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December 19, 2003
L-03-205

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

Subject: Beaver Valley Power Station (BVPS), Unit No. 1 and No. 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Risk-Informed Inservice Inspection Program Relief Request
(TAC Nos. MB5687 and MB5688)

References:

1) FirstEnergy Nuclear Operating Company (FENOC) submittal of a relief request to allow implementation of a Risk-Informed Inservice Inspection (ISI) Program as an alternative to the current ASME Section XI requirements for piping at BVPS Unit 1 and Unit 2 (letter L-02-066 dated July 24, 2002)
2) NRC Request for Additional Information (RAI) (Questions #1 - 16) dated December 30, 2002
3) FENOC response to RAI (Questions #1 - 16) (letter L-03-016 dated February 18, 2003)
4) FENOC updated response to Question #7 (letter L-03-174 dated October 28, 2003)

On October 28, 2003, FENOC submitted an update (Reference 4) to the original response (Reference 3) to an NRC RAI (Reference 2) regarding the FENOC submittal of a relief request to allow implementation of a Risk-Informed ISI Program at BVPS (Reference 1). That updated response provided additional plant-specific details regarding RAI Question #7, as was requested.

During a conference call between BVPS personnel and the NRC staff held on December 9, 2003, additional clarification of the updated response to RAI Question #7 was requested. The additional clarification, as provided during the conference call, is hereby provided as Enclosure 1 to this submittal.

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As noted during the conference call, all requests for information regarding the subject relief request have now been addressed. The NRC indicated that the information being provided by this submittal should enable the review/approval of the relief request to be completed by January 31, 2004.

There are no new regulatory commitments identified in this document. If there are any questions concerning this matter, please contact Mr. Larry R. Freeland, Manager, Regulatory Affairs/Performance Improvement at 724-682-5284.

Sincerely,

L. W. Pearce

L. William Pearce

Enclosure

c: Mr. T. G. Colburn, NRR Senior Project Manager
Mr. P. C. Cataldo, NRC Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator

Enclosure 1

Additional Information Regarding
Beaver Valley Power Station (BVPS) Units 1 and 2
Risk-Informed Inservice Inspection (RI-ISI) Program Relief Request

The following three questions regarding the updated response to NRC RAI #7 were clarified during a conference call held on December 9, 2003:

NRC Question #1

What is the difference between the "Basis" for the segments in the third row of Table 2-1, (6 segments in the RC, RH, RS, and SI systems) as compared to the basis for the segments in the first row (16 segments in the CH, RC, RH systems), the basis for the segments in the fourth row (1 segment in the MS system), and the basis for the segments in the fifth row (4 segments in the RS system)?

Response

For the first row (16 segments) – different runs were made for different sizes. The only differences in the Structural Reliability and Risk Assessment (SRRA) inputs for these runs are the NPS and thickness to OD ratio. No new SRRA runs were made as the NRC previously agreed that it is acceptable to have differences in the NPS and thickness to OD ratio.

For the third row (6 segments), the fourth row (1 segment) and the fifth row (4 segments) – different runs were made for different sizes. The original runs contained differences in the SRRA inputs beyond NPS and thickness to OD ratio which the NRC has questioned. Revised runs were made where the only differences in SRRA inputs are the NPS and the thickness to OD ratio. The limiting SRRA inputs from all sizes in the segment are used for all the sizes in the segment. For all three groups the revised controlling failure probability for the segment remained approximately the same – thus there is no difference in the number of examinations. However, there are subtle differences in the results.

For the third row (6 segments), the original and revised failure probabilities are approximately the same.

For the fourth row (1 segment), some of the failure probabilities on one of the sizes increased but this revised failure probability is still lower than the original controlling failure probability for that particular size in the segment and for the entire segment.

For the fifth row (4 segments), some of the failure probabilities on one of the sizes increased including the controlling failure probability for that particular size but the controlling failure probability for the other size remained approximately the same and is still the controlling failure probability for the segment.

In general, the difference is that for the first row (16 segments) the original results are acceptable as is, where as for the other three groups new SRRA runs were required to demonstrate that the number of examinations would be the same. Additionally there

are subtle differences in the results from the three groups where new SRRA runs were required. (Either the results remained approximately the same, some of the results increased but not the controlling results from any of the sizes, or some of the results increased including the controlling results for one of the sizes but not the controlling results for the segment.)

NRC Question #2

In the second row of Table 2-2 (5 segments in the QSS and SIS segments), are the butt welds and the socket welds on different sized sub-segments? Would the combination of the worst case conditions throughout the multi-sized segment result in an overly conservative estimate from the multi-sized segment and, if so, would the segments obtained after dividing the segment into sections whose failure frequency can be estimated be HSS or LSS?

Response

Currently the results (i.e. number of examinations) are accurate or conservative.

- If the limiting SRRA inputs from all the sizes in a segment are used for all the sizes in the segment and the resulting failure probability is approximately the same, the number of examinations would be the same.
- If the limiting SRRA inputs from all the sizes in a segment are used for all the sizes in the segment and the resulting failure probability is overly conservative the segment would be split.
    - If all the split segments are HSS, then the number of examinations would be the same.
    - If some of the split segments would become LSS, a reduced number of examinations would be required; however the current results are conservative and acceptable as is.
    - In either case, being conservative as described above has no adverse effect on the RI-ISI program.

Therefore there is no need for further analysis.

Additionally, there are several steps in the process at which the splitting of segments is considered. One of these reviews is during the risk evaluation step. In general all of the segments with an RRW of 1.003 and higher are reviewed to determine what is driving the segment to be HSS or MSS and to ensure that the inputs are accurate. If it is noted that the SRRA inputs are sufficiently different that it might or probably would make a difference in the RRW such that the categorization might change, consideration is given to splitting the segment. This review is often done more than once.

NRC Question #3

What is the difference between the "Basis" for the segments in the third row of Table 2-2 (2 segments in the RCS system) as compared to the basis for the segments in the first row (23 segments in the CHS, MSS, QSS, and SIS systems) and the basis for the segments in the forth row (2 segments in the QSS system)?

Response

The question and response to this question is very similar to the first question.

For the first row (23 segments) – different runs were made for different sizes. The only differences in the SRRA inputs for these runs are the NPS and thickness to OD ratio. No new SRRA runs were made as the NRC previously agreed that it is acceptable to have differences in the NPS and thickness to OD ratio.

For the third row (2 segments) and the fourth row (2 segments) – different runs were made for different sizes. The original runs contained differences in the SRRA inputs beyond NPS and thickness to OD ratio which the NRC has questioned. Revised runs were made where the only differences in SRRA inputs are the NPS and the thickness to OD ratio. The limiting SRRA inputs from all sizes in the segment are used for all the sizes in the segment. For both groups, the revised controlling failure probability for the segment remained approximately the same – thus there is no difference in the number of examinations. However, there are subtle differences in the results.

For the third row (2 segments), the original and revised failure probabilities are approximately the same.

For the fourth row (2 segments), some of the failure probabilities on one of the sizes increased including the controlling failure probability for that particular size but this revised probability is approximately the same as the original controlling failure probability for the entire segment.

In general, the difference is that for the first row (23 segments) the original results are acceptable as is where as for the other two groups new SRRA runs were required to demonstrate that the number of examinations would be the same. Additionally there are subtle differences in the results from the two groups where new SRRA runs were required. (Either the results remained approximately the same or some of the results increased, but the revised controlling failure probability is approximately the same as the original controlling failure probability for the entire segment.)