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V. A. Moore, Assistant Director for LWRs, Group 2, L

CRYSTAL RIVER - SAFETY EVALUATION INPUT (SAB)

POOR ORIGINAL

PLANT NAME: Crystal River Unit 3
LICENSING STAGE: OL
DOCKET NUMBER: 50-302
RESPONSIBLE BRANCH: LWR Br. 2-3
REQUESTED COMPLETION DATE: March 1, 1974
APPLICANTS RESPONSE DATE NECESSARY FOR
NEXT ACTION PLANNED ON PROJECT: NA
DESCRIPTION OF RESPONSE: NA
REVIEW STATUS: Safety Evaluation for Geology, Seismology and Foundation Engineering - Complete

The following statement is submitted for inclusion in the Safety Evaluation Report for the Crystal River project.

Geology, Seismology, and Foundation Engineering

We and our consultants reviewed the geology and seismology of the Crystal River site with respect to faulting, foundation conditions, and intensity of earthquakes at the construction permit stage of our review and again in the FSAR. No new information has been obtained since our construction permit review to change our previous conclusions on the acceptability of the site relative to its geology, seismology, and foundation conditions.

A horizontal ground acceleration of 0.05g was used for the Operational Basis Earthquake (OBE) and an acceleration of 0.10g for the Safe Shutdown Earthquake (SSE). These acceleration values remain adequate for seismic design of the plant structures and components.

All seismic Category I structures are founded on structural backfill. The backfill was emplaced over the Inglis member of the Moody Branch formation which is a cream-colored to occasionally tan, porous, granular, biogenic limestone, and dolomite. Bedrock is approximately 20 feet beneath the original ground surface and is of Tertiary Age.

Because the exploratory investigation revealed the presence of both open and filled solution cavities in the limestone bedrock, the applicant undertook a program of consolidation grouting. The grouting extended into the dolomite and bottomed at an average elevation of +10 ft. In a few areas chemical grouting was required.

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The Class I backfill below the ground water level consisted of an uncompacted blanket of groutable coarse aggregate (Brookville lime rock). An impervious Visquene membrane was placed on top of the aggregate, and a load bearing fill of 1500 psi concrete was placed thereon to the bottom of the foundation mat. The coarse aggregate was pressure grouted during the first stage of consolidation grouting. Elsewhere for above groundwater placement structural fill concrete was used. The staff reviewed and approved the foundation conditions before the construction permit was issued. Although there were a few changes from the prpposed foundation preparation, these were reviewed by the staff and found acceptable. No other new facts have been uncovered during construction which would affect the previous acceptance. We conclude that the foundations are structurally adequate to carry the applied loads.

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Original signed by
H. R. Denton

Harold R. Denton, Assistant Director
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