

October 16, 1998

Mr. David A. Lochbaum
Nuclear Safety Engineer
Union of Concerned Scientists
1516 P Street NW Suite 310
Washington, DC 20036-1495

SUBJECT: CONCERNS ABOUT MOVING SPENT FUEL WITH THE REACTOR
BUILDING CRANE AT FITZPATRICK

Dear Mr. Lochbaum:

This is in response to your letter dated September 24, 1998, regarding your concerns on the use of the reactor building crane to move spent fuel within the fuel pool at the James A. FitzPatrick Nuclear Power Plant. As discussed in our phone conversation on September 24, we regret that our September 2, 1998, letter did not address the concerns you raised on August 20, 1998, to your satisfaction. Although the New York Power Authority (NYPA) has completed the planned movement of irradiated fuel assemblies to peripheral fuel rack locations within the FitzPatrick spent fuel pool, your questions remain pertinent, because the potential exists for future movements of irradiated fuel using the reactor building crane. Consequently, we are providing additional information to address your concerns. Our understanding of your concerns and our response are given below.

You stated that the NRC's September 2, 1998, response to your August 20, 1998, letter did not address your concerns regarding the probability and consequences of potentially subjecting a fuel assembly to greater displacement from the vertical plane while using the reactor building crane. We understand your concern to be that an irradiated fuel assembly may not clear the top of the fuel racks during lifting and could snag the top of the fuel racks during subsequent horizontal movement, tilting the fuel assembly. Under this circumstance, the refueling bridge's rigid mast would limit the displacement from the vertical plane, whereas the general purpose grapple on the crane cable does not have a similar rigid restraint, which could allow a fuel assembly to tilt or swing.

In evaluating the use of the reactor building crane to move spent fuel, a determination must be made of whether or not administrative and design controls provide a level of protection similar to that provided when using the refueling bridge. If it is found that these controls provide a similar level of protection, then the probability of a fuel handling accident is not increased. Recognizing that your question is focused on displacement from the vertical plane, the potential for the displacement is related to the controls employed to assure fuel assemblies are fully withdrawn (vertically) prior to displacements horizontally. While using the reactor building crane, the licensee instituted controls to ensure that a fuel assembly is fully withdrawn from a storage cell without moving the assembly too close to the surface of the spent fuel pool. These controls include visual markings on cabling which designate the normal and maximum working heights for fuel assembly withdrawal. Controls to limit horizontal travel included using the refueling bridge to move fuel adjacent

9810230262 981016
PDR ADOCK 03000333
P PDR

OFFICIAL RECORD COPY

IE:01

to empty cells, so that the travel path using the reactor building crane is as short as possible, maintaining the crane speed at a slow rate over the short travel distance, and establishing a second operator to monitor fuel movement with the ability to cut power in the event of a crane malfunction. These combined controls on both vertical and horizontal movement provided a level of protection similar to that provided when using the refueling bridge. Therefore, the probability of a fuel handling accident due to inadvertent tipping or swinging of a fuel assembly was not increased.

If a fuel assembly is damaged by the postulated tipping or swinging, the consequences are bounded by the analysis performed for a postulated refueling accident, as described in section 14.8.2.1.4 of the FitzPatrick Updated Final Safety Analysis Report (UFSAR). The number of fuel rods affected would be less than that assumed in the UFSAR. Therefore, the consequences of a postulated fuel handling accident are not increased.

The licensee concluded that the probability and consequences of postulated fuel handling accident are not increased by using the reactor building crane for spent fuel movement. Based on its review of the licensee's safety evaluation, the NRC staff agrees with the licensee's conclusion.

Your September 24, 1998, letter also reiterated Question No. 3 in your August 20, 1998, letter and a question raised during an August 27, 1998, telephone conversation. We understand these questions concerned the use of manual actions in place of automatic actions, and whether such a change created an unreviewed safety question. Further, the issue was raised concerning the consistency of the NRC's determination of whether the use of administrative controls and operator actions in place of design features constituted an unreviewed safety question. You compared the FitzPatrick situation to an enforcement action for the Perry 1 Nuclear Power Plant where the NRC had imposed a civil penalty for failure to identify a change involving manual actions as an unreviewed safety question.

The use of operator actions in place of automatic actions does not necessarily constitute an unreviewed safety question. The determination of whether the change can be performed under 10 CFR 50.59 without prior NRC approval depends on the whether operators can provide an equivalent level of protection for the automatic feature. A further discussion of operator actions in place of automatic actions is documented in NRC Information Notice 97-78, "Crediting of Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Time," dated October 23, 1997. This document can be found on the NRC's external web site.

In the case of the Perry 1 Nuclear Power Plant, the NRC imposed a civil penalty for a violation associated with a change to the emergency closed cooling (ECC) system, in which operator action was required to refill the ECC surge tanks every 30 minutes. The design of the surge tank was to provide net positive suction head to ECC pumps for a period of seven days after a design basis loss of coolant accident. Although the Centerior Service Company took actions to mitigate potential operator errors, the NRC concluded that this change was unacceptable. The operators were required to refill the surge tanks as soon as 30 minutes into the design basis accident, when the plant would be significantly less stable, and an interruption in operation or loss of this system increases the potential for core damage. When the operator response time to perform this task was

significantly decreased, the probability of an error was also increased. Due to the limited time into the accident sequence when operator actions would be required to fill the ECC surge tank, there was also a concern that personnel would not be available to perform the activity. Based on the licensee's dose estimates for single entries into the ECC surge tank area of 4.4 rem, no single operator would be able to accomplish the repetitive refill activity. The use of multiple individuals to accomplish this task would likely increase the potential for error. Additionally, the actual and potential physical conditions of the area adjacent to the ECC system surge tanks (e.g., no emergency lighting, overfilling of the surge tank could cause slippery floor conditions) could result in the operator being unable to refill the tanks within the reduced response time. On this basis, the NRC staff concluded that an unreviewed safety question existed. A more detailed discussion of the enforcement action taken by the NRC regarding this issue can be found on the NRC's external web site.

In the case of FitzPatrick Nuclear Power Plant, the NRC agreed with the licensee's determination that the use of the reactor building crane for movement of spent fuel does not create an unreviewed safety question. The use of administrative controls and operator actions that were implemented by NYPA during fuel movement with the reactor building crane provided a level of protection similar to that provided when using the refueling bridge. Some of the specific measures taken by the NYPA were documented in our September 2, 1998, letter. Therefore, the probability of a fuel handling accident was not increased. Unlike the Perry case, the use of the crane for fuel movement at FitzPatrick has no effect on the stable operation of systems providing fuel pool cooling and reactor building ventilation, and does not affect the operation of the reactor. At Perry, operator actions were required to mitigate an accident, and failure to complete the actions in a timely manner could result in core damage. At FitzPatrick, fuel movement by the crane is performed in a slow, deliberate manner, similar to fuel movement using the refueling bridge. In this case, there is no minimum time in which actions must be accomplished. Furthermore, adverse environmental conditions which could impede operator actions do not exist for this activity at FitzPatrick; the ambient conditions for fuel movement within the pool are the same regardless of whether the crane or the refueling bridge is used for that movement. Accordingly, we do not believe the actions taken by the NRC at FitzPatrick were inconsistent with those taken at Perry.

We hope this information adequately addresses your concerns on this topic.

Sincerely,

Original Signed by:

Charles W. Hehl, Director
Division of Reactor Projects

Docket No.: 50-333
License No.:DPR-59

cc:

M. J. Colomb, Site Executive Officer
C. D. Rappleyea, Chairman and Chief Executive Officer
E. Zeltmann, President and Chief Operating Officer
R. Hiney, Executive Vice President for Project Operations
J. Knubel, Chief Nuclear Officer and Senior Vice President
H. P. Salmon, Jr., Vice President of Engineering
W. Josiger, Vice President - Engineering and Project Management
J. Kelly, Director - Regulatory Affairs and Special Projects
T. Dougherty, Vice President - Nuclear Engineering
R. Deasy, Vice President - Appraisal and Compliance Services
R. Patch, Director - Quality Assurance
G. C. Goldstein, Assistant General Counsel
C. D. Faison, Director, Nuclear Licensing, NYPA
K. Peters, Licensing Manager
T. Morra, Executive Chair, Four County Nuclear Safety Committee
Supervisor, Town of Scriba
C. Donaldson, Esquire, Assistant Attorney General, New York Department of Law
P. Eddy, Electric Division, Department of Public Service, State of New York
G. T. Goering, Consultant, New York Power Authority
J. E. Gagliardo, Consultant, New York Power Authority
E. S. Beckjord, Consultant, New York Power Authority
F. William Valentino, President, New York State Energy Research
and Development Authority
J. Spath, Program Director, New York State Energy Research
and Development Authority
H. Bell, Office of the Inspector General

Distribution w/D. Lochbaum 9/24/98 Ltr:

- H. Miller/RA/W. Axelson, DRA (1)
- E. Baker, Agency Allegation Advisor
- B. McCabe, RI EDO Coordinator
- B. Fewell, ORA
- S. Bajwa, NRR
- J. Williams, NRR
- T. Marsh, NRR
- B. Thomas, NRR
- Nuclear Safety Information Center (NSIC)
- PUBLIC
- NRC Resident Inspector
- Region I Docket Room (w/concurrences)
- D. Lew, DRP
- J. Rogge, DRP
- P. Kaufman, DRP
- R. Barkley, DRP
- M. Champion, ORA
- Inspection Program Branch, NRR (IPAS)
- R. Correia, NRR
- F. Talbot, NRR
- DOCDESK

DOCUMENT NAME: G:\BRANCH2A\LOCHBAUM.REV

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI/DRP	HQ/NRR	RI/DRP
NAME	DLew <i>DL</i>	SBajwa <i>DL for</i>	CHen <i>CH</i>
DATE	10/14/98	10/14/98	10/15/98

OFFICIAL RECORD COPY

DL
10/16/98