

May 5, 2000

Mr. Guy G. Campbell, Vice President - Nuclear  
FirstEnergy Nuclear Operating Company  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION - ENVIRONMENTAL  
ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT REGARDING  
EXEMPTION FROM REQUIREMENTS OF 10 CFR 50.46 AND 10 CFR  
PART 50, APPENDIX K (TAC NO. MA7831)

Dear Mr. Campbell:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application dated March 15, 2000 (Serial Number 2633), as supplemented by submittal dated April 3, 2000 (Serial Number 2652), which requested an exemption from certain requirements of 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," and 10 CFR Part 50, Appendix K, Section I.D.1, "Single Failure Criteria."

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

Sincerely,

**/RA by Douglas V. Pickett  
For/**

Stephen P. Sands, Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure: Environmental Assessment

cc w/encl: See next page

May 5, 2000

Mr. Guy G. Campbell, Vice President - Nuclear  
FirstEnergy Nuclear Operating Company  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION - ENVIRONMENTAL  
ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT REGARDING  
EXEMPTION FROM REQUIREMENTS OF 10 CFR 50.46 AND 10 CFR  
PART 50, APPENDIX K (TAC NO. MA7831)

Dear Mr. Campbell:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application dated March 15, 2000 (Serial Number 2633), as supplemented by submittal dated April 3, 2000 (Serial Number 2652), which requested an exemption from certain requirements of 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," and 10 CFR Part 50, Appendix K, Section I.D.1, "Single Failure Criteria."

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

Sincerely,

**/RA by Douglas V. Pickett  
For/**

Stephen P. Sands, Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure: Environmental Assessment

cc w/encl: See next page

**DISTRIBUTION:**

PUBLIC	PDIII r/f	OGC
AMendiola	ACRS	THarris
GGrant, RIII	CACarpenter	JWermeil

**ACCESSION NO. ML003712278**

TO RECEIVE A COPY OF THIS DOCUMENT, INDICATE IN THE BOX: "C" = COPY WITHOUT ENCLOSURES "E" = COPY WITH ENCLOSURES "N"

OFFICE	PM:LPD3	LA:LPD3	BC:RGEB	OGC	SC:LPD3
NAME	SSands	THarris	CCarpenter	C. Marco	S. Bajwa for AMendiola
DATE	4/13/00	4/11/00	4/17/00	5/5/00	5/5/00

**OFFICIAL RECORD COPY**

Mr. Guy G. Campbell  
FirstEnergy Nuclear Operating Company

Davis-Besse Nuclear Power Station, Unit 1

cc:

Mary E. O'Reilly  
FirstEnergy  
76 South Main Street  
Akron, OH 44308

Harvey B. Brugger, Supervisor  
Radiological Assistance Section  
Bureau of Radiation Protection  
Ohio Department of Health  
P.O. Box 118  
Columbus, OH 43266-0118

James L. Freels  
Manager - Regulatory Affairs  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
5501 North State - Route 2  
Oak Harbor, OH 43449-9760

James R. Williams, Executive Director  
Ohio Emergency Management Agency  
2855 West Dublin Granville Road  
Columbus, OH 43235-2206

Jay E. Silberg, Esq.  
Shaw, Pittman, Potts  
and Trowbridge  
2300 N Street, NW.  
Washington, DC 20037

Director  
Ohio Department of Commerce  
Division of Industrial Compliance  
Bureau of Operations & Maintenance  
6606 Tussing Road  
P.O. Box 4009  
Reynoldsburg, OH 43068-9009

Regional Administrator  
U.S. Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, IL 60523-4351

Ohio Environmental Protection Agency  
DERR--Compliance Unit  
ATTN: Zack A. Clayton  
P.O. Box 1049  
Columbus, OH 43266-0149

Michael A. Schoppman  
Framatome Technologies Incorporated  
1700 Rockville Pike, Suite 525  
Rockville, MD 20852

State of Ohio  
Public Utilities Commission  
180 East Broad Street  
Columbus, OH 43266-0573

Resident Inspector  
U.S. Nuclear Regulatory Commission  
5503 North State Route 2  
Oak Harbor, OH 43449-9760

Attorney General  
Department of Attorney  
30 East Broad Street  
Columbus, OH 43216

James H. Lash, Plant Manager  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

President, Board of County  
Commissioners of Ottawa County  
Port Clinton, OH 43252

Ms. Sherry Kamke, Acting  
Environmental Review Coordinator  
77 West Jackson Blvd.  
Chicago, IL 60604-3507

UNITED STATES NUCLEAR REGULATORY COMMISSION  
FIRSTENERGY NUCLEAR OPERATING COMPANY  
DOCKET NO. 50-346  
DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1  
ENVIRONMENTAL ASSESSMENT AND FINDING OF  
NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering the issuance of an exemption, under certain specified conditions, from the provisions of (1) 10 CFR Part 50, Appendix K, Section I.D.1 which requires that accident evaluations use the combination of emergency core cooling system (ECCS) subsystems assumed to be operative “after the most damaging single-failure of ECCS equipment has taken place;” (2) 10 CFR Part 50, Appendix K, Section I.A.4, which specifies that 1.2 times the American Nuclear Standard ANS-5 decay heat generation rate for an infinite operating time shall be used; and (3) requirements of 10 CFR 50.46(b)(5) and 50.46(a)(1)(ii), be applied for Facility Operating License No. NPF-3, issued to the FirstEnergy Nuclear Operating Company (the licensee), for operation of the Davis-Besse Nuclear Power Station, Unit 1, located in Ottawa County, Ohio.

The Commission is taking an action to approve this request prior to publication in the Federal Register of its Environmental Assessment and Finding of No Significant Impact. In accordance with 10 CFR 51.13, the Commission has determined that emergency circumstances are present to support the issuance of this exemption prior to publication in the Federal Register in that failure to act in a timely way would result in prevention of resumption of plant operation.

## ENVIRONMENTAL ASSESSMENT

### Identification of the Proposed Action:

The licensee has requested an exemption from 10 CFR 50.46 and 10 CFR Part 50 Appendix K regarding proposed modifications to the equipment and procedures for boron precipitation control (BPC) during long-term operation following loss of coolant accidents (LOCAs). These modifications would be effective prior to returning to power following the April 2000 refueling outage. The proposed action is in accordance with the licensees' application for exemption dated March 15, 2000, as supplemented by submittal dated April 3, 2000.

### The Need for Proposed Action:

The Code of Federal Regulations at 10 CFR 50.46 provides acceptance criteria for the ECCS, including long-term cooling requirements in 50.46(b)(5) and an option to develop the ECCS evaluation model in accordance with Appendix K requirements (50.46(a)(1)(ii)). Appendix K requires that the ECCS remain operable following the most damaging single failure, and it also specifies the decay heat generation rate that shall be used.

In licensee event report (LER) 98-008 (October 1, 1998), Davis-Besse Nuclear Power Station (DBNPS) reported that for some small-break LOCAs, initiation of its active method of BPC could cause steam binding in the suction piping of both decay heat removal (DHR) pumps. As part of the corrective action for LER 98-008, DBNPS committed to address all issues related to long-term LOCA BPC, and to complete a related plant modification by the end of the 12<sup>th</sup> refueling outage that began in April, 2000. In response to that commitment, in its March 15, 2000 and April 3, 2000 submittals, the licensee described a new active primary method for BPC -- an improved auxiliary spray path into the pressurizer. The licensee also described that a failure anywhere in the flow path could result in failure of this method to provide water to the pressurizer. Consequently, a backup method was provided that uses flow into the decay heat

removal suction pipe from a reactor coolant system hot leg pipe. The licensee conducted a common mode failure evaluation of the two methods and identified several areas where a single failure could disable both the primary and backup BPC methods. The licensee further, when establishing that boron precipitation will not occur in the decay heat removal system cooler, credited flow through hot leg nozzle gaps while not establishing that the gaps would always be effective, and it did not include all of the specific conservatisms required by Appendix K. The licensee recognized that its changes did not meet all aspects of the single-failure requirement and did not include all of the specific required conservatisms.

Consequently, it requested an exemption since it believed it met the intent of the regulations, and it justified its request on the basis of a risk evaluation and conservatisms in calculations that result in over-prediction of the BPC problem. The staff considers that the licensee would also need to be exempted from the specific decay heat generation rate contained in 10 CFR Part 50, Appendix K, Section I.A.4. Approval of this exemption request is needed to permit the licensee to implement its plans to ensure BPC.

Environmental Impacts of the Proposed Action:

With regard to potential radiological impacts to the general public, the exemption under consideration involves features located entirely within the restricted area as defined in 10 CFR Part 20. The new active methods of BPC are an improvement when compared to the existing methods and the entire issue of BPC has been shown to have little effect on overall risk. 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 actions.

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. However, the licensee’s exemption request covers improvements in response to a licensee commitment to address an existing deficiency, improvements that will decrease the risk of BPC failure and hence decrease the risk of core damage.

The licensee addressed further hardware improvements to reduce the likelihood of single-failure and established there was little risk benefit in doing so, an assessment the staff determined to be acceptable. There is no significant benefit in this alternative.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the “Final Environmental Statement Related to the Operation of DBNPS Unit 1,” October 1975.

Agencies and Persons Consulted:

In accordance with its stated policy, on April 18, 2000, the staff consulted with the Ohio State official, Carol O’Claire, of the Ohio Emergency Management Agency, 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 Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission 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 letters dated March 15 and April 3, 2000, which are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW, Washington, DC. Publicly available records are 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 fifth day of May 2000.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

Singh S. Bajwa, Director  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation