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Peter A. Morris, Director, Division of Reactor Licensing

CRYSTAL RIVER NUCLEAR POWER PLANT FSAR FOUNDATION ENGINEERING QUESTIONS,
UNIT 3, DOCKET NO. 50-302

Enclosed are foundation engineering questions on the subject plant
for your transmittal to the applicant.

*DATE
E. CASE*

Edson G. Case, Director
Division of Reactor Standards

Enclosures:
Foundation Engineering
Questions

cc w/encl: R. DeYoung, DRL
R. Denton, DRL
A. Schenker, DRL
H. Fautner, DRL

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OFFICE ▶	DRS:SPB <i>Cardone</i>	DRS:SPB <i>Minogue</i>	DRS:SPB <i>Case</i>			<i>12/22/71</i> A
SURNAME ▶	Cardone:lro	Minogue	Case			
DATE ▶	12/22/71	12/22/71	12/22/71			

CRYSTAL RIVER PROJECT QUESTIONS

1. So that the staff may complete its review of the foundation conditions following the foundation exploration and treatment program described in the PSAR and later amendments, we request that you submit for review:
 - a. Gilbert Associates (G.A.I.), Inc. SP-5500, Specifications for Subsurface Grouting, Crystal River Unit No. 3, Florida Power Corporation, Feb. 28, 1968.
 - b. G.A.I., SP 5785, Proof Testing of Chemically Consolidated Foundation Elements, Crystal River Unit No. 3, Florida Power Corp., Jan. 7, 1970.
 - c. The independent engineering evaluation made of the entire chemical grouting program by an "outside consultant to the Owner" that was mentioned on page 2-46 of the FSAR.
2. On page 2-36 of the FSAR you state: "Comparison of the imposed loading with the conservatively estimated shearing strength of the foundation materials indicated that an adequate factor of safety against a bearing capacity failure would be achieved under the most unfavorable conditions which could be reasonably postulated. This conclusion, however, was predicated on the assumption that all significant voids occurring above elevation +30 would be filled so as to minimize local overstressing and possible future progressive failure."
 - a. Provide assurance of the predicated assumptions.
 - b. State the computed factors of safety for all adverse conditions analyzed, including seismic loading conditions.
3. Page 2 of the Woodward-Clyde report states: "The Reactor Building foundation mat is reported to impose an average unit load under operating conditions of about 7.8 Ksf. The maximum contact pressure of the Reactor Building mat under operating and under 1.5 accident pressure conditions is estimated to be 10.3 and 23.4 Ksf, respectively."

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- a. Demonstrate how the values 10.3 and 23.4 Ksf were obtained.
 - b. What is meant by 1.5 accident pressure?
 - c. Show that the foundation will support the 10.3 and 23.4 Ksf pressure from the Reactor Building mat.
4. Page 5 of the Woodward-Clyde report states: "It is also pertinent to note that no evidence of active subsurface subsidence (sink holes) due to solution activity has been reported within the proposed plant site."

Is there evidence of active or inactive subsurface subsidence outside of the plant site, that is, within several miles of the site?

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