



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

September 14, 2011

Reply to: Donald M. Brown
Attn of: OEA-095

MEMORANDUM

Subject: Data Validation Report for the Inorganic Analyses of the Water Samples Collected from the Yakima Basin Nitrate Study Phase 2

From: Donald M. Brown, QA Chemist^{DMB}
USEPA Region 10, Office of Environmental Assessment, Environmental Services Unit

To: Ginna Grepo-Grove, Regional Quality Assurance Manager
USEPA Region 10, OEA

The quality assurance (QA) review of the analytical data generated from the analysis of one hundred twenty-three (123) water samples collected from the Yakima Basin Nitrate Study Phase 2 has been completed. These samples were analyzed for Total Kjeldahl Nitrogen (TKN) in accordance with EPA Method 351.2 by the USEPA Region 10 Laboratory located in Port Orchard, Washington.

This review was conducted for the following TKN samples from the Phase 2 Study:

10086002	10086004	10086007	10086008	10086009	10086013
10086018	10086020	10086021	10086024	10086025	10086027
10086028	10086030	10086032	10086037	10086038	10086041
10086042	10086043	10086047	10086048	10086050	10086051
10086052	10086053	10086054	10086055	10086057	10086059
10086101	10086102	10086103	10086104	10086108	10086109
10086110	10086112	10086113	10086115	10086117	10086123
10086124	10086126	10086127	10086128	10086131	10086135
10086137	10086140	10086147	10086203	10086207	10086208
10086209	10086212	10086214	10086215	10086216	10086219
10086221	10086223	10086224	10086226	10086227	10096301
10096306	10096307	10096308	10096309	10096311	10096320
10096322	10096352	10096353	10096354	10096356	10096357
10096358	10096359	10096401	10096404	10096407	10096408
10096412	10096413	10096423	10096426	10096427	10096431
10096436	10096439	10096445	10096446	10096452	10096455
10096456	10096459	10096461	10096465	10096502	10096504
10096508	10096509	10096510	10096511	10096513	10096516
10096517	10096518	10096519	10096521	10096523	10096525

10096526 10096527 10096528 10096531 10096532 10096534
 10096535 10096598 10096599

In addition, this QA review also includes the analytical data generated from the analysis of two (2) water samples for Nitrate plus Nitrite in accordance with EPA Method 353.2 by the USEPA Region 10 Laboratory.

This review was conducted for the following nitrate + nitrite samples from the Phase 2 Study:

10086015 10086220

All sample analyses were evaluated following EPA's Stage 4 Data Validation Manual Process (S4VM). The validation was conducted according to the Quality Control Specifications outlined in the Quality Assurance Project Plans for the Yakima Basin Nitrate Study Phase 2 (January 2010) and Phase 3 (April 2010) as well as the laboratory's current Quality Assurance Manual and Standard Operating Procedures (SOPs). The conclusions presented herein are based on the information provided for the review.

Holding Time

Sample holding times were evaluated from the dates of sample collection to the dates of sample analysis. All samples were analyzed within 28 day holding time for TKN and nitrate plus nitrite.

Sample Results & Reporting Limits

All sample results that fell below the Method Reporting Limit (MRL) were assigned the value of the MRL and the "U" qualifier was attached.

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 and matrix spike duplicate (MS/MSD) recoveries as well as laboratory duplicate analyses. 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	N	± MRL
Instrument Verification Standards	N	90 – 110%
Method Reporting Limit Verification Stds.	N	70 – 130%
Laboratory Control Samples	N	80 – 120%
Laboratory Fortified Blanks	N	90 – 110%
Matrix Spike / Matrix Spike Duplicate	N	75 – 125 %
Laboratory Duplicates	N	< 20% RPD

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.