



King County

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To: Brandi Lubliner, WDOE
From: Colin Elliott
Subject: Narrative for 3rd Quarter Lab Results for IAA No. 1500077
Project #: SIC: F92AA

The following narrative summarizes the data quality issues encountered with the analysis of the WQ samples collected June, July and August 2015. The QC reports are attached.

1. **Sample Preservation, Storage and Holding Time Compliance**
All samples met the preservation, storage and holding time limits listed in Table 17 of the QAPP. As noted in the 3rd quarter field narrative, fecal coliform results for nine samples have been reported from recollected samples. This was due to a power outage on the evening of July 27 that interfered with proper incubation.
2. **Method Blank Contamination:**
Method blanks were analyzed at the frequency listed in Table 19 and no parameter was detected above the KCEL method detection limit.
3. **Matrix Spikes (MS), lab control samples (LCS), Spike Blanks and Surrogates**
Matrix spikes, lab control samples, spike blanks and surrogates were analyzed at the frequency listed in Table 19 of the QAPP. All recovery values for these QC types were within acceptance limits listed in Table 20 except for the following:
 - a. The spike blank analyzed with the PAH samples collected in July showed recoveries for 2-Methylnaphthalene, Napthalene, Acenaphthylene, Acenaphthene, Fluorene and Anthracene which are all below either the King County lab limits or the acceptance limits in Table 20. In addition, the matrix spike and matrix spike duplicate for that set of samples showed recoveries for 2-Methylnaphthalene, Acenaphthylene, Acenaphthene and Fluorene that were also below either the King County lab limits or the acceptance limits in Table 20. No additional sample was available to use for re-analysis.
 - b. The 2-Fluoro biphenyl surrogate showed recoveries below the acceptance limits in Table 20 (40-150%) for multiple samples and QC in the July PAH sample batch. The second surrogate (d-14 Terphenyl) used in each sample was acceptable for all samples.

Because of the low recoveries for 2-Methylnaphthalene, Acenaphthylene, Acenaphthene, and Fluorene in both the matrix spikes and spike blank and low recoveries for the 2-Fluoro biphenyl surrogate, results for these 4 parameters in all samples collected in July have been qualified with a JG flag.

4. Lab Duplicates (LD) and Matrix Spike Duplicates (MSD)

Lab duplicates were analyzed at a frequency of at least 5% for all Metals, Conventional and Microbiological methods. Matrix spike duplicates were analyzed at a frequency of 5% for the Organics parameters. The relative percent difference (RPD) was not calculated for any set of lab duplicates where both results were less than the RDL (quantitation limit). When the RPD was calculated, the measured precision for these 2 QC types were all within the acceptance limits listed in Table 20 of the QAPP.

5. Field Replicates

A total of 6 sets of field replicates were collected during the 3rd quarter sampling events. The precision of all field replicates were within the limits listed in the QAPP (Table 20) except for:

- a. Station 0003-WUGA for June:
 - i. Total Lead and Total Zinc results showed RPD values of 26 and 28%, respectively, just above the acceptance limit of 20%.
- b. Station 0018-WUGA for June:
 - i. Turbidity results showed an RPD value of 28%, just above the acceptance limit of 25%. Both values were near the quantitation limit.
- c. Station 0042-WUGA for June:
 - i. Naphthalene results gave an RPD value of 54% but since both values were near or below the quantitation limit, it is expected that the variability would be slightly greater than the 40% acceptance limit.
 - ii. Fecal Coliform and Total Suspended Solids results showed RPD values of 51 and 47%, respectively.
- d. Station 0045-OUGA for June:
 - i. Total Suspended Solids showed an RPD value of 110%. Although the field replicate value was below the quantitation limit, the sample result was substantially above the quantitation limit. It is likely that there is a significant difference between the TSS levels in the 2 sample containers.
 - ii. Total Phosphorus showed an RPD value of 25%, just above the acceptance limit of 20%. Both values were near the quantitation limit.
- e. Station 0009-WUGA for August:
 - i. Total Suspended Solids showed an RPD value of 135%. Although the field replicate value was below the quantitation limit, the sample result was substantially above. It is likely that there is a significant difference between the TSS levels in the 2 sample containers.
 - ii. Total Zinc showed an RPD value of 39%. Although the field replicate value was below the quantitation limit, the sample result was substantially above the quantitation limit. It is likely that there is a significant difference between the Total Zinc levels in the 2 sample containers.

6. Other Issues

- a. The differences between the total and dissolved metals for all samples were evaluated. For those samples where the dissolved metals result was above the total metals value, the difference was small and the results were either below or near the quantitation limit. Under these circumstances, the difference is likely due to expected method variability and therefore no corrective action was taken.