



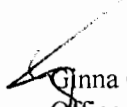
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MEMORANDUM

Subject: QA Narrative Report for the Analysis of Personal Care Products and Pharmaceuticals in Lagoon and Waste Water Samples Collected from the Phase 3 Yakima Valley Nitrates Study by University of Nebraska Lincoln – Water Science Laboratory

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

Forty-seven liquid and sixteen solid samples were collected and analyzed for common municipal waste water contaminants namely: acetaminophen, amphetamine, azithromycin, caffeine, carbamazepine, cotinine, diphenylhydramine, DEET [N, N-diethyl-meta-toluamide], ibuprofen, methamphetamine, naproxen, paraxanthine, sulfamethoxazole, sulfamethazine, thiabendazole, and triclosan by the University of Nebraska-Water Science Laboratory located in Lincoln, NE. All liquid samples (including the biosolids collected from lagoons) were processed and analyzed following UNL's in-house SOP "*Determination of antibiotics in water and wastewater using off-line solid phase extraction liquid chromatography (LC) - atmospheric pressure electro spray ionization ion trap mass spectrometry (MS)*" (SOP- LCQ-Wastewater-001). The solid samples were processed and analyzed following UNL's in-house SOP "*Determination of antibiotics in solid samples by microwave-assisted solvent extraction (MASE), solid -phase extraction (SPE) and isotope dilution liquid chromatography (LC)- atmospheric pressure electro spray ionization ion trap mass spectrometry (MS)*" [SOP-LCQ-Wastesolid-001].

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
SO-01	SO-02	SO-03	SO-04	SO-05	SO-06
SO-07	SO-08	SO-09	SO-10	SO-11	SO-12
SO-13	SO-14	SO-15	SO-16	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	WW-29			

## 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 UNL Standard Operating Procedure 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.  
Note: The QC and calibration runs were not available at the time of this QA review.

### Overall Data Assessment:

Samples were analyzed following the technical specifications of UNL's in-house SOP. Data users are advised to consider the values reported as a screen on the sample locations. For full usability, data needs further confirmation for the following reasons: (1) data were not thoroughly verified by the validator due to the absence of the instrument raw data output at the time of review and (2) there is no established standard analytical method for the analysis of the target compounds and the recurrence of out of control QC results and big variability in duplicate runs indicated that data may not be reproducible by a third party. The data reported can only be used for informational purposes only and a good starting point in determining sample locations from confirmatory analyses.

The instrument raw data output were not available during data validation. A Stage 2A data validation review was conducted by the EPA QA team which only included the limited evaluation of QA and sample analytical summary results. Approximately 10% of the total waste water contaminants data points were qualified unusable due to extremely low spike recoveries (<10%). The compounds that are unusable are: methamphetamine, amphetamine and sulfamethoxazole in the lagoon samples and naproxen and triclosan in the associated water well samples. Additional 55% of total data points were qualified estimated due to poor recoveries in the associated QC runs. The compounds that were qualified estimated are: Acetaminophen, amphetamine, paraxathine, thiabendazole in all samples; cotinine, ibuprofen, methamphetamine, naproxen, and triclosan in solid samples; carbamazepine, diphenylhydramine, and paraxanthine in water samples; DEET and ibuprofen in lagoon samples and triclosan in septic tank samples.

**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.