



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

November 10, 2010

Mr. Barry S. Allen  
Site Vice President  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
Mail Stop A-DB-3080  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

Dear Mr. Allen:

By letter dated April 5, 2010, David Lochbaum of the Union of Concerned Scientists submitted a petition pursuant to Section 2.206 of Title 10 of the *Code of Federal Regulations* of the Nuclear Regulatory Commission's (NRC's) regulations with respect to the Davis-Besse Nuclear Power Station, Unit 1. The petition has been reviewed by the NRC staff and the staff's Proposed Director's Decision on the petition is enclosed. I request that you provide comments to me on any portions of the decision that you believe involve errors or any issues in the petition that you believe have not been fully addressed. The staff is making a similar request of the petitioner. The staff will then review any comments provided by you and the petitioner and consider them in the final version of the Director's Decision with no further opportunity to comment.

Please provide your comments by November 24, 2010.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joseph G. Giitter".

Joseph G. Giitter, Director  
Division of Operator Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure:  
As stated

cc: Listserv

Enclosure  
Proposed Directors Decision  
ML103020469

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION

Eric J. Leeds, Director

In the Matter of	)	Docket No. 50-346
	)	
FIRSTENERGY NUCLEAR OPERATING	)	
COMPANY	)	License No. NPF-3
	)	
(Davis-Besse Nuclear Power Station, Unit 1)	)	

PROPOSED DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. Introduction

By letter dated April 5, 2010, David Lochbaum (the Petitioner) of the Union of Concerned Scientists filed a petition pursuant to Title 10 of the *Code of Federal Regulations*, Section 2.206, "Requests for action under this subpart" to R. William Borchardt, Executive Director for Operations at the U.S. Nuclear Regulatory Commission (NRC) regarding the Davis-Besse Nuclear Power Station, Unit 1 (DBNPS).

In a letter dated July 13, 2010, the NRC informed the Petitioner that his request for the issuance of a Show Cause Order, or comparable enforcement action, to the licensee for the DBNPS preventing the reactor from restarting was denied and that the issues in the petition were being referred to the Office of Nuclear Reactor Regulation for appropriate action.

Action Requested

The Petitioner requested that the NRC take the following actions: issuance of a Show Cause Order, or comparable enforcement action, to the licensee for the DBNPS in the state of Ohio, preventing the reactor from restarting until such a time that the NRC determines that

applicable adequate protection standards have been met and reasonable assurance exists that these standards will continue to be met after operation is resumed.

#### Petitioner's Bases for the Requested Action

The Petitioner states that NRC's regulations and the operating license the NRC issues for DBNPS define adequate protection standards, which include zero reactor coolant pressure boundary leakage during operation, with the requirement to shut down the reactor within 6 hours if such leakage exists. The Petitioner states that the licensee for DBNPS has repeatedly violated federal regulations and the explicit conditions of its operating license by operating the reactor with pressure boundary leakage longer than 6 hours. In doing so, the Petitioner states the public was exposed to elevated and undue risk.

The Petitioner compares a Show Cause Order previously issued to the licensee of the Surry Nuclear Plant requiring both reactors to be shut down and remain shut down until a potential safety problem was remedied. In the Surry case, the Petitioner states that non-conservative mistakes in computer studies prevented a determination that the adequate protection standard was met, and the NRC did not allow the reactors to operate until this shortcoming was rectified. The Petitioner states that in the DBNPS case, ample evidence clearly demonstrates that the adequate protection standard was not met on multiple occasions and that it is imperative for the NRC to act now to protect the public from an actual hazard as the NRC acted then to protect the public from a potential one.

#### II. Discussion

On March 12, 2010, during ultrasonic testing of reactor pressure vessel head control rod drive mechanism (CRDM) nozzles, the licensee identified nozzles, that did not meet acceptance criteria. Additionally, the licensee identified boric acid deposits on the reactor pressure vessel head that were indicative of reactor coolant system (RCS) leakage.

The circumstances associated with this cracking were evaluated against the criteria in Management Directive 8.3, "NRC Incident Investigation Program," and Inspection Manual Chapter 0309, "Reactive Inspection Decision Basis for Reactors." The NRC made the determination that a special inspection would be conducted on March 16, 2010, to evaluate the facts and circumstances surrounding the March 12, 2010, identification of cracks in the reactor vessel head control rod drive penetration nozzles and J-groove welds.

The Special Inspection Team reviewed selected procedures and records, observed activities, and interviewed personnel with focus on the areas described in the Special Inspection Charter. The NRC confirmed that the nondestructive examinations of the nozzles and J-groove welds met NRC requirements and were successful in identifying cracks at an early stage, such that plant safety was not challenged. The NRC concluded that the licensee for DBNPS had established a strong basis for the direct cause of this cracking, which was primary water stress corrosion cracking (PWSCC). The NRC confirmed that appropriate nozzles were repaired in accordance with NRC requirements and concluded that the repaired vessel head was suitable to return to service. Further, based on crack growth analyses and the shortened reactor vessel closure head (RVCH) operating period (confirmed in Confirmatory Action Letter (CAL) 3-10-001 issued on June 23, 2010), the NRC concluded that margins existed such that the likelihood for PWSCC induced nozzle leakage would remain low for the remaining planned RVCH operating service period. The CAL included a commitment by the licensee to shut down the unit no later than October 1, 2011, to replace the reactor pressure vessel head with one manufactured using materials resistant to PWSCC. The inspection report, which was issued on October 22, 2010, documents the inspection results, which were discussed with the licensee at the exit meeting held on September 9, 2010, which was open to the public.

A self-revealed violation of Technical Specifications (TS) 3.4.13 "RCS Operational Leakage" was identified associated with pressure boundary leakage through cracked CRDM penetration nozzles during the prior operating cycle. Because the licensee appropriately implemented their quality control program, and this violation was the result of unavoidable equipment failure, the NRC has elected to exercise enforcement discretion and not issue a violation.

The NRC reviewed the root cause analysis of the event and RCS leakage data from previous operating cycles, and concluded that the equipment failure (cracked CRDM nozzles), could not have been avoided or detected by the licensee's quality assurance program or other related control measures. The direct cause of this event was PWSCC of the CRDM nozzles and J-groove welds, and the licensee identified and repaired a total of 24 CRDM nozzles with PWSCC in the nozzle or J-groove welds. Because the PWSCCs identified were well below crack sizes required for nozzle ejection, and there was no discernable head wastage, the NRC concluded that this issue was of very low safety significance. The NRC evaluated the safety significance of this cracking and concluded that the cracking was identified early such that plant safety was not challenged. Because the PWSCC identified in the CRDM nozzles was well below the crack size that would challenge structural integrity, and there was no discernable head wastage, the NRC concluded that this issue was of very low safety significance.

TS 3.4.13 requires that RCS operational leakage be limited to "No pressure boundary Leakage" when in Modes 1 through 4. Contrary to this requirement, during Operating Cycle No. 16, which ended on February 28, 2010, the licensee operated the Davis-Besse Nuclear Power Station in Mode 1 with pressure boundary leakage from cracked CRDM nozzles Nos. 4 and 67.

Because the licensee met all associated NRC regulations with regard to CRDM nozzle inspections and the violation was the result of equipment failure that could not have been reasonably avoided or detected, the NRC elected to apply Section VII.B.6 of the Enforcement Policy (November 28, 2008), and exercise enforcement discretion to not issue a violation. In addition, the licensee did not miss any available indicators of leakage such that they could have identified it earlier.

### III. Conclusion

The Petitioner raised issues related to the DBNPS adequate protection standard regarding zero pressure boundary leakage and operation of the reactor at DBNPS. NRC Region III Inspection Report 05000346/2010-008 issued on October 22, 2010, focused on these concerns.

The NRC Special Inspection Team was chartered to assess the circumstances surrounding the identification of the flaws in the RVCH CRDM nozzle penetrations at DBNPS.

The Special Inspection included the following items:

1. Establish the pertinent examination chronology/history of the replacement RVCH.
2. Complete current examinations results with samples of the 2005 to 2008 examination records and pre-service records to determine whether the conditions were pre-existing.
3. Evaluate the adequacy of the licensee's plan for assessing the causes of flaws and the licensee's rationale regarding acceptability of the head for continued service.
4. Review current examination results and monitor in-progress examination and analysis activities to ensure they are adequately conducted. Confirm based on the

review of the examination results, that the licensee has identified appropriate nozzles for repair and acceptability of remaining nozzles for service.

5. Evaluate the adequacy of the repair activities and monitor implementation and confirm that the repair implemented complies with NRC requirements.

The NRC has found the licensee response to the identified conditions to be reasonable and technically sound. The NRC has reviewed in detail the CDRM nozzle cracking, as well as the circumstances surrounding the causes of this cracking and previous opportunities for identification and intervention. The NRC's inspection determined that the public health and safety have not been, nor are likely to be, adversely affected, by the onsite conditions associated with the CDRM cracking. The inspection determined that the licensee conformed to the subject NRC regulatory requirements that were pertinent in this circumstance and applicable to assessing the cause and effect of the CDRM nozzle cracking.

Based on the above, the Office of Nuclear Reactor Regulation has decided to deny the Petitioner's request for the issuance of a Show Cause Order or comparable enforcement action to the licensee of DBNPS. The NRC has completed a rigorous special inspection and determined that enforcement is not required for this matter and the NRC has reasonable assurance that adequate protection standards have been met and will continue to be met. The Petitioner's concern regarding not meeting the adequate protection of zero pressure boundary leakage has been adequately resolved such that no further action is required.

As provided in 10 CFR 2.206(c), a copy of this Director's Decision will be filed with the Secretary of the Commission for the Commission to review. As provided for by this regulation, the decision will constitute the final action of the Commission 25 days after the date of the decision unless the Commission, on its own motion, institutes a review of the decision within that time.

Dated at Rockville, Maryland, this      day of November, 2010.

FOR THE NUCLEAR REGULATORY COMMISSION

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation

November 10, 2010

Mr. Barry S. Allen  
Site Vice President  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
Mail Stop A-DB-3080  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

Dear Mr. Allen:

By letter dated April 5, 2010, David Lochbaum of the Union of Concerned Scientists submitted a petition pursuant to Section 2.206 of Title 10 of the *Code of Federal Regulations* of the Nuclear Regulatory Commission's (NRC's) regulations with respect to the Davis-Besse Nuclear Power Station, Unit 1. The petition has been reviewed by the NRC staff and the staff's Proposed Director's Decision on the petition is enclosed. I request that you provide comments to me on any portions of the decision that you believe involve errors or any issues in the petition that you believe have not been fully addressed. The staff is making a similar request of the petitioner. The staff will then review any comments provided by you and the petitioner and consider them in the final version of the Director's Decision with no further opportunity to comment.

Please provide your comments by November 24, 2010.

Sincerely,  
*/RA/*  
Joseph G. Giitter, Director  
Division of Operator Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure:  
As stated

cc: Listserv

**DISTRIBUTION:** G20100192/EDATS: OEDO-2010-0267

PUBLIC

LPL3-2 r/f

RidsEdoMailCenter Resource

RidsNrrOd Resource

RidsNrrDori Resource

RidsNrrDoriLp3-2 Resource

RidsNrrLATHarris Resource

RidsOeMailCenter Resource

**ADAMS Accession Nos.** PKG ML103020339

Incoming ML100960453

Lochbaum LTR ML103020411

Allen LTR ML103020469

\*Via E-mail

DMerzke

RidsNrrPMMahoney Resource

RidsOpaMail Resource

RidsOcaMailCenter Resource

RidsOgcRp Resource

RidsNrrMailCenter Resource

RidsRgn3MailCenter Resource

RidsOiMailCenter Resource

OFFICE	DORL/LPL3-2/PM	DORL/LPL3-2/LA	DORL/LPL3-2/BC	RII/DRP/BC*	
NAME	MMahoney	THarris	RCarlson	JCameron	
DATE	10/29/10	11/04/10	11/04/10	10/29/10	
OFFICE	OGC	DPR/DD	DORL/D	NRR/D	DORL/D
NAME	MClark (NLO)	TBlount	JGiitter (RNelson for)	ELeeds(CPederson for)	JGiitter
DATE	11/03/10	11/04/10	11/05/10	11/10/10	11/10/10

OFFICIAL RECORD COPY