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Dear Dr. Gates:

SUBJECT: CONTRACT NO. NRC-02-81-037 ENTITLED, "TECHNICAL ASSISTANCE  
FOR REPOSITORY DESIGN", (LTR. NO. 63)

The Interim Task 5 Report (GAI LTR. No. 59) dated September 15, 1982, entitled Evaluation of Engineering Aspects of Backfill Placement for High Level Nuclear Waste (HLW) Deep Geologic Repository, has been received and reviewed by myself and members of the NRC Technical Staff. I have the following comments:

The interim report does not clearly present or highlight the additional work completed by the Contractor since the March 1, 1982 report (GAI LTR. No. 32) on Task 5. It does include new data in Tables 1, 2, and 3.

Several topics specified in the Statement of Work (SOW) and outlined in the GAI Preliminary Planning Documents dated March 1, 1982 apparently were not discussed in this report.

- ° The SOW specifies that the "preparation" or "reprocessing" of backfill/additives "within the repository, on the surface, etc." be considered in the report. These topics were not mentioned. (Pg. 3, para. 2)
- ° Testing of Backfill material/additives is not mentioned. (Pg. 3, para. 2)
- ° The four (4) objectives (purposes) of backfill as listed in the SOW, apparently are included as part of the phrase "backfill design" objectives, however, the individual objectives are not mentioned in the report.

WM Ticket No: WM-82-602

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The report was difficult to read and the logic for the development of the report was difficult to follow. Sentences such as "The extent of this contribution, i.e., the relative significance of each backfill design objective, has been subsequently established by subjectively assessing again in an explicit step-by-step formulation, the perceived sensitivity of the summary repository performance objectives to each of the backfill design objectives." are overly long and the meaning is less than clear to both the technical and the non-technical reader.

The general comments listed above and the specific comments attached to this letter should be resolved as outlined in Section 4.4., Draft and Final Report of the subject contract.

The action taken by this letter is considered to be within the scope of the current contract No. NRC-02-81-037. No changes to costs or delivery of contract products are authorized. Please notify me if you believe that this letter would result in changes to costs or delivery of contract products.

Sincerely,

Ludwig F. Hartung, Project Officer  
High-Level Waste Technical  
Development Branch  
Division of Waste Management

Attachments: .  
Specific Comments

cc: J. Gresham, NMSS  
D. Mattson, WMPI  
J. Fields, ADM-DC  
D. Pentz, GAI

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# SPECIFIC REVIEW COMMENTS

COMMENT NO.	COMMENT	REMARKS
1 Cover letter pg. 1, para 2, ln. 9	Clarify the definition of "a backfill scheme". Clarify the use of the term "material". Is this material "muck" or is it a processed material, (e.g., reference, BWIP Conceptual Design Drawings H-6-6113 thru 6115-Surface Bulk Material Handling Section)?	
2 Cover letter pg. 2, para 2, ln. 15	Substitute "evaluating" for "assessing" in the phrase "subjectively assessing", (ref. para, 3, ln. 3). "Assessment" may be misinterpreted as a licensing action.	
3 pg. 2, para 2, ln. 16	Include an explanation of the "explicit step-by-step-formulation ... of the perceived sensitivity."	
4 pg. 2, para 2, ln. 19	Include a discussion of the factors or criteria that established the "development of the weighted backfill design objectives." (ref. table 1)	
5 pg. 2, para 2, last sentence	Discuss the background for the statement "weights...entail significant uncertainty." Change "subjective assessment to "subjective evaluation." (para 3, ln.3)	
6 pg. 3, para 1	The concept of "relative effectiveness" is not clearly explained in this report. Discuss the basis for the selection of "numerical score", "the contribution of each backfill scheme" and "schemes score." How does the NRC use this information in the licensing process?	
7 pg. 3, para 2, ln. 1	How was the "representative set of backfill schemes" selected? Please explain.	

8  
pg. 3  
para 2, ln. 1

What is the cut-off point for separating "significant weighted backfill design objectives" from those that are less significant. The "significant objectives" should be presented in the main text. The entire list of Table 1 should be included as one of the appendices to the report.