

Data Validation Report

Project:	Portland Harbor
Laboratory:	Alpha Analytical Laboratory
Environmental Test Record (ETR):	1510012
Analyses/Method:	Polycyclic Aromatic Hydrocarbons (PAH), and n-Alkanes and Total Petroleum Hydrocarbons (TPH)

Summary

Three rinsate blank samples were collected in Portland Harbor, Oregon on October 21, 2015, October 22, 2015, and October 23, 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 1510012.

Sample ID	Lab ID	Matrix
PH15-01-RB	1510012-01	Water
PH15-02-RB	1510012-02	Water
PH15-03-RB	1510012-03	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. However, with the exception of the analytes below, the associated sample results were either non-detect or were greater than 10X the blank concentration. 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
Naphthalene	1.76	ng/L	J
C1-Naphthalenes	1.4	ng/L	J
Biphenyl	1.11	ng/L	J
Fluorene	0.723	ng/L	J
Phenanthrene	0.888	ng/L	J
Dibenzothiophene	0.589	ng/L	J
Fluoranthene	0.467	ng/L	J
Pyrene	0.403	ng/L	J
Chrysene/Triphenylene	0.534	ng/L	J
2-Methylnaphthalene	0.854	ng/L	J
1-Methylnaphthalene	0.584	ng/L	J

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,



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. However, with the exception of the analytes below, the associated sample results were either non-detect or were greater than 10X the blank concentration. 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.

n-Alkanes and TPH Compounds	Result	Unit	Lab Qualifier
n-Tridecane (C13)	0.008	µg/L	J
n-Pentadecane (C15)	0.09	µg/L	J
n-Heptadecane (C17)	0.006	µg/L	J
n-Octadecane (C18)	0.889	µg/L	CJ
n-Docosane (C22)	0.005	µg/L	J
n-Tricosane (C23)	0.045	µg/L	J
n-Pentacosane (C25)	0.46	µg/L	CJ
n-Hexacosane (C26)	0.016	µg/L	J
n-Heptacosane (C27)	0.02	µg/L	J
n-Octacosane (C28)	0.022	µg/L	J
n-Nonacosane (C29)	0.021	µg/L	J
n-Triacontane (C30)	0.014	µg/L	J
n-Hentriacontane (C31)	0.032	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
1510012	PH15-01-RB	1510012-01	EPA 8270D	1-Methylnaphthalene	0.00106	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	Biphenyl	0.0011	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	2-Methylnaphthalene	0.00182	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	C1-Naphthalenes	0.00203	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	Chrysene/Triphenylene	0.000836	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	Dibenzothiophene	0.000471	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	Fluorene	0.000954	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	Phenanthrene	0.00235	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	Pyrene	0.0017	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8270D	Fluoranthene	0.0017	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	Biphenyl	0.000859	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	Pyrene	0.00191	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	Phenanthrene	0.0018	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	Fluorene	0.000518	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	Fluoranthene	0.00147	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	Dibenzothiophene	0.000386	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	1-Methylnaphthalene	0.00103	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	C1-Naphthalenes	0.00186	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	2-Methylnaphthalene	0.00158	JB	ug/L	0.01	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8270D	Chrysene/Triphenylene	0.000802	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	Chrysene/Triphenylene	0.000885	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	Pyrene	0.00224	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	Phenanthrene	0.00177	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	Fluorene	0.000981	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	Dibenzothiophene	0.000386	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	C1-Naphthalenes	0.00317	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	Biphenyl	0.00104	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	2-Methylnaphthalene	0.00263	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	1-Methylnaphthalene	0.00138	JB	ug/L	0.01	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8270D	Fluoranthene	0.00178	JB	ug/L	0.01	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Octacosane (C28)	0.000072	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Tridecane (C13)	0.000009	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Tricosane (C23)	0.000037	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Triacontane (C30)	0.000015	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Pentadecane (C15)	0.000081	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Octadecane (C18)	0.00082	CJB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Nonacosane (C29)	0.000037	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Hexacosane (C26)	0.000018	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Heptadecane (C17)	0.000005	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Heptacosane (C27)	0.00002	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Pentacosane (C25)	0.000501	CJB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Hentriacontane (C31)	0.000017	JB	mg/L	0.001	U	bl
1510012	PH15-01-RB	1510012-01	EPA 8015M	n-Docosane (C22)	0.000006	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Heptacosane (C27)	0.000026	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Tricosane (C23)	0.000052	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Docosane (C22)	0.000006	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Hentriacontane (C31)	0.000015	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Tridecane (C13)	0.000009	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Triacontane (C30)	0.000017	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Pentadecane (C15)	0.000075	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Pentacosane (C25)	0.000492	CJB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Heptadecane (C17)	0.000008	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Octacosane (C28)	0.000044	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Nonacosane (C29)	0.000035	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Hexacosane (C26)	0.000016	JB	mg/L	0.001	U	bl
1510012	PH15-02-RB	1510012-02	EPA 8015M	n-Octadecane (C18)	0.000795	CJB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Heptadecane (C17)	0.000006	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Hexacosane (C26)	0.000015	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Nonacosane (C29)	0.000023	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Tricosane (C23)	0.00005	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Octacosane (C28)	0.000045	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Triacontane (C30)	0.000017	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Pentacosane (C25)	0.000498	CJB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Pentadecane (C15)	0.000074	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Heptacosane (C27)	0.00002	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Octadecane (C18)	0.000828	CJB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Hentriacontane (C31)	0.000034	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Docosane (C22)	0.000008	JB	mg/L	0.001	U	bl
1510012	PH15-03-RB	1510012-03	EPA 8015M	n-Tridecane (C13)	0.000007	JB	mg/L	0.001	U	bl

Table 2. Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
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