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724-682-7551

September 13, 2007
L-07-126

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

**Subject: Beaver Valley Power Station, Unit Nos. 1 and 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Supplemental Information in Support of License Amendment Request
Nos. 334 & 205 (TAC NOS. MD4290 & MD4291)**

By letter dated February 9, 2007, (L-07-017 Reference 1), FirstEnergy Nuclear Operating Company (FENOC) submitted License Amendment Requests 334 and 205, proposing changes to the Technical Specifications for Beaver Valley Power Station (BVPS) Units 1 and 2. The proposed changes would revise the recirculation spray system pump start signal Technical Specifications in support of modifications to the containment sumps. The License Amendment Requests also request Nuclear Regulatory Commission (NRC) approval of a change to the calculation methodology used to determine aerosol removal coefficients for use in dose consequence analyses. By letters dated August 8, 2007 (L-07-095, Reference 2) and August 23, 2007 (L-07-105, Reference 3), FENOC provided additional information regarding the application in response to a staff request for additional information.

By electronic mail dated August 28, 2007 the NRC Staff requested additional supplemental information regarding the application. Clarifying information regarding the additional information needed was received via electronic mail on August 29 and September 6, 2007. The additional information requested is provided in Attachment A. In support of the information provided in Attachment A, draft mark-ups of selected Emergency Operating Procedures for BVPS are provided as Attachment B.

At the request of the NRC Staff in a telephone conference on August 30, 2007, an updated BVPS Unit 1 Equipment Qualification Calculation was provided by electronic mail on September 11, 2007. A summary of the effects of the calculation update is provided in Attachment C.

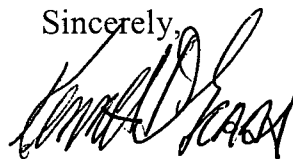
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The information provided in the attachments does not adversely affect the conclusions of the determination of no significant hazards consideration transmitted by Reference 1.

No new regulatory commitments are contained in this submittal. If there are questions, or if additional information is required, please contact Mr. Thomas A. Lentz, Manager – FENOC Fleet Licensing, at 330-761-6071.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 13, 2007.

Sincerely,



Kenneth D. Grada

Attachments:

- A. Responses to Follow-up Recirculation Spray Pump LAR RAI Questions
- B. Draft Markups of Emergency Operating Procedures
- C. Unit 1 Equipment Qualification Calculation Summary

Reference:

- 1. FENOC Letter L-07-017, License Amendment Requests Nos. 334 and 205, dated February 9, 2007.
 - 2. FENOC Letter L-07-095, Request for Additional Information Responses in Support of License Amendments Requests 334 & 205 (TAC NOS. MD4290 & MD4291), dated August 8, 2007.
 - 3. FENOC Letter L-07-105, Supplemental Information for License Amendment Request Nos. 334 and 205 (TAC Nos. MD4290 and MD4291), dated August 28, 2007.
- c: Ms. N. S. Morgan, NRR Project Manager
Mr. D. L. Werkheiser, NRC Senior Resident Inspector
Mr. S. J. Collins, NRC Region I Administrator
Mr. D. J. Allard, Director BRP/DEP
Mr. L. E. Ryan (BRP/DEP)

L-07-126 Attachment A

Responses to Follow-up Recirculation Spray Pump LAR RAI Questions

The following text in bold is from NRC emails dated August 28, 29 and September 6, 2007.

The tech staff would like clarification on a couple of questions. See below.

Safety Issues Branch:

RAI Question 1

- 1. As noted, Regulatory Guide 1.82 was used. Is there a quantitative statement in the containment sump strainer design basis?...e.g. The 50% criteria (50% of screen clogged).**

Response: Section 6.2.2.3.1 of the Beaver Valley Power Station (BVPS) Unit 2 Updated Final Safety Analysis Report (UFSAR) states "Sufficient area has been provided to ensure that system operation during accident conditions is not impaired and approach flow velocities are low enough to prevent entrainment of most small particles. System design allows for 50 percent plugging or loss of function of one-half of the sump." The BVPS Unit 1 UFSAR does not provide this level of detail with respect to screen blockage although the analyses assume 50 percent blockage consistent with Regulatory Guide 1.82, "Sumps for Emergency Core Cooling and Containment Spray Systems," Revision 0. This criterion will continue to be used for calculating the replacement strainer head loss until the strainer debris loading and chemical effects testing is complete and the results are incorporated into the plant design basis in accordance with the resolution of Generic Letter 2004-02.

RAI Question 2

- 2. Is the isolation valve in the cross-connected line (at the pumps suction) opened or closed for BVPS-1?**

Response: There are no valves in the cross-connect piping for BVPS Unit 1. The piping is totally encased in the containment base mat and inaccessible. The BVPS Unit 1 outside recirculation spray and low head safety injection system pumps are cross-connected downstream of the containment sump. Twelve inch pipes cross-connect the pumps under the containment floor. This piping configuration will remain in place with the new sump strainers. The new strainer has been designed without a train divider. The removal of the divider screens for BVPS Unit 1 has been evaluated as acceptable in accordance with the provisions of 10CFR50.59.

Human Factors Branch:

RAI Question 16

The RAI response addressed the environment in which the operators are expected to complete their actions with respect to dose change as a result of the LAR. However, the NRC staff was expecting a statement that accordingly ensured that such habitability issues (including those that may be unique to fire conditions such as additional heat concerns, smoke, toxic gases, effects of ventilation shutdown, the possibility of having to pass through areas and/or manipulate electrical equipment with water on the floor, etc.) will not adversely impact the operator manual actions in the locations where the actions are to be taken and along access and egress routes.

- 3. Has an evaluation of the manual actions been performed to determine the change in the environment in which the operator is expected to perform the actions effected by the LAR?**

Response: This amendment changes the start signal for the Recirculation Spray System (RSS) pumps from a fixed time delay following receipt of a containment high pressure signal to a level signal from the Refueling Water Storage Tank (RWST) coincident with the containment high pressure signal. The primary effect this has on system response is that the RSS pumps will now start later during an accident scenario. The only impact this has on any environment outside of containment is on the local dose rates. This effect is due to the reduction of aerosol removal in the containment during the early part of the accident due to the reduced spray flow in this period. Since the containment is the main source for dose in areas outside the containment (due to leakage and shine), environments outside containment will see a small increase in dose. This is the only effect resulting from this change. Operator doses for access and egress routes have been evaluated based on the change in dose rates. This evaluation shows that doses remain within acceptable limits.

RAI Question 18

- 4. Is there a list of manual actions that will be added or changed in the EOPs? If there is a list, can you please provide the procedures and how they will be changed concerning operator action?**

Response: The new operator actions to be added to the Emergency Operating Procedures (EOP) were provided in the response to Question 19. In addition to the new actions, setpoints will be revised for some existing actions. These involve containment pressure target bands which are used to control the post accident containment pressure for the purpose of maintaining sump water temperatures in a range consistent with the structural design of the new sump strainers. The

minimum water level for manually starting a Recirculation Spray (RS) pump or Low Head Safety Injection (LHSI) pump will be updated consistent with the water level required to cover the new strainer designs. These actions are being added or revised to support the installation of the new containment sump strainer and are not directly associated with this license amendment request; however, they are included since they support the safety analysis which forms the basis for this change. Draft marked-up pages showing incorporation of the additional manual actions are provided in Attachment B.

RAI Question 19

- 5. How involved are the new operator actions? Do they simply involve pushing a button or are they complex? Are these two actions the only identified actions that will be added to the EOPs, as mentioned in the previous response or are there more? Are we to assume that the validation of these actions will be conducted on the simulator? If so, please state explicitly.**

Response: The new operator actions are relatively simple actions. Shutting down two of the four running RSS pumps at BVPS Unit 1 during recirculation only involves resetting the Containment Isolation Phase B (CIB-containment high pressure) relay (if not performed previously) and shutting down the pumps using the pump control switch. Likewise, shutting down RSS pumps at BVPS Unit 2 if no service water is available involves similar actions, i.e., resetting the CIB relays and using the pump control switches to shut down the pumps. All of these actions can be accomplished from the control room. These are the only new actions to be added to the EOPs. These new operator actions will be validated using both classroom and simulator training.

Clarification is needed for the effect of the new operator actions on the timeline associated with the accident scenario addressed in the EOPs.

Response: The new operator actions need to be completed prior to transferring to Safety Injection (SI) Cold Leg Recirculation mode. The transfer is automatic and occurs when the RWST level reaches the Extreme Low level setpoint. At BVPS Unit 1, the minimum time required to reach this setpoint is approximately 30 minutes. A continuous action step in BVPS Unit 1 EOP E-1, "Loss of Reactor or Secondary Coolant", directs the operator to go to procedure ES-1.3, "Transfer to Cold Leg Recirculation", when the RWST level is less than 15 feet. The setpoint for automatic transfer is 14 feet. The new steps will be added to ES-1.3 to shut down Recirculation Spray RSS pumps if more than two are operating. These steps will be completed before the automatic transfer occurs and will not impact the automatic transfer functions or subsequent operator verification activities in ES-1.3.

At BVPS Unit 2, the minimum time required to reach the transfer to SI recirculation setpoint is approximately 41 minutes. The new steps to shut down RSS pumps if the associated heat exchanger does not have Service Water flow, can be completed any time between when a containment high pressure signal is actuated and transfer to SI recirculation. This provides a minimum time of approximately 40 minutes to complete this action. Step 3 of EOP E-1 currently checks the status of the RSS pumps and is a continuous action step. This will be revised to also check the status of Service Water flow to the RSS heat exchangers and shut down RSS pumps if appropriate. EOP Attachment A-0.11 "Verification of Automatic Actions" will also be modified to add a step to check Service Water flow to the RSS heat exchangers. These new steps are not considered time critical given the time available to accomplish them and will not alter the timeline associated with the accident scenario.

Also, we would like an explicit statement about using a walk-through or table top to validate the new operator actions and what time these actions will add to the procedures.

Response: A tabletop approach will be used to validate the procedure changes associated with the new operator actions. Since the actions to secure recirculation spray pumps are relatively simple and there is no impact on any time-critical manual actions, a tabletop validation is appropriate. A technical verification is also performed on the changes as part of the validation process.