Groundwater Sampling Report

November 13, 2023

SITE INFORMATION
Yarrow Bay Marina
5207 Lake Washington Boulevard NE
Kirkland, King County, Washington 98033

PROJECT INFORMATION
Washington Department of Ecology Facility No.: 2486
Washington Department of Ecology VCP No.: NW1791
Washington Department of Ecology Cleanup Site No.: 8780
AEI Project No. 469497

PREPARED FOR
Mr. Dale Myers
Toxics Cleanup Program
Washington State Department of Ecology – NW Regional Office
3169 160th Avenue SE
Bellevue, WA 98008-5452

PREPARED BY
AEI Consultants
2500 Camino Diablo
Walnut Creek, California

1.800.801.3224
www.aeiconsultants.com

DEPARTMENT OF ECOLOGY
State of Washington

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

REQUEST FOR OPINION FORM

Use this form to request a written opinion on your planned or completed independent remedial action under the Voluntary Cleanup Program (VCP). Attach to this form the plans or reports documenting the remedial action. Please submit only one form for each request.

Step 1: IDENTIFY HAZARDOUS WASTE SITE

Please identify below the hazardous waste site for which you are requesting a written opinion under the VCP. This information may be found on the VCP Agreement.

Facility/Site Name: Yarrow Bay Marina	
Facility/Site Address: 5207 Lake Washington Boulevard NE, Kirkland, King County, WA	
Facility/Site No: 33911356	VCP Project No.: NW1791

Step 2: REQUEST WRITTEN OPINION ON PLAN OR REPORT

What type of independent remedial action plan or report are you submitting to Ecology for review under the VCP? Please check all that apply.

- ☐ Remedial investigation plan
- ☐ Remedial investigation report
- ☐ Feasibility study report
- ☐ Property cleanup* plan (* cleanup of one or more parcels located within the Site)
- ☐ Property cleanup* report
- ☐ Site cleanup plan
- ☒ Site cleanup report
- ☐ Other – please specify:

Do you want Ecology to provide you with a written opinion on the planned or completed independent remedial action?

☒ Yes ☐ No

Please note that Ecology's opinion will be limited to:

- Whether the planned or completed remedial action at the site meets the substantive requirements of the Model Toxics Control Act (MTCA), and/or
- Whether further remedial action is necessary at the site under MTCA.

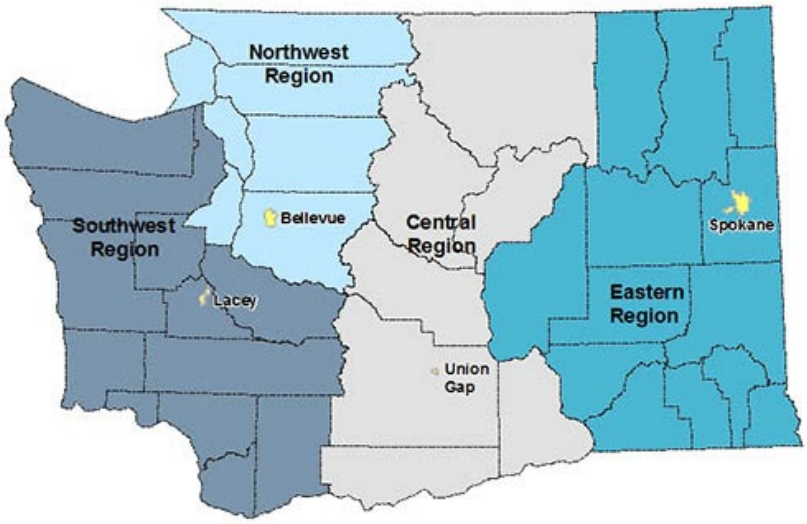
Step 3: REPRESENTATIONS AND SIGNATURE

The undersigned representative of the Customer hereby certifies that he or she is fully authorized to request services from Ecology under the Agreement for this VCP Project.

Name: Natasha Budimirovic		Title: Project Geologist	
Signature:		Date: 11/13/2023	
Organization: AEI Consultants			
Mailing address: 2500 Camino Diablo			
City: Walnut Creek	State: CA	Zip code: 94597	
Phone: (408) 442-2605	Fax:	E-mail: nbudimirovic@aeiconsultants.com	

Step 4: SUBMITTAL

Please mail your completed form and the independent remedial action plan or report that you are requesting Ecology review to the site manager Ecology assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

TABLE OF CONTENTS

November 13, 2023

Mr. Dale Myers
Toxics Cleanup Program
Washington State Department of Ecology – Northwest Regional Office
3169 160th Avenue SE
Bellevue, Washington 98008-5452

Subject: **Groundwater Sampling Report**
5207 Lake Washington Boulevard NE
Kirkland, Washington 98033
AEI Project No. 469497
Washington Department of Ecology Facility No.: 2486
Washington Department of Ecology VCP No.: NW1791
Washington Department of Ecology Cleanup Site No.: 8780

Dear Mr. Myers,

On behalf of Kirkland Yarrow Bay, LLC, AEI Consultants (AEI) has prepared this report to document the groundwater monitoring well sampling activities for the property located at 5207 Lake Washington Boulevard NE, in the city of Kirkland, King County, Washington (the "Site"). In a letter dated January 24, 2017, a *Restrictive Covenant No Further Action (*Restrictive Covenant) was granted by the Washington Department of Ecology that requested three consecutive years of groundwater sampling at the Site. The recent sampling was performed in an effort to satisfy the confirmation groundwater sampling activities as required in the Restrictive Covenant. Based on the results from the three groundwater monitoring events, AEI requests a No Further Action determination for the Site and the removal of the Site from the Confirmed and Suspected Contaminated Site List and Leaking Underground Storage Tank List.

AEI appreciates the opportunity to support this important project. If you have any questions, please do not hesitate to contact me.

Sincerely,

Jeremy Smith
Senior Project Manager

AEI Consultants
2500 Camino Diablo
Walnut Creek, California 94597
Phone: 925.746.6000
Email: jasmith@aeiconsultants.com

1.0 BACKGROUND

A release of petroleum hydrocarbons was discovered at the Site in 2006. After the completion of investigation activities, a *Restrictive Covenant No Further Action* was granted by the Washington State Department of Ecology (WDOE) in their letter dated January 24, 2017, in which three consecutive years of sampling were requested. The first groundwater sampling event was completed on December 8, 2017 by ATC Group Services, LLC (ATC), as documented in their January 9, 2018 *Groundwater Monitoring Report – 2017 Annual Event*. Following the 2017 sampling event, a change of ownership resulted in the unintentional lapse of continued consecutive annual sampling activities. Upon discovery of the oversight during 2022, a sampling event was immediately scheduled in accordance with the no further action letter. On October 7, 2022, AEI conducted the second groundwater monitoring activity at the Site, as described in our November 15, 2022 Groundwater Sampling Report. Results from the second round of the groundwater monitoring collected from well MW-1 indicated that the concentrations of total petroleum hydrocarbon (TPH) and volatile organic compounds (VOCs) were below their respective Method Toxic Control Act (MTCA) Methods A and B levels. Based on the results, AEI recommended no further assessment beyond the third and final groundwater monitoring event to be conducted in October 2023.

The field activities outlined in the below report document the 2023 sampling event and are intended to satisfy the third sampling event required by WDOE in their 2017 letter.

2.0 FIELD ACTIVITIES

AEI performed the third groundwater monitoring event, including groundwater level gauging measurements and groundwater sampling. Tables 1 and 2 summarizes the analytical results.

2.1 Monitoring Well Condition Assessment

Prior to conducting gauging and sampling activities on October 18, 2023, a monitoring well condition assessment of well MW-1 was completed. This assessment consisted of observing the condition of the casing, well box, well plug, bolts, and lid for indications of wear or failure. The inspection found that one bolt needed replacement as the bolt did not fit properly to secure the well box. Additional issues were not observed and the bolt fitting does not pose a condition that would impact the integrity of the planned testing, thus sampling was completed as planned. Well condition report is included in field notes, presented in Appendix A.

2.2 Groundwater Elevation Gauging

Prior to the groundwater sampling activities, a depth-to-groundwater measurement was obtained at monitoring well MW-1 on October 18, 2023. Before the depth to water was measured, the well cap was removed from the well and the well was allowed to equilibrate for 10 minutes. Depth to groundwater was measured from the top of the well casing using an electric water level indicator calibrated to within 0.01 foot, and recorded on field sampling forms, presented in Appendix A.

2.3 Groundwater Sampling Activities

Following groundwater elevation gauging activities, a groundwater sample was obtained from the well. Prior to collection of the sample, the well was purged using low-flow sampling

techniques with a peristaltic pump at a rate of approximately 200 milliliters per minute. During purging and sampling, groundwater quality parameters [e.g., temperature, pH, specific conductivity, dissolved oxygen, turbidity, and oxidation-reduction potential] were collected.

After the groundwater parameters had stabilized, a groundwater sample was collected from the well using the peristaltic pump. The groundwater sample was decanted into laboratory supplied, 40-milliliter, hydrochloric acid-preserved, volatile organic analysis vials, and 1-liter amber bottles. Upon filling and capping each bottle, the bottles were checked for the presence of air bubbles to ensure there was no visible headspace. The sample was labeled and placed in an insulated, ice-chilled cooler for transport under chain-of-custody protocol to Pace Analytical in Mount Juliet, Tennessee. The groundwater sample was analyzed for VOCs using United States Environmental Protection Agency (US EPA) Testing Method 8260B, TPH Gasoline Range Organics (GRO) using Testing Method NWTPH-Gx and TPH Diesel Range Organics (DRO) and TPH Residual Range Organics (RRO) using Testing Method NWTPH-Dx. Due to the detections of TPH RRO slightly above the MTCA Method A, the groundwater sample was additionally analyzed for polycyclic aromatic hydrocarbons (PAHs). Appendix B contains the laboratory analytical report and chain-of-custody documentation.

No notable anomalies or variations to sampling methods are reported during the October 18, 2023, sampling activities.

3.0 FINDINGS

The findings from the groundwater gauging and sampling activities are summarized below.

3.1 Depth to Groundwater Observations

Depth to groundwater was recorded to be 3.86 feet below the top of well casing in the October 18, 2023, event.

3.2 Groundwater Analytical Results

For purposes of providing context to the data generated during this investigation, analytical results were compared to the WDOE MTCA Method A (unrestrictive land use) and Method B (common method for setting clean-up levels), Cleanup Levels and Risk Calculation (CLARC), as referenced in Ecology's CLARC Tables, revised January 2023. The presence of a chemical at concentrations below applicable cleanup levels can generally be assumed to not pose a significant threat to human health or the environment.

Table 1 presents the groundwater analytical results for monitoring event at the Site and the comparative screening levels. The groundwater analytical results from the October 2023 groundwater monitoring event can be summarized as follows (Note: B: the same analyte is found in the associated blank; J: the identification of the analyte is acceptable; however, the reported value is an estimate); T8: the sample(s) received past/too close to the holding time expiration).

- TPH-GRO was detected at a concentration of 62.6 J, B micrograms per liter (µg/L). The detected concentration is below the MTCA Method A cleanup level of 800 µg/L.

- TPH-DRO was detected at a concentration of 246 µg/L. The detected concentration is below the MTCA Method A cleanup level of 500 µg/L.
- TPH-RRO was detected at a concentration of 534 µg/L. The detected concentration is slightly above the MTCA Method A cleanup level of 500 µg/L.
- Toluene was detected at a concentration of 0.137 J µg/L. The detected concentration is below the MTCA Method B noncancer of 640 µg/L and the MTCA Method A of 1,000 µg/L.
- Other VOCs, including benzene, ethylbenzene, and total xylenes were detected either below their respective Method A/B screening levels or below the laboratory reported detection limits (RDLs) in the groundwater sample collected and analyzed as shown on Table 1.

Based on the TPH-RRO concentration detected slightly above the MTCA Method A Cleanup level, groundwater sample MW-1 was additionally analyzed for PAHs to further quantify the detected concentration. Based on the analysis, PAHs were not detected above their respective Method A/B screening levels or above the laboratory RDLs in the groundwater sample collected and analyzed.

4.0 SUMMARY AND CONCLUSIONS

AEI has performed groundwater monitoring and sampling at the Site as described above. The sampling activities were completed to meet the requirement in the *Restrictive Covenant No Further Action,* that was granted by the WDOE in their letter dated January 24, 2017. Results from the third round of the groundwater monitoring collected from well MW-1 indicate that the concentrations of VOCs were below their respective MTCA Methods A and B levels. TPH-RRO was detected at a concentration of 534 µg/L, which slightly exceeds the MTCA Method A unrestricted land use of 500 µg/L; however, results from further PAHs analysis did not yield concentrations of PAHs above their respective Method A/B screening levels or above the laboratory RDLs in the groundwater sample collected and analyzed.

Based on the results from the three groundwater monitoring events, the VOCs and PAHs in groundwater beneath the Site remain below the appliable MTCA screening levels. AEI requests a No Further Action (NFA) determination for the Site and the removal of the Site from the Confirmed and Suspected Contaminated Site List and Leaking Underground Storage Tank List.

5.0 REFERENCES

AEI Consultants, 2022, *Groundwater Sampling Report, 5207 Lake Washington Boulevard NE, Kirkland, Washington, 98033*, dated November 15.

ATC Group Services Inc, 2018, *Groundwater Monitoring Report-2017 Annual Event. 5207 Lake Washington Boulevard NE, Kirkland, Washington 98033,* dated January 9.

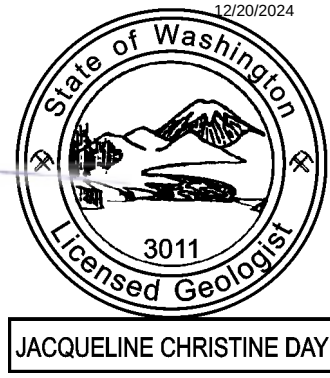
Washington State Department of Ecology, 2017, *Environmental Covenant. 5207 Lake Washington Boulevard NE, Kirkland, Washington 98033,* dated January 24.

Washington State Department of Ecology, 2023, *Method Toxic Control Act (MTCA) Cleanup Levels and Risk Calculation (CLARC) Master Table.* January.

6.0 SIGNATURES

This document was prepared by, or under the direction, of the undersigned.

Expires:
12/20/2024



Natasha Budimirovic
Project Geologist

Jacqueline C. Day, L.G. 3011
Principal Geologist

Figures

LEGEND

Approximate Site Boundary

Map: Kirkland Quadrangle, Washington
Date: 2020
Source: USGS

N

SITE LOCATION MAP

AEI

5207 Lake Washington Blvd. NE
Kirkland, Washington

FIGURE 1
Project No. 469497

LEGEND

Approximate Property Boundary

Groundwater Monitoring Well Location

0 30 60

SCALE: 1″ = 60′
Scale is Approximate

N

SITE MAP

AEI

5207 Lake Washington Blvd. NE
Kirkland, Washington

FIGURE 2
Project No. 469497

Tables

Table 1: GROUNDWATER SAMPLE DATA SUMMARY - VOCs
5207 Lake Washington Boulevard, Kirkland, Washington 98033
AEI Project Number: 469497

Location ID	Date	TPH			VOCs							
		TPH-GRO (µg/L)	TPH-DRO (µg/L)	TPH-RRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Acetone (µg/L)	2-Butanone (MEK) (µg/L)	Methyl tert-butyl ether (µg/L)	Remaining VOCs (µg/L)
MW-1	12/8/2017*	ND<50.0	ND<49.9	ND<99.8	ND<1.0	ND<1.0	ND<1.0	ND<2.0	NA	NA	NA	ND<RDL
	10/7/2022	ND<100	278	312	0.0540	0.407	0.0470 J	0.288	21.1	2.36	0.0940	ND<RDL
	10/18/2023	62.6 B J	246	**534**	ND<0.0400	0.137 J	ND<0.100	ND<0.260	14.6	1.15 C3	0.0820	ND<RDL
Comparison Values:												
WDOE CLARC Method A unrestricted land use		800	500	**500**	5.0	1,000	700	1,000	--	--	20	Various
WDOE CLARC Method B non cancer		--	--	--	32	640	800	1,600	7,200	4,800	--	Various
WDOE CLARC Method B cancer		--	--	--	0.8	--	--	--	--	--	24	Various
WA or Federal Maximum Contaminant Limit (MCL)		--	--	--	5.0	1,000	700	10,000	--	--	--	Various

Notes:

µg/L	micrograms per liter
ND<RDL	not detected above the laboratory reported detection limit
NA	not analyzed
MEK	methyl ethyl ketone
TPH-GRO	total petroleum hydrocarbons as gasoline
TPH-DRO	total petroleum hydrocarbons as diesel
TPH-RRO	total petroleum hydrocarbons as motor oil (residual range organics)
VOCs	volatile organic compounds
--	no comparison value established
B	The same analyte is found in the associated blank.
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
J	The identification of the analyte is acceptable; the reported value is an estimate.
*	Sampled by ATC Group Services Inc.

Comparison Values:

WDOE CLARC	Washington Department of Ecology Cleanup Levels and Risk Calculation for cancer and noncancer risk drivers for individual chemicals (WDOE, January 2023)

Table 2: GROUNDWATER SAMPLE DATA SUMMARY - PAHs
5207 Lake Washington Boulevard, Kirkland, Washington 98033
AEI Project Number: 469497

Location ID	Date	Acenaphthene (µg/L)	Anthracene (µg/L)	Fluoranthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Pyrene (µg/L)	Remaining PAHs (µg/L)
MW-1	10/18/2023	0.784 T8	0.0282 J, T8	0.0506 J, T8	0.0361 T8	0.167 T8	0.0336 T8	ND<RDL
Comparison Values:								
WDOE CLARC Method A unrestricted land use		--	--	--	--	--	--	Various
WDOE CLARC Method B non cancer		480	2,400	640	320	--	240	Various
WDOE CLARC Method B cancer		--	--	--	--	--	--	Various
WA or Federal Maximum Contaminant Limit (MCL)		--	--	--	--	--	--	Various

Notes:

µg/L	micrograms per liter
ND<RDL	not detected above the laboratory reported detection limit
PAHs	polycyclic aromatic hydrocarbons
--	no comparison value established
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

Comparison Values:

WDOE CLARC	Washington Department of Ecology Cleanup Levels and Risk Calculation for cancer and noncancer risk drivers for individual chemicals (WDOE, January 2023)

Appendix B

Laboratory Analytical Reports

Water Level Field Data Sheet
5207 Lake WA Blvd. NE
Kirkladn, WA

Project Name: Yarrow Bay Marina

Project No.: 469497

Field Personnel: N. Budimirovic

Site Location: 5207 Lake Washington Blvd. NE, Kirkland, WA

Date: 10/18/2023

Well ID	Screen Interval (ft BTOC)	Total Depth (ft BTOC)	Depth to Water (Previous Year) (ft BTOC)	Casing Diameter (in.)	LNAPL Observed (Y/N)[1]	Time	Depth to Water (ft BTOC)	Depth to Bottom (ft BTOC)	Condition (G = Good, N = Needs Replaced, R = Replaced during event)			Comments
									Well Cap	Bolts	Well Lid	
MW-1	-	8.34	3.92	2	N	1230	3.86	8.34	G	N	G	

Note: BTOC = below top of casing
N/A = not available
NM = not measured

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Low Flow Sampling

Monitoring Well ID:	MW-1

Project Name:	Yarrow Bay Marina	Date of Sampling:	10/18/2023
Job Number:	469497	Name of Sampler:	N. Budimirovic
Project Address:	5207 Lake Washington Boulevard NE, Kirkland, WA		

MONITORING WELL DATA

Well Casing Diameter (inches)	2"		
Static Depth to Groundwater (feet below top of casing)	3.86		
Total Well Depth (feet below top of casing)	8.34		
Screened Interval (feet below top of casing)	-		
Pump Intake Position (feet above bottom of casing)	Default = Middle of saturated screened interval		
Free Product Present?	No	Thickness (ft):	-

GROUNDWATER EQUILIBRATION

Time	Depth to Groundwater	Flow rate (ml/min)	Temperature (deg C)	Conductivity (µg/cm)	DO (mg/L)	pH (-)	ORP (meV)	Turbidity (NTU)	Comments
Stabilization Criteria [1]	<4" Drawdown	>500 ml/min	± 1	± 3%	±0.3	± 0.1	± 10	<10	(as needed)
1242	3.86	200	22.79	802	6.98	8.60	-110.7	91.3	
1245	3.91	200	21.63	721	5.33	8.71	-81.3	83.5	
1248	3.93	200	21.41	660	5.87	8.77	-63.3	79.7	
1251	3.95	200	21.50	644	5.32	8.73	-69.1	76.3	
1254	3.97	200	21.43	641	4.92	8.75	-66.2	60.3	
1257	3.97	200	21.41	645	4.96	8.75	-64.3	63.1	

SAMPLING

Sample Time	Sample ID	Containers	Analysis	TAT	Comments
1305	MW-1	13	TPH, VOCs	STAT	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

[1]: As perscribed by the *Representative Sampling of Groundwater for Hazardous Substances* (DTSC 2006)

Appendix A
Field Data Sheets

ANALYTICAL REPORT

November 06, 2023

Revised Report

AEI Consultants - CA

Sample Delivery Group:	L1668387
Samples Received:	10/20/2023
Project Number:	469497
Description:	Yarrow Bay Yacht Basin and Marina

Report To:

Natasha Budimirovic
2500 Camino Diablo
Walnut Creek, CA 94597

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.

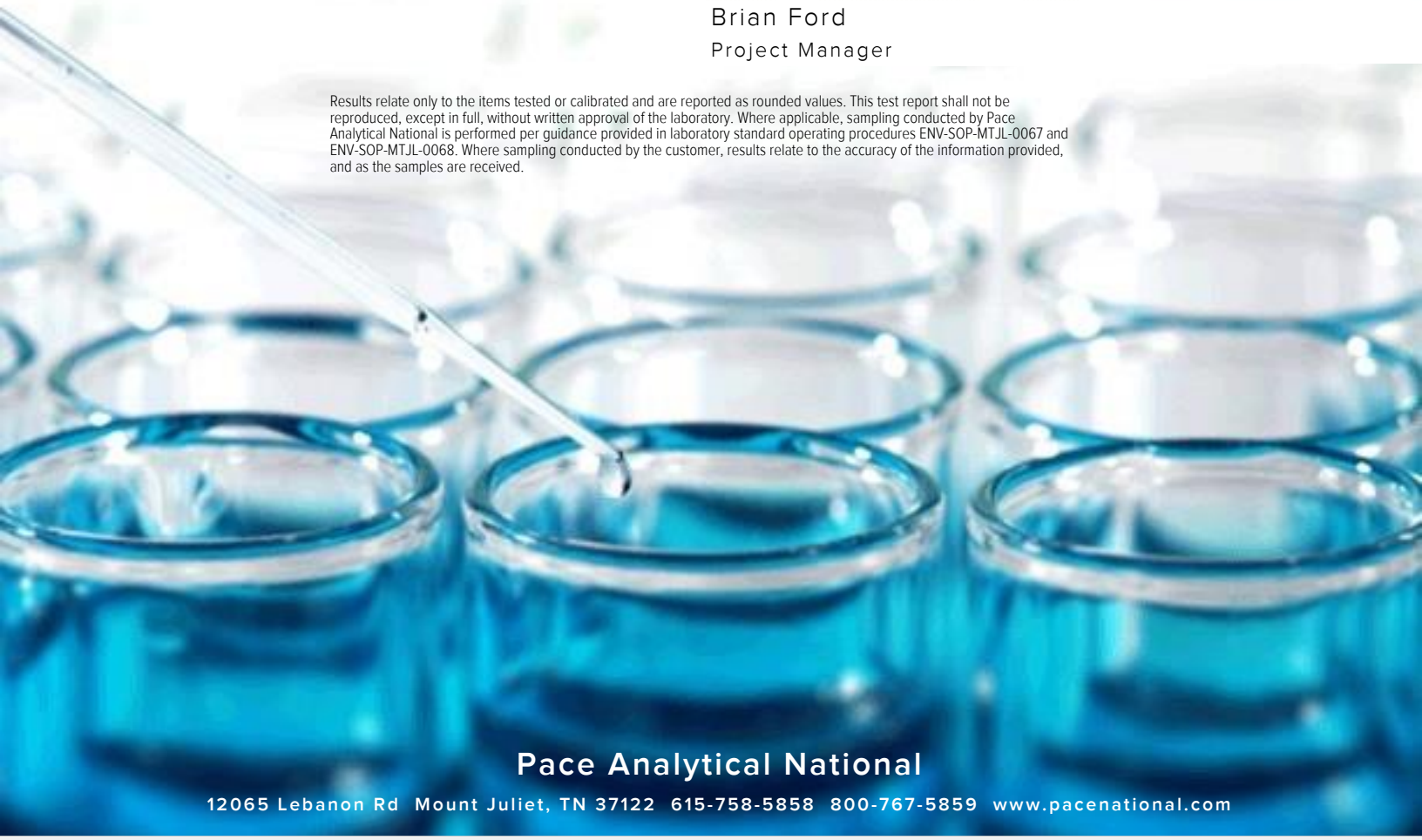


TABLE OF CONTENTS

SAMPLE SUMMARY

MW-1 L1668387-01 GW

Collected by	Collected date/time	Received date/time
Natasha Budimirovic	10/18/23 13:05	10/20/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2157161	1	10/24/23 21:29	10/24/23 21:29	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2158928	1	10/27/23 00:29	10/27/23 00:29	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2157367	1	10/25/23 07:10	10/27/23 02:40	DMG	Mt. Juliet, TN

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

Report Revision History

Level II Report - Version 1: 10/27/23 18:00

Project Narrative

revised: updated sample ID to MW-1.

Sample Delivery Group (SDG) Narrative

pH outside of method requirement.

Lab Sample ID	Project Sample ID	Method
L1668387-01	MW-1	8260D

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	62.6	B J	31.6	100	1	10/24/2023 21:29	WG2157161
(S) a,a,a-Trifluorotoluene(FID)	*112*			*78.0-120*		*10/24/2023 21:29*	WG2157161

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	14.6		0.548	1.00	1	10/27/2023 00:29	WG2158928
Acrylonitrile	U		0.0760	0.500	1	10/27/2023 00:29	WG2158928
Acrolein	U	C3	0.758	50.0	1	10/27/2023 00:29	WG2158928
Benzene	U		0.0160	0.0400	1	10/27/2023 00:29	WG2158928
Bromobenzene	U		0.0420	0.500	1	10/27/2023 00:29	WG2158928
Bromodichloromethane	U		0.0315	0.100	1	10/27/2023 00:29	WG2158928
Bromoform	U		0.239	1.00	1	10/27/2023 00:29	WG2158928
Bromomethane	U		0.148	0.500	1	10/27/2023 00:29	WG2158928
n-Butylbenzene	U		0.153	0.500	1	10/27/2023 00:29	WG2158928
sec-Butylbenzene	U		0.101	0.500	1	10/27/2023 00:29	WG2158928
tert-Butylbenzene	U		0.0620	0.200	1	10/27/2023 00:29	WG2158928
Carbon tetrachloride	U		0.0432	0.200	1	10/27/2023 00:29	WG2158928
Chlorobenzene	U		0.0229	0.100	1	10/27/2023 00:29	WG2158928
Chlorodibromomethane	U		0.0180	0.100	1	10/27/2023 00:29	WG2158928
Chloroethane	U		0.0432	0.200	1	10/27/2023 00:29	WG2158928
Chloroform	U		0.0166	0.100	1	10/27/2023 00:29	WG2158928
Chloromethane	U		0.0556	0.500	1	10/27/2023 00:29	WG2158928
2-Chlorotoluene	U		0.0368	0.100	1	10/27/2023 00:29	WG2158928
4-Chlorotoluene	U		0.0452	0.200	1	10/27/2023 00:29	WG2158928
1,2-Dibromo-3-Chloropropane	U		0.204	1.00	1	10/27/2023 00:29	WG2158928
1,2-Dibromoethane	U		0.0210	0.100	1	10/27/2023 00:29	WG2158928
Dibromomethane	U		0.0400	0.200	1	10/27/2023 00:29	WG2158928
1,2-Dichlorobenzene	U		0.0580	0.200	1	10/27/2023 00:29	WG2158928
1,3-Dichlorobenzene	U		0.0680	0.200	1	10/27/2023 00:29	WG2158928
1,4-Dichlorobenzene	U		0.0788	0.200	1	10/27/2023 00:29	WG2158928
Dichlorodifluoromethane	U	C3	0.0327	0.100	1	10/27/2023 00:29	WG2158928
1,1-Dichloroethane	U		0.0230	0.100	1	10/27/2023 00:29	WG2158928
1,2-Dichloroethane	U		0.0190	0.100	1	10/27/2023 00:29	WG2158928
1,1-Dichloroethene	U		0.0200	0.100	1	10/27/2023 00:29	WG2158928
cis-1,2-Dichloroethene	U		0.0276	0.100	1	10/27/2023 00:29	WG2158928
trans-1,2-Dichloroethene	U		0.0572	0.200	1	10/27/2023 00:29	WG2158928
1,2-Dichloropropane	U		0.0508	0.200	1	10/27/2023 00:29	WG2158928
1,1-Dichloropropene	U		0.0280	0.100	1	10/27/2023 00:29	WG2158928
1,3-Dichloropropane	U		0.0700	0.200	1	10/27/2023 00:29	WG2158928
cis-1,3-Dichloropropene	U		0.0271	0.100	1	10/27/2023 00:29	WG2158928
trans-1,3-Dichloropropene	U		0.0612	0.200	1	10/27/2023 00:29	WG2158928
2,2-Dichloropropane	U		0.0317	0.100	1	10/27/2023 00:29	WG2158928
Di-isopropyl ether	U		0.0140	0.0400	1	10/27/2023 00:29	WG2158928
Ethylbenzene	U		0.0212	0.100	1	10/27/2023 00:29	WG2158928
Hexachloro-1,3-butadiene	U		0.508	1.00	1	10/27/2023 00:29	WG2158928
Isopropylbenzene	U		0.0345	0.100	1	10/27/2023 00:29	WG2158928
p-Isopropyltoluene	U		0.0932	0.200	1	10/27/2023 00:29	WG2158928
2-Butanone (MEK)	1.15	C3	0.500	1.00	1	10/27/2023 00:29	WG2158928
Methylene Chloride	U		0.265	1.00	1	10/27/2023 00:29	WG2158928
4-Methyl-2-pentanone (MIBK)	U		0.400	1.00	1	10/27/2023 00:29	WG2158928
Methyl tert-butyl ether	0.0820		0.0118	0.0400	1	10/27/2023 00:29	WG2158928
Naphthalene	U		0.124	0.500	1	10/27/2023 00:29	WG2158928
n-Propylbenzene	U		0.0472	0.200	1	10/27/2023 00:29	WG2158928

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Styrene	U		0.109	0.500	1	10/27/2023 00:29	WG2158928
1,1,1,2-Tetrachloroethane	U		0.0200	0.100	1	10/27/2023 00:29	WG2158928
1,1,2,2-Tetrachloroethane	U		0.0156	0.100	1	10/27/2023 00:29	WG2158928
1,1,2-Trichlorotrifluoroethane	U		0.0270	0.100	1	10/27/2023 00:29	WG2158928
Tetrachloroethene	U		0.0280	0.100	1	10/27/2023 00:29	WG2158928
Toluene	0.137	J	0.0500	0.200	1	10/27/2023 00:29	WG2158928
1,2,3-Trichlorobenzene	U		0.0250	0.500	1	10/27/2023 00:29	WG2158928
1,2,4-Trichlorobenzene	U		0.193	0.500	1	10/27/2023 00:29	WG2158928
1,1,1-Trichloroethane	U		0.0110	0.100	1	10/27/2023 00:29	WG2158928
1,1,2-Trichloroethane	U		0.0353	0.100	1	10/27/2023 00:29	WG2158928
Trichloroethene	U		0.0160	0.0400	1	10/27/2023 00:29	WG2158928
Trichlorofluoromethane	U		0.0200	0.100	1	10/27/2023 00:29	WG2158928
1,2,3-Trichloropropane	U		0.204	0.500	1	10/27/2023 00:29	WG2158928
1,2,4-Trimethylbenzene	U		0.0464	0.200	1	10/27/2023 00:29	WG2158928
1,2,3-Trimethylbenzene	U		0.0460	0.200	1	10/27/2023 00:29	WG2158928
1,3,5-Trimethylbenzene	U		0.0432	0.200	1	10/27/2023 00:29	WG2158928
Vinyl chloride	U	C3	0.0273	0.100	1	10/27/2023 00:29	WG2158928
Xylenes, Total	U		0.191	0.260	1	10/27/2023 00:29	WG2158928
(S) Toluene-d8	*103*			*75.0-131*		*10/27/2023 00:29*	WG2158928
(S) 4-Bromofluorobenzene	*94.4*			*67.0-138*		*10/27/2023 00:29*	WG2158928
(S) 1,2-Dichloroethane-d4	*88.2*			*70.0-130*		*10/27/2023 00:29*	WG2158928

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	246		66.7	200	1	10/27/2023 02:40	WG2157367
Residual Range Organics (RRO)	534		83.3	250	1	10/27/2023 02:40	WG2157367
(S) o-Terphenyl	*74.7*			*52.0-156*		*10/27/2023 02:40*	WG2157367

Sample Narrative:

L1668387-01 WG2157367: Sample does not resemble laboratory standards.

Method Blank (MB)

(MB) R3991076-3 10/24/23 16:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	56.9	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*113*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3991076-1 10/24/23 14:56 • (LCSD) R3991076-2 10/24/23 15:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	4730	5200	86.0	94.5	70.0-124			9.47	20
(S) a,a,a-Trifluorotoluene(FID)				*118*	*119*	*78.0-120*				

Method Blank (MB)

(MB) R3992011-3 10/26/23 17:34

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		0.548	1.00
Acrylonitrile	U		0.0760	0.500
Acrolein	U		0.758	50.0
Benzene	U		0.0160	0.0400
Bromobenzene	U		0.0420	0.500
Bromodichloromethane	U		0.0315	0.100
Bromoform	U		0.239	1.00
Bromomethane	U		0.148	0.500
n-Butylbenzene	U		0.153	0.500
sec-Butylbenzene	U		0.101	0.500
tert-Butylbenzene	U		0.0620	0.200
Carbon tetrachloride	U		0.0432	0.200
Chlorobenzene	U		0.0229	0.100
Chlorodibromomethane	U		0.0180	0.100
Chloroethane	U		0.0432	0.200
Chloroform	U		0.0166	0.100
Chloromethane	U		0.0556	0.500
2-Chlorotoluene	U		0.0368	0.100
4-Chlorotoluene	U		0.0452	0.200
1,2-Dibromo-3-Chloropropane	U		0.204	1.00
1,2-Dibromoethane	U		0.0210	0.100
Dibromomethane	U		0.0400	0.200
1,2-Dichlorobenzene	U		0.0580	0.200
1,3-Dichlorobenzene	U		0.0680	0.200
1,4-Dichlorobenzene	U		0.0788	0.200
Dichlorodifluoromethane	U		0.0327	0.100
1,1-Dichloroethane	U		0.0230	0.100
1,2-Dichloroethane	U		0.0190	0.100
1,1-Dichloroethene	U		0.0200	0.100
cis-1,2-Dichloroethene	U		0.0276	0.100
trans-1,2-Dichloroethene	U		0.0572	0.200
1,2-Dichloropropane	U		0.0508	0.200
1,1-Dichloropropene	U		0.0280	0.100
1,3-Dichloropropane	U		0.0700	0.200
cis-1,3-Dichloropropene	U		0.0271	0.100
trans-1,3-Dichloropropene	U		0.0612	0.200
2,2-Dichloropropane	U		0.0317	0.100
Di-isopropyl ether	U		0.0140	0.0400
Ethylbenzene	U		0.0212	0.100
Hexachloro-1,3-butadiene	U		0.508	1.00

Method Blank (MB)

(MB) R3992011-3 10/26/23 17:34

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Isopropylbenzene	U		0.0345	0.100
p-Isopropyltoluene	U		0.0932	0.200
2-Butanone (MEK)	U		0.500	1.00
Methylene Chloride	U		0.265	1.00
4-Methyl-2-pentanone (MIBK)	U		0.400	1.00
Methyl tert-butyl ether	U		0.0118	0.0400
Naphthalene	U		0.124	0.500
n-Propylbenzene	U		0.0472	0.200
Styrene	U		0.109	0.500
1,1,1,2-Tetrachloroethane	U		0.0200	0.100
1,1,2,2-Tetrachloroethane	U		0.0156	0.100
1,1,2-Trichlorotrifluoroethane	U		0.0270	0.100
Tetrachloroethene	U		0.0280	0.100
Toluene	U		0.0500	0.200
1,2,3-Trichlorobenzene	U		0.0250	0.500
1,2,4-Trichlorobenzene	U		0.193	0.500
1,1,1-Trichloroethane	U		0.0110	0.100
1,1,2-Trichloroethane	U		0.0353	0.100
Trichloroethene	U		0.0160	0.0400
Trichlorofluoromethane	U		0.0200	0.100
1,2,3-Trichloropropane	U		0.204	0.500
1,2,4-Trimethylbenzene	U		0.0464	0.200
1,2,3-Trimethylbenzene	U		0.0460	0.200
1,3,5-Trimethylbenzene	U		0.0432	0.200
Vinyl chloride	U		0.0273	0.100
Xylenes, Total	U		0.191	0.260
(S) Toluene-d8	*103*			*75.0-131*
(S) 4-Bromofluorobenzene	*91.9*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*89.3*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3992011-1 10/26/23 15:59 • (LCSD) R3992011-2 10/26/23 16:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	23.2	22.6	92.8	90.4	10.0-160			2.62	31
Acrylonitrile	25.0	22.6	23.1	90.4	92.4	45.0-153			2.19	22
Acrolein	25.0	10.3	10.2	41.2	40.8	10.0-160			0.976	31
Benzene	5.00	4.98	4.90	99.6	98.0	70.0-123			1.62	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3992011-1 10/26/23 15:59 • (LCSD) R3992011-2 10/26/23 16:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	5.00	5.54	5.73	111	115	73.0-121			3.37	20
Bromodichloromethane	5.00	5.35	5.29	107	106	73.0-121			1.13	20
Bromoform	5.00	4.91	4.81	98.2	96.2	64.0-132			2.06	20
Bromomethane	5.00	5.35	5.04	107	101	56.0-147			5.97	20
n-Butylbenzene	5.00	4.43	4.48	88.6	89.6	68.0-135			1.12	20
sec-Butylbenzene	5.00	4.53	4.80	90.6	96.0	74.0-130			5.79	20
tert-Butylbenzene	5.00	4.62	4.87	92.4	97.4	75.0-127			5.27	20
Carbon tetrachloride	5.00	4.95	4.84	99.0	96.8	66.0-128			2.25	20
Chlorobenzene	5.00	5.05	5.07	101	101	76.0-128			0.395	20
Chlorodibromomethane	5.00	4.87	4.95	97.4	99.0	74.0-127			1.63	20
Chloroethane	5.00	4.80	4.54	96.0	90.8	61.0-134			5.57	20
Chloroform	5.00	5.13	5.03	103	101	72.0-123			1.97	20
Chloromethane	5.00	4.18	3.99	83.6	79.8	51.0-138			4.65	20
2-Chlorotoluene	5.00	5.05	5.23	101	105	75.0-124			3.50	20
4-Chlorotoluene	5.00	5.07	5.24	101	105	75.0-124			3.30	20
1,2-Dibromo-3-Chloropropane	5.00	4.49	4.57	89.8	91.4	59.0-130			1.77	20
1,2-Dibromoethane	5.00	5.10	5.19	102	104	74.0-128			1.75	20
Dibromomethane	5.00	5.33	5.28	107	106	75.0-122			0.943	20
1,2-Dichlorobenzene	5.00	4.77	4.77	95.4	95.4	76.0-124			0.000	20
1,3-Dichlorobenzene	5.00	5.12	5.11	102	102	76.0-125			0.196	20
1,4-Dichlorobenzene	5.00	4.91	5.01	98.2	100	77.0-121			2.02	20
Dichlorodifluoromethane	5.00	3.49	3.65	69.8	73.0	43.0-156			4.48	20
1,1-Dichloroethane	5.00	4.36	4.21	87.2	84.2	70.0-127			3.50	20
1,2-Dichloroethane	5.00	4.98	4.81	99.6	96.2	65.0-131			3.47	20
1,1-Dichloroethene	5.00	4.04	3.96	80.8	79.2	65.0-131			2.00	20
cis-1,2-Dichloroethene	5.00	4.93	4.82	98.6	96.4	73.0-125			2.26	20
trans-1,2-Dichloroethene	5.00	4.85	4.93	97.0	98.6	71.0-125			1.64	20
1,2-Dichloropropane	5.00	4.57	4.63	91.4	92.6	74.0-125			1.30	20
1,1-Dichloropropene	5.00	4.83	4.88	96.6	97.6	73.0-125			1.03	20
1,3-Dichloropropane	5.00	5.07	5.35	101	107	80.0-125			5.37	20
cis-1,3-Dichloropropene	5.00	5.26	5.58	105	112	76.0-127			5.90	20
trans-1,3-Dichloropropene	5.00	5.05	5.35	101	107	73.0-127			5.77	20
2,2-Dichloropropane	5.00	5.62	4.93	112	98.6	59.0-135			13.1	20
Di-isopropyl ether	5.00	4.07	4.08	81.4	81.6	60.0-136			0.245	20
Ethylbenzene	5.00	4.91	4.98	98.2	99.6	74.0-126			1.42	20
Hexachloro-1,3-butadiene	5.00	4.72	5.07	94.4	101	57.0-150			7.15	20
Isopropylbenzene	5.00	4.62	4.67	92.4	93.4	72.0-127			1.08	20
p-Isopropyltoluene	5.00	4.50	4.61	90.0	92.2	72.0-133			2.41	20
2-Butanone (MEK)	25.0	19.7	21.0	78.8	84.0	30.0-160			6.39	24
Methylene Chloride	5.00	4.63	4.96	92.6	99.2	68.0-123			6.88	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3992011-1 10/26/23 15:59 • (LCSD) R3992011-2 10/26/23 16:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	25.0	22.7	23.4	90.8	93.6	56.0-143			3.04	20
Methyl tert-butyl ether	5.00	5.34	5.42	107	108	66.0-132			1.49	20
Naphthalene	5.00	4.02	4.01	80.4	80.2	59.0-130			0.249	20
n-Propylbenzene	5.00	4.99	5.13	99.8	103	74.0-126			2.77	20
Styrene	5.00	4.35	4.55	87.0	91.0	72.0-127			4.49	20
1,1,1,2-Tetrachloroethane	5.00	4.90	5.00	98.0	100	74.0-129			2.02	20
1,1,2,2-Tetrachloroethane	5.00	5.23	5.29	105	106	68.0-128			1.14	20
1,1,2-Trichlorotrifluoroethane	5.00	4.54	4.25	90.8	85.0	61.0-139			6.60	20
Tetrachloroethene	5.00	5.23	5.27	105	105	70.0-136			0.762	20
Toluene	5.00	4.90	5.01	98.0	100	75.0-121			2.22	20
1,2,3-Trichlorobenzene	5.00	4.75	4.69	95.0	93.8	59.0-139			1.27	20
1,2,4-Trichlorobenzene	5.00	4.70	4.58	94.0	91.6	62.0-137			2.59	20
1,1,1-Trichloroethane	5.00	5.03	4.74	101	94.8	69.0-126			5.94	20
1,1,2-Trichloroethane	5.00	5.10	5.35	102	107	78.0-123			4.78	20
Trichloroethene	5.00	5.11	5.17	102	103	76.0-126			1.17	20
Trichlorofluoromethane	5.00	5.63	5.74	113	115	61.0-142			1.93	20
1,2,3-Trichloropropane	5.00	5.74	5.82	115	116	67.0-129			1.38	20
1,2,4-Trimethylbenzene	5.00	4.80	4.87	96.0	97.4	70.0-126			1.45	20
1,2,3-Trimethylbenzene	5.00	4.73	4.75	94.6	95.0	74.0-124			0.422	20
1,3,5-Trimethylbenzene	5.00	4.77	5.04	95.4	101	73.0-127			5.50	20
Vinyl chloride	5.00	3.97	3.98	79.4	79.6	63.0-134			0.252	20
Xylenes, Total	15.0	13.9	14.3	92.7	95.3	72.0-127			2.84	20
(S) Toluene-d8				*99.2*	*99.4*	*75.0-131*				
(S) 4-Bromofluorobenzene				*95.5*	*93.7*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*99.7*	*96.2*	*70.0-130*				

Method Blank (MB)

(MB) R3990917-1 10/25/23 13:15

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*111*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3990917-2 10/25/23 13:36 • (LCSD) R3990917-3 10/25/23 13:56

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1500	1250	1370	83.3	91.3	50.0-150			9.16	20
(S) o-Terphenyl				*117*	*131*	*52.0-156*				

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.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
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.
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
B	The same analyte is found in the associated blank.
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
J	The identification of the analyte is acceptable; the reported value is an estimate.

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 [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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.

Company Name/Address:
AEI Consultants - CA

2500 Camino Diablo
Walnut Creek, CA 94597

Billing Information:
Accounts Payable- Jeremy Smith
2500 Camino Diablo
Walnut Creek, CA 94597

Pres Chk

Report to:
Natasha Budimirovic, Jeremy Smith

Email To: **nbudimirovic@aeiconsultants.com**
jasmith@aeiconsultants.com

Project Description: Yarrow Bay Yacht Basin and Marina

City/State Collected: Kirkland, WA

Please Circle: (PT) MT CT ET

Phone: **925-746-6000**

Client Project # 469497

Lab Project # **AEICONWCCA-KIRKFEDEX**

Collected by (print): NATASHA BUDIMIROVIC

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ✓ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	HOLD - EPHWA 1L-Amb-Add HCl	HOLD - VPHWA 40mlAmb HCl	NWTPHDX no silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	VOCs 8260ULL 40mlAmb-HCl	Remarks	Sample # (lab only)
MW-1	grab	GW	—	10-18-23	1305	13			X	X	X		01
		GW											

Chain of Custody Page 1 of 1

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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/hubfs/pas-standard-terms.pdf

SDG # L668387
E081

Acctnum: **AEICONWCCA**
Template: **T239898**
Prelogin: **P1030836**
PM: **110 - Brian Ford**
PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	10-18-23	1425	Shipped via FedEx
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			TONY MANCHINI

Trip Blank Received: Yes / No
HCL / MeoH
TBR
3

Temp: 2.0+0=2.0 °C Bottles Received: 13

Date: 10/19/23 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

November 06, 2023

Revised Report

AEI Consultants - CA

Sample Delivery Group:	L1671935
Samples Received:	10/20/2023
Project Number:	469497
Description:	Yarrow Bay Yacht Basin and Marina

Report To:

Natasha Budimirovic
2500 Camino Diablo
Walnut Creek, CA 94597

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.

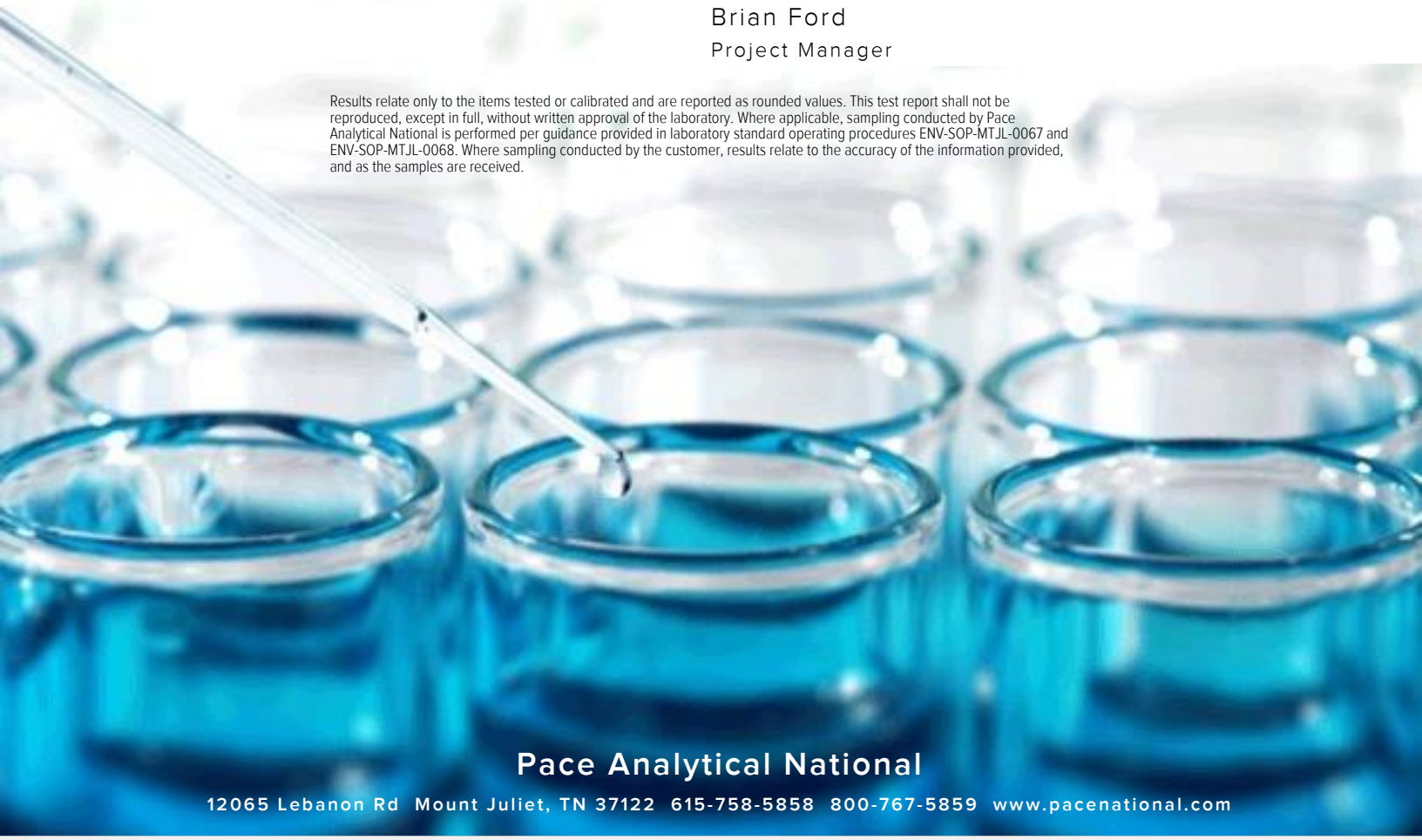

TABLE OF CONTENTS

SAMPLE SUMMARY

MW-1 L1671935-01 GW

Collected by	Collected date/time	Received date/time
Natasha Budimirovic	10/18/23 13:05	10/20/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2162302	1	11/01/23 17:17	11/02/23 01:26	JCH	Mt. Juliet, TN

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

Report Revision History

Level II Report - Version 1: 11/03/23 14:06

Project Narrative

revised: updated sample ID to MW-1.

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	0.0282	J T8	0.0190	0.0500	1	11/02/2023 01:26	WG2162302
Acenaphthene	0.784	T8	0.0190	0.0500	1	11/02/2023 01:26	WG2162302
Acenaphthylene	U	T8	0.0171	0.0500	1	11/02/2023 01:26	WG2162302
Benzo(a)anthracene	U	T8	0.0203	0.0500	1	11/02/2023 01:26	WG2162302
Benzo(a)pyrene	U	T8	0.0184	0.0500	1	11/02/2023 01:26	WG2162302
Benzo(b)fluoranthene	U	T8	0.0168	0.0500	1	11/02/2023 01:26	WG2162302
Benzo(g,h,i)perylene	U	T8	0.0184	0.0500	1	11/02/2023 01:26	WG2162302
Benzo(k)fluoranthene	U	T8	0.0202	0.0500	1	11/02/2023 01:26	WG2162302
Chrysene	U	T8	0.0179	0.0500	1	11/02/2023 01:26	WG2162302
Dibenz(a,h)anthracene	U	T8	0.0160	0.0500	1	11/02/2023 01:26	WG2162302
Fluoranthene	0.0506	J T8	0.0270	0.100	1	11/02/2023 01:26	WG2162302
Fluorene	0.0361	J T8	0.0169	0.0500	1	11/02/2023 01:26	WG2162302
Indeno(1,2,3-cd)pyrene	U	T8	0.0158	0.0500	1	11/02/2023 01:26	WG2162302
Naphthalene	U	T8	0.0917	0.250	1	11/02/2023 01:26	WG2162302
Phenanthrene	0.167	T8	0.0180	0.0500	1	11/02/2023 01:26	WG2162302
Pyrene	0.0336	J T8	0.0169	0.0500	1	11/02/2023 01:26	WG2162302
1-Methylnaphthalene	U	T8	0.0687	0.250	1	11/02/2023 01:26	WG2162302
2-Methylnaphthalene	U	T8	0.0674	0.250	1	11/02/2023 01:26	WG2162302
2-Chloronaphthalene	U	T8	0.0682	0.250	1	11/02/2023 01:26	WG2162302
(S) Nitrobenzene-d5	*82.6*			*31.0-160*		*11/02/2023 01:26*	WG2162302
(S) 2-Fluorobiphenyl	*82.6*			*48.0-148*		*11/02/2023 01:26*	WG2162302
(S) p-Terphenyl-d14	*64.2*			*37.0-146*		*11/02/2023 01:26*	WG2162302

Method Blank (MB)

(MB) R3994699-3 11/01/23 23:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0190	0.0500
Acenaphthene	U		0.0190	0.0500
Acenaphthylene	U		0.0171	0.0500
Benzo(a)anthracene	U		0.0203	0.0500
Benzo(a)pyrene	U		0.0184	0.0500
Benzo(b)fluoranthene	U		0.0168	0.0500
Benzo(g,h,i)perylene	U		0.0184	0.0500
Benzo(k)fluoranthene	U		0.0202	0.0500
Chrysene	U		0.0179	0.0500
Dibenz(a,h)anthracene	U		0.0160	0.0500
Fluoranthene	U		0.0270	0.100
Fluorene	U		0.0169	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0158	0.0500
Naphthalene	U		0.0917	0.250
Phenanthrene	U		0.0180	0.0500
Pyrene	U		0.0169	0.0500
1-Methylnaphthalene	U		0.0687	0.250
2-Methylnaphthalene	U		0.0674	0.250
2-Chloronaphthalene	U		0.0682	0.250
(S) Nitrobenzene-d5	*76.0*			*31.0-160*
(S) 2-Fluorobiphenyl	*79.5*			*48.0-148*
(S) p-Terphenyl-d14	*75.0*			*37.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3994699-1 11/01/23 22:47 • (LCSD) R3994699-2 11/01/23 23:04

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	1.56	1.49	78.0	74.5	67.0-150			4.59	20
Acenaphthene	2.00	1.58	1.54	79.0	77.0	65.0-138			2.56	20
Acenaphthylene	2.00	1.64	1.59	82.0	79.5	66.0-140			3.10	20
Benzo(a)anthracene	2.00	1.65	1.61	82.5	80.5	61.0-140			2.45	20
Benzo(a)pyrene	2.00	1.59	1.57	79.5	78.5	60.0-143			1.27	20
Benzo(b)fluoranthene	2.00	1.59	1.55	79.5	77.5	58.0-141			2.55	20
Benzo(g,h,i)perylene	2.00	1.46	1.47	73.0	73.5	52.0-153			0.683	20
Benzo(k)fluoranthene	2.00	1.51	1.49	75.5	74.5	58.0-148			1.33	20
Chrysene	2.00	1.65	1.61	82.5	80.5	64.0-144			2.45	20
Dibenz(a,h)anthracene	2.00	1.43	1.41	71.5	70.5	52.0-155			1.41	20
Fluoranthene	2.00	1.70	1.63	85.0	81.5	69.0-153			4.20	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3994699-1 11/01/23 22:47 • (LCSD) R3994699-2 11/01/23 23:04

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	2.00	1.70	1.64	85.0	82.0	64.0-136			3.59	20
Indeno(1,2,3-cd)pyrene	2.00	1.51	1.52	75.5	76.0	54.0-153			0.660	20
Naphthalene	2.00	1.68	1.61	84.0	80.5	61.0-137			4.26	20
Phenanthrene	2.00	1.61	1.58	80.5	79.0	62.0-137			1.88	20
Pyrene	2.00	1.67	1.64	83.5	82.0	60.0-142			1.81	20
1-Methylnaphthalene	2.00	1.67	1.61	83.5	80.5	66.0-142			3.66	20
2-Methylnaphthalene	2.00	1.73	1.67	86.5	83.5	62.0-136			3.53	20
2-Chloronaphthalene	2.00	1.65	1.61	82.5	80.5	64.0-140			2.45	20
(S) Nitrobenzene-d5				*80.5*	*76.0*	*31.0-160*				
(S) 2-Fluorobiphenyl				*80.0*	*80.0*	*48.0-148*				
(S) p-Terphenyl-d14				*73.5*	*72.0*	*37.0-146*				

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.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
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.
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.
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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.
T8	Sample(s) received past/too close to holding time expiration.

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 [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	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 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] 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.

Company Name/Address:
AEI Consultants - CA

2500 Camino Diablo
Walnut Creek, CA 94597

Billing Information:
Accounts Payable- Jeremy Smith
2500 Camino Diablo
Walnut Creek, CA 94597

Pres Chk

Report to: Natasha Budimirovic; Jeremy Smith
Email To: nbudimirovic@aeiconsultants.com; jasmith@aeiconsultants.com

Project Description: Yarrow Bay Yacht Basin and Marina
City/State Collected: Kirkland, WA
Please Circle: PT MT CT ET

Phone: 925-746-6000
Client Project # 469497
Lab Project # AEICONWCCA-KIRKFEDEX

Collected by (print): NATASHA BUDIMIROVIC
Site/Facility ID #
P.O. #

Collected by (signature):
Immediately Packed on Ice N ___ Y ✓
Rush? (Lab MUST Be Notified)
___ Same Day ✓ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Date Results Needed
Quote #

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	HOLD - EPHWA 1L-Amb-Add HCl	HOLD - VPHWA 40mlAmb HCl	NWTPHDX no silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	VOCs 8260ULL 40mlAmb-HCl	Remarks	Sample # (lab only)
MW-1	grab	GW	—	10-18-23	1305	13			X	X	X		01
		GW											

Chain of Custody Page 1 of 1

Pace
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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/hubfs/pas-standard-terms.pdf

SDG # L1660387
E081
L1671935
Acctnum: AEICONWCCA
Template: T239898
Prelogin: P1030836
PM: 110 - Brian Ford
PB:
Shipped Via:

N
10/3/23

-01

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____
Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	10-18-23	1425	Shipped via FedEx
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
3
HCL / MeoH
TBR

Temp: 2.0/-2.0 °C Bottles Received: 13

Date: 10/19/23 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

L1668387 AEICONWCCA re-log

R2/R3/R4/RX/EX

Please re-log for PAHSIMLVI. add comment "use HCl VOAs, adjust pH as needed". will be analyzed out of hold. 11/07EX.

Time estimate: oh **Time spent:** oh

Members

BF Brian Ford