



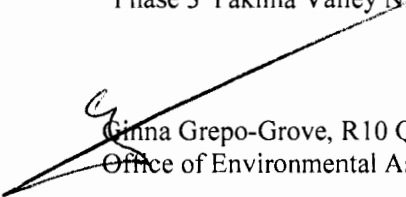
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MEMORANDUM

Subject: QA Narrative Report for the Steroid Hormone Analysis of Samples Collected from the Phase 3 Yakima Valley Nitrates Study

From:  Gina Grepo-Grove, R10 QA Manager  
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To: Michael Cox, Project Officer, OEA  
Curt Black, Project Manager  
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CC: Stephen R Hutchins, TOPO, USEPA, NRMRL

The quality assurance (QA) review of the analytical data generated from the analysis of 48 samples collected from the above referenced site has been completed. These samples were analyzed for steroid hormones [estrone (E1), 17- $\alpha$ -estradiol ( $\alpha$ -E2), 17- $\beta$ -estradiol ( $\beta$ -E2), 17- $\alpha$ -ethynylestradiol (EE2) and 16- $\beta$ -hydroxy-17- $\beta$ -estradiol (estriol) (E3)] following the Standard Operating Procedure for the "*Quantitation of Estrogens in Groundwater and Animal Waste Lagoon Water Using Solid Phase Extraction, Pentafluorobenzyl and Trimethylsilyl Derivatization and Gas Chromatography Negative Ion Chemical Ionization/Mass Spectrometry/Mass Spectrometry, RSKSOP-253, Revision 2, October 2010*". The analyses were performed by the USEPA National Risk Management Research Laboratory, Ground Water and Ecosystems Restoration Division, Robert S. Kerr Environmental Research Center located in Ada, OK.

The following samples were evaluated in this validation report:

LG01	LG02	LG03	LG04	LG05	LG06
LG07	LG08	LG09	LG10	LG11	LG12
LG13	LG14	LG15	SP01	SP02	SP03
WW-01	WW-02	WW-03	WW-04	WW-05	WW-06
WW-07	WW-08	WW-09	WW-10	WW-11	WW-12
WW-13	WW-14	WW-15	WW-16	WW-17	WW-18
WW-19	WW-20	WW-21	WW-22	WW-23	WW-24
WW-25	WW-26	WW-27	WW-28	WW29	WW-30

**DATA QUALIFICATIONS**

All sample analyses were evaluated following the EPA’s Stage 2B Manual Data Validation Process (S2VM). The analyses were evaluated and laboratory qualifiers were mapped to R10 EPA validation qualifiers following the technical acceptance criteria and Quality Control Specifications outlined in the RSKSOP-253 and the Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use (EPA-540-R08-005). The conclusions presented herein are based on the information provided for the review.

**Overall Data Assessment:**

Samples were analyzed following the technical specifications of the analytical method. All of the technical acceptance criteria for QC were met including the duplicate analyses. Only the analytical results detected >MDL but <QL were qualified estimated, “J”. Data detected <MDL were qualified non-detects, “U”, at the MDL level. The data, as qualified, are usable for all purposes.

**Data Qualifiers**

The following is a list of validation qualifiers applied to the sample result(s) when needed to indicate an associated out-of-control QA/QC results.

<b>Data Qualifiers</b>	
U	The analyte was not detected at or above the reported result.
J	The analyte was positively identified. The associated numerical result is an estimate.
UJ	The analyte was not detected at or above the reported estimated result. The associated numerical value is an estimate of the quantitation limit of the analyte in this sample.
R	The data are unusable for all purposes.
N	There is evidence the analyte is present in this sample.
JN	There is evidence that the analyte is present. The associated numerical result is an estimate.