

Portland Harbor Pre-Design Investigation and Baseline Sampling: Expanded Database Export

Summing Rules

After additional review and discussion with its partners, the EPA has determined that the FS summation rules are the most appropriate methodology for use during remedial design and long-term monitoring. The EPA acknowledges that the pre-design investigation and baseline sampling (PDI/BL) data collected by the Pre-Remedial Design Group in 2018 and 2019 followed a slightly different summation approach. The different approaches for handling non-detected analytes result in a negligible difference in the final calculated summations. However, prior to posting the PDI/BL data to the Portland Harbor interim data portal the EPA has updated the calculated totals in the PDI/BL data to reflect the FS summation rules approach.

Overview

The EQuIS standard Analytical Results 11 (AR11) report format is the basis for the data contained in the Expanded Database Export (EDE). This report is generated through the EQuIS desktop application interface with the following data filters applied at runtime:

- Sample Type = Equipment Blanks, Trip Blanks, Normal Samples and Field Duplicate samples (i.e. excludes lab QC samples).
- Task = Task Code as defined for Portland Harbor Pre-RD study which is based on the respective sampling events referenced in the approved Field Sampling Plans (e.g. Surface Sediments/Grabs, Sediment Cores, Fish Tissue, etc.).
- Result Type = Targeted only (e.g. excludes surrogates and spikes used as part of lab QA/QC).
- Reportable = Reportable results only (e.g. excludes rejected lab data and other results deemed non-reportable per the QAPP).

The AR11 report output is an MS Excel file which is imported into an Access DB file to facilitate querying and review of large data sets. The Access file contains three tables as follows:

1. Data Elements table. This table holds a definition of each data element (column) in the export.
2. Expand Database Export table. This is the table that stores the content of the AR11 export. In Access Design View, the data types and an abbreviated version of the data element definitions can be found as well.
3. Reference Values table. This table decodes the shortened IDs contained in some of the columns (data fields) of the Expanded Database Export table, providing a more complete definition for the data code. The first column identifies the relevant export data field(s), the second column provides a listing of all the IDs relevant to that data field, and the third column provides a more complete description associated with the short ID/ reference value.

Additional Notes: PCBs and Co-eluting Congeners

A complicating factor to the PCB data is that the two labs providing PCB results for the project reported PCB co-eluting congeners differently in their deliverables and thus the summing process and values contained in the EDE is dependent on the lab. Additionally, each lab used a slightly different list of co-eluting congeners, so while the rules for summing are the same, the reporting, and potential filtering of the data to verify the totals calculation would vary by lab.

Test America (TA) reported co-eluting analyte results separately as individual analyte concentrations (PCB-12, PCB-13, etc.) even though only one peak/result was quantified for the collection of these analytes. In contrast, SGS AXYS Analytical (SGS) created a composite reference for the co-eluters (e.g. PCB-12/13) and reported only one result. To preserve the consistency between the lab EDDs and the project database, the data has been stored as delivered. However, in the case of Test America data, the primary co-eluter was assigned a lab qualifier flag of "C", whereas the additional analyte(s) were assigned a lab qualifier of "C plus the primary congener reference number" (e.g. C12). It should be noted that other lab qualifier flags unrelated to the co-elution issue may be present as well, and congeners without a co-eluting analyte(s) will not have a "C" flag and must still be considered in Totals calculations. See Table 1 for a summary comparison.

Table 1: Lab reporting and co-eluting congeners.

	Test America	SGS
Reported	co-eluting analytes separately	only the co-elution group as one result
Example	PCB-12 result = 1 pg/g Lab Qualifier = C PCB-13 result = 1 pg/g Lab Qualifier = C12	PCB-12/13 result = 1 pg/g Lab Qualifier = C

To verify or cross-check the totals calculations from the EDE, the following example steps are recommended:

- Filter "Lab Name Code" column to "TA" or "SGS" as appropriate
- Filter "Sample Type" to "Normal" and "Task Code" to "Surface Sediment" (or other study reference)
- Filter "Analytic Method(s)" to view only PCB results. • In order to find secondary TA co-eluters filter "Lab Name Code" to contain "TA" and "Lab Qualifier" to contain "C plus a co-elution number"; such as "C12" above for PCB-13. These results (where Lab Qualifier contains C and a number) are not used in Totals calculations and should be excluded from any cross-checks.
- Be sure to include any congeners without any C-flagging as well in the Totals check as they are still relevant, they just do not have any co-eluting analytes.

Specific Export Notes:

Export includes analytical and calculated results (TEQs, adjusted grain size, Total PCBs, etc.)