

Data Validation Report

Project:	Portland Harbor
Laboratory:	Alpha Analytical Laboratory
Environmental Test Record (ETR):	1510022
Analyses/Method:	Polycyclic Aromatic Hydrocarbons (PAH), n-Alkanes and Total Petroleum Hydrocarbons (TPH), and Total Organic Carbon (TOC)

Summary

Seventeen sediment samples were collected in Portland Harbor, Oregon on October 21, 2015 and October 22, 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, and total organic carbon (TOC) by EPA Method 9060A 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 sediment samples are associated with the laboratory ETR 1510022.

Sample ID	Lab ID	Matrix
PH15-33-A	1510022-01	Sediment
PH15-33-D	1510022-02	Sediment
PH15-36-A	1510022-03	Sediment
PH15-36-D	1510022-04	Sediment
PH15-41-A	1510022-05	Sediment
PH15-41-C	1510022-06	Sediment
PH15-41-D	1510022-07	Sediment
PH15-43-A	1510022-08	Sediment
PH15-43-D	1510022-09	Sediment
PH15-44-A	1510022-10	Sediment
PH15-44-D	1510022-11	Sediment
PH15-44-A-FD	1510022-12	Sediment
PH15-45-A	1510022-13	Sediment
PH15-45-D	1510022-14	Sediment
PH15-50-A	1510022-15	Sediment
PH15-50-C	1510022-16	Sediment
PH15-50-D	1510022-17	Sediment

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
- Matrix spike/Matrix spike duplicate (MS/MSD) recoveries, relative percent difference (RPD)
- Standard Reference Material Sediment accuracy check
- Laboratory control sample (LCS), LCS Duplicate (LCSD) recoveries, RPD values
- Calculation checks
- Contract Required Quantitation Limit (CRQL)
- Field duplicate results
- Laboratory duplicate results
- 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:

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,



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
Anthracene	0.121	µg/Kg	J
Phenanthrene	0.321	µg/Kg	J
C1-Phenanthrenes/Anthracenes	0.190	µg/Kg	J
C2-Phenanthrenes/Anthracenes	0.299	µg/Kg	J
Dibenzothiophene	0.0360	µg/Kg	J
C1-Dibenzothiophenes	0.104	µg/Kg	J
Benzo(b)fluorene	0.0577	µg/Kg	J
Fluoranthene	0.997	µg/Kg	
Pyrene	1.31	µg/Kg	
C1-Fluoranthenes/Pyrenes	0.357	µg/Kg	J
Naphthobenzothiophenes	0.0523	µg/Kg	J
Benz[a]anthracene	0.125	µg/Kg	J
Chrysene/Triphenylene	0.201	µg/Kg	J
Benzo[b]fluoranthene	0.107	µg/Kg	J
Benzo[j]fluoranthene/Benzo[k]fluoranthene	0.108	µg/Kg	J
Benzo[e]pyrene	0.0992	µg/Kg	J
Benzo[a]pyrene	0.108	µg/Kg	J
Indeno[1,2,3-cd]pyrene	0.124	µg/Kg	J
Benzo[g,h,i]perylene	0.158	µg/Kg	J
4-Methyldibenzothiophene	0.0221	µg/Kg	J
3-Methylphenanthrene	0.0433	µg/Kg	J
2-Methylphenanthrene	0.0400	µg/Kg	J
9/4-Methylphenanthrene	0.0457	µg/Kg	J
1-Methylphenanthrene	0.0327	µg/Kg	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. However, with the exception of n-octacosane, the associated sample results were either non-detect or were greater than 10X the blank concentration. Samples containing n-octacosane 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.

Rinsate Blank: Two rinsate blanks were collected on October 23, 2015 and October 26, 2015 (PH15-03-RB and PH15-04-RB, respectively [ETRs 1510012 and 1510019, respectively]) and are associated with the sediment samples in this ETR.

- PH15-03-RB is associated with: PH15-36-A, PH15-36-D, PH15-41-A, PH15-41-C, PH15-41-D, PH15-50-A, PH15-50-C, and PH15-50-D.
- PH15-04-RB is associated with: PH15-33-A, PH15-33-D, PH15-43-A, PH15-43-D, PH15-44-A, PH15-44-D, PH15-44-A-FD, PH15-45-A, and PH15-45-D.



Detections of target compounds in rinsate blanks were evaluated relative to sediment method detection limits (MDL). No target analytes were found in rinsate blanks at relative concentrations at, or above, the sediment MDL. No data were qualified based on the rinsate blank results.

Surrogate Spikes – Acceptable.

Internal Standard Areas – Acceptable.

Laboratory Control Samples – Acceptable.

Matrix Spike/Spike Duplicate – Acceptable except as noted below:

The following percent recoveries were outside QC limits:

Sample ID	Analyte	MS (%)	MSD (%)	QC Limit (%)	RPD (%)	QC Limit (%)
PH15-33-D	Fluoranthene	ok	171	50 - 125	45	30
	Pyrene	ok	230	50 - 125	35	30
	Benzo[a]anthracene	ok	179	50 - 125	40	30
	Chrysene/Triphenylene	ok	179	50 - 125	44	30
	Benzo[b]fluoranthene	ok	203	50 - 125	37	30
	Benzo[j]fluoranthene/Benzo[k]fluoranthene	ok	160	50 - 125	39	30
	Benzo[a]pyrene	ok	222	50 - 125	48	30
	Indeno[1,2,3-cd]pyrene	ok	216	50 - 125	38	30
	Dibenz[ah]anthracene/Dibenz[ac]anthracene	ok	133	50 - 125	ok	30
	Benzo[g,h,i]perylene	ok	204	50 - 125	44	30

The results for analytes listed above in the native sample were qualified as estimated and flagged “J” based on these MS/MSD results.

The precision and accuracy of the method was demonstrated by the results of the LCS/LCSD. In addition, a PAH standard reference material (SRM 1941b), was reported with this ETR and met the QC acceptance criteria. The results of the SRM demonstrate accuracy has been achieved for this ETR.

Standard Reference Material – Acceptable.

Field Duplicate – Acceptable except as noted below:

A field duplicate was submitted for PH15-44-A and was identified as PH15-44-A-FD. The results for the field duplicates were comparable except as noted below:

Sample ID	Analytes	RPD (%)	QC Limit (%)
PH15-44-A	Benzo[thiophene]	101	50
	C1-Benzo(b)thiophenes	53	50
	C2-Benzo(b)thiophenes	57	50
	Naphthalene	136	50
	C1-Naphthalenes	97	50
	C2-Naphthalenes	103	50
	C3-Naphthalenes	72	50



Sample ID	Analytes	RPD (%)	QC Limit (%)
	Biphenyl	120	50
	Dibenzofuran	138	50
	Fluorene	129	50
	C1-Fluorenes	63	50
	Anthracene	75	50
	Phenanthrene	80	50
	C1-Phenanthrenes/Anthracenes	52	50
	Dibenzothiophene	75	50
	Carbazole	95	50
	2/3-Methyldibenzothiophene	50	50
	3-Methylphenanthrene	54	50
	2-Methylphenanthrene	68	50
	2-Methylnaphthalene	85	50
	1-Methylnaphthalene	114	50
	2,6-Dimethylnaphthalene	122	50
	2,3,5-Trimethylnaphthalene	97	50
	n-Pentacosane (C25)	127	50
	n-Heptacosane (C27)	156	50
	Total Saturated Hydrocarbons	108	50
	Total Petroleum Hydrocarbons (C9-C44)	92	50

The samples contained highly elevated PAHs indicative tar-derived residues. Heterogeneity of sample matrix expected and reconciles with QC exceedance. The results for the analytes exceeding the QC criteria were qualified as estimated and flagged “J” based on elevated field duplicates.

Laboratory Duplicate– Acceptable except as noted below:

Sample ID	Analytes	RPD (%)	QC Limit (%)
PH15-33-A	n-Docosane (C22)	44	30
	n-Tricosane (C23)	41	30
	n-Tetracosane (C24)	53	30
	n-Pentacosane (C25)	46	30
	n-Dotriacontane (C32)	35	30
	n-Tritriacontane (C33)	34	30
	n-Tetratriacontane (C34)	153	30
	n-Pentatriacontane (C35)	82	30
	n-Heptatriacontane (C37)	92	30
	Total Saturated Hydrocarbons	55	30

Eighty-five percent of the PAH results for the laboratory duplicates exceeded the QC limit of 30%. The samples contained elevated PAHs indicative tar-derived residues. Heterogeneity of sample matrix expected and reconciles with QC exceedance. The precision of the method was demonstrated by the results of the LCS/LCSD. The results for the analytes were qualified as estimated and flagged “J” based on elevated laboratory duplicates.

Target Compound Identifications– Acceptable.



Compound Quantitation and CRQLs – Acceptable.

CONVENTIONAL ANALYSES

Holding Time and Sample Preservation – Acceptable.

Initial Calibration and Continuing Calibration Verifications – Acceptable.

Blanks– Acceptable.

Matrix Spike– Acceptable except as noted below:

Sample ID	Analytes	MS (%)	QC Limit (%)
PH15-33-A	TOC	127	125

The TOC results in the native sample were qualified as estimated and flagged “J” based on these MS results.

Standard Reference Material – Acceptable

Field Duplicate– Acceptable.

Laboratory Duplicate– Acceptable except as noted below:

Sample ID	Analytes	RPD (%)	QC Limit (%)
PH15-33-A	TOC	37	30

The result for TOC was qualified as estimated and flagged “J” based on the laboratory duplicate results.

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
1510022	PH15-41-A	1510022-05	EPA 8270D	Phenanthrene	0.247	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	Dibenzothiophene	0.0625	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	C1-Phenanthrenes/Anthracenes	0.462	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	2-Methylphenanthrene	0.0608	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	1-Methylphenanthrene	0.0612	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	3-Methylphenanthrene	0.0692	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	C1-Phenanthrenes/Anthracenes	0.179	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Fluoranthene	0.569	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Chrysene/Triphenylene	0.211	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Dibenzothiophene	0.0304	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Phenanthrene	0.142	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Indeno[1,2,3-cd]pyrene	0.173	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Naphthobenzothiophenes	0.0445	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	3-Methylphenanthrene	0.0425	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	2-Methylphenanthrene	0.0286	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Benzo[b]fluoranthene	0.144	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Benzo[e]pyrene	0.132	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Benzo[g,h,i]perylene	0.231	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Benzo[j]fluoranthene/Benzo[k]fluoranthene	0.124	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Benz[a]anthracene	0.159	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	1-Methylphenanthrene	0.0311	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Benzo[e]pyrene	0.079	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Benz[a]anthracene	0.0798	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Acenaphthylene	0.262	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Naphthobenzothiophenes	0.0255	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Pyrene	0.366	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Phenanthrene	0.129	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Indeno[1,2,3-cd]pyrene	0.124	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Fluoranthene	0.226	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Dibenzothiophene	0.0212	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Benzo[g,h,i]perylene	0.146	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Benzo[b]fluoranthene	0.112	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Benzo[j]fluoranthene/Benzo[k]fluoranthene	0.0625	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Chrysene/Triphenylene	0.118	JB	µg/Kg	0.7511	U	bl
1510022	PH15-43-D	1510022-09	EPA 8270D	Dibenzothiophene	0.0582	JB	µg/Kg	0.7786	U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	Dibenzothiophene	0.295	JB	µg/Kg	0.8704	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	4-Methyldibenzothiophene	0.0492	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	9/4-Methylphenanthrene	0.121	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	Anthracene	0.691	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	Benzo(b)fluorene	0.406	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-A	1510022-05	EPA 8270D	C1-Dibenzothiophenes	0.139	JB	µg/Kg	0.7097	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	C2-Phenanthrenes/Anthracenes	0.405	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	C1-Fluoranthenes/Pyrenes	0.596	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	9/4-Methylphenanthrene	0.0429	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Anthracene	0.0596	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Benzo(b)fluorene	0.0793	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-C	1510022-06	EPA 8270D	Benzo[a]pyrene	0.225	JB	µg/Kg	0.7255	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Benzo(b)fluorene	0.0581	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Anthracene	0.0635	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	Benzo[a]pyrene	0.133	JB	µg/Kg	0.7511	U	bl
1510022	PH15-41-D	1510022-07	EPA 8270D	C1-Fluoranthenes/Pyrenes	0.449	JB	µg/Kg	0.7511	U	bl
1510022	PH15-43-D	1510022-09	EPA 8270D	Naphthobenzothiophenes	0.244	JB	µg/Kg	0.7786	U	bl
1510022	PH15-43-D	1510022-09	EPA 8270D	1-Methylphenanthrene	0.0345	JB	µg/Kg	0.7786	U	bl
1510022	PH15-43-D	1510022-09	EPA 8270D	2-Methylphenanthrene	0.042	JB	µg/Kg	0.7786	U	bl
1510022	PH15-43-D	1510022-09	EPA 8270D	3-Methylphenanthrene	0.0644	JB	µg/Kg	0.7786	U	bl
1510022	PH15-43-D	1510022-09	EPA 8270D	Benzo(b)fluorene	0.138	JB	µg/Kg	0.7786	U	bl
1510022	PH15-43-D	1510022-09	EPA 8270D	9/4-Methylphenanthrene	0.0621	JB	µg/Kg	0.7786	U	bl
1510022	PH15-44-D	1510022-11	EPA 8270D	4-Methyldibenzothiophene	0.114	JB	µg/Kg	0.7406	U	bl
1510022	PH15-44-D	1510022-11	EPA 8270D	1-Methylphenanthrene	0.219	JB	µg/Kg	0.7406	U	bl
1510022	PH15-44-D	1510022-11	EPA 8270D	3-Methylphenanthrene	0.306	JB	µg/Kg	0.7406	U	bl
1510022	PH15-44-D	1510022-11	EPA 8270D	9/4-Methylphenanthrene	0.304	JB	µg/Kg	0.7406	U	bl
1510022	PH15-44-D	1510022-11	EPA 8270D	Anthracene	0.618	JB	µg/Kg	0.7406	U	bl
1510022	PH15-44-D	1510022-11	EPA 8270D	Benzo(b)fluorene	0.357	JB	µg/Kg	0.7406	U	bl
1510022	PH15-44-D	1510022-11	EPA 8270D	C1-Dibenzothiophenes	0.315	JB	µg/Kg	0.7406	U	bl
1510022	PH15-44-D	1510022-11	EPA 8270D	2-Methylphenanthrene	0.277	JB	µg/Kg	0.7406	U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	Naphthobenzothiophenes	0.404	JB	µg/Kg	0.8704	U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	C2-Phenanthrenes/Anthracenes	0.845	JB	µg/Kg	0.8704	U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	2-Methylphenanthrene	0.109	JB	µg/Kg	0.8704	U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	3-Methylphenanthrene	0.16	JB	µg/Kg	0.8704	U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	9/4-Methylphenanthrene	0.171	JB	µg/Kg	0.8704	U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	1-Methylphenanthrene	0.125	JB	µg/Kg	0.8704	U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	Anthracene	0.561	JB	µg/Kg	0.8704	U	bl

Sdg	SoilSampID	Lab_ID	AnalMeth	Analyte	Result	Lab_Flag	Units	NFG NFG Result Qualifier	validator_ reason_code
1510022	PH15-45-D	1510022-14	EPA 8270D	Benzo(b)fluorene	0.302	JB	µg/Kg	0.8704 U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	C1-Dibenzothiophenes	0.245	JB	µg/Kg	0.8704 U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	C1-Phenanthrenes/Anthracenes	0.671	JB	µg/Kg	0.8704 U	bl
1510022	PH15-45-D	1510022-14	EPA 8270D	4-Methyldibenzothiophene	0.0713	JB	µg/Kg	0.8704 U	bl
1510022	PH15-44-A	1510022-10	EPA 8270D	Phenanthrene	156		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	Naphthalene	12		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	2-Methylnaphthalene	3.17		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	Fluorene	10.1		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	1-Methylnaphthalene	1.85		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	2,3,5-Trimethylnaphthalene	0.941		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	2/3-Methyldibenzothiophene	10.9		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	2-Methylphenanthrene	11.7		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	3-Methylphenanthrene	14.9		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	Anthracene	28.6		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	Benzo(b)thiophene	1.15		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	Biphenyl	1.34		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	C3-Naphthalenes	12.7		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	Dibenzothiophene	33.2		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	2,6-Dimethylnaphthalene	2.13		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	C1-Benzo(b)thiophenes	1.86		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	Carbazole	1.36		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	Dibenzofuran	1.31		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	C2-Naphthalenes	5.49		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	C2-Benzo(b)thiophenes	3.91		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	C1-Phenanthrenes/Anthracenes	61.4		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	C1-Naphthalenes	3.12		µg/Kg	J	fd
1510022	PH15-44-A	1510022-10	EPA 8270D	C1-Fluorenes	14.4		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Naphthalene	63.2		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	2-Methylnaphthalene	7.83		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Phenanthrene	362		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	1-Methylnaphthalene	6.77		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	2,3,5-Trimethylnaphthalene	2.72		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	2/3-Methyldibenzothiophene	18.2		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	2-Methylphenanthrene	23.8		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	3-Methylphenanthrene	26		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Anthracene	63.1		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Benzo(b)thiophene	3.49		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Biphenyl	5.36		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Dibenzothiophene	73.2		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	2,6-Dimethylnaphthalene	8.84		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Fluorene	46.7		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	C1-Benzo(b)thiophenes	3.19		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Dibenzofuran	7.19		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	Carbazole	3.81		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	C3-Naphthalenes	27		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	C2-Naphthalenes	17.2		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	C2-Benzo(b)thiophenes	6.99		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	C1-Phenanthrenes/Anthracenes	104		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	C1-Naphthalenes	8.96		µg/Kg	J	fd
1510022	PH15-44-A-FD	1510022-12	EPA 8270D	C1-Fluorenes	27.6		µg/Kg	J	fd
1510022	PH15-33-A	1510022-01	EPA 8270D	C4-Chrysenes	241		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Naphthobenzothiophenes	1010		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Dibenzofuran	11		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	cis/trans-Decalin	1.99		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Carbazole	26.3		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C4-Phenanthrenes/Anthracenes	473		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C4-Naphthobenzothiophenes	88.5		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C4-Naphthalenes	291		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C3-Benzo(b)thiophenes	46.2		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C4-Dibenzothiophenes	219		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C4-Benzo(b)thiophenes	80.9		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C3-Phenanthrenes/Anthracenes	1040		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C3-Naphthobenzothiophenes	214		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C3-Naphthalenes	202		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C3-Fluorenes	450		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C3-Fluoranthenes/Pyrenes	669		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C3-Dibenzothiophenes	451		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C3-Chrysenes	552		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C4-Fluoranthenes/Pyrenes	344		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benz[a]anthracene	3310	D	µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Perylene	1390		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Dibenz[ah]anthracene/Dibenz[ac]anthracene	730		µg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 8270D	1-Methyldibenzothiophene	25.2		µg/Kg	J	ld

Sdg	SoilSampID	Lab_ID	AnalMeth	Analyte	Result	Lab_Flag	Units	NFG Result	NFG Qualifier	validator_reason_code
1510022	PH15-33-A	1510022-01	EPA 8270D	Acenaphthylene	884		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Acenaphthene	153		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	9/4-Methylphenanthrene	273		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	4-Methyldibenzothiophene	89.8		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	2-Methylnaphthalene	71.3		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	2-Methylantracene	167		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	2,6-Dimethylnaphthalene	30.5		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	2,3,5-Trimethylnaphthalene	27.1		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Anthracene	624		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	1-Methylnaphthalene	29.8		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benzo[j]fluoranthene/Benzo[k]fluoranthene	2840 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Pyrene	7470 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Indeno[1,2,3-cd]pyrene	3310 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Fluoranthene	5150 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Chrysene/Triphenylene	3700 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C2-Phenanthrenes/Anthracenes	1440		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benzo[g,h,i]perylene	3800 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Naphthalene	241		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benzo[b]fluoranthene	3260 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benzo[a]pyrene	5050 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	1-Methylphenanthrene	137		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C2-Fluorenes	407		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C2-Naphthobenzothiophenes	317		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benzo[e]pyrene	2990 D		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benzo(b)fluorene	572		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C2-Naphthalenes	64.1		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C2-Fluoranthenes/Pyrenes	1230		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C2-Dibenzothiophenes	476		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C2-Chrysenes	1060		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C2-Benzo(b)thiophenes	13		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C1-Phenanthrenes/Anthracenes	833		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C1-Naphthobenzothiophenes	494		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benzothiophene	22.2		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C1-Fluorenes	134		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C1-Fluoranthenes/Pyrenes	2810		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C1-Dibenzothiophenes	220		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C1-Chrysenes	1860		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C1-Benzo(b)thiophenes	11.2		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Biphenyl	29.1		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	Benzo[a]fluoranthene	933		µg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8270D	C1-Naphthalenes	62.7		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C4-Fluoranthenes/Pyrenes	189 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C3-Benzo(b)thiophenes	28.4 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C4-Naphthobenzothiophenes	48.9 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C4-Phenanthrenes/Anthracenes	274 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Carbazole	14.8 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	cis/trans-Decalin	4.8 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C3-Naphthalenes	123 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Chrysene/Triphenylene	2200 D x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C4-Chrysenes	137 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C3-Chrysenes	285 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C4-Benzo(b)thiophenes	39.2 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C3-Dibenzothiophenes	238 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C3-Naphthobenzothiophenes	121 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C3-Fluorenes	220 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C3-Fluoranthenes/Pyrenes	333 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Dibenz[ah]anthracene/Dibenz[ac]anthracene	395 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C3-Phenanthrenes/Anthracenes	534 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C2-Phenanthrenes/Anthracenes	718 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C4-Dibenzothiophenes	124 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Dibenzofuran	6.77 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Pyrene	5040 D x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Perylene	756 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Naphthobenzothiophenes	573 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Naphthalene	96.1 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Indeno[1,2,3-cd]pyrene	1930 D x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Fluoranthene	3500 D x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	4-Methyldibenzothiophene	57 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benzo[b]fluoranthene	1870 D x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benzo[a]pyrene	2900 D x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benzo[a]fluoranthene	504 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benzo(b)fluorene	343 x		µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benz[a]anthracene	1960 D x		µg/Kg	J		ld

Sdg	SoilSampID	Lab_ID	AnalMeth	Analyte	Result	Lab_Flag	Units	NFG Result	NFG Qualifier	validator_reason_code
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Anthracene	370	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Acenaphthylene	422	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benzo[e]pyrene	1730	D⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	9/4-Methylphenanthrene	153	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	1-Methylnaphthalene	13.9	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	2-Methylnaphthalene	27.5	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	2-Methylanthracene	80.4	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	2,6-Dimethylnaphthalene	19.4	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	2,3,5-Trimethylnaphthalene	16.1	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	1-Methylphenanthrene	84.7	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	1-Methyldibenzothiophene	15.5	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C2-Naphthobenzothiophenes	172	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C4-Naphthalenes	139	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Acenaphthene	98.7	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C2-Dibenzothiophenes	251	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benzo[g,h,i]perylene	2200	D⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C2-Fluorenes	195	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C2-Chrysenes	549	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C2-Benzo(b)thiophenes	8.1	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C1-Phenanthrenes/Anthracenes	522	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C1-Naphthobenzothiophenes	264	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C1-Naphthalenes	25.7	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C1-Fluorenes	82.3	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C1-Fluoranthenes/Pyrenes	1580	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C1-Dibenzothiophenes	151	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C1-Chrysenes	994	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C1-Benzo(b)thiophenes	4.97	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Biphenyl	12.2	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benzothiophene	7.69	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C2-Naphthalenes	41.4	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	C2-Fluoranthenes/Pyrenes	652	⌘	µg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8270D	Benzo[j]fluoranthene/Benzo[k]fluoranthene	1660	D⌘	µg/Kg	J		ld
1510022	PH15-33-D	1510022-02	EPA 8270D	Dibenz[ah]anthracene/Dibenz[ac]anthracene	28.4		µg/Kg	J		m
1510022	PH15-33-D	1510022-02	EPA 8270D	Indeno[1,2,3-cd]pyrene	139		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8270D	Benzo[g,h,i]perylene	160		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8270D	Benzo[b]fluoranthene	131		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8270D	Benzo[j]fluoranthene/Benzo[k]fluoranthene	125		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8270D	Chrysene/Triphenylene	141		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8270D	Pyrene	348		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8270D	Benz[a]anthracene	112		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8270D	Fluoranthene	84.4		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8270D	Benzo[a]pyrene	194		µg/Kg	J		m, md
1510022	PH15-33-D	1510022-02	EPA 8015M	n-Octacosane (C28)	0.0122	JB	mg/Kg	0.0741	U	bl
1510022	PH15-41-A	1510022-05	EPA 8015M	n-Octacosane (C28)	0.0469	CJB	mg/Kg	0.071	U	bl
1510022	PH15-41-C	1510022-06	EPA 8015M	n-Octacosane (C28)	0.0404	CJB	mg/Kg	0.0725	U	bl
1510022	PH15-41-D	1510022-07	EPA 8015M	n-Octacosane (C28)	0.0162	CJB	mg/Kg	0.0751	U	bl
1510022	PH15-43-A	1510022-08	EPA 8015M	n-Octacosane (C28)	0.0232	CJB	mg/Kg	0.0731	U	bl
1510022	PH15-43-D	1510022-09	EPA 8015M	n-Octacosane (C28)	0.0301	CJB	mg/Kg	0.0779	U	bl
1510022	PH15-44-A-FD	1510022-12	EPA 8015M	n-Octacosane (C28)	0.0288	JB	mg/Kg	0.0767	U	bl
1510022	PH15-44-D	1510022-11	EPA 8015M	n-Octacosane (C28)	0.0143	CJB	mg/Kg	0.0741	U	bl
1510022	PH15-45-D	1510022-14	EPA 8015M	n-Octacosane (C28)	0.0324	CJB	mg/Kg	0.087	U	bl
1510022	PH15-50-C	1510022-16	EPA 8015M	n-Octacosane (C28)	0.0159	JB	mg/Kg	0.0802	U	bl
1510022	PH15-44-A	1510022-10	EPA 8015M	n-Pentacosane (C25)	0.35		mg/Kg	J		fd
1510022	PH15-44-A	1510022-10	EPA 8015M	n-Heptacosane (C27)	1.38		mg/Kg	J		fd
1510022	PH15-44-A	1510022-10	EPA 8015M	Total Petroleum Hydrocarbons (C9-C44)	58.7		mg/Kg	J		fd
1510022	PH15-44-A	1510022-10	EPA 8015M	Total Saturated Hydrocarbons	3.15		mg/Kg	J		fd
1510022	PH15-44-A-FD	1510022-12	EPA 8015M	n-Heptacosane (C27)	0.169		mg/Kg	J		fd
1510022	PH15-44-A-FD	1510022-12	EPA 8015M	Total Petroleum Hydrocarbons (C9-C44)	21.7		mg/Kg	J		fd
1510022	PH15-44-A-FD	1510022-12	EPA 8015M	Total Saturated Hydrocarbons	0.942		mg/Kg	J		fd
1510022	PH15-44-A-FD	1510022-12	EPA 8015M	n-Pentacosane (C25)	0.0786	C	mg/Kg	J		fd
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Docosane (C22)	0.229		mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Pentatriacontane (C35)	0.666		mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	Total Saturated Hydrocarbons	16.3		mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Tritriacontane (C33)	0.825		mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Tricosane (C23)	0.711		mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Tetraatriacontane (C34)	3.98		mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Tetracosane (C24)	0.14		mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Pentacosane (C25)	4.82	G	mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Heptatriacontane (C37)	0.641		mg/Kg	J		ld
1510022	PH15-33-A	1510022-01	EPA 8015M	n-Dotriacontane (C32)	0.211		mg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Pentacosane (C25)	3	G⌘	mg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Heptatriacontane (C37)	0.236	⌘	mg/Kg	J		ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	Total Saturated Hydrocarbons	9.26	⌘	mg/Kg	J		ld

Sdg	SoilSampID	Lab_ID	AnalMeth	Analyte	Result	Lab_Flag	Units	NFG NFG Result Qualifier	validator_ reason_code
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Tritriacontane (C33)	0.588	⌘	mg/Kg	J	ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Tricosane (C23)	0.47	⌘	mg/Kg	J	ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Tetratriacontane (C34)	0.533	⌘	mg/Kg	J	ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Dotriacontane (C32)	0.3	⌘	mg/Kg	J	ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Pentatriacontane (C35)	0.278	⌘	mg/Kg	J	ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Docosane (C22)	0.147	⌘	mg/Kg	J	ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 8015M	n-Tetracosane (C24)	0.0814	⌘	mg/Kg	J	ld
1510022	PH15-33-A	1510022-01	EPA 9060	Total Organic Carbon	0.622		%	J	m, ld
1510022	PH15-33-A-DUP	1510022-01D	EPA 9060	Total Organic Carbon	0.904	⌘	%	J	ld

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