

October 6, 2003

Mr. Emilio M. Garcia
U.S. Nuclear Regulatory Commission
Region IV
Harris Tower, Suite 400
611 Ryan Plaza Drive
Arlington, TX 76011-8064

**SUBJECT: REPORT FOR ANALYSIS OF THE SPLIT WATER SAMPLE
WITH GENERAL ENGINEERING LABORATORIES FROM
KERR-MCGEE CIMARRON, CRESCENT, OKLAHOMA
(INSPECTION REPORT NO. 07000925/2003001) [RFTA NO. 03-
001]**

Dear Mr. Garcia:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) received 24 water samples that were collected on June 24 and June 25, 2003 at the Kerr-McGee Cimarron facility in Cimarron, Oklahoma. A split of these 24 water samples was also sent to General Engineering Laboratories (GEL) in Charleston, South Carolina. ORISE sent results from these 24 samples to you in a letter report dated July 29, 2003. After reviewing the ORISE data, you requested, via a phone conversation on September 10, 2003, that ORISE send a portion of sample 862W008 (NRC sample ID seep N-1208-1847) to GEL and GEL send a portion of the same sample to ORISE. ORISE received the GEL sample portion on September 16, 2003 (ORISE sample 862W025). Therefore samples 862W008 and 862W025 are from the same NRC location. Both laboratories were to analyze the sample for Tc-99. ORISE performed Tc-99 analysis (Procedure AP5, Revision 14 and Procedure CP4, Revision 2) on both the sample sent from GEL (862W025) and the original sample (862W008). The Tc-99 results for 862W008 and 862W025 were found to be $3,510 \pm 370$ and $3,340 \pm 350$ pCi/L, respectively. The results of these two portions are statistically equal.

The original Tc-99 data given in the July 29, 2003 report for sample 862W008 was $1,790 \pm 210$ pCi/L. The discrepancy from the original data and the data presented here is attributed to sample matrix effects. ORISE's Tc-99 procedure utilizes a batch yield procedure in which a single sample is spiked with a known amount of Tc-99 and the calculated chemical recovery from this sample is applied to the entire set of samples in the batch. Typically this method of calculating chemical recovery is not a problem as long as all of the samples in the batch have similar matrices. After re-inspection of the original 24 samples sent in late July, the sample in question (862W008 and 862W025)

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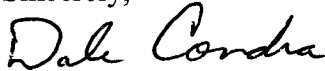


was noted as having a yellow color to it. This sample was the only one which had the discoloration. Evaluation of color would not typically be part of the evaluation of a sample batch for consistent matrices; however, in this case it proved to be significant. When the original Tc-99 analysis was performed, the sample that was used to calculate the chemical recovery was a sample that was not discolored. Therefore, the original calculated Tc-99 activity for 862W008 was underestimated due to the difference the matrix had on chemical yield.

ESSAP's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

Please contact me at (865) 241-3242 or Wade Ivey at (865) 576-9184 should you have any questions.

Sincerely,



Dale Condra
Laboratory Manager
Environmental Survey and
Site Assessment Program

RDC:WPI:ar

cc: T. McLaughlin, NRC/NMSS/TWFN 7F27
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