

January 7, 2015

Waverly Kallestad
Olgoonik-Fairweather LLC
9525 King Street
Anchorage, Alaska 99515

Subject: Submittal of Deliverable – Battelle Laboratory Data for “2014 Field Season of the ANIMIDA III Program”

Dear Waverly,

This deliverable constitutes the first data deliverables associated with Battelle’s laboratory analytical support to the *ANIMIDA III Program*. This deliverable is comprised of the methylmercury and petroleum hydrocarbon data from the analyses of biological tissue and sediment samples collected during the summer 2014 surveys. This deliverable includes the data tables (in Excel file format) and the quality control (QC) narrative, which describe the QC results (and Word file documents). The enclosed deliverable includes the data for all the analyses conducted by Battelle; both the petroleum hydrocarbon analyses performed at Battelle’s Norwell, MA laboratory and the methyl-mercury analyses conducted at Battelle’s Sequim, WA laboratory.

I am sending you this deliverable via email, with the Excel and Word files as attached documents. We would be happy to also send you these files on a CD and in hard copy format, on request.

The analytical methods and results will also be summarized and reported as part of a more comprehensive document deliverable at the end of the project, once all field work and all laboratory analyses have been completed. If you have any questions regarding this submission, please contact me at (781) 681-5517, or e-mail durell@battelle.org.

Sincerely,

Gregory Durell
Project Manager / Senior Research Scientist

cc. Justin Blank (justin.blank@fairweather.com)
Sheyna Wisdom (sheyna.wisdom@fairweather.com)

ATTACHMENT 1

Notes on Battelle's Laboratory Analyses "2014 Field Season of the ANIMIDA II Program"

- Twenty (20) tissue samples (crab, arctic cod, clam, and amphipod) were analyzed for concentrations of methyl-mercury. The quality control sample analyses all met the data quality objectives (DQOs).
- Forty (40) tissue samples (arctic cod, clam, and amphipod), including one field duplicate, were analyzed to determine petroleum hydrocarbon concentrations; polycyclic aromatic hydrocarbons (PAH), petroleum biomarkers (steranes and triterpanes), saturated hydrocarbons (alkanes and isoprenoids), and total hydrocarbons. The quality control sample analyses met the DQOs, with relatively minor exceptions. None of the DQO exceedances indicate any issues with the overall quality and usability of the field sample data; the data can be used with confidence.
 - PAH/biomarkers. Low concentrations (but above 5X the MDL) of naphthalene and C1-naphthalenes were detected in the method blank in one of the two tissue batches, possibly contributing low sample concentrations of these compounds. This is common for these compounds in trace-organic analysis. No other analytes were detected above the primary DQO of 5X the MDL in either of the blanks, and the occasional B-qualified sample data are because of secondary DQO exceedances (blank should be <5X sample concentration), and are a reflection of very low field sample concentrations, not elevated blank concentrations. The target compound recoveries were elevated in the laboratory control sample (LCS) in one of the two tissue batches, and was identified as a spiking issue, and not a recovery or method accuracy issue. Surrogate recoveries and other QC sample results met the DQOs, as they relate to the field sample data. The QC information is described in more detail in the QA/QC Summaries.
 - Saturated HCs/Total SHC. Nonane was slightly under-recovered in the LCS samples, which is typical for this the most volatile of the alkanes and a compounds that is generally present at low concentrations in the field samples, if at all. The RPD for pristane in one of the field duplicates slightly exceeded the DQO, but the sample concentrations were so low that reliable precision measurements could not be obtained for assessment. Surrogate recoveries and other QC sample results met the DQOs, as they relate to the field sample data. The QC information is described in more detail in the QA/QC Summaries.
- Fortyfive (45) sediment samples, including two field duplicate, were analyzed to determine petroleum hydrocarbon concentrations; polycyclic aromatic hydrocarbons (PAH), petroleum biomarkers (steranes and triterpanes), saturated hydrocarbons (alkanes and isoprenoids), and total hydrocarbons. The quality control sample analyses met the DQOs, with few exceptions. None of the DQO exceedances indicate any issues with the overall quality and usability of the data; the data can be used with confidence.
 - PAH/biomarkers. There was only one instance of a surrogate recovery exceedance among the 315 surrogate recovery measurements; a slightly low d8-naphthalene recovery in one sample. No analytes were detected above the

primary DQO of 5X the MDL in any of the method blanks, and there was one B-qualified data-point because of a secondary DQO exceedance (blank should be <5X sample concentration), which was a reflection of very low field sample concentrations, not elevated blank concentrations. All other surrogate recoveries and QC sample results met the DQOs. The QC information is described in more detail in the QA/QC Summaries.

- Saturated HCs/Total SHC. Nonane was slightly under-recovered in the LCS samples in one batch and one of the matrix spike samples, which is typical for this the most volatile of the alkanes. There was only one instance of a surrogate recovery exceedance among all the surrogate recovery measurements. All other surrogate recoveries and other QC sample results met the DQOs. The QC information is described in more detail in the QA/QC Summaries.