August 3, 2000

MEMORANDUM TO: Marsha Gamberoni, Chief, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Daniel S. Collins, Project Manager ,Section 1 ***/RA/***
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: BEAVER VALLEY POWER STATION, UNIT NOS 1 AND 2, DRAFT REQUEST FOR ADDITIONAL INFORMATION (RAI), REVISION TO DESIGN BASIS ACCIDENT DOSE CALCULATIONS (TAC NOS. MA9059 AND MA9060)

The attached draft RAI was transmitted by facsimile on July 24, 2000, to Mr. John Maracek of FirstEnergy Nuclear Operating Company in preparation for a conference call. Review of the RAI would allow the licensee to determine and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not convey a formal request for information or represent a Nuclear Regulatory Commission position.

Docket Nos. 50-334 and 50-412

Attachment: As stated

CONTACT: D. Collins, NRR
301-415-1427

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DRAFT

REQUEST FOR ADDITIONAL INFORMATION
RELATED TO FACILITY OPERATING LICENSE NOS. DPR-66 AND NPF-73
REVISIONS TO UFSAR DESIGN BASIS DOSE ANALYSES
BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2
DOCKET NOS.: 50-334 AND 50-412

I. The NRC staff has been reviewing FirstEnergy Nuclear Operating Company's (FENOC's) letter dated May 12, 2000 (L-00-008), which submitted revisions to the Beaver Valley Unit 1 and 2 dose calculations for various design basis accidents. As discussed in a conference call on July 17, 2000, the staff requests brief justifications for the changes of parameters in the UFSAR table as follows:

BVPS-1: In Tables 14.1-3, 14.2-4b, 14.2-9, 14.2-10, 14.2-12, 14.3-10, 14.3-14a, and 14B-5, please provide brief justification for each change of parameters relative to:
1) power level,
2) RCS and steam generator fluid content,
3) Primary to secondary leak rates,
4) post accident steam release from S/Gs, and
5) RCS density.

BVPS-2: In Tables 15.1-3, 15.2-2, 15.3-3, 15.4-3, 15.6-2, and 15.6-5b, please provide brief justification for each change of parameters relative to
1) power level,
2) RCS and Steam generator fluid content, and
3) Primary to secondary leak rate prior and after accident.

II. In addition to the information requested above, the staff needs to understand the basis for each change to an assumption before a determination of acceptability can be made. The following questions ask for clarification on several assumptions. Questions are arranged under headings for each unit and design basis accident. The staff would like to discuss these questions with the FENOC technical staff.

Unit 1 Questions:

General

1. (Comment) The Table 14B-1 insert has an error regarding the core fraction in gap for I-131 and I-132. The fractions appear to be transposed. I-131 gap fraction should be 0.12, while the I-132 gap fraction should be 0.10, according to text in the Section 14B.2 insert.

Major Secondary System Pipe Rupture (MSLB) (14.2.5)

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1. What is the basis for the reduction in affected SG induced leakage from 8 gpm to 3 gpm?
2. What is the basis for the assumed RCS and steam generator fluid mass values being different from that assumed in the other accidents?
3. How is the 10 cfm unfiltered inleakage to the control room verified?
4. How is the 310 cfm unfiltered inleakage to the control room during the 20 minute fan start delay determined and verified?
5. What is the basis for the control room pressurization fan flow rate being higher than that assumed for the LOCA and locked rotor accident?

RCP Locked Rotor (14.2.7)

1. What is the basis for the control room pressurization rate decrease from 1030 cfm to 600 cfm?
2. How is the 310 cfm unfiltered inleakage to the control room during the 20 minute fan start delay determined and verified?

LOCA (14.3)

1. What is the basis for the assumed sump water volume increase?
2. RWST leakage starts later and the duration is slightly longer than previously assumed, as documented in the UFSAR. What is the basis for this?
3. Is the RWST control room X/Q the same as assumed previously, and has the staff previously reviewed and approved a submittal that uses this X/Q value?
4. LER 2000-001-00 indicates that a LOCA followed by a single failure of the operating SLCRS exhaust fan could potentially prevent post-LOCA SLCRS operation. Therefore, Emergency Operating Procedure E-0 has been revised to have the operators check for SLCRS fan operation and manually restart the fan if needed. The Unit 1 LOCA analysis assumes that ECCS leakage starts around 5 minutes after the LOCA and the SLCRS is operating from the beginning of the accident. How does the condition reported in the above LER affect the analysis?
5. How did you determine the decrease in the control room pressurization flow rate?
6. How do you verify 10 cfm unfiltered inleakage to control room?
7. The locked rotor accident and MSLB assume 310 cfm unfiltered inleakage to the control room during the 20 minute fan start delay, why not in the LOCA analysis also?
8. What are the values of the control room doses from “direct radiation” from the containment and RWST?
9. In Table 2.2-12, there are added control room X/Qs, “containment edge to service building” and “containment top to service building,” which the note says were effective August 1999. Did the staff review and approve a submittal using these new values?

Unit 2 Questions:

General

1. Why does Table 15.0-10a show an increase in letdown flow rate?

Steam System Piping Failures (MSLB) (15.1.5)

1. What value is assumed for the RCS fluid mass?

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2. What ventilation parameters were used for the control room habitability analysis? What is the assumed unfiltered inleakage?

RCP Locked Rotor (15.3.3)

1. What value is assumed for the RCS fluid mass?
2. What ventilation parameters were used for the control room habitability analysis?

RCCA Ejection (15.4.8)

1. On what basis is the letdown flow rate increased to 135 from 120 gpm?
2. What value is assumed for the RCS fluid mass?
3. What ventilation parameters were used for the control room habitability analysis?

SGTR (15.6.3)

1. What ventilation parameters were used for the control room habitability analysis?

LOCA (15.6.5)

1. What is the basis for the reduction in the assumed containment free volume?
2. What is the basis for the change in the sprayed fraction of containment volume?
3. What is the basis for the increase in the particulate iodine removal coefficient?
4. What is the basis for the change in ECCS leakage initiation time?
5. LER 2000-001-00 indicates that a LOCA followed by a single failure of the operating SLCRS exhaust fan could potentially prevent post-LOCA SLCRS operation. Therefore, Emergency Operating Procedure E-0 has been revised to have the operators check for SLCRS fan operation and manually restart the fan if needed. The Unit 2 LOCA analysis assumes that ECCS leakage starts around 12 minutes after the LOCA and the SLCRS is operating from the beginning of the accident. How does the condition reported in the above LER affect the analysis?
6. What is the basis for the increase the assumed sump water volume?
7. What is the basis for the change in RWST release initiation time?
8. What ventilation parameters were used for the control room habitability analysis?

Waste Gas System Failure (15.7.1)

1. What is the basis for the increase in letdown flow rate?