



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

March 1, 2011

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

**MEMORANDUM**

Subject: Data Validation Report for the Herbicide Analysis of the Water Samples Collected from the Yakima Basin Nitrate Study Phase 3

From: Donald M. Brown, QA Chemist <sup>Dmb</sup>  
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 thirty (30) water samples collected from the Yakima Basin Nitrate Study Phase 3 has been completed. These samples were analyzed for Herbicides by the US EPA Region 10 Laboratory located in Port Orchard, Washington.

This review was conducted for the following samples from the Phase 3 Study:

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	10164209	10164210	10164222	10164230

All sample analyses were evaluated following EPA's Stage 4 Data Validation Manual Process (S4VM). The data reviews were conducted and appropriate qualifiers were applied according to the Quality Control Specifications outlined in the Quality Assurance Project Plan for the Yakima Basin Nitrate Study Phase 3 (April 2010) and the laboratory's current Quality Assurance Manual and Standard Operating Procedures (SOPs). The laboratory noted that the sample preparation and analysis were experimental and that no SOP has been developed by the laboratory. The following criteria have been evaluated: Sample Transport and Receipt, Sample Holding Times, Sample Preparation, Initial Calibration and Calibration Verification, Laboratory Control Samples, Blank Analysis, Matrix Spike/Matrix Spike Duplicate Analysis, and Sample Identification.

The quality control measures which did not meet QAPP/Laboratory criteria are as follows:

- The laboratory control samples (LCSs) were below the recovery requirement (<70%) for 2,4,6-Trichlorophenol; 2,4-D; Clopyralid; Dacthal-DCPA; Dicamba; and Picloram. These compounds were not detected in the samples; therefore, results were considered estimates and qualified "UJ".
- Matrix spikes and/or matrix spike duplicates (MS/MSD) were below the recovery requirement (<70%) for 2,4,5-Trichlorophenol; 4-Nitrophenol; Chloramben; Clopyralid; Dacthal-DCPA; Dicamba; Fenhexamid; and/or Picloram. Furthermore, Clopyralid, Dicamba, and Picloram failed MS/MSD precision criteria (30%). These compounds were not detected in the samples used for MS/MSD; therefore, results were considered estimates and qualified "UJ".
- The laboratory noted that due to the general low quality of the data when compared to the data quality objectives of the Project QAPP, the following compounds, which were not detected in the samples, were considered estimates and qualified "UJ": 2,4,6-Trichlorophenol; 2,4-D; 4-Nitrophenol; Chloramben; Clopyralid; Dacthal-DCPA; Dicamba; Fenhexamid; and Picloram.
- Bentazon was detected in samples 10154207 and 10154255 at levels below the estimated detection limit (EDL) with poor matches for the ion ratios. Therefore, these results were considered estimates and qualified "NJ".
- Bentazon, Ioxynil, and Pentachlorophenol were detected in several samples below the EDLs but the results met the expected ion ratios. Therefore, these results were considered estimates and qualified "J".

### 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.
- UJ - The analyte was not detected at or above the reported value. The reported value is an estimate.
- NJ - The analyte was detected at the reported level, the mass spectrum did not meet criteria. The reported value is an estimate.