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MAY 27 1982

Docket No. 50-498

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MEMORANDUM FOR: Frank Miraglia, Chief
Licensing Branch No. 3
Division of Licensing

THRU: James P. Knight, Assistant Director
for Components and Structures Engineering
Division of Engineering

FROM: George Lear, Chief
Hydrologic and Geotechnical Engineering Branch
Division of Engineering

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - GEOTECHNICAL ENGINEERING

Plant Name: South Texas
Responsible Branch: LB-3, D. Sells, LPM

References:

1. Task Interface Agreement (IE and NRR), Task No. 7, Subject: Liquefaction Potential of Loose Backfill Material Identified at South Texas Project, Units 1 & 2, as a Result of Field Borings, dated May 14, 1981.

2. Memorandum from D. Gupta to G. Lear, NRC Subject: Report on Site Visit to South Texas Project (March 30, 1982) and Meeting with Applicant (March 31 and April 1, 1982), dated May 5, 1982.

In an audit meeting between the NRC Staff and HL&P representatives on April 1, 1982 (Ref. 2), the staff informed the applicant that we would seek further clarification of the topics discussed at the meeting, because the staff concerns were not completely resolved at the meeting. The enclosed list of questions identifies the review areas for which additional information needs to be provided by the applicant before we can complete our review for the IE Interagency Task Assistance (Ref. 1) assignment.

We request that you take appropriate action to forward this information request to the applicant.

OFFICE ▶							
SURNAME ▶							
DATE ▶							

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If you have any questions, please contact Dr. Dinesh C. Gupta, (x29324).

Original signed by George Lear

George Lear, Chief
Hydrologic and Geotechnical
Engineering Branch
Division of Engineering

Attachment:
As stated

cc:
L. Heller
D. Gupta
D. Sells, PM
E. Gallagher, IE
J. Tapia, Rg. IV
R. Lancsman, Rg. III

OFFICE	HGEB:DE	HGEB:DE	HGEB:DE	A/D:CSE:DE			
SURNAME	DGupta/mc	LHeller	GLear	DPKnight			
DATE	5/26/82	5/26/82	5/26/82	5/26/82			

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South Texas Project
Docket No. 50-498
Request for Additional Information - Geotechnical Engineering
Prepared by: D. Gupta, GES, HGEB

1. In the South Texas Project FSAR, you have presented a boring location plan along the route of ECW pipeline; however, a soil profile along this line has not been provided for review. Provide an as-built soil profile along the pipeline, with the SPT blow counts, soil classification, the design ground water table, location of the pipeline and the bedding details and cover clearly identified on the profile.

2. In the April 1, 1982 meeting with the staff, you indicated that limits of the extent of the four identified non-conforming backfill areas were established based on the results of some borings and the boundaries of the excavation slopes.

   Becaute the number of borings, alone, does not seem adequate to define the extent of the non-conforming zones, we request that you document, in detail, the sum of your reasoning for isolating the non-conforming areas for staff review.

3. In the ASLB Hearings on June 23, 1981, it was discovered that you had found 'contaminated' backfill underneath the MEA building for Unit 2. Please provide details of your discovery process, procedure used to determine the extent of the contamination, results of laboratory tests

on the material to show the range of variation of soil properties determined for the contaminated backfill. Evaluate the effect of the contamination on the static and seismic stability of the foundation, including the sliding, overturning, bearing capacity, settlement and tilting of the foundation. Describe the procedure used for the analyses, and provide the results for staff review.

4. Provide your reasons that explain the larger than expected settlement and tilting of the MEA building for Unit 2 observed so far. Document the actions taken to minimize the future additional tilting of this structure, and provide your reasons to justify that the building can be constructed and loaded without exceeding your allowable differential settlements and tilt values.

5. During the audit on March 31, 1981, the staff noted that some of the in-place relative density values for structural backfill underneath the intake and discharge structures are less than the FSAR specified requirements. Identify the extent of such non-conformance and describe the method used to define the location, depths and the extent of the non-conforming backfill underneath these structures. Provide the methodology and the results of your evaluation of the possible effects of the presence of these non-conforming soils on the static and seismic stability of these structures including the liquefaction potential of soils, allowable settlement and tilting of the foundation, changes in the stresses in mat, and seismic sliding and overturning of these structures.

6. Based on your investigation borings in early 1980 you identified four areas in the plant backfill that have relative density less than the design criteria. Although these four areas surround the plant Category I buildings, you have assumed that such non-conforming low relative density backfill does not extend into areas underneath the foundations of buildings. Justify, in detail, your basis for this assumption.