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DD-15-02

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

William M. Dean, Director

In the Matter of	)	Docket No. 50-333
	)	
ENTERGY NUCLEAR OPERATIONS INC.	)	License No. DPR-059
	)	
	)	
James A. FitzPatrick Nuclear Power Plant	)	

DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. Introduction

By electronic mail dated July 25, 2013, as supplemented on November 13, 2013, Mr. David Lochbaum filed a petition under Section 2.206, "Request for Action under This Subpart," of Title 10 of the *Code of Federal Regulations* on behalf of Alliance for a Green Economy, Beyond Nuclear, Citizens Awareness Network, and the Union of Concerned Scientists (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13217A061). The petitioners requested that the U.S. Nuclear Regulatory Commission (NRC) take the following action:

> Take enforcement action by imposing a regulatory requirement that all the condenser tubes be replaced at [the James A. FitzPatrick Nuclear Power Plant (FitzPatrick)] prior to the reactor restarting from its fall 2014 refueling outage.

On November 13, 2013, the petitioners met with the NRC's petition review board by teleconference to clarify the bases for the petition. The transcript of this meeting was treated as a supplement to the petition and is available under ADAMS Accession No. ML14036A234 for inspection at the Commission's Public Document Room (PDR), located at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, MD. Publicly available records will be accessible from the ADAMS Public Electronic Reading Room on the NRC's Web site at http://www.nrc.gov/reading-rm/adams.html. Persons who do not have access to ADAMS or who encounter problems in accessing the documents stored in ADAMS should contact the NRC's Public Document Room (PDR) reference staff by telephone at 1-800-397-4209 or 301-415-4737 or by e-mail to pdr@nrc.gov.

In a letter dated February 12, 2014 (ADAMS Accession No. ML14034A028), the NRC informed the petitioners that their request, which called for enforcement action, was accepted and that the issues in the petition were being referred to the Director of the Office of Nuclear Reactor Regulation for appropriate action.

The NRC issued a proposed director's decision (ADAMS Accession No. ML14127A338) on June 27, 2014 with a proposed determination on the petition. The NRC sent a copy of the proposed director's decision to the petitioner and to FitzPatrick for comment on June 27, 2014. The comments and the NRC staff's response to them are included in the director's decision.

II. Discussion

As a basis for their petition, the petitioners asserted the following:

- FitzPatrick is experiencing abnormally high occurrences of condenser tube failures. To repair these leaks, Entergy Nuclear Operations Inc. (Entergy) routinely reduces power, makes the repairs needed, and returns to full power.

The petitioners state that these power excursions constitute a risk to public health and safety. The NRC's Reactor Oversight Process (ROP) also recognizes the elevated risk associated with unplanned power changes.

- The NRC team observed that Entergy did not properly consider FitzPatrick operating history, specifically the 4 years of outages, when projecting the expected condenser-tube life. Consequently, Entergy did not properly plan and design for condenser tube replacement before tube leakage, which has necessitated frequent downpowers for repair. Corrective actions include condenser-tube sleeving during the fall 2012 refueling outage and a planned complete replacement of all condenser tubes in the fall 2014 refueling outage.
- Operating experience indicates that condenser-tube leaks have contaminated the reactor coolant water with impurities from the condenser cooling water and have caused extensive damage to nuclear power plant components.
- Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities" (see http://www.nrc.gov/reading-rm/doc-collections/cfr/part050/part050-appb.html), requires that plant owners develop and maintain quality-assurance programs. This regulatory requirement explicitly states:

  > As used in this appendix, "quality assurance" comprises all those planned and systematic actions necessary to provide

adequate confidence that a structure, system, or component will perform satisfactorily in service.

The NRC staff has followed the condenser-tube leakage problems and the frequent power changes at FitzPatrick to make tube repairs. On January 21, 2013, Entergy reported to the NRC the occurrence of an "unplanned power change" performance indicator that crossed a threshold from green to white. Based on that report, the NRC assigned a white performance indicator action matrix input to the initiating-events cornerstone in the fourth quarter of 2012. As a follow-up to the action matrix input, the NRC staff performed a supplemental inspection at FitzPatrick to determine whether (1) the root and contributing causes for the risk-significant issues were understood, (2) the extent of condition and extent of cause for identified issues were understood, and (3) corrective actions undertaken by the licensee were sufficient to address and prevent repetition of the root and contributing causes.

Entergy identified the root cause of the issue to be failure to include inner-diameter condenser-tube wear in any component or system monitoring plan. The NRC staff determined that the root cause also included Entergy's failure to incorporate applicable operating experience from the 1995 condenser-tube replacement in an appropriate system or program. The NRC staff determined that the deficiency was minor because the review of the resulting extent of condition did not identify any potential safety concerns. As a result, Entergy has now incorporated in its corrective actions a condenser-tube monitoring and trending program, retubing the main condenser and revising the Corrective Action Review Board grading sheet for cause evaluations to better identify previous corrective actions that did not prevent repetition of tube failures. The NRC staff has determined that the Entergy evaluation was thorough and that the interim corrective action implemented—namely, sleeving the outlet of the condenser tubes as a temporary measure until the condenser tubes could be replaced in 1995 with tubes of

expected service life of 15 years—was a reasonable attempt to address the problem. However, this measure did not have the desired result of reducing the number of unplanned power changes. Therefore, the agency's Supplemental Inspection 95001 program will remain open until corrective action to significantly reduce the number of unplanned power changes is implemented.

The petitioners stated that Appendix B to 10 CFR Part 50 requires that plant owners develop and maintain quality-assurance programs. The main condenser is not a safety-related component and, therefore, is not directly addressed by FitzPatrick's license, technical specifications, or Appendix B to 10 CFR Part 50. Entergy documented that the risk consequences of condenser tube leaks are low. Condenser tube leaks are readily identified and can be isolated. Entergy also noted that severe tube leaks could result in chemistry and corrosion issues in the reactor coolant system. The water chemistry of the reactor coolant feedwater and condensate systems is routinely monitored and procedures provide corrective actions for chemistry issues to protect the reactor and the fuel. The NRC staff concluded that risk consequences and compliance concerns were appropriately documented.

III. Conclusion

The petitioners raised issues related to routine condenser tube leaks causing power reductions. Condenser tube leaks have caused coolant contamination which in turn has caused extensive damage to nuclear components of other plants. Entergy did not properly plan and design for condenser tube replacement which has resulted in recurring condenser tube leaks. The petitioners claim that, contrary to the criteria of the NRC's Appendix B to 10 CFR Part 50, the owners of FitzPatrick have not developed and maintained adequate quality assurance for

FitzPatrick condenser tubes. For these reasons the petitioners requested that the NRC take an enforcement action by issuing an order to Entergy requiring that all the condenser tubes at FitzPatrick be replaced prior to restart from its fall 2014 refueling outage.

As discussed above, based upon its ROP, the NRC staff assigned a White performance indicator to Entergy because of frequent unplanned power changes to repair the leaking tubes. In response to the White performance indicator, the NRC conducted a supplemental inspection under Inspection Procedure 95001. The NRC staff concluded that the licensee's evaluation of condenser-tube failures was thorough, but the corrective actions were not effective in reducing the unplanned power outages. The NRC staff's evaluations, including consideration of tube leaks and potential primary coolant contamination, did not find any violations that are more than minor. Consequently the petitioners request for the enforcement action is denied.

The NRC staff has stated above that the FitzPatrick condenser tubes are not safety related items and are not subject to the requirements of the 10 CFR Part 50, Appendix B quality assurance criteria.

Because the licensee's corrective actions have not been sufficient to reduce unplanned power changes, the NRC staff will keep the Supplemental Inspection 95001 open until corrective actions to significantly reduce the unplanned power changes are implemented. The NRC's inspection program and ROP will continue to monitor performance at FitzPatrick and will ensure that the health and safety of the public is protected.

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 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 17th day of October 2014.

For the Nuclear Regulatory Commission

William M. Dean, Director
Office of Nuclear Reactor Regulation

COMMENTS RECEIVED FROM THE PETITIONER

ON THE PROPOSED DIRECTOR'S DECISION

IN THE LETTER DATED JULY 9, 2014

On June 27, 2014, the U. S. Nuclear Regulatory Commission (NRC) sent a copy of the Proposed Director's Decision, for comments, to petitioner Mr. David Lochbaum of Union of Concerned Scientists (Agencywide Documents Access and Management (ADAMS) Accession No. ML14247A335). By letter dated July 9, 2014 (ADAMS Accession Number ML14251A270), Mr. David Lochbaum provided his comments to the NRC on behalf of the co-petitioners the Alliance for a Green Economy, Beyond Nuclear, and the Union of Concerned Scientists. The NRC's response to the comments is provided below:

The NRC's Director's Decision has adequately addressed the issues restated in the petitioner's comments. The actions already taken by the NRC and described in the Director's Decision will ensure adequate protection of public health and safety, and, as discussed in the Director's Decision, the future actions described will ensure the continued future protection of public health and safety. The NRC has concluded that no other actions, beyond the actions described in the Director's Decision, are needed.

The NRC appreciates the petitioner's comments and thanks the petitioner for raising the concerns in the interest of protection of the health and safety of the American people.