

March 9, 2001

Mr. L. W. Myers
Senior Vice President
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Beaver Valley Power Station
Post Office Box 4
Shippingport, PA 15077

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2, ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED TO THE REVISION OF RADIOLOGICAL DOSE CALCULATIONS (TAC NOS. MA9059 AND MA9060)

Dear Mr. Myers:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application for amendment dated May 12, 2000, as supplemented by letters dated June 19, November 2, and December 1, 2000, and January 29, 2001. The proposed amendment would authorize changes to the Beaver Valley Power Station (BVPS), Unit 1 and Unit 2, Updated Final Safety Analysis Reports (UFSARs) to reflect revisions to the radiological dose calculations for selected design basis accidents (DBAs). Regarding the BVPS, Unit 1, UFSAR, the revisions involve the following DBAs: Loss of Offsite Alternating-Current (AC) Power, Fuel Handling Accident, Accidental Release of Waste Gas, Steam Generator Tube Rupture, Rod Cluster Control Assembly Ejection, Single Reactor Coolant Pump Locked Rotor, and Loss of Reactor Coolant for Small Ruptured Pipes/Loss-of-Coolant Accidents. Regarding the BVPS, Unit 2, UFSAR, the revisions involve the following DBAs: Steam System Piping Failures, Loss of AC Power, Reactor Coolant Pump Shaft Seizure, Rod Cluster Control Assembly Ejection, Failure of Small Lines Carrying Primary Coolant Outside Containment, Steam Generator Tube Rupture, Loss-of-Coolant Accidents, and Waste Gas System Failure.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA/

Lawrence J. Burkhart, Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-334 and 50-412

Enclosure: Environmental Assessment

cc w/encl: See next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION
PENNSYLVANIA POWER COMPANY
OHIO EDISON COMPANY
FIRSTENERGY NUCLEAR OPERATING COMPANY
DOCKET NOS. 50-334 AND 50-412
BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2
ENVIRONMENTAL ASSESSMENT AND FINDING OF
NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an amendment to Facility Operating License Nos. DPR-66 and NPF-73, issued to FirstEnergy Nuclear Operating Company, et al. (FENOC, the licensee), for operation of the Beaver Valley Power Station (BVPS), Unit Nos. 1 and 2, located in Shippingport, Pennsylvania.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action would authorize revisions to the BVPS Updated Final Safety Analysis Reports (UFSARs) involving calculated doses and associated descriptions/information for selected Design Basis Accidents (DBAs). The following DBAs were revised as documented in the licensee's submittals for the BVPS, Unit 1 UFSAR (Exclusion Area Boundary (EAB) doses are calculated over the first 2 hours following the accident and all other doses are calculated over the duration of the accident).

Loss of Offsite AC Power

Changes include revisions to Table 14.1-3 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and approved by the NRC for BVPS, Unit 1, and the revised analysis resulted in no increase in calculated doses.

Fuel-Handling Accident (FHA)

Changes include revisions to Section 14.2.1 and Tables 14.2-6 and 14.2-6a to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and approved by the NRC for BVPS, Unit 1. Because the FHA dose analysis takes credit for removal of organic iodine by the supplemental leak collection and release system (SLCRS), the licensee added a safety factor of ≥ 2 in accordance with guidance given in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal." GL 99-02 guidance included testing nuclear-activated charcoal filters to a more stringent requirement (supported by the safety factor) than that assumed in the safety analysis to conservatively account for potential degradation to nuclear-grade charcoal filters over the surveillance interval. As a consequence of this safety factor, the calculated doses increased. The calculated thyroid dose at the EAB increased from 14.6 rem to 24.6 rem. The calculated control room operator thyroid dose increased from 3.2 rem to 6.26 rem. These doses are well within the applicable DBA dose guidelines set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 100.11 (EAB thyroid dose of 300 rem from iodine exposure) and 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 19 (control room operator whole body dose of 5 rem or its equivalent to any organ).

Accidental Release of Waste Gas

Changes include revisions to Section 14.2.3 and Table 14.2-8 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. Some changes to the analysis methodology were made. As a result of the revisions to the analysis, the calculated control room whole body dose increased from less than .01 rem to .0295 rem.

Steam Generator Tube Rupture (SGTR)

Changes include revisions to Section 14.2.4 and Table 14.2-9 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The methodology for the offsite dose analysis was changed to that of the current SGTR analysis of record for the control room operator dose. As a result, the calculated thyroid dose at the EAB for the coincident iodine spike increased from .9 rem to 1.37 rem.

Rod Cluster Control Assembly Ejection

Changes include revisions to Table 14.2.12 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously approved by the NRC for BVPS, Unit 1. The revised analysis showed no increase in any calculated doses.

Single Reactor Coolant Pump Locked Rotor

Changes include revisions to Section 14.2.7 and Table 14.2-4b to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. In addition, the coincident iodine spike, previously assumed to occur, is removed from the analysis, based on the assumption of 18-percent failed fuel. In its previous analysis of record, the licensee assumed both the coincident iodine spike and 18-percent failed fuel. SRP 15.3.3 guidance encourages the use of either of the assumptions but not both. The 18-percent failed fuel assumption is more conservative than the iodine spike occurrence

assumption because the calculated dose consequences resulting from assuming 18-percent failed fuel are more severe than the calculated dose consequences resulting from the iodine spike occurrence. The revised analysis showed no increase in any calculated doses.

Loss of Reactor Coolant from Small Ruptured Pipes/Loss-of-Coolant Accidents (LOCA)

Changes include revisions to Section 14.3.5 and Tables 14.3-10, 14.3-13, and 14.3-14a to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. In addition, some analysis methodology was revised. Shine from the area beneath the control room that is not within the control room ventilation envelope was added as an additional contributor to the control room dose. Also, because the LOCA dose analysis takes credit for removal of organic iodine by the SLCRS, the licensee added a safety factor of ≥ 2 in accordance with the guidance given in GL 99-02. As a result of the changes to the LOCA dose analysis, the calculated control room whole body dose increased from .17 rem to .71 rem.

The following DBAs were revised as documented in the licensee's submittals for the BVPS, Unit 2 UFSAR.

Steam System Piping Failures (Main Steam Line Break Accident)

Changes include revisions to Section 15.1.5 and Table 15.1-3 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and approved by the NRC for BVPS, Unit 2. The revised analysis showed no increase in any calculated doses.

Loss of AC Power

Changes include revisions to Section 15.2.6 and Table 15.2-2 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and

approved by the NRC for BVPS, Unit 2. The revised analysis showed no increase in any calculated doses.

Reactor Coolant Pump Shaft Seizure

Changes include revisions to Section 15.3.3 and Table 15.3-3 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. Unlike the previous analysis of record, isolation of the control room was not assumed to occur for the revised analysis. The control room isolation function remains operationally unchanged. It is conservatively not credited in the analysis. As a result, the calculated control room operator thyroid dose increased from 1.7 rem to 7.46 rem. This is well within the 10 CFR Part 50, Appendix A, GDC 19 DBA dose guidelines for control room operators.

Rod Cluster Control Assembly Ejection

Changes include revisions to Section 15.4.8 and Table 15.4-3 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and approved by the NRC for BVPS, Unit 2. The revised analysis showed no increase in any calculated doses.

Failure of Small Lines Carrying Primary Coolant Outside Containment

Changes include revisions to Section 15.6.2 and Table 15.6-2 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and approved by the NRC for BVPS, Unit 2. The revised analysis showed no increase in any calculated doses.

Steam Generator Tube Rupture

Changes include revisions to Section 15.6.3 and Table 15.6-5b to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and approved by the NRC for BVPS, Unit 2. The revised analysis showed no increase in any calculated doses.

Loss-of-Coolant Accidents

Changes include revisions to Section 15.6.5 and Tables 15.6-11 and 15.6-12 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and approved by the NRC for BVPS, Unit 2. As a result of the revisions, the calculated control room operator whole body dose increased from .32 rem to .33 rem and the calculated control room operator thyroid dose increased from 1.3 rem to 2 rem.

Waste Gas System Failures

Changes include revisions to Section 15.7.1 and Tables 15.7-1 and 15.7-2 to reflect corrected or conservative analysis input parameter values or input assumptions based on plant design and operation. The analysis methodology remained the same as had been previously reviewed and approved by the NRC for BVPS, Unit 2. The revised analysis showed no increase in any calculated doses.

The proposed action is in accordance with the licensee's application for amendment dated May 12, 2000, as supplemented on June 19, November 2, and December 1, 2000 and January 29, 2001.

The Need for the Proposed Action:

The proposed revisions are a result of an extensive review by the licensee to assess the dose calculations' input parameter values, input assumptions, design basis consistency,

calculation methodologies, and conservatism.

The change is not the result of hardware changes to the plant or a change in operating practices. The proposed changes reflect corrected or conservative analysis input parameters, assumptions, and new analysis methodologies. In addition, some changes were made in response to GL 99-02.

Environmental Impacts of the Proposed Action:

The NRC has completed its evaluation of the proposed action and concludes that the assumptions and methodologies used by the licensee in the analyses are acceptable and that there is reasonable assurance, in the event of a postulated DBA, that the calculated offsite doses would continue to be well within the 10 CFR Part 100 guidelines, and the calculated control room operator doses would continue to be less than the 10 CFR Part 50, Appendix A, GDC 19 guidelines.

The proposed action will not significantly increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released off site, and there is no significant increase in occupational or public radiation exposure.

Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action does not involve any historic sites. It does not affect nonradiological plant effluents and has no other environmental impact. Therefore, there are no significant nonradiological environmental impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

Alternatives to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the “no-action” alternative). Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the Final Environmental Statement for the Beaver Valley Power Station, Unit Nos. 1 and 2.

Agencies and Persons Consulted:

In accordance with its stated policy, on February 1, 2000, the staff consulted with the Pennsylvania State official, Mr. L. Ryan, of the Pennsylvania Department of Environmental Protection Bureau, Division of Nuclear Safety, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated May 12, 2000, as supplemented on June 19, November 2, and December 1, 2000, and January 29, 2001. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor),

Rockville, Maryland. Publicly available records will be accessible electronically from the ADAMS Public Library component on the NRC Web site, <http://www.nrc.gov> (the Electronic Reading Room).

Dated at Rockville, Maryland, this 9th day of March 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Lawrence J. Burkhart, Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation