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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555-0001
Attention: Document Control Desk

Subject: Dresden Nuclear Power Station, Unit 3 Weld Overlay on RWCU Non-Regenerative Heat Exchanger 3-1204AB Tubeside Inlet Nozzle" Supplemental Response.
NRC Docket No. 50-249

Reference: J. Stephen Perry (ComEd) to U.S. NRC letter dated September 16,1996, "Dresden Nuclear Power Station, Unit 3, Weld Overlay on RWCU Non-Regenerative Heat Exchanger 3-1204AB Tubeside Inlet Nozzle".

The purpose of this letter is to provide additional information regarding Dresden Station's Unit 3 Reactor Water Cleanup System (RWCU). The reference letter provided information concerning a Weld Overlay on RWCU Non-Regenerative Heat Exchanger 3-1204AB Tubeside Inlet Nozzle." The Attachment to this letter provides information on the RWCU System Containment Isolation Capability, RWCU System Leak Detection Capability, the Isolation of Unit 3 RWCU "B" Train Heat Exchangers, and a clarification that the weld overlay is considered a limited service overlay. A summary of a Probabilistic Risk Assessment (PRA) performed for a RWCU line break outside of containment is also provided.

If there are any questions concerning this letter, please refer them to Frank Spangenberg, Dresden Station Regulatory Assurance Manager, at (815) 942-2920, extension 3800.

Very truly yours,

J. Stephen Perry
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ATTACHMENT

RWCU SYSTEM AND CONTAINMENT ISOLATION CAPABILITY

The Unit 3 reactor water cleanup (RWCU) system has four containment isolation valves:

- MO 3-1201-1 is an 8-inch double disc gate valve inside primary containment. This valve is normally open during power operation.
- MO 3-1201-1A is a 2-inch double disc gate valve inside primary containment. This valve is normally closed during power operation. The 2-inch bypass valve provides a means of gradually equalizing pressure around the larger 8-inch inboard isolation valve MO 3-1201-1, thereby reducing the possibility of water hammer during system startup with the reactor at normal operating pressure.
- MO 3-1201-2 is an 8-inch double disc gate valve outside of primary containment. This valve is normally open during power operation.
- MO 3-1201-3 is an 8-inch gate valve outside of primary containment. This valve is normally closed during power operation. It is opened when reactor pressure is less than 100 psig to provide a suction path to the RWCU auxiliary pump.

Each of the above valves may be operated from the main control room using a control switch.

During D3R13 (1994), the Unit 3 RWCU suction inboard isolation valve (MO 3-1201-1), suction inboard bypass isolation valve (MO 3-1201-1A) and suction outboard isolation valve (MO 3-1201-2) were replaced with Anchor Darling double disk gate valves. This was performed to address concerns identified in NRC Generic Letter (GL) 89-10, Supplement 3. In addition to replacing the valves, the actuators were also modified to improve thrust capabilities. The valves also have their close torque switch bypassed to a minimum of 94% of valve closure to ensure flow cutoff is achieved.

Static motor operated valve (MOV) diagnostic testing has been performed on MO 3-1201-1, MO 3-1201-1A, MO 3-1201-2 and MO 3-1201-3. These valves have all been set up in accordance with the Dresden GL 89-10 MOV program, with each of the valves having a torque switch setting that is capable of closing the valve to stop inventory loss in the event of a RWCU line break. These valves cannot be dynamically tested (tested under differential pressure conditions) because they take suction from the reactor vessel. Full stroke timing of these valves is performed quarterly as required by the Inservice Testing (IST) program and Technical Specifications per Dresden Operating Surveillance DOS 1600-05.

MO 3-1201-1, MO 3-1201-1A, MO 3-1201-2, and MO 3-1201-3 were last leakrate tested according to 10 CFR 50 Appendix J requirements on August 1, 1995. The maximum pathway leakage was 26.94 standard cubic feet per hour (scfh). The minimum pathway leakage through the outboard containment isolation valves MO 3-1201-2 and MO 3-1201-3 was determined to be 5.0 scfh.

RWCU LEAK DETECTION CAPABILITY

As shown in Dresden Station's Piping & Instrumentation Drawing M-372, system leakage is monitored by three sets of temperature detectors. The first set of eight area temperature detectors provides a high temperature alarm and displays area temperature in the control room. These temperature elements cause no automatic plant response except for the control room alarms. Since these elements are resistance temperature devices (RTDs), failure would most likely result in an open circuit or high resistance, which would conservatively actuate a high temperature alarm. These temperature elements are not environmentally qualified. Preventative maintenance and calibration of the temperature recorder on back panel 903-21 in the main control room was last performed on July 10, 1996. Preventative maintenance and calibration is performed annually as a predefined preventative maintenance activity.

Supplementing the originally installed leak detection monitors, two sets of five RTDs provide an environmentally qualified, dual train leak detection system. Each train of five RTDs provides input to a temperature switch which alarms in the control room. The functional check and calibration of the RWCU leak detection system was last performed on July 20, 1995 and is performed every 18 months per Dresden Instrument Maintenance surveillance procedure DIS 1200-01.

A sensitivity evaluation of the area leak detection system in the vicinity of the IGSCC-susceptible RWCU piping confirmed that the temperature sensors will detect a leak prior to a crack reaching a critical crack size. The temperature sensors in the vicinity of the RWCU outboard piping will detect leakage in sufficient time to allow for system isolation prior to a crack reaching critical size.

ISOLATION OF UNIT 3 RWCU "B" TRAIN HEAT EXCHANGERS

The "B" train heat exchangers cannot be returned to service because asbestos insulation was removed from the heat exchangers in preparation for heat exchanger and piping replacement during D3R14. The RWCU "B" train heat exchangers will be isolated under administrative control until D3R14. Under no circumstances will the RWCU "B" train heat exchangers be returned to service prior to D3R14 without first notifying the NRC.

LIMITED SERVICE OVERLAY

The design methodology used for the weld overlay meets the requirements of a standard overlay design as defined in Section 4.4.1 of NUREG-0313, Revision 2. However, because this overlay will be permanently abandoned within 6 months, no rigorous evaluation of the long-term effect of residual stresses on fatigue crack growth was performed. Therefore, ComEd considers the weld overlay as a limited service overlay as defined in Section 4.4.3 of NUREG-0313, Revision 2.

PROBABILISTIC RISK ASSESSMENT (PRA)

A probabilistic risk assessment (PRA) was performed for a postulated accident scenario where a RWCU line break outside of containment occurs and the RWCU containment isolation valves fail to close. In this assessment, the IGSCC susceptible RWCU piping outside of containment was assumed to have a failure frequency of 0.1 per year. The probability that RWCU isolation valves would fail to isolate the break was approximately 6.4E-05 per year. Until the replacement of IGSCC susceptible RWCU piping during D3R14, the change in core damage frequency (Delta CDF) from a break in RWCU piping outside of primary containment was calculated at approximately 3E-08 per year. Therefore, because of the low Delta CDF and because this condition will exist for less than 6 months, this condition is considered to have a low safety significance.