

*RZ*  
**From:** Eric Duncan  
**To:** ExponentReportGroup  
**Date:** Tue, May 15, 2007 12:28 PM  
**Subject:** Fwd: Letter and Order to Anthony Alexander, FirstEnergy Nuclear Operating Company (FENOC)

FYI in case you have not already received.

>>> Lucia Lopez 5/15/2007 9:50 AM >>>

**Electronic distribution only**

Subject: Demand for information (DFI)

**ADAMS PACKAGE: ML071340321**

Contact: Doug Starkey 301-415-3456

*F-223*

May 14, 2007

EA-07-123

Mr. Anthony Alexander  
Chief Executive Officer  
FirstEnergy Nuclear Operating Company  
76 South Main Street  
Akron, OH 44308

SUBJECT: DEMAND FOR INFORMATION

Dear Mr. Alexander:

The enclosed Demand for Information (DFI) is being issued in response to information provided by FirstEnergy Nuclear Operating Company (FENOC) relative to its re-analysis of the timeline and root causes for the 2002 Davis-Besse reactor pressure vessel head degradation event.

The Nuclear Regulatory Commission (NRC) requires information in order to understand and determine the appropriateness of FENOC's actions following its receipt of a report prepared by its contractor, Exponent Failure Analysis Associates and Altran Solutions Corporation (Exponent), that provided a re-analysis of the timeline and root causes of the 2002 Davis Besse reactor pressure vessel head degradation event (2002 event). In particular, given the significant changes in the timelines, the NRC needs further detailed and specific information relative to the timing of FENOC's review of the Exponent Report and the factors it considered when determining if the conclusions should be communicated to the NRC.

The NRC also needs information to understand the depth and completeness of FENOC's evaluation of the assumptions, methods, and conclusions of the Exponent Report. In particular, the NRC requires detailed and specific information with regard to differences between the assumptions, methods, and conclusions of the Exponent Report and the technical and programmatic root cause reports previously developed by FENOC relative to the 2002 event. This information is also needed for the NRC to determine the appropriateness of FENOC's assessment of the continued adequacy of corrective actions taken in response to the 2002 event.

Finally, the NRC requires information in order to understand FENOC's position regarding a second contracted report that was prepared for FENOC entitled, "Report of Reactor Pressure

Vessel Wastage at the Davis-Besse Nuclear Power Plant," dated December 2006. In particular, the NRC requires detailed and specific information relative to FENOC's assessment and endorsement of the report's conclusions and the implications of any new positions taken by FENOC compared to those previously communicated to the NRC in response to the NRC's Notice of Violation and Proposed Imposition of Civil Penalties, dated April 21, 2005.

You are required to provide a written response to this Demand for Information and should follow the instructions in Section III of the Demand for Information. In addition, you are requested to contact Mr. Doug Starkey, of my staff, at 301-415-3456, within 7 days of the date of this letter in order to identify a date when a management meeting may be held to discuss your written response to this Demand for Information.

Failure to comply with the provisions of this Demand for Information may result in enforcement action, including, if appropriate, criminal prosecution in accordance with Section 223 of the Atomic Energy Act of 1954, as amended.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such information, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection, described in 10 CFR 73.21.

Sincerely,

/RA/

Cynthia A. Carpenter, Director  
Office of Enforcement

Docket Nos. 50-346; 50-440; 50-334; 50-412  
License Nos. NPF-3; NPF-58; DPR-66; NPF-73

Enclosure: Demand for Information

cc w/encl: (See Page 3)

cc w/encl: The Honorable George V. Voinovich  
The Honorable Dennis Kucinich  
J. Lash, Senior Vice President of  
Operations and Chief Operating Officer  
Richard Anderson, Vice President, Nuclear Support  
Mark Bezilla, Site Vice President, Davis-Besse  
L. W. Pearce, Site Vice President, Perry  
Manager - Site Regulatory Compliance  
D. Pace, Senior Vice President of  
of Fleet Engineering  
J. Rinckel, Vice President, Fleet Oversight  
D. Jenkins, Attorney, FirstEnergy  
R. Anderson, Vice President, Nuclear Support  
Director, Fleet Regulatory Affairs  
Manager, Fleet Licensing  
Ohio State Liaison Officer  
R. Owen, Administrator, Ohio Department of Health  
Public Utilities Commission of Ohio  
D. Hill, Chief, Radiological Health Program, State of West Virginia  
J. Lewis, Commissioner, Division of Labor, State of West Virginia  
W. Hill, Beaver County Emergency Management Agency  
J. Johnsrud, National Energy Committee, Sierra Club  
President, Lucas County Board of Commissioners  
President, Ottawa County Board of Commissioners  
R. Owen, Ohio Department of Health  
M. Clancey, Mayor, Shippingport, PA  
D. Allard, PADEF  
Ohio State Liaison Officer  
Pennsylvania State Liaison Officer

Vessel Wastage at the Davis-Besse Nuclear Power Plant," dated December 2006. In particular, the NRC requires detailed and specific information relative to FENOC's assessment and endorsement of the report's conclusions and the implications of any new positions taken by FENOC compared to those previously communicated to the NRC in response to the NRC's Notice of Violation and Proposed Imposition of Civil Penalties, dated April 21, 2005.

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Sincerely,

/RA/

Cynthia A. Carpenter, Director  
Office of Enforcement

Docket Nos. 50-346; 50-440; 50-334; 50-412  
License Nos. NPF-3; NPF-58; DPR-66; NPF-73

Enclosure: Demand for Information

cc w/encl: (See Page 3) DISTRIBUTION: (See attached page)

Publicly Available  Non-Publicly Available  Sensitive  Non-Sensitive

OFFICE	OE	RIII	RIII	RES	NRR
NAME	D. Starkey	K. O'Brien	J. Caldwell	M. Johnson	J. Dyer
DATE	5/14/07	5/14 /07	5/14/07	5/14/07	5/14/07
OFFICE	OGC	OE			
NAME	L. Chandler	C. Carpenter			
DATE	5/14/07	5/14 /07			

OFFICIAL RECORD COPY

DISTRIBUTION: (Ltr. And order to Mr. Anthony Alexander)

Dated: May 14, 2007

ADAMS (PARS)

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Solorio, OE

D. Starkey, OE

J. Caldwell, RIII

G. Grant, RIII

M. Satorius, RIII

S. West, RIII

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J. Ulie, RIII:OI

M. Janicki, RIII:OI

N. Hane, RIII:OI

C. Weil, RIII

E. Duncan, RIII

V. Mitlyng, RIII:PA

R. Lickus, RIII

S. Minnick, RIII

J. Lynch, RIII

R. Summers, RI

A. DeFrancisco, RI

N. McNamara, RI

M. McLaughlin, RI

RI:PAO

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of

**FIRST ENERGY NUCLEAR OPERATING COMPANY**

(Davis-Besse Nuclear Power Plant)	)	Docket No. 50-346
(Perry Nuclear Power Plant)	)	50-440
(Beaver Valley Nuclear Plant, Units 1 and 2)	)	50-334
	)	50-412
	)	
	)	License No. NPF-3
	)	NPF-58
	)	DPR-66
	)	NPF-73
	)	
	)	EA 07-123

DEMAND FOR INFORMATION

I

FirstEnergy Nuclear Operating Company (FENOC or licensee) is the holder of four NRC Facility Operating Licenses issued by the U.S. Nuclear Regulatory Commission (NRC or Commission) pursuant to 10 CFR Part 50, which authorizes the operation of the specifically named facilities in accordance with the conditions specified in each license. License No. NPF-3 was issued on April 22, 1977, to operate the Davis-Besse Nuclear Power Station (Davis-Besse). License No. NPF-58 was issued on November 13, 1986, to operate the Perry Nuclear Power Plant. Licenses No. DPR-66 and NPF-73 to operate the Beaver Valley Nuclear Plant, Units 1 and 2 were issued on July 2, 1976, and August 14, 1987, respectively. The facilities are located on the licensee's properties near Toledo and Painesville, Ohio, for the Davis-Besse and Perry Plants, respectively, and near McCandless, Pennsylvania, for the Beaver Valley Nuclear Plant.

On March 8, 2004, the NRC issued a Confirmatory Order to FENOC and approved restart of the Davis-Besse Plant following substantial licensee action to evaluate and develop appropriate corrective actions for the technical and programmatic issues that were associated with the 2002 reactor pressure vessel head degradation event.

On April 21, 2005, the NRC issued a Notice of Violation and Proposed Imposition of Civil Penalties in the amount of 5,450,000 dollars involving violations associated with the 2002 Davis-Besse reactor pressure vessel head degradation event and the root causes for the event. On September 14, 2005, FENOC responded to the Notice of Violation, paid the proposed civil penalty and addressed each of the violations cited. Its response also addressed FENOC's assessment of the root cause for each violation. On January 23, 2006, FENOC provided a supplemental reply to the Notice of Violation.

FENOC obtained a report from its contractor, Exponent Failure Analysis Associates and Altran Solutions Corporations (Exponent), dated December 2006, prepared in connection with its claim against Nuclear Electric Insurance Limited (NEIL), which included an updated analysis of the timeline and root cause for the 2002 Davis-Besse reactor pressure vessel head degradation event. A significant conclusion of this analysis was a determination by Exponent that the time period between the beginning of substantial leakage from the reactor pressure vessel head nozzle causing the development of the large cavity next to the nozzle may have been as short as 4 months. Previously, FENOC had conducted its own technical and programmatic root cause evaluations of the event and concluded that the reactor pressure vessel head cavity was



the result of ongoing nozzle leakage which had gone undetected for more than 4 years. FENOC also obtained a second report, dated in December 2006, from another contractor, entitled, "Report on Reactor Pressure Vessel Wastage at the Davis-Besse Nuclear Power Plant." This second report included conclusions that appeared to be inconsistent with FENOC's previous communications with the NRC and the April 21, 2005, Notice of Violation and Proposed Imposition of Civil Penalties associated with the 2002 Davis-Besse reactor pressure vessel degradation event.

In February 2007, NEIL sent to FENOC a letter identifying what NEIL believed to be potential safety concerns raised by the Exponent report conclusions. Upon receipt of the NEIL letter, the Davis-Besse plant staff generated a condition report in its corrective action program to document the issue.

During March 2007, the NRC held several conference calls with the Davis-Besse staff to obtain additional information regarding the licensee's assessment of the concerns raised in the NEIL letter and to understand the licensee's planned actions to address the concerns.

By letter dated April 2, 2007, the NRC requested the licensee to respond, in writing, to four questions regarding information and conclusions presented in the Exponent Report to assist the NRC in understanding the assumptions, analysis, and conclusions of the Exponent Report, and to confirm the information provided during the March 2007 conference calls.

By letter dated May 2, 2007, FENOC provided a written response to the NRC's questions. In its response, FENOC stated, among other things, that the Exponent Report set forth an informed analysis that more accurately characterizes the timeline of the reactor head degradation event

based upon the use of more recently available test data in conjunction with detailed analytical modeling. FENOC's response did not indicate whether it had completed a comprehensive review of the Exponent Report relative to its previous root cause reports.

The information provided by the licensee regarding the foregoing did not provide the NRC with sufficient information to determine if FENOC had conducted a prompt and thorough review of the Exponent Report. In particular, the NRC needs additional information to determine whether FENOC conducted a timely and comprehensive analysis of the assumptions and conclusions of the Exponent Report to assess their accuracy relative to the technical and programmatic root cause reports previously developed by FENOC and an assessment of whether the NRC should have been notified regarding its conclusions. In addition, FENOC did not provide the NRC with sufficient information to determine if FENOC endorsed the conclusions of the second contractor report and, if so, the effect such positions may have regarding its earlier responses to the April 2005 enforcement actions.

In light of the foregoing, further information is needed for the Commission to determine whether an Order or other action should be taken pursuant to 10 CFR 2.202, to provide reasonable assurance that FENOC will continue to operate its licensed facilities in accordance with the terms of its licenses and the Commission's regulations; in particular, to assure that:

1. FENOC demonstrates an appropriate focus, centered on the timely and critical evaluation of information developed internally by FENOC, by its contractors, and by industry sources which may affect safety assessments of its operating nuclear fleet;

2. FENOC promptly communicates to the NRC all information that it develops, receives, or becomes aware of that has the potential to have a significant impact on public health and safety;
3. FENOC has completed a comprehensive assessment of the assumptions and conclusions of the Exponent Report and has determined whether the assumptions and conclusions are consistent with the past operational experience at the Davis-Besse Plant, the assumptions of the previous technical and non-technical root cause reports developed by FENOC as a part of its assessment of the 2002 reactor pressure vessel head degradation event; and the corrective actions developed and implemented by FENOC and relied upon by the NRC as a basis for the restart of the Davis Besse Plant.
4. FENOC has completed a comprehensive assessment of the conclusions of its contractor's report, entitled, "Report on Reactor Pressure Vessel Wastage at the Davis-Besse Nuclear Power Plant," and has determined whether the root cause reports and licensee event reports related to the 2002 reactor pressure vessel head degradation event and the responses to the NRC Notice of Violation and Proposed Imposition of Civil Penalties dated April 21, 2005, should be updated to ensure they are complete and accurate in all material respects.

Accordingly, pursuant to sections 161c, 161o, 182 and 186 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR 2.204 and 10 CFR 50.54(f), in order to determine whether your licenses should be modified, suspended or revoked, or other action should be taken, the licensee is required to submit to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, with copies to the Assistant General Counsel for Materials Litigation and Enforcement at the same address, to the Regional Administrator, NRC Region III, 2443 Warrenville, Road, Suite 210, Lisle, IL 60532-4352 and to the Resident Inspectors, within 30 days of the date of this Demand for Information the following information, in writing, and under oath or affirmation:

- A. A detailed discussion of the process used, the specific information evaluated, and the conclusions reached as a part of FENOC's assessment of the Exponent Report, upon receipt or subsequently, to determine if the Exponent Report assumptions, analyses, conclusions, or other related information, should have been reported to the NRC in a more prompt manner. Your response shall include sufficient information for the NRC to assess how FENOC evaluated the significant differences between the crack growth and leakage timelines developed in the Exponent Report and previous root cause reports.
- B. A detailed discussion of the differences in assumptions, analyses, conclusions, and other related information of the Exponent Report and previous technical and programmatic root cause reports, developed following the 2002 Davis-Besse reactor pressure vessel head degradation event. Your response shall address, among other matters you believe warranted, differences between the operational experience data,

such as the origin and presence of boric acid deposits and corrosion products on air coolers, radiation filters, the reactor vessel head, and other components in the containment, and the Exponent Report assumptions for these items. Your response shall also indicate if differences in the Exponent Report assumptions, analyses, information, or conclusions and previous root cause reports demonstrate a need for any new or different corrective actions relative to the 2002 Davis-Besse reactor pressure vessel head degradation event and related issues. Your response shall also address the impact on the continued effectiveness of your corrective actions.

- C. With regard to the "Report on Reactor Pressure Vessel Wastage at the Davis-Besse Nuclear Power Plant," dated December 2006, indicate if FENOC endorses the report's conclusions. If so, your response shall set forth your assessment of whether this position is in conflict with previous root cause and licensee event reports regarding the 2002 Davis-Besse reactor pressure vessel head degradation event and FENOC's responses to the NRC Notice of Violation and Proposed Imposition of Civil Penalties, dated April 21, 2005. Your response shall also address the impact on the continued effectiveness of your corrective actions.

After reviewing your response, the NRC will determine whether further action is necessary to ensure compliance with regulatory requirements.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Cynthia A. Carpenter, Director  
Office of Enforcement

Dated this 14<sup>th</sup> day of May 2007.