



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10

1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

February 3, 2011

Reply To

Attn. Of: OEA-095

MEMORANDUM

SUBJECT: Validation Report for Yakima Basin Nitrate Phase 3 - Metals Analysis of Water Samples
Project Code: ESD-163C

FROM: Donald Matheny, Chemist DM
USEPA R10, OEA, Environmental Services Unit

TO: Ginna Grepo-Grove, Regional Quality Assurance Manager
Office of Environmental Assessment, USEPA R10

The quality assurance (QA) review of the analytical data generated from the analysis of forty nine (49) water samples collected from the above project has been completed. These samples were analyzed for total recoverable metals via ICP_AES by the USEPA Region 10 Manchester Environmental Laboratory located in Port Orchard, WA.

Samples were handled and organized into separate batches based on the overall conditions of the matrix. These were identified as either "water" or "lagoon" samples. The sample numbers given for this review of the Phase 3 Study data are:

Water Samples:

10154201 10154202 10154203 10154204 10154205 10154206 10154207
10154208 10154211 10154212 10154213 10154214 10154215 10154216
10154217 10154218 10154219 10154220 10154221 10154223 10154224
10154225 10154226 10154227 10154228 10154229 10154271 10154272
10154273 10154274 10164209 10164210 10164222 10164230

Lagoon Samples:

10154251 10154252 10154253 10154254 10154255 10154256 10154257
10154258 10154259 10164260 10164261 10164262 10164263 10164264
10164265

The validation was conducted according to the Quality Control Specifications outlined in the Quality Assurance Project Plan for the Yakima Basin Nitrate Sampling Phase 3 (2010) and the EPA Manchester Laboratory Quality Manual. The conclusions presented herein are based on the information provided for the review.

HOLDING TIMES

Sample holding times were evaluated from the dates of sample collection to the dates of digestion and analysis. All samples were analyzed within the 180 day holding time for metals.

QUALITY CONTROL RESULTS SUMMARY

The assessment of instrument specific quality control results included instrument calibration, verification standards and blanks. Sample quality control results were assessed for matrix spike recoveries, duplicate sample analyses and serial dilution results. The following table is a list of these quality control indicators, the relevant evaluation criteria and an indication of compliance.

| Quality Control Test | Outliers? | Evaluation Criteria |
|---|-----------|---------------------------------------|
| Instrument and Method Blanks | Y | \pm MRL or sample < 10x Blank Value |
| Instrument Verification Standards | N | 90-110% |
| Method Reporting Limit Verification Standards | N | 70-130% |
| Low Range Verification Standards | N | 80-120% |
| Laboratory Control Samples | N | 85 - 115% |
| Sample Duplicates | N | \leq 20% RPD |
| Matrix Spikes | N | 75 - 125% |
| Serial Dilutions | N | \leq 10% |

A comparison of the reported analyte values was conducted against the instrument data and the results were verified. Data qualification was appropriately conducted at the laboratory where data quality indicator exceedances required. Data qualifiers applied during the laboratory's data reduction processes are as follows:

Data Qualifiers

Below are the definitions for the codes used qualifying data from these analyses. When more than one quality issue was involved, the most restrictive qualifier has been attached to the data.

- U - The analyte was not detected at or above the reported value.
- J - The identification of the analyte is acceptable; however the reported value is an estimate.