

July 7, 2000

MEMORANDUM TO: File

FROM: Thomas W. Alexion, Project Manager, Section 1 */RA/*
Project Directorate IV & Decommissioning
Division of Licensing Project Management

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 2 RE: PROPOSED LICENSE
CHANGE FOR CYCLE 14 RISK-INFORMED OPERATION (TAC
NO. MA8418)

The U. S. Nuclear Regulatory Commission (NRC) staff has had discussions with Entergy Operations, Inc., the licensee, on its March 9, 2000, proposed risk-informed license change (as supplemented) regarding steam generator tubing for the remainder of Cycle 14.

In order to facilitate these discussions, the NRC provided the licensee with a request for additional information on June 22, 2000. This request is attached. The licensee responded by letter dated June 30, 2000. The June 30, 2000, letter provided additional information in several areas, however, the information that is in response to the attached request is included in the cover letter dated June 30, 2000, and in Attachments 1 and 2 to the June 30, 2000, letter.

The purpose of this memorandum is to place the attachment in the Public Document Room.

Docket No. 50-368

Attachment: As stated

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ACCESSION NUMBER: ML003730613

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Although none of the tubes that were selected for in-situ pressure testing during the 2P99 inspection leaked at or below pressures associated with the main steam line break (MSLB) design basis accident (DBA), we have information that indicates that other tubes may have leaked in the event of a MSLB DBA.

In particular, the tube at location R8C134 in the “B” steam generator was shown by profile analysis of its RPC signal to have a maximum depth of 100% and a structurally significant depth of approximately 94% of the tube wall thickness. It was not selected for in-situ pressure testing during 2P99. However, its stress magnification factor (m_p) for the remaining radial ligament was calculated as 6.8, indicating that this flaw could be expected to leak at a pressure well below that associated with the MSLB DBA. (The information from the profile analysis and the resulting m_p value was presented in Entergy’s May 30, 2000 letter to the NRC titled “Additional Information in Support of Proposed License Change for Cycle 14 Risk-Informed Operation.”)

Please provide an estimate of the leakage in each steam generator at MSLB DBA conditions at the end of the proposed cycle. In estimating the accident leak rate for this operating period, you should not take credit for sizing uncertainty for the deep flaws. Consideration of sizing uncertainty is one-sided in the non-conservative direction for deep flaws and has been shown to substantially reduce the assumed m_p value. (For example, in the case of the flaw cited above, the reduction was from the value of 6.8 to 3.4, which would change the conclusion from a flaw that would leak to a flaw that would not leak at MSLB DBA conditions.)

In addition, verify that the estimated leakage (discussed in the paragraph above) is less than X gpm (X = 1 gpm minus the accident leakage assumed for other degradation modes.) Alternatively, if the estimated accident leakage exceeds 1 gpm, you may proposed to reduce your technical specification limit for radioiodine concentration in your reactor coolant to the level necessary to meet 10 CFR Part 100 and SRP criteria for doses to the public during DBAs.