client Information:

Company: Pace Analytical	Report To: Pace Analytical Subout Team	Attention: Shaelyn Thomas
Address: 12065 Lebanon Rd.	Copy To:	Company Name:
Mt. Juliet, TN 37122		Address:
Email: MTJLSuboutTeam@pacelabs.com	Purchase Order #: L1584369	Pace Quote:
Phone: (615) 773-9756	Project Name:	Pace Project Manager: Ruth Welsh
Requested Due Date: 27-Feb	Project #:	Pace Profile #: 38076

## Section B

## Required Project Information:

Matrix Code (see valid codes to left)	(G=GRAB C=CDMP)	Collected	Preservatives	Requested Analysis Filtered (Y/N)	WA							
ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / -) Sample IDs must be unique	MATRIX CODE	START	END	Analyses Test	Residual Chlorine (Y/N)						
			DATE	TIME			DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS		
1	MW-2	WT		31-Jan 10:54	1 1	H <sub>2</sub> SO <sub>4</sub>	X	2,3,5,6 Tetrachlorophenol	1			
2	MW-5	WT		31-Jan 10:10	1 1	HNO <sub>3</sub>	X	by 8270	2			
3	MW-6	WT		31-Jan 12:08	1 1	HCl	X		3			
4	MW-7	WT		31-Jan 11:31	1 1	NaOH	X		4			
5	DUP-1	WT		31-Jan 12:00	1 1	Na <sub>2</sub> SO <sub>3</sub>	X		5			
6						Methanol						
7						Other						
8												
9												
10												
11												
12												
ADDITIONAL COMMENTS			RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	SAMPLE CONDITIONS	
			James C Huckabee		13-Feb	10:32						
Pace Analytical Batch: WG2005099			Ted Ex		2/14/23 9:54		Ruth Welsh		2/14/23 9:54		F338 2.7	
Pace Analytical SDGs: L1584369												
Location: Baton Rouge, LA 70820												
SAMPLER NAME AND SIGNATURE												
PRINT Name of SAMPLER:												
SIGNATURE of SAMPLER: DATE Signed:												
6295 1091 1311												
TEMP in C												
Received on Ice (Y/N)												
Custody Sealed (Y/N)												
Cooler (Y/N)												
Samples Intact (Y/N)												



## SAMPLE RECEIVING CHECKLIST



<b>SAMPLE DELIVERY GROUP 223021409</b>		<b>CHECKLIST</b>	
Client 4367 - Pace Analytical Services	PM RWe Transport Method FEDEX	<b>YES      NO</b>	
		Samples received with proper thermal preservation?	<input checked="" type="checkbox"/> <input type="checkbox"/>
		Radioactivity is <1600 cpm? If no, record cpm value in notes section.	<input checked="" type="checkbox"/> <input type="checkbox"/>
		COC relinquished and complete (including sampleIDs, collect times, and sampler)?	<input checked="" type="checkbox"/> <input type="checkbox"/>
		All containers received in good condition and within hold time?	<input checked="" type="checkbox"/> <input type="checkbox"/>
		All sample labels and containers received match the chain of custody?	<input checked="" type="checkbox"/> <input type="checkbox"/>
		Preservative added to any containers?	<input type="checkbox"/> <input checked="" type="checkbox"/>
		If received, was headspace for VOC water containers < 6mm?	<input checked="" type="checkbox"/> <input type="checkbox"/>
		Samples collected in containers provided by Pace Gulf Coast?	<input checked="" type="checkbox"/> <input type="checkbox"/>
<b>COOLERS</b>		<b>DISCREPANCIES</b>	<b>LAB PRESERVATIONS</b>
Airbill	Thermometer ID: E38	Temp °C	None
		2.7	None
<b>NOTES</b>			

## Data Validation Report

**Site/Facility Name:** Vancouver

**Laboratory Sample Delivery Group:** L1584369

**Laboratory Report Date:** 2023-02-16

**Date Validated:** 2023-03-07

**Laboratory Name:** Pace Analytical Services, Mt.Juliet, TN

**Laboratory Location:** Mt. Juliet, TN

**Table 1. Data Validation Summary**

Quality Control Element	Item Checked?	Issue Noted?	Data Qualified?
Chain of Custody	X		
Sample Preservation	X		
Holding Time	X	X	X
Method Blanks	X		
Trip Blanks	NA		
Laboratory Control Samples	X	X	
Matrix Spikes	NA		
Surrogate Recovery	X		
Laboratory Duplicates	NA		
Field Blank Samples	NA		
Field Duplicate Samples	X		
Chromatograms Provided	NA		
Dissolved Metals Field Filtered	NA		
Other Issues or Information	X	X	

## Data Validation Details

### Holding Time

Samples MW-2-20230131, MW-5-20230131, MW-6-20230131, MW-7-20230131 and DUP-1-20230131 were extracted outside the method recommended holding time of 7 days. The associated sample results were not detected, qualified as rejected, R.

### Trip Blanks

Trip blanks were not collected or associated with this sample delivery group.

### Laboratory Control Samples

Per Pace Analytical project manager Brian Ford via email on 3/3/2023 associated compound 2,3,5,6-Tetrachlorophenol was not included in the laboratory spike due to being rarely requested or reported, therefore no LCS/LCSD samples were available. Samples were qualified as rejected, R, based upon holding time exceedances, no additional action taken.

### Matrix Spikes

Project specific matrix spikes were not analyzed for samples in this sample delivery group.

### Surrogate Recovery

The laboratory report noted:

"In the EPA-8270 analysis of sample 22302140903 (MW-6), the surrogate solution was inadvertently added twice in the prep phase. The amount spiked was adjusted in the LIMS to reflect this and all spike recoveries were acceptable so no corrective action was taken." No action taken.

### Laboratory Duplicates

Laboratory duplicates were not required by the methods in this sample delivery group.

### Field Blank Samples

Field blanks were not collected or associated with this sample delivery group.

### Field Duplicate Samples

The RPD for the duplicate pair MW-5-20230131 and DUP-1-20230131 was 0.0%, there were no detections. The RPDs were within acceptance criteria, no action taken.

## Chromatograms Provided

Petroleum analyses were not performed for this sample delivery group.

## Dissolved Metals Field Filtered

Dissolved metals were not analyzed for samples in this sample delivery group.

## Other Issues or Information

Date has been added to sample ID for uniqueness.

Initial analysis of method 8270E was missing analyte 2,3,5,6-Tetrachlorophenol which was sub-contracted to Pace Analytical Gulf Coast, Baton Rouge, LA and included in this data validation. Reference SDG L1581698 from Pace Analytical, Mt. Juliet, TN for additional analyte results and data validation. For project associated sample MW-8 there was no sample volume remaining for analysis, no action was taken.

## Data Usability Statement:

Based on the data validation review, the data are acceptable as delivered. The findings with respect to the quality assurance/quality control (QA/QC) data identified in this report do not adversely affect the use of the analytical results except for results rejected due to holding time exceedances.

**Table 2. Description of samples**

Sample ID	Sample Date	Lab Sample ID	Sample Type	Matrix	SW8270D
DUP-1-20230131	2023-01-31	22302140905	FD	WG	X
MW-2-20230131	2023-01-31	22302140901	N	WG	X
MW-5-20230131	2023-01-31	22302140902	N	WG	X
MW-6-20230131	2023-01-31	22302140903	N	WG	X
MW-7-20230131	2023-01-31	22302140904	N	WG	X

**Table 3. Parent sample identification**

Sample ID	Parent Sample ID	Sample Type
DUP-1-20230131	MW-5-20230131	FD

**Table 4. Data that have been qualified are listed below.**

Sample ID	Lab Sample ID	Analytic Method	CasRN	Parameter Name	Validated Result	Unit	Validator Reason
DUP-1-20230131	22302140905	SW8270D	935-95-5	2,3,5,6-Tetrachlorophenol	< 10.0 R	ug/l	R due to holding time exceedance
MW-2-20230131	22302140901	SW8270D	935-95-5	2,3,5,6-Tetrachlorophenol	< 10.0 R	ug/l	R due to holding time exceedance
MW-5-20230131	22302140902	SW8270D	935-95-5	2,3,5,6-Tetrachlorophenol	< 10.0 R	ug/l	R due to holding time exceedance
MW-6-20230131	22302140903	SW8270D	935-95-5	2,3,5,6-Tetrachlorophenol	< 10.0 R	ug/l	R due to holding time exceedance
MW-7-20230131	22302140904	SW8270D	935-95-5	2,3,5,6-Tetrachlorophenol	< 10.0 R	ug/l	R due to holding time exceedance

## Abbreviations

- FD Field Duplicate Sample
- N Normal Environmental Sample
- NA Not Applicable
- R The result has been rejected based on data validation findings.
- ug/l micrograms per liter
- WG Ground Water
- X Item checked

## Attachment B

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Groundwater Sampling and Purge Forms

# WELL GAUGING DATA

Project # Z30131-RP1 Date 1/31/23 Client Kennedy Jenkins

Site 3125 Thompson Ave Vancouver, WA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	0910	2	—	—	—	—	Dry	50.10		
MW-2	0900	2	—	—	—	—	46.45	50.35		
MW-3	0845	1.5	—	—	—	—	45.70	51.80		blocked
MW-5	0855	2	—	—	—	—	46.15	58.30		
MW-6	0920	2	—	—	—	—	44.78	54.18		
MW-7	0905	2	—	—	—	—	44.67	54.55		
MW-8	0935	2	—	—	—	—	43.25	54.50	↓	

### LOW FLOW WELL MONITORING DATA SHEET

Project #: 730131-RP1	Client: Kennedy Jenkins
Sampler: Rich Palmer	Gauging Date: 1/31/23
Well I.D.: MW-1	Well Diameter (in.): (2) 3 4 6 8
Total Well Depth (ft.): 50.10	Depth to Water (ft.): Dry
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Flow Cell Type: _____

Purge Method: 2" Grundfos Pump

Sampling Method: Dedicated Tubing

Peristaltic Pump

New Tubing

Bladder Pump

Other \_\_\_\_\_

Start Purge Time: \_\_\_\_\_

Flow Rate: \_\_\_\_\_

Pump Depth: \_\_\_\_\_

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or μS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
—	—	—	—	—	—	—	—	—
—	—	—	Well	IS	Dry	/	—	—
—	—	—	—	No	Sample	False	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

Did well dewater? Yes No

Amount actually evacuated:

Sampling Time:

Sampling Date:

Sample I.D.:

Laboratory:

Analyzed for:

TPH-G BTEX MTBE TPH-D

Other:

Equipment Blank I.D.:

@  
Time

Duplicate I.D.:

## LOW FLOW WELL MONITORING DATA SHEET

Project #: 230131-RP1	Client: Kennedy Jenks
Sampler: Rich P	Gauging Date: 1/31/23
Well I.D.: MW-2	Well Diameter (in.): (2) 3 4 6 8
Total Well Depth (ft.): 50.35	Depth to Water (ft.): 46.45
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC	Flow Cell Type:ysi 556

Purge Method: 2" Grundfos Pump      Peristaltic Pump      Bladder Pump  
Sampling Method: Dedicated Tubing      New Tubing      Other  
Start Purge Time: 1039      Flow Rate: 200 mL/min      Pump Depth: 48'

Time	Temp. (°C or °F)	pH	Cond. mS/cm or μS/cm	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1042	8.74	7.14	0.118	62	13.33	-28.1	600	46.45
1045	10.30	7.18	0.124	46	13.46	-29.8	1200	46.45
1048	11.21	7.19	0.129	25	13.30	-24.9	1800	46.45
1051	11.22	7.20	0.121	25	13.31	-24.8	2400	46.45
1053	11.23	7.20	0.130	25	13.33	-24.7	3000	46.45

Did well dewater? Yes  No  Amount actually evacuated: 3000 mL

Sampling Time: 1054 Sampling Date: 1/31/23

Sample I.D.: MW-2 Laboratory: face

Analyzed for: TPH-G BTEX MTBE TPH-D Other: See COC

Equipment Blank I.D.: @ Time Duplicate I.D.: —

**Blaine Tech Services, Inc. 1680 Rogers Ave., San Jose, CA 95112 (408) 573-0555**

**LOW FLOW WELL MONITORING DATA SHEET**

Project #:	<u>230131-RP1</u>	Client:	<u>Kennedy Jewks</u>
Sampler:	<u>Rich Palmer</u>	Gauging Date:	<u>1/31/23</u>
Well I.D.:	<u>MW-5</u>	Well Diameter (in.) :	(2) 3 4 6 8 —
Total Well Depth (ft.):	<u>58.30</u>	Depth to Water (ft.):	<u>46.15</u>
Depth to Free Product:	—	Thickness of Free Product (feet):	—
Referenced to:	<u>PVC</u>	Grade	Flow Cell Type: <u>YSI 556</u>

Purge Method: 2" Grundfos Pump      Peristaltic Pump  
 Sampling Method: Dedicated Tubing      New Tubing      Bladder Pump  
 Start Purge Time: 0955      Flow Rate: 200 mL/min      Pump Depth: 50'      Other

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or μS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
0958	<u>10.36</u>	<u>7.11</u>	<u>0.130</u>	<u>32</u>	<u>15.52</u>	<u>-46.0</u>	<u>600</u>	<u>46.15</u>
1001	<u>10.49</u>	<u>7.10</u>	<u>0.131</u>	<u>25</u>	<u>15.08</u>	<u>-44.7</u>	<u>1200</u>	<u>46.15</u>
1003	<u>10.96</u>	<u>6.98</u>	<u>0.134</u>	<u>20</u>	<u>13.90</u>	<u>-33.1</u>	<u>1800</u>	<u>46.15</u>
1006	<u>10.99</u>	<u>6.98</u>	<u>0.134</u>	<u>20</u>	<u>13.85</u>	<u>-32.8</u>	<u>2400</u>	<u>46.15</u>
1009	<u>11.00</u>	<u>6.97</u>	<u>0.135</u>	<u>20</u>	<u>13.80</u>	<u>-33.1</u>	<u>3000</u>	<u>46.15</u>

Did well dewater?	Yes	No	Amount actually evacuated:	<u>3000 mL</u>
Sampling Time:	<u>1010</u>		Sampling Date:	<u>1/31/23</u>
Sample I.D.:	<u>MW-5</u>		Laboratory:	<u>Pace</u>
Analyzed for:	TPH-G	BTEX	MTBE	TPH-D

Equipment Blank I.D.: @      Time:        Duplicate I.D.: Dsp-1 e 1200



## LOW FLOW WELL MONITORING DATA SHEET

Project #: 230131-RP1	Client: Kennedy Jenkins
Sampler: Rich Palmer	Gauging Date: 1/31/23
Well I.D.: MW-7	Well Diameter (in.): <u>2</u> 3 4 6 8
Total Well Depth (ft.): 54.55	Depth to Water (ft.): 44.67
Depth to Free Product:	Thickness of Free Product (feet): ~
Referenced to: PVC Grade	Flow Cell Type: YS 556

Purge Method: 2" Grundfos Pump              Peristaltic Pump              Bladder Pump  
 Sampling Method: Dedicated Tubing              New Tubing              Other  
 Start Purge Time: 1115              Flow Rate: 200 mL/min              Pump Depth: 50'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1118	10.05	6.71	0.094	107	34.44	-8.6	600	44.67
1121	10.54	6.75	0.096	79	16.66	-6.7	1200	44.67
1124	11.15	6.80	0.102	50	14.36	-2.2	1800	44.67
1127	11.14	6.80	0.102	50	14.36	-2.2	2400	44.67
1130	11.14	6.81	0.100	50	14.38	-2.1	3000	44.67

Did well dewater? Yes	No	Amount actually evacuated: 3000 mL
Sampling Time: 1131	Sampling Date: 1/31/23	
Sample I.D.: MW-7	Laboratory: Pace	
Analyzed for: TPH-G BTEX MTBE TPH-D	Other: See COC	
Equipment Blank I.D.: @ Time	Duplicate I.D.: ~	

# LOW FLOW WELL MONITORING DATA SHEET

Project #: 230131 -RP1	Client: Kennedy Jenkins
Sampler: Rich Palmer	Gauging Date: 1/31/23
Well I.D.: MW-8	Well Diameter (in.): 2 3 4 6 8
Total Well Depth (ft.): 54.50	Depth to Water (ft.): 43.25
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC	Grade: YSi 556

Purge Method: 2" Grundfos Pump      Peristaltic Pump      Bladder Pump  
 Sampling Method: Dedicated Tubing      New Tubing      Other  
 Start Purge Time: 1246      Flow Rate: 200 mL/min      Pump Depth: 49'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1244	9.53	6.88	0.141	40	20.58	-6.1	600	43.25
1252	10.84	6.82	0.143	38	14.98	-3.0	1200	43.25
1255	11.47	6.76	0.146	30	14.01	-1	1900	43.25
1258	11.48	6.76	0.146	30	14.08	-0.8	2400	43.25
1301	11.49	6.76	0.145	30	14.05	-0.8	3000	43.25

Did well dewater? Yes  No      Amount actually evacuated: 3000 mL

Sampling Time: 1302      Sampling Date: 1/31/23

Sample I.D.: MW-8      Laboratory: Pace

Analyzed for: TPH-G BTEX MTBE TPH-D      Other: See Coc

Equipment Blank I.D.:   @   Time      Duplicate I.D.:

Company Name/Address: <b>Kennedy Jenks - Portland, OR</b> 421 SW 6th Avenue Suite 1000 Portland, OR 97204		Billing Information:			Pres Chk	Analysis / Container / Preservative						Chain of Custody Page <u>1</u> of <u>1</u>	
Report to: <b>Shaelyn Thomas</b>		Email To: <b>ShaelynThomas@kennedyjenks.com;labdata@k</b>											
Project Description:		City/State Collected:		Please Circle: PT MT CT ET									
Phone: <b>503-423-4033</b>		Client Project #		Lab Project # <b>KENJENPOR-TETRAPAK</b>									
Collected by (print): <i>Rick Palmer</i>		Site/Facility ID #		P.O. #									
Collected by (signature): <i>Rick Palmer</i>		Rush? (Lab MUST Be Notified)		Quote #									
Immediately Packed on Ice N <u>Y</u> <u>X</u>		<input type="checkbox"/> Same Day <input type="checkbox"/> Next Day <input type="checkbox"/> Two Day <input type="checkbox"/> Three Day		Five Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> 10 Day (Rad Only)		Date Results Needed	No. of Cntrs						
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time							
<i>MW-1</i>			GW		<i>1/31/23</i>								
<i>MW-2</i>		<i>grab</i>	GW		<i>1/31/23</i>	<i>1054</i>	<u>2</u>	<i>X</i>					
<i>MW-3</i>			GW		<i>1/31/23</i>								
<i>MW-5</i>		<i>grab</i>	GW		<i>1/31/23</i>	<i>1010</i>	<u>2</u>	<i>X</i>					
<i>MW-6</i>		<i>grab</i>	GW		<i>1/31/23</i>	<i>1208</i>	<u>2</u>	<i>X</i>					
<i>MW-7</i>		<i>grab</i>	GW		<i>1/31/23</i>	<i>1131</i>	<u>2</u>	<i>X</i>					
<i>MW-8</i>		<i>grab</i>	GW		<i>1/30/23</i>	<i>1302</i>	<u>2</u>	<i>X</i>					
<i>Dup-1</i>		<i>grab</i>	GW		<i>1/31/23</i>	<i>1206</i>	<u>2</u>	<i>X</i>					
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other _____		Remarks: *SVOCS 8270 including Pentachlorophenol and all Tetrachlorophenols and Trichlorophenols.								pH _____ Temp _____	Sample Receipt Checklist		
Samples returned via: UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier _____								Flow _____ Other _____	COC Seal Present/Intact: <input type="checkbox"/> NP <input type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input type="checkbox"/> Y <input type="checkbox"/> N <i>If Applicable</i> VOA Zero Headspace: <input type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input type="checkbox"/> Y <input type="checkbox"/> N				
Relinquished by : (Signature) <i>Rick Palmer</i>		Date: <i>1/31/23</i>	Time: <i>14:00</i>	Received by: (Signature)			Trip Blank Received: Yes / No HCl / MeOH TBR	If preservation required by Login: Date/Time					
Relinquished by : (Signature)		Date:	Time:	Received by: (Signature)			Temp: °C Bottles Received:						
Relinquished by : (Signature)		Date:	Time:	Received for lab by: (Signature)			Date:	Time:	Hold:	Condition: NCF / OK			

# WELLHEAD INSPECTION FORM

Client: KENNEDY JONES Site: 3125 Thompson Ave Van WA Date: 1/31/23  
 Job #: 230131 - RP1 Technician: RUL P Page 1 of 1

Well ID	Well Inspected - No Corrective Action Required	Check indicates deficiency										Notes (list if cap or lid replaced, if there are access issues associated with repairs, if traffic control is required, if stand pipe damaged, or any specific details not covered by checklist)
		Cap non-functional	Lock non-functional	Lock missing	Bolts missing (list qty)	Tabs stripped (list qty)	Tabs broken (list qty)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	
MW-1	X											
MW-2	X											
MW-3	X											
MW-5	X											
MW-6	X											
MW-7	X											
MW-8	X											

NOTES:

## TEST EQUIPMENT CALIBRATION LOG

## PURGE DRUM INVENTORY LOG

CLIENT Kennedy Jenk  
 SITE ADDRESS Tetra Pak 3125 Thompson Ave Van WA

<b>STATUS OF DRUM(S)</b>						
<b>UPON ARRIVAL</b>						
Number of drum(s) empty:	1					
Number of drum(s) 1/4 full:	0					
Number of drum(s) 1/2 full:	0					
Number of drum(s) 3/4 full:	0					
Number of drum(s) full:	0					
Total drum(s) on site:	1					
<b>STATUS OF DRUM(S)</b>						
<b>UPON DEPARTURE</b>						
Number of drum(s) empty:	0					
Number of drum(s) 1/4 full:	1					
Number of drum(s) 1/2 full:	0					
Number of drum(s) 3/4 full:	0					
Number of drum(s) full:	0					
Total drum(s) on site:	1					
<b>LOCATION OF DRUM(S)</b>						
Is/Are drum(s) at wellhead(s)?	No					
Describe location if drum(s) is/are located elsewhere:	East of MW-6 across parking lot alongside bldg					
Label drum(s) properly:	Yes					
<b>FINAL STATUS</b>						
Number of new drum(s) left on site this event:	0					
Date of inspection:	1/31/23					
Logged by BTS Field Technician:	RP					
Office reviewed by:						