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L-03-159

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

Subject: Beaver Valley Power Station, 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
Clarifications of License Amendment Nos. 257 and 139

The purpose of this letter is to provide clarifications to some statements contained in the Safety Evaluation Report (SER) provided with Beaver Valley Power Station (BVPS) Unit No. 1 License Amendment No. 257 and Unit No. 2 License Amendment No. 139. On September 10, 2003, the NRC issued Amendments 257 and 139 to the BVPS Unit Nos. 1 and 2 Technical Specifications in response to BVPS License Amendment Requests Nos. 300 and 172 dated June 5, 2002, and its supplements. These amendments approved selective application of the Alternative Source Term (AST) methodology for the loss-of-coolant accident (LOCA) and the control rod ejection accident (CREA), incorporation of the ARCON96 methodology for release points associated with the LOCA and CREA, elimination of the control room emergency bottled air pressurization system (CREBAPS), modifications to the control room emergency ventilation system (CREVS), and a change to the Unit 1 CREVS filter bypass leakage acceptance test criteria.

Following receipt of these amendments, BVPS personnel reviewed the SER and verbally notified the BVPS NRC Project Manager that the SER contains some statements that require clarification. These clarifications are described in Attachment A. It is our understanding that these clarifications do not change any conclusions of the NRC SER for these amendments.

No new commitments are contained in this submittal. If there are any questions concerning this matter, please contact Mr. Larry R. Freeland, Manager, Regulatory Affairs/Performance Improvement at 724-682-5284.

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I declare under penalty of perjury that the foregoing is true and correct. Executed on October 28, 2003.

Sincerely,

L. William Pearce

Attachment:
A. License Amendment Nos. 157 and 139 Safety Evaluation Report Clarifications

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
Mr. D. A. Allard, Director BRP/DEP
Mr. L. E. Ryan (BRP/DEP)

Attachment A to L-03-159

License Amendment Nos. 157 and 139
Safety Evaluation Report Clarifications

SER Page 3
The last sentence of the third paragraph implies that newly calculated χ/Q values were used for the MSLB and Unit-1 LRA analyses.

The newly calculated χ/Q values were used only for the LOCA and CREA analyses. Section 5.3.4 of the June 5, 2002 submittal describes the application of the accident atmospheric dispersion factors. This section discusses the newly calculated control room χ/Q values associated with LOCA and CREA. As discussed in Section 5.3.6 (page 5-21) of the June 5, 2002 submittal, dose impact of a MSLB and Unit-1 LRA is assessed using the existing licensing basis methodology/assumptions/regulatory acceptance criteria, and is not included in the selective application of AST methodology.

SER Page 5
The bullets on this page indicate that EAB and LPZ doses were calculated for LOCA, CREA, MSLB and Unit-1 LRA, along with control room doses.

Although the control room doses for all of these accidents were re-calculated, the EAB and LPZ doses were not re-calculated for MSLB and Unit-1 LRA. Section 5.3.6 of the June 5, 2002 submittal states that the worst 2-hour period dose at the EAB, and the dose at the LPZ for the duration of the release, is calculated for LOCA and CREA. This section also states that the impact of the control room modification (elimination of CREBAPS) on the control room dose following a MSLB or a Unit-1 LRA is assessed. There is no discussion of development of EAB and LPZ doses following a MSLB or a Unit-1 LRA since the design modification/change of licensing basis proposed by the LAR did not impact these values.

SER Page 9
Second paragraph, fourth sentence. The SER wording implies that the RWST inventory is depleted at about 720 seconds.

Page 5-26 of the June 5, 2002 submittal describes when RSS and QSS are assumed to actuate. The assumption is that RSS actuates at 720 seconds. The specific time for depletion of the RWST is not stated in the June 5, 2002 submittal; however, the RWST inventory is not depleted until well after 720 seconds.

SER Page 10
Last line of the first full paragraph. The SER states that the removal rate maximum value (based on Figure 5.3.6-2 of the June 5, 2002 submittal) is about 0.95 per hour at about 10,200 seconds and about 0.89 per hour at 18,000 seconds.

Per Figure 5.3.6-2 of the June 5, 2002 submittal, the aerosol removal rate between 9,000 and 10,800 seconds is about 0.095 per hour and about 0.089 per hour at 18,000 seconds.

SER Page 11

Section 3.5.4, second paragraph, sixth sentence. The SER indicates that the fluid temperature used to permit the assumption that 10% of the entrained iodine is released is less than 212°F.

As stated on page 5-38 of the June 5, 2002 submittal, the dose analysis assumes that recirculation is initiated at 300 seconds and the peak temperature of the fluid after 300 seconds is 250°F. The flash fraction, using Regulatory Guide 1.183 methodology, associated with this temperature is calculated to be less than 10%.

Section 3.5.5, next to last sentence. The SER refers to Figure 5.3.6-3 of the June 5, 2002 submittal and an iodine release fraction of about 0.04 at 5,178 seconds.

Per Figure 5.3.6-3 of the June 5, 2002 submittal, the release rate is about 0.004 per day around 5,000 seconds. The 5,178 seconds appears in Table 5.3.6-2 as the onset of RWST venting.

SER Page 14

The first partial paragraph on this page discusses the two iodine spikes assumed in MSLB radiological analysis. In the last sentence the SER indicates that the duration of the second iodine spiking case is 8 hours.

As discussed in the third paragraph on page 17 of the January 30, 2002 submittal, although activity is assumed to be released for 0-8 hours, the co-incident spiking period is assumed to occur between 0 and 4 hours.

SER Page 27

This page lists the assumptions for the LOCA analyses for the two BVPS units. Iodine species distribution is listed near the middle of the page as follows:

Elemental 0.95
Organic 0.0485
Particulate 0.0015

Per Table 5.3.6-2 of the June 5, 2002 submittal, the iodine species distribution used in the analyses is:

Elemental = 4.85%
Organic = 0.15%
Particulate = 95%

Page 30 of the SER, which is consistent with Table 5.3.6-2 of the June 5, 2002 submittal, lists these values under iodine species fraction (for containment) as:

Elemental	4.85
Organic	0.15
Particulate/aerosol	95

SER Page 29

At the top of the page the various iodine release times and rates (in percentage per day) from the RWST are listed.

The value of 2,186 seconds listed corresponds to the onset of back leakage to the RWST. The onset of RWST activity venting occurs at 5,178 seconds and would be the time where release is expected to occur based on the analysis. Both of these times are provided in Table 5.3.6-2 of the June 5, 2002 submittal. In Figure 5.3.6-3 of the June 5, 2002 submittal, the release rates for the time periods listed in the SER range from slightly less than 1.5E-07 to less than 1.0E-02 per day. The following provides release rate values from Figure 5.3.6-3 when they are converted to percentages, as per page 29 of the SER.

Iodine Release rate, % per day

Seconds		Rate
5,178	– 7,500	0.4
7,500	– 10,000	0.14
10,000	– 20,000	0.09
20,000	– 30,000	0.05
30,000	– 150,000	0.012
150,000	– 300,000	0.005
300,000	– 600,000	0.0005
600,000	– 1,500, 000	0.00004
1,500,000	– 2,500,000	0.000015

This page also lists values for the RCS mass under the assumptions for the MSLB analyses for the two BVPS units. The Unit 2 RCS mass value is listed as 388,700 lbm. This value was not provided in the June 5, 2002 submittal, or its supplements.

The value for Unit 2 RCS mass is 343,800 lbm, which is based on the current analysis of record. FENOC provided this value in letter L-00-127, dated November 2, 2000, which transmitted responses to an RAI on LARs 280 (Unit 1) and 151 (Unit 2).

SER Pages 29 and 31

These pages list the assumptions for the MSLB analyses, page 29, for the two BVPS units and the Unit-1 LRA analysis, page 31. Listed on these pages are the co-incident spike appearance rates in Ci/hour.

The values listed were not provided by FENOC as part of the June 5, 2002 submittal, or its supplements. However, the UFSARs for both units provide the current iodine spike appearance rates used in the MSLB analysis.

Table 14.2-10 of the Unit 1 UFSAR lists these values in μCi/second. Table 15.1-3 of the Unit 2 UFSAR lists these values in Ci/second. The co-incident spike appearance rates for both units from the UFSAR are as shown below along with the conversion to Ci/hour.

	BVPS-1 Table 14.2-10		BVPS-2 Table 15.1-3	
	μCi/second	Ci/hour	Ci/second	Ci/hour
I-131	3.29E+05	1184	1.28	4608
I-132	3.21E+05	1156	1.20	4320
I-133	5.66E+05	2038	2.19	7884
I-134	3.55E+05	1278	1.32	4752
I-135	4.26E+05	1534	1.63	5868

SER Page 30

This page lists the assumptions for the MSLB analyses for the two BVPS units. About one third of the way down the page the Unit 1 values for steam release from a faulted steam generator are provided as 170,050 lbm for the 0-30 minute period and 21, 200 lbm for the 30 minute to 8 hour period.

The values listed on this page were not provided by FENOC as part of the June 5, 2002 submittal, or its supplements. However, the Unit 1 UFSAR provides the values used in the Unit 1 MSLB analysis. Per Unit 1 UFSAR Table 14.2-10, the steam release from a faulted steam generator is 169,711 lbm for the 0-30 minute period and 6,572 lbm for the 30 minute to 8 hour period.

SER Page 30

This page also lists the assumptions for the CREA analyses for the two BVPS units. Near the bottom of the page, the radial peaking factor listed for the containment is 1.75, no radial peaking factor is listed for steam generators.

Although not explicitly stated, per pages 5-41 and Table 5.3.6-4 of the June 5, 2002 submittal, a radial peaking factor of 1.75 was used for both the containment and the steam generators.