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To: "Tom Alexion" <tw@nrc.gov>
Date: 6/27/05 4:19PM
Subject: Draft Response to RAI on ANO-1 1R18 SG Report

Tom,

This is the response to the two follow-up questions regarding the ANO-1 SG LBLOCA best estimate leakage values.

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FOLLOW-UP REQUEST FOR ADDITIONAL INFORMATION
SPRING 2004 ONCE-THROUGH STEAM GENERATOR TUBE
INSERVICE INSPECTION REPORT
ARKANSAS NUCLEAR ONE, UNIT 1 (ANO-1)
DOCKET NO. 50-313

The August 3, 2004, report (ADAMS Accession No. ML042240207) provided the results for the calculated total best-estimate large-break loss-of-coolant accident (LBLOCA) leakage during the ANO-1 eighteenth refueling outage (1R18). The calculated total best-estimate LBLOCA leakage for Cycle 18 was estimated to be 2.57 gallons-per-minute (gpm) for the initial two minutes and 1.49 gpm for the remaining 30 days. In Question 5 of the NRC staff's request for additional information (see e-mail at ADAMS Accession No. ML051450289), the licensee was asked to provide a summary of the flaws used in the evaluation and to discuss their individual contributions to the leak rate. In their draft response (see e-mail at ADAMS Accession No. ML051450296), the licensee discovered that there were flaws that had been classified as being in the pressure boundary during the original calculation, but were in fact outside the pressure boundary. When the licensee re-calculated the total best estimate LBLOCA leakage for Cycle 18, the estimate was revised downward. The revised best estimate LBLOCA leakage was estimated to be 1.29 gpm for the initial two minutes and 0.02 gpm for the remaining 30 days.

The staff notes that the licensee's LBLOCA leakage estimate during the previous refueling outage (1R17) considered the potential leakage of all circumferential cracks found during the inspection, including those above the re-roll repairs, because of the possibility that a leak path could exist around the roll or re-roll joints.

1. *Discuss why the flaws in question were classified as being inside the pressure boundary for the original LBLOCA leakage estimate for Cycle 18, and discuss the basis for re-classifying the flaws as being outside of the pressure boundary. Include in your discussion the reasons why you concluded that the flaws in question should not be included in the LBLOCA leakage estimate and why the revised leakage estimate is conservative.*

ANO Response:

The difference was due to a change in the way the analyst were labeling flaws in the steam generator database. The LBLOCA program takes input from the steam generator database (STMax) and develops the leakage from that. The program would see a flaw and conservatively call it inside the pressure boundary when in reality it would be outside (i.e. like a crack in a transition above the roll). The leakage should have been based on leakage past the roll instead of a crack in the pressure boundary resulting in higher leakage.

All flaws were included in the best estimate leakage determination. The methodology was consistent with the methodology used in the previous cycle (1R17). The revised 2-minute leakage value of 1.29 gpm is believed to be representative of the as-found flaws discovered during 1R18. However, even if the leakage value was not revised downward, the previously reported leakage value of 2.57 gpm is still well within the accident leakage of 9.0 gpm for the initial 2 minutes and 3.0 gpm for the remaining 30 days (Reference: Entergy letter dated March 1, 2004, *Response to NRC Request for Additional Information*

Regarding ANO-1 Steam Generator Tube Inservice Inspection Report from 1R17 (1CAN030402)). Either value still retains conservative margin to the accident analysis.

2. *Discuss whether the LBLOCA leakage estimate methodology (i.e., not considering cracks above original rolls or re-roll repairs in the leakage estimate) has changed since the previous outage. If the LBLOCA leakage estimate methodology has changed, provide a technical basis. Include in your discussion the reasons why the leakage of flaws above the original rolls or re-roll repairs during a LBLOCA is no longer important in your assessment.*

ANO Response:

As mentioned in question 1 above, the methodology is the same, therefore there is no difference. The flaws above the rolls are still included but are limited by the leakage past the roll.