May 18, 2017

ERRATA

QUALITY ASSURANCE PROJECT PLAN
Enhanced Natural Recovery/Activated Carbon Pilot Study
Lower Duwamish Waterway
Dated February 22, 2016

Page 40, Section 3.4.5 Quality Assurance Criteria, EPA requested change

The parameters used to assess data quality are precision, accuracy, representativeness, comparability, completeness, and sensitivity. The specific QAGs for laboratory chemical analyses of sediment samples are shown in Tables 3.4 through 3.6. The Puget Sound Sediment Reference Material (SRM) for PCBs will be run with each analytical batch which will be obtained from EPA and the U.S. Army Corps of Engineers. These parameters are discussed in more detail in the following subsections.

~~The analysis of a regional reference material for PCB congeners is not included as part of this pilot study. Frontier does run reference materials from Puget Sound on a routine basis, and this information is available on request, and their record of successful analyses was considered in selecting them to perform the PCB congener analyses for the Pilot Study.~~

Table 3.7 Laboratory QA/QC Requirements, EPA requested change

See attached

Table 3.7
Laboratory QA/QC Requirements

Parameter	Analytical Method	Initial Calibration	Continuing Calibration	Method Blanks	Laboratory Control Samples	Sample Matrix Quality Control				Surrogate Spikes
						Matrix Spike	Matrix Spike Duplicate	Laboratory Duplicate or Triplicate	Puget Sound Refrence Material	
Sediment										
PCB congeners	EPA 1668C	Prior to analysis	Every 10 to 20 analyses or 12 hours	1 per batch[1]	1 per batch[1]	Handled by use of isotope dilution in EPA 1668C		NA	1 per batch[1]	Each sample
ENR Substrate (Baseline Event Only)[2]										
SMS Metals (except Hg)	EPA 6020A	Prior to analysis	Every 10 samples	1 per batch[1]	1 per batch[1]	1 per SDG[1]	NA	1 per 20 samples	NA	NA
SMS Hg	EPA 7474	Prior to analysis	Every 10 samples	1 per batch[1]	1 per batch[1]	1 per SDG[1]	1 per SDG[1]	NA	NA	NA
SMS SVOCs	EPA 8270D	Prior to analysis	Every 12 hours	1 per batch[1]	1 per batch[1]	1 per SDG[1]	1 per SDG[1]	NA	NA	Each sample
PCB congeners	EPA 1668C	Prior to analysis	Every 10 to 20 analyses or 12 hours	1 per batch[1]	1 per batch[1]	Handled by use of isotope dilution in EPA 1668C		NA	NA	Each sample
Dioxins/Furans	EPA 1613	Prior to analysis	Beginning and end of every analytical run	1 per batch[1]	1 per batch[1]	Handled by use of isotope dilution in EPA 1613		NA	NA	Each sample
Sediment and ENR Substrate (Baseline Event Only)[2]										
Total organic carbon	EPA 9060	Daily	Every 10 samples	1 per batch[1]	1 per batch[1]	1 per SDG[1]	NA	duplicate per SDG	N/A	N/A
Black carbon	Gustafsson et al. (1997)	Daily	Every 10 samples	1 per batch[1]	1 per batch[1]	1 per SDG[1]	NA	duplicate per SDG	N/A	N/A
Grain size	ASTM D422	NA	NA	NA	NA	NA	NA	triplicate per SDG	N/A	N/A

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SPME Fiber Extracts										
PCB congeners	EPA 1668C	Prior to analysis	Every 10 to 20 analyses or 12 hours	1 per batch[1]	1 per batch[1]	Handled by use of isotope dilution in EPA 1668C		NA	N/A	Each sample

Notes:

1. Project SDGs are expected to range in size from 1 sample to 20 samples. Batches are groups of 20 or fewer samples that move through sample preparation and analysis together. A batch formed at the lab may include samples from more than one SDG, and the SDGs in a batch may be from multiple projects. In the table above "per SDG" indicates that the "batch" QC must be run on a sample from the SDG from the project.
2. Granular activated carbon will be analyzed for PCB congeners only.

Abbreviations:

ASTM American Society for Testing Materials
EPA U.S. Environmental Protection Agency
ENR Enhanced natural recovery
Hg Mercury
NA Not applicable
PAHs Polycyclic Aromatic Hydrocarbons
PCB Polychlorinated biphenyl
SDG Sample Delivery Group
SMS Sediment Management Standards
SPME Solid-phase microextraction
SU Salinity Unit