

Data Validation Report

Project:	Portland Harbor
Laboratory:	Alpha Analytical Laboratory
Environmental Test Record (ETR):	1510019
Analyses/Method:	Polycyclic Aromatic Hydrocarbons (PAH), and n-Alkanes and Total Petroleum Hydrocarbons (TPH)

Summary

Two rinsate blank samples were collected in Portland Harbor, Oregon on October 26, 2015 and October 27, 2015. Samples were analyzed for polycyclic aromatic hydrocarbons (PAH) by EPA Method 8270D modified by selected ion monitoring mode (SIM), n-alkanes and total petroleum hydrocarbons (TPH) by EPA Method 8015D by Alpha Analytical Laboratory located in Mansfield, Massachusetts. The laboratory provided Level 4 data packages containing samples results and associated quality assurance (QA) and quality control (QC) data, preparation logs, and raw instrument output. The following samples are associated with the laboratory ETR 1510019.

Sample ID	Lab ID	Matrix
PH15-04-RB	1510019-01	Water
PH15-05-RB	1510019-02	Water

The data have been independently validated using *USEPA Contact Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review* EPA-540-R-2017-002, dated January 2017. Validation includes reconstruction of the analytical data to verify that data are traceable and sufficiently complete in order for a qualified individual other than the originator to perform reconstruction of the data. The validation included the following checks:

- Sample Receipt/Transcription error check
- Sample preservation
- Sample holding times
- Tune Summary
- Initial calibration
- Continuing calibration verification (CCV)
- Laboratory blank contamination
- Equipment blank contamination
- Surrogate spike recoveries
- Internal Standard recoveries
- Laboratory control sample (LCS), LCS Duplicate (LCSD) recoveries, RPD values
- Calculation checks
- Contract Required Quantitation Limit (CRQL)
- Overall assessment of the data



Data validation is based on the QC criteria documented in *Portland Harbor Supplemental Sediment Study, Portland Oregon Quality Assurance Project Plan (QAPP)*,¹ dated October 14, 2015, and the *Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Quality Assurance Project Plan (QAPP)*,² dated March 23, 2018. Data qualifiers assigned to results reported in this sample set are included in Table 1. Reason codes and explanations for qualified data are provided in Table 2.

Sample Receipt

Chain of custody documentation were reviewed for completeness of information relevant to the samples and requested analysis. Sample IDs and sample collection dates from the chain of custody records were matched to the reported data. No discrepancies noted.

All coolers were received within $4 \pm 2^\circ\text{C}$.

ORGANIC ANALYSES

Holding Time and Sample Preservation

All samples were extracted and analyzed within holding times.

GC/MS Instrument Performance Check – Acceptable

Initial Calibration and Continuing Calibration Verifications – Acceptable

Blanks – Acceptable except as noted below:

Method Blank: The method blank met the QC acceptance criteria for PAH. PAH were detected in the method blank below the reporting limit. Samples containing the below listed analytes at concentrations below the reporting limit were qualified as not detected, and were flagged “U” at the reporting limit based on the method blank result.

PAH Compounds	Result	Unit	Lab Qualifier
C1-Naphthalenes	0.827	ng/L	J
Biphenyl	0.703	ng/L	J
Fluorene	0.94	ng/L	J
Phenanthrene	0.753	ng/L	J
Dibenzothiophene	0.587	ng/L	J
Fluoranthene	0.472	ng/L	J
Pyrene	0.387	ng/L	J
Chrysene/Triphenylene	0.487	ng/L	J
2-Methylnaphthalene	0.659	ng/L	J

The method blank met the QC acceptance criteria for n-alkanes and TPH. n-Alkanes were detected in the method blank below the reporting limit. Samples containing the below listed analytes at

¹ NewFields. (2015). Portland Harbor Supplemental Sediment Study, Portland Oregon Quality Assurance Project Plan (QAPP). October 14, 2015.

² AECOM and Geosyntec. 2018. Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland Harbor Superfund Site, Quality Assurance Project Plan. March 23, 2018,



concentrations below the reporting limit were qualified as not detected, and were flagged “U” at the reporting limit based on the method blank result.

n-Alkanes and TPH Compounds	Result	Unit	Lab Qualifier
n-Decane (C10)	0.021	µg/L	J
n-Pentadecane (C15)	0.054	µg/L	J
n-Heptadecane (C17)	0.016	µg/L	J
n-Octadecane (C18)	0.928	µg/L	CJ
n-Nonadecane (C19)	0.016	µg/L	J
n-Docosane (C22)	0.006	µg/L	J
n-Tetracosane (C24)	0.006	µg/L	J
n-Pentacosane (C25)	0.493	µg/L	CJ
n-Hexacosane (C26)	0.011	µg/L	J
n-Heptacosane (C27)	0.024	µg/L	J
n-Octacosane (C28)	0.02	µg/L	J
n-Nonacosane (C29)	0.014	µg/L	J
n-Triacontane (C30)	0.012	µg/L	J
n-Hentriacontane (C31)	0.011	µg/L	J

Surrogate Spikes – Acceptable.

Internal Standard Areas – Acceptable.

Laboratory Control Samples – Acceptable.

Target Compound Identifications– Acceptable.

Compound Quantitation and CRQLs – Acceptable.

OVERALL ASSESSMENT OF DATA

The data reported in this laboratory ETR is considered usable for meeting the project objectives.

The completeness is calculated by the number of usable data points divided by the total number of data points generated, multiplied by 100. The completeness for the laboratory ETR is 100%.

Validation performed by and Date:

George Desreuisseau, Mike Mitchel and Kerylynn Krahforst, January 2019.

Staff Scientists - NewFields

Table 1. QA/QC Summary Review

Sdg	SoilSampID	Lab_ID	AnalMeth	Analyte	Result	Lab_Flag	Units	NFG Result	NFG Qualifier	validator_reason_code
1510019	PH15-04-RB	1510019-01	EPA 8270D	2-Methylnaphthalene	0.00245	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8270D	Pyrene	0.00102	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8270D	Phenanthrene	0.00119	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8270D	Fluorene	0.000958	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8270D	Fluoranthene	0.00076	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8270D	Dibenzothiophene	0.000428	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8270D	Chrysene/Triphenylene	0.000848	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8270D	C1-Naphthalenes	0.00288	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8270D	Biphenyl	0.000931	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	Pyrene	0.000791	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	Phenanthrene	0.00107	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	2-Methylnaphthalene	0.00126	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	Fluorene	0.000713	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	Fluoranthene	0.00073	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	Dibenzothiophene	0.00031	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	Chrysene/Triphenylene	0.000582	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	C1-Naphthalenes	0.00133	JB	ug/L	0.01	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8270D	Biphenyl	0.000817	JB	ug/L	0.01	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Docosane (C22)	0.000016	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Pentadecane (C15)	0.000053	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Pentacosane (C25)	0.000507	CJB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Octadecane (C18)	0.000981	CJB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Octacosane (C28)	0.000065	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Nonadecane (C19)	0.000044	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Nonacosane (C29)	0.000024	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Hexacosane (C26)	0.000013	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Heptadecane (C17)	0.000029	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Tetracosane (C24)	0.000007	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Hentriacontane (C31)	0.00001	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Triacontane (C30)	0.000016	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Decane (C10)	0.000034	JB	mg/L	0.001	U	bl
1510019	PH15-04-RB	1510019-01	EPA 8015M	n-Heptacosane (C27)	0.000027	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Heptacosane (C27)	0.000025	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Pentacosane (C25)	0.0005	CJB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Triacontane (C30)	0.000015	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Tetracosane (C24)	0.000006	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Octadecane (C18)	0.00098	CJB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Octacosane (C28)	0.00004	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Nonadecane (C19)	0.000024	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Nonacosane (C29)	0.00002	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Heptadecane (C17)	0.000029	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Pentadecane (C15)	0.000061	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Hentriacontane (C31)	0.000013	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Docosane (C22)	0.000015	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Decane (C10)	0.000012	JB	mg/L	0.001	U	bl
1510019	PH15-05-RB	1510019-02	EPA 8015M	n-Hexacosane (C26)	0.000014	JB	mg/L	0.001	U	bl

Table 2. Reason Codes and Explanations

Reason Code	Explanation
bf	Field blank contamination
bl	Laboratory blank contamination
C	Calibration issue
el	Clean-up standard recovery
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding Times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
le	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results