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Dr. A. G. Croff, Manager  
Engineering Analysis and Planning  
Chemical Technology Division  
Oak Ridge National Laboratory  
P. O. Box X  
Oak Ridge, TN 37830

Dear Dr. Croff:

SUBJECT: CONTRACT NO. NRC-50-19-03-1/FIN B-0290, ORNL NO. 41-88-54-92-6  
ENTITLED, "LABORATORY EVALUATION..."

I have reviewed the August, 1983 Monthly Progress Report for the above contract, date September 21, 1983. Based on my review, progress to date is satisfactory.

I found your report on technetium unclear. You report that we have obtained data with more "scatter" which is "variable" and "not readily reproducible". The test equipment sorbs more than the geologic materials tested and "unidentified components" (sic) precipitate out of heated groundwater when hydrazine is added. You suggest that technetium bearing systems are poorly understood.

We should not expect to understand technetium chemistry. We should strive to define degrees of uncertainty and areas where lack of knowledge of technetium behavior requires more understanding. In order for me to be able to grasp the significance of your results to our position on technetium solubility at BWIP, please explain:

- a) variability of data compared to your results vs. BWIP estimates
- b) hydrazine as a redox buffer
- c) technetium solubility.

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Please relate this discussion to DOE results/plans. In particular it is not clear how our experimental techniques relate to DOE's techniques and how variability observed during our work is related to variability of DOE results. Explain what you plan to do in the next two to three months.

Your neptunium tests seem to be progressing well as do the computational activities. Two general points need clarification. One is, why are you using GR-1 and GR-2 when there is a "published" GR-3 (see RHO-BW-ST- 37 P). A new water representative of the Cohasset is being defined (Tom Early, per. communication). Do we need a set of tests using site-specific groundwater [ref. Cleveland et al., Nuclear Technology, v. 62, p. 308 (1983)]? The other point is that we need to move toward radionuclide solubility calculations under the calculational activities task. In particular, we should think about trying to confirm (or not confirm) the BWIP calculations presented in RHO-BW-ST-39 P.

Beginning "immediately" all technical high-level waste contractor documents will automatically be sent to the public document room (see Attachment-1), thus, proprietary information (i.e. financial/administrative material) should be submitted as an "attachment" to the technical report.

The action taken by this letter is considered to be within the scope of the current contract FIN B-0290. No change to costs or delivery of contract products is authorized. Please notify me immediately if you believe this letter would result in changes to costs or delivery of contract products.

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R. John Starmer  
Geochemistry Section  
Geotechnical Branch  
Division of Waste Management

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| NAME | : JRStarmer/sg:PJustus | :           | : | : | : | : | : |
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