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L-12-249

10 CFR 50.46(a)(3)(ii)

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001**SUBJECT:****Beaver Valley Power Station, Unit Nos. 1 and 2
Docket No. 50-334, License No. DPR-66
Docket No. 50-412, License No. NPF-73
10 CFR 50.46 Report of Changes or Errors in ECCS Evaluation Models**

In accordance with 10 CFR 50.46(a)(3)(ii), FirstEnergy Nuclear Operating Company (FENOC) provides the attached report as annual notification of changes or errors in emergency core cooling system (ECCS) evaluation models for the Beaver Valley Power Station, Unit Nos. 1 (BVPS-1) and 2 (BVPS-2). Current information for both large and small break loss-of-coolant accident (LOCA) transients is provided to satisfy 10 CFR 50.46 reporting requirements.

By letter dated March 16, 2012 (Accession No. ML12079A111), FENOC submitted to the Nuclear Regulatory Commission (NRC) a 10 CFR 50.46 report for the evaluation of fuel pellet thermal conductivity degradation (TCD) that estimated peak cladding temperature (PCT) for the BVPS-1 and BVPS-2 large break LOCA transient as 1834°F and 1837°F, respectively.

Attachment 1 lists the changes or errors that were not reported in the March 16, 2012 report. The changes or errors were in an acceptable evaluation model that affects the PCT calculation for particular transients. It quantifies the effects of the changes that have occurred since the previous annual report (November 8, 2011) for the specified transients and provides an index to Attachment 2. Attachment 2 provides a description for each model change or error.

The effects of TCD as described in the above referenced March 16, 2012 FENOC letter to the NRC and the PCT effects listed in Attachment 1 result in PCTs for the large and small break LOCA transients as follows:

BVPS-1 Large Break LOCA – 1834°F
BVPS-1 Small Break LOCA – 1895°F
BVPS-2 Large Break LOCA – 1837°F
BVPS-2 Small Break LOCA – 1917°F

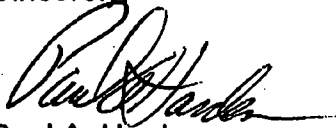
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There are no regulatory commitments contained in this letter. If there are any questions or if additional information is required, please contact Mr. Phil H. Lashley, Supervisor – Fleet Licensing, at (330) 315-6808.

Sincerely,



Paul A. Harden

Attachments:

- 1 Summary of Peak Cladding Temperature Effects for Beaver Valley Power Station Loss-of-Coolant Accident (LOCA) Transients
- 2 Descriptions of Model Changes or Errors

cc: NRC Region I Administrator
NRC Resident Inspector
NRR Project Manager
Director BRP/DEP
Site BRP/DEP Representative

Attachment 1
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Summary of Peak Cladding Temperature Effects for Beaver Valley Power Station
Loss-of-Coolant Accident (LOCA) Transients
Page 1 of 1

Description	PCT Effect (°F)	Attachment 2 Page
<u>BVPS-1 LARGE BREAK LOCA</u>		
General Code Maintenance	0	1
<u>BVPS-1 SMALL BREAK LOCA</u>		
Radiation Heat Transfer Logic	0	2
Maximum Fuel Rod Time Step Logic	0	3
General Code Maintenance	0	4
<u>BVPS-2 LARGE BREAK LOCA</u>		
General Code Maintenance	0	1
<u>BVPS-2 SMALL BREAK LOCA</u>		
Radiation Heat Transfer Logic	0	2
Maximum Fuel Rod Time Step Logic	0	3
General Code Maintenance	0	4

GENERAL CODE MAINTENANCE

Background

Various changes have been made to enhance the usability of codes and to streamline future analyses. Examples of these changes include modifying input variable definitions, units and defaults; improving the input diagnostic checks; enhancing the code output; optimizing active coding; and eliminating inactive coding. These changes represent Discretionary Changes that will be implemented on a forward-fit basis in accordance with Section 4.1.1 of WCAP-13451, "Westinghouse Methodology for Implementation of 10 CFR 50.46 Reporting."

Affected Evaluation Models

1996 Westinghouse Best Estimate Large Break Loss-of-Coolant Accident (LOCA) Evaluation Model

2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using Automated Statistical Treatment of Uncertainty Method (ASTRUM)

Estimated Effect

The nature of these changes leads to an estimated 0°F impact on peak cladding temperature (PCT).

RADIATION HEAT TRANSFER LOGIC

Background

Two errors were discovered in the calculation of the radiation heat transfer coefficient in the SBLOCTA computer code. First, existing diagnostics did not preclude non-physical negative or large (negative or positive) radiation heat transfer coefficients from being calculated. These calculations occurred when the vapor temperature exceeded the cladding surface temperature or when the predicted temperature difference was less than 1 degree. Second, a temperature term incorrectly used degrees Fahrenheit instead of Rankine. These errors have been corrected in the SBLOCTA code and represent a closely-related group of Non-Discretionary Changes in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model

1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect

A combination of SBLOCTA sensitivity calculations and engineering judgment led to an estimated PCT effect of 0°F for existing small break LOCA analysis results.

MAXIMUM FUEL ROD TIME STEP LOGIC

Background

An error was discovered in the SBLOCTA code that allowed the fuel rod time step to exceed the specified maximum allowable time step. The time step logic has been corrected in the SBLOCTA code. This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model

1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect

A combination of SBLOCTA sensitivity calculations and engineering judgment led to an estimated PCT effect of 0°F for existing small break LOCA analysis results.

GENERAL CODE MAINTENANCE

Background

Various changes have been made to enhance the usability of codes and to help preclude errors in analyses. This includes items such as modifying input variable definitions, units, and defaults; improving the input diagnostic checks; enhancing the code output; optimizing active coding; and eliminating inactive coding. These changes represent Discretionary Changes that will be implemented on a forward-fit basis in accordance with Section 4.1.1 of WCAP-13451.

Affected Evaluation Model

1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect

The nature of these changes leads to an estimated PCT impact of 0°F.