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**APR 1 1999**

Ms. Laura J. Cusack  
 Project Management Section Manager  
 Nuclear Waste Program  
 State of Washington  
 Department of Ecology  
 1315 W. Fourth Avenue  
 Kennewick, Washington 99336-6018



Dear Ms. Cusack:

**PROBLEMS WITH ELEVATED SPECIFIC CONDUCTANCE FIELD MEASUREMENTS**

Preliminary evaluation of field specific conductivity measurements of groundwater at several Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal facilities indicates that a significant number of measurements taken in December 1998, January 1999, and February 1999, have field values that are higher than historical trends and available laboratory measurements. Consequently, a large number of suspect critical mean exceedances of specific conductivity at RCRA sites will likely be identified in upcoming measurements. Examples of suspect, identified exceedances are discussed below.

A strong, high bias, relative to historical trends, has been identified for specific conductance measured in the February 1999 sampling from all wells at the Nonradioactive Dangerous Waste Landfill (NRDWL). The table below provides results (in uS/cm) from these wells for field measurements. The values are averages of four replicate measurements.

Well Number	Field Specific Conductance	Field Specific Conductance 8/24/98 - 8/31/98	Percent Increase Over Historical Norm 2/04/99 - 2/10/99
699-25-33A	323	632	96%
699-25-34A	537	1052	96%
699-25-34B	550	1142	108%
699-25 -34D	473	1069	126%
699-26-33	474	960	103%
699-26-34A~	461	898	95%
699-26-34B	426	913	114%
699-26-35A~	464	912	97%
Range at upgradient wells	323 - 550	632 - 1142	95% - 126%

The critical mean of 821.9 uS/cm was exceeded for five downgradient wells and both upgradient wells in February 1999, based on these reported values.

Ms. Laura J. Cusack

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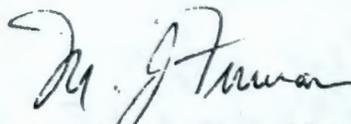
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In addition, at the U Tank Farm there is a strong, high bias, relative to laboratory values, for specific conductance values in December measurements from new wells 299-W19-41 and 299-W1-42. Laboratory specific conductance is routinely measured as a check against the required field measurements. For well 299-W19-41 the average of four field replicates is 539 uS/cm, while the laboratory value is 340 uS/cm. For well 299-W19-42 the average of four field replicates is 457 uS/cm, while the lab value is 290 uS/cm. Using the laboratory measurements as a baseline, the field values are 59 percent and 58 percent high, respectively. The value in well 299-WI 9-41 was very near the critical mean of 543.9 uS/cm in December 1998. Measurements made in February 1999 were even higher; well 299-W19-41 had a reported field value of 648 uS/cm (which exceeds the critical mean), and well 299-W19-42 had a reported field value of 533 uS/cm.

At the Liquid Effluent Retention Facility an anomalously high measurement for specific conductance was reported for one sampling event.

The cause of the suspect elevated specific conductance field measurements has not yet been identified. Analytical chemistry results for equivalent time-periods will be used for comparison. So far, the elevated values have not been associated with any specific instrument, individual, or calibration standards. A plan is being developed to identify and resolve the discrepancies. The results of corrective actions will be reported later. Until these discrepancies are resolved, the field specific conductance values will not be used for statistical evaluations, unless there is confirmation based on specific trends and laboratory confirmations.

Sincerely,



M. J. Furman, Project Manager  
Groundwater Project

GWP:MJF

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