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10 CFR 50.46(a)(3)

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

SUBJECT:
Davis-Besse Nuclear Power Station, Unit No. 1
Docket No. 50-346, License No. NPF-3
Notification of Significant Change to the Small-Break Loss-of-Coolant Accident Emergency Core Cooling Model in Accordance with 10 CFR 50.46(a)(3)

In accordance with 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors," the FirstEnergy Nuclear Operating Company (FENOC) is notifying the Nuclear Regulatory Commission (NRC) of an error in the Davis-Besse Nuclear Power Station (DBNPS) emergency core cooling system (ECCS) small-break loss-of-coolant accident (SBLOCA) evaluation model (EM). The EM is described by AREVA NP Topical Report BAW-10192P-A, Revision 0, "BWNT LOCA – BWNT Loss-of-Coolant Accident Evaluation Model for Once-Through Steam Generator Plants," June 1998. This error produces an estimated fuel clad temperature increase that satisfies the definition of a significant change as defined by 10 CFR 50.46(a)(3)(i).

ECCS analyses are performed for DBNPS by the fuel vendor, AREVA. Because the SBLOCA analyses, as described in BAW-10192P-A, Revision 0, are designed to be independent of the cycle burnup, an axial power shape that bounds all times in core life is utilized. The current SBLOCA axial power shape is not bounding for middle to end-of-cycle conditions. As a result, a bounding axial power shape with the peak power located at 11 feet was developed that conservatively meets the requirements. A revised SBLOCA peak clad temperature (PCT) of 1,780 degrees Fahrenheit was estimated for DBNPS by AREVA. This PCT represents an increase of +225 degrees Fahrenheit compared to the currently predicted value of 1,555 degrees Fahrenheit. The current PCT was reported in FENOC letter dated May 27, 2010 (Accession Number ML101530497).

The revised PCT remains well within the 10 CFR 50.46 acceptance criterion of less than 2,200 degrees Fahrenheit. Compliance with other acceptance criteria of 10 CFR 50.46, that is, cladding oxidation, cladding hydrogen generation, coolable core geometry, and long-term cooling, is not affected.

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The axial power shape correction is limited to SBLOCA applications. The PCTs predicted for large-break loss-of-coolant-accident remain unchanged.

10 CFR 50.46(a)(3)(ii) requires the licensee to provide a schedule for reanalysis or other actions that may be needed to show compliance with 10 CFR 50.46 requirements. The AREVA engineering evaluation showed compliance with 10 CFR 50.46 criteria; therefore a schedule is not required.

There are no regulatory commitments contained in this letter. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager – Fleet Licensing, at (330) 761-6071.

Sincerely,

K W Byrne for Barry Allen

Barry Allen

cc: NRC Region III Administrator
NRR Project Manager – Davis-Besse Nuclear Power Station
NRC Resident Inspector – Davis-Besse Nuclear Power Station
Utility Radiological Safety Board