

JUN 21 1988

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Mr. Mark J. Logsdon, Project Manager  
Nuclear Waste Consultants, Inc.  
Suite 306  
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Denver, Colorado 80209-3014

Dear Mr. Logsdon:

I have received your monthly progress report for April dated May 13, 1988. This report describes the status of Nuclear Waste Consultants' Technical Assistance under Contract No. NRC-02-85-009. Overall progress made to date under this contract is satisfactory.

Task 1- NNWSI

I have received Mr. Sniff's trip report on the DOE/NRC technical meeting on "Alternative Conceptual Models of the Groundwater System at Yucca Mountain" (Communication No. 263). The report is complete and thorough and I have no comments. Please note for future reference that in the copies received by the staff, pages 10 through 41 of attachment A were inserted into the midst of Mr. Sniff's summary report and that attachments C and D are reversed from order referenced. It is not necessary to submit any revisions. A few questions came to me while reading the report that I would like Mr. Sniff to think about and respond to in a letter by July 8. These are:

- What sort of experiment would evaluate the assumption of a pressure equilibrium between the matrix and fractures? (p.12)
- How do Peters and Klavetter define a composite continuum? (p.12)
- How is a "discrete fracture network" considered in the Wang and Narashiman method? (p.12)
- What does the term "conceptual model" mean to you?
- What is your understanding of Sinnock's groundwater modeling (nominal case) concern of "scalar relationships"? (p.13)

Considering what I learned from the meeting and the summary provided by Mr. Sniff's trip report I think there are three primary observations to be made. First, there are indeed a "great number of processes" discussed by Bill Wilson (DOE/USGS) during the Las Vegas meeting which had only been implicitly considered in the CDSCP. Second, there will be difficulty in defining a representative elementary volume (REV). Third, there are a number of modeling options available to evaluate system performance. It seems to me that these observations need to be applied to each of the three main areas of investigation (Regional, Site Saturated, Site Unsaturated) outlined in the CDSCP in order to reach a broad conclusion as to the adequacy of the entire testing strategy to be applied to each area of investigation. I have recently

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reread the draft GTP on a Licensing Assessment Methodology. If I assume that the recommended, integrated (and iterative) site characterization/performance assessment process is still valid (translated into review criteria in SCP Review Plan), then criteria to be applied to the three observations made above would include:

- ° Are the studies/activities planned under each area of investigation adequate to address each process/assumption (including alternatives)?
- ° Are the studies/activities planned under each area of investigation adequate to provide a data base which is consistent with identified performance assessment modeling strategies?

I include the second criteria because I feel that any decision on the modeling approach affects the testing strategy significantly. If the assumption that would allow the system to be modeled as a single porosity continuum is "confirmed", then there is no need for detailed information on fracture apertures, orientations and the like. The relevant data would include integrated (bulk) measurements of permeability obtained by tests designed for "single porosity continua", hopefully, at a scale consistent with the resultant "trade-offs" on code dimensionality and mesh-size/time step convergence criteria that will be made in performance modeling.

In my last letter (May 17, 1988) I outlined in some detail the focus for the next conceptual model update report. As a corollary task I ask that you have WW&L formulate one integrated comment for each of the three areas of investigation outlined in the CDSCP. The overall focus of the comments would be based on the two criteria identified above. For convenience, I suggest using the format of the CDSCP point papers. My intent is that all the various comments done as individual point papers show up as individual "points" under an integrated comment. Naturally, new points could be included based on information obtained from the DOE/NRC meeting. Each point should only be one paragraph including statement, basis, recommendation and reference to CDSCP or other material, in that order. Further, prepare the three papers as comments. It will take a good effort to write economically. Reference to the CDSCP will be extremely important so as to allow revision based on changes made by DOE in the SCP arriving at the end of the year. Finally, the focus of any comment cannot ignore the regulatory basis for defining the information needs that the testing program must provide. Review of the strategy for post-closure performance assessment (refer to figure 8.3.5.8-1 of Section 8.3.5.8; page 8.3.5.8-3 of the CDSCP) indicates that the investigation program to understand the groundwater flow system is driven, or "managed", primarily through issue 1.6 (GWTT). Although the relationship between issues is supposed to achieve an important "synergism", input to issue 1.1 (total system performance), issue 1.2 (individual protection), issue 1.3 (groundwater protection), issue 1.8 (siting criteria), issue 1.4 (waste package) and issue 1.5 (EBS releases) is dependent upon information obtained to resolve issue 1.6. We will accept that strategy for the purpose of getting these integrated comments down on paper. Please submit drafts of these three comments by August 19, 1988. I intend to keep

these as informal products. Whatever "product" goes forward to DOE will have to be formatted by NRC staff according to requirements set by the Operations Branch.

TASK 2 and TASK 3

Refer to general comment.

TASK 5

As indicated in my last letter I am not up to speed on the Task dealing with techniques for parameter estimation. Regardless, there are two points to keep in mind. If the resulting product is a thorough literature review, we would seriously consider publishing it as a NUREG. We will have that in mind as we see the first draft. Further, I can already envision a logical follow-up to such a report in the vein "problematic areas in applying estimation techniques to hydrologic parameters for Yucca Mountain." I assume there will be some. However, this is a task I would assign to the CNWRA given the time remaining under this contract.

General Comments

Your comments on the internal draft of the technical position on GWTT (Communication No. 261) were forwarded to Mr. Ross for his consideration.

I have received replacement pages for revision one of issue 1 or your QA manual (Communication No. 259). I have no comments and will file them appropriately.

I have reviewed your letter (Communication No. 251) concerning file retention after contract termination. I concur with the approach outlined with one possible exception. I need to think more about a retention period for NNWSI related internal QA files. I really don't want to take possession of copies but if the CNWRA or NRC uses any specific product, QA records related to that product should, perhaps, remain in existence longer than one year. I'll have to think more about this.

I have no further comments.

The action taken by this letter is considered to be within the scope of the current contract NRC-02-85-009. No changes to cost or delivery of contracted products are authorized. Please notify me immediately if you believe that this letter would result in a change to costs or delivery of contracted products.

Sincerely,



Jeffrey A. Pohle, Project Officer  
Hydrology Section  
Technical Review Branch  
Division of High-Level Waste Management  
Office of Nuclear Material Safety  
and Safeguards

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