

September 26, 1996

MEMORANDUM TO: PDIV-I File

FROM: ~~Tom~~ Tom Alexion

SUBJECT: REQUEST FOR MEETING WITH NRC TO DISCUSS ANALYSIS AND  
TECHNICAL SPECIFICATION CHANGES IN SUPPORT OF ANO-2 STEAM  
GENERATOR TUBE REPAIR

I received the attached fax from the licensee.

Docket No. 50-368

Attachment: Fax from Licensee

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### Meeting with NRC to Discuss Analysis and Technical Specification Changes in Support of ANO-2 Steam Generator Tube Repair

The ANO-2 steam generators have an active damage mechanism which requires extensive repair of the steam generator tubing each inspection outage. Repairs are performed either by sleeving over the defect or plugging the defective tube. With each repair the flow resistance through the steam generator increases and if the tube is plugged RCS volume and heat transfer is reduced. Current analysis and technical specification limits support steam generator plugging up to 10%. The ANO-2 steam generators are currently 8 % plugged (steam generator A at 9.2 and B at 6.8). It is anticipated that the 10 % plugging limit will be exceeded during 2R12 currently scheduled to begin on April 11, 1997.

In anticipation of future steam generator tube repair efforts, analytical efforts were initiated soon after the last refueling outage. These efforts have been extensive as the impacts of additional tube repair efforts beyond 10% will impact the analysis with respect to RCS flow, steam generator heat transfer area, steam generator conditions, RCS  $\Delta T$ , and RCS inventory. Several new methodologies were employed in this process as this effort has touched on a gamut of analyses. Additionally, improved methodologies have been developed since some of the affected analyses have last been reassessed. The following are some of the new methodologies being applied by ANO:

- 1) All transient analyses are being assessed with CENTS rather than CESEC-III.
- 2) CENTS has been used rather than COAST to determine RCP coastdown.
- 3) 1-D Hermite will be credited in the Loss of RCS flow event
- 4) CENPD-137 Supplement 1-P-A will be used in the SBLOCA analysis for up to 15 % tube repairs.
- 5) CENPD-137 Supplement 2-P will be referenced for beyond 15 % tube repairs.

In light of the current ANO-2 steam generator status, the technical specifications associated with RCS flow and inventory and the analytical method used to determine the core operating limits as described in Section 6.9.5.1 of the ANO-2 technical specifications will require revision. A meeting is proposed to discuss the necessary Technical Specification changes, use of new methodologies, and timing of these events to ensure this effort is coordinated with the NRC.

Additionally, the Cycle 13 core design is introducing Gadolinium as a burnable poison. The core physics as a result of the new core design has resulted in the need to credit moderator void feedback in the MSLB analysis results. An approach of using 3-D Hermite credits, as has been done by WSES-3 and SONGS, will be used in the Cycle 13 MSLB analysis. This will be the first time ANO-2 will reference such an approach and will be requesting NRC approval.

**ENTERGY**

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**TELECOPY REQUEST**

SEND BY:

September 24, 1996

(DATE/TIME)

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TO: Tom Alexion  
COMPANY or LOCATION: U. S. Nuclear Regulatory Commission  
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VERIFICATION NUMBER: 301-415-1302

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FROM: Dale E. James  
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LOCATION: ARKANSAS NUCLEAR ONE - GENERATION SUPPORT BUILDING - 1C  
OUR FAX NUMBER: 501-858-4685  
OUR VERIFICATION NUMBER 501-858-5000  
OUR MACHINE TYPE: RICOH FAX 3100L  
NUMBER OF PAGES INCLUDING COVER: 2

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**COMMENTS:**

Tom attached is the summary describing the purpose of the meeting with the Reactor Systems group. The meeting should be an informal across the table information exchange. I propose the meeting take place on 10/3/96 at 1:30 and last approximately 2 hours.