

May 8, 2002

Mr. David A. Lochbaum
Nuclear Safety Engineer, Washington Office
Union of Concerned Scientists
1707 H Street NW, Suite 600
Washington DC 20006-3819

Dear Mr. Lochbaum:

Your petition dated March 11, 2002, and your supplemental letters dated March 21 and March 22, 2002, addressed to Dr. William D. Travers, Executive Director for Operations, U.S. Nuclear Regulatory Commission (NRC or the Commission), have been referred to me for action pursuant to 10 CFR 2.206 of the Commission's regulations. A supplemental letter dated March 27, 2002, addressed to Mr. David H. Jaffe, Petition Manager, was also received. The March 21 and March 22, 2002, supplemental letters identified a number of additional petitioners and identified you as the point-of-contact between the petitioners and the NRC. You requested that the NRC immediately issue orders to the owners of all operating nuclear power plants to take two measures that would reduce the risk from sabotage of irradiated fuel:

- (1) The NRC should "impose a 72-hour limit for operation when the number of operable onsite alternating current power sources (i.e., emergency diesel generators) is one less than the number in the Technical Specification limiting condition for operation. This 72-hour limit would be applicable when the nuclear plant is in any mode of operation other than hot shutdown, cold shutdown, refueling, or defueled." Oconee Nuclear Station (Oconee) does not rely on emergency diesel generators (EDGs) but "equivalent protection for its emergency power supply" should be provided. The NRC should also "cease and desist issuing NOEDs [Notices of Enforcement Discretion] that allow nuclear reactors to operate for longer periods of time with broken emergency diesel generators." This requested action would apply to the facilities listed in Attachment 1 to your March 11, 2002, petition.
- (2) The NRC should "impose a minimum 24-hour time-to-boil for the spent fuel pool water. This limit would be applicable at all times." This requested action would apply to the facilities listed in Attachment 1 to your March 11, 2002, petition.

The petition also requested that the NRC hold a public meeting to precede "the Petition Review Board (PRB) non-public meeting regarding this petition."

On March 26, 2002, in lieu of a public meeting, you accepted and participated in a teleconference with the NRC's PRB to discuss your petition. After the teleconference, the PRB discussed the petition. The PRB considered your contributions to the teleconference in deciding on your requests for immediate action and in setting the schedule for the review of your petition. The PRB concluded that the March 11, 2002 petition, as supplemented, satisfies the criteria for review under 10 CFR 2.206. It will be considered a valid request for action. The PRB's discussions on the requested actions are as follows:

- (1) The first request—that the NRC staff immediately issue orders, where applicable, to establish a maximum 72-hour action time for inoperable EDGs (including an equivalent action requirement for Oconee)—is denied for the following reasons:
 - (a) Although some licensees have been granted allowed outage time (AOT) extensions of 7 to 14 days for their EDGs, they use the extensions primarily to perform infrequent (e.g., 18- or 24-month) manufacturer-recommended inspections and preventive or corrective maintenance activities that cannot be accomplished during the 72-hour AOT. Most licensees use only half of the AOT for EDG maintenance. These recommended inspections and maintenance activities are intended to improve EDG reliability (i.e., increase the probability that the EDG will function throughout its required operational period). Performing testing and maintenance at power also improves EDG availability during shutdown (i.e., increases the probability the EDG will be able to operate when required).
 - (b) The NRC staff reviews AOT extension requests from a deterministic as well as a probabilistic risk assessment (PRA) perspective. From a deterministic perspective, the staff considers whether (1) the longer AOT would reduce entries into the limiting conditions for operation (LCOs) and thereby reduce the number of EDG starts required for major EDG maintenance activities, (2) an available alternate alternating current source or excess power capacity from the existing EDGs supplied through bus crossties could temporarily be used to compensate for an EDG in an extended AOT, and (3) the licensee will take appropriate compensatory measures during an extended AOT to assure the availability of the remaining sources of power and minimize the potential for a station blackout (SBO).

From a PRA perspective, NRC's approvals of extended AOTs have been based on the acceptably small increase in core damage frequency and large early release frequency at the facilities resulting from the AOT extensions ("small" is defined in Regulatory Guide 1.177, "An Approach for Plant-Specific Risk-Informed Decisionmaking: Technical Specifications," and Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis"). In addition, the licensees had implemented risk management programs in accordance with the requirements of 10 CFR 50.65(a)(4) to ensure that a proceduralized risk-informed process was in place to assess the overall impact of plant maintenance activities on plant risk before entering the technical specification LCO action statements.

- (c) Limiting the EDG AOT to 72 hours could actually increase the likelihood of an SBO by requiring a nuclear power plant to shut down with an inoperable EDG whenever there is insufficient time to complete the required maintenance or repair of an EDG. The staff notes that the NRC's Office of Nuclear Regulatory Research final report on the regulatory effectiveness of the SBO rule, which is one of the primary references cited in the petition, states that "plant shutdown with one or more offsite or onsite power supplies unavailable could exacerbate the grid condition or remove redundant sources to operate decay heat removal

systems, increasing the likelihood of an SBO." The report recommends alternative approaches "such as assuring the immediate availability of coping systems, reducing power, or assuring availability of adequate electric grid reserves." The NRC staff considers the potential for creating an SBO by requiring a plant to shut down with an EDG unavailable, as well as the plant conditions and potential consequences of allowing the plant to remain at power, in deciding whether to issue a NOED.

Therefore, the NRC staff has concluded that it is not necessary to immediately establish an AOT limit of 72 hours while the staff reviews the potential benefits and adverse impacts of implementing the orders requested by the petition. It is also unnecessary to generically terminate the issuance of NOEDs under these conditions. The NRC staff will continue to follow the guidance (i.e., NRC Inspection Manual, Part 9900: Technical Guidance) for determining on a case-by-case basis when it is appropriate to issue a NOED. The NRC will complete its evaluation before issuing a proposed final Director's Decision on this request.

- (2) The second request—that the NRC staff immediately issue orders to establish a minimum spent fuel pool time-to-boil of 24 hours—is denied because the requirement for a minimum time-to-boil of 24 hours would not significantly improve the ability of the operators to maintain adequate coolant inventory following a loss of forced cooling due to sabotage or any other cause. The basis of your request is that a longer time-to-boil would provide additional time for plant workers to restore forced cooling to the spent fuel pool or provide makeup water to maintain adequate coolant inventory. When forced cooling systems have been running, the minimum time-to-boil is about 4 hours after a loss of forced cooling. The unambiguous nature of external sabotage that results in a loss of cooling ensures the prompt identification of the problem. Additionally, operating experience indicates even hidden initiators of a loss of cooling would be identified well before the onset of pool boiling. If cooling cannot be promptly restored, the remaining time would likely be adequate to align one of the diverse makeup water sources to maintain normal coolant inventory.

Current design features and capabilities already provide substantial time for plant workers to restore forced cooling or provide makeup water. All plants have makeup sources independent of the intake structure (e.g., the primary makeup water) and power (e.g., the diesel fire pump), and sites with spray ponds or air-cooled diesel generators have makeup (and often forced cooling) capability independent of facilities outside the protected area. The normal coolant inventory provides at least an additional 20 hours before evaporative loss of the coolant would result in radiation levels that would preclude access to the areas adjacent to the spent fuel pool. Short-term evaporative cooling can generally be accommodated with no adverse effects on essential systems. Furthermore, given the large water inventory in the spent fuel pool and the relatively straight forward and multiple means of providing makeup to the spent fuel pool, it is not clear that there would be any safety benefit from keeping the fuel in the reactor pressure vessel compared to the spent fuel pool while waiting for the time-to-boil to reach 24 hours.

Station blackout and spent fuel pool events are also considered by each licensee from a security perspective. Security contingency measures to address these specific events

during a radiological sabotage attack are documented by each licensee in their site security plans. These contingency measures and the ability for the licensee to carry out these contingency measures are inspected by the NRC. At this time, the NRC considers each power reactor licensee to have adequate plans and capabilities to address security events of this nature.

Therefore, the NRC staff has concluded that it is unnecessary to issue an immediate order to require a minimum spent fuel pool time-to-boil of 24 hours. The NRC will complete its evaluation before issuing proposed and final Director's Decisions on this request.

- (3) The third request—for a public forum to address the PRB before the PRB meeting—was granted. As noted above, on March 26, 2002, NRC held a teleconference, with you, which you accepted in lieu of a public meeting, to allow an opportunity for the petitioners to address the PRB before the PRB meeting.

With regard to your concerns related to nuclear plant security, since September 11, 2001, the NRC has recognized the need to re-examine basic assumptions underlying the current civilian nuclear facility security and safeguards programs, and embarked upon a comprehensive review of these programs. Special attention has focused on identifying necessary adjustments in NRC, licensee, Federal, State and local response postures and capabilities.

Accordingly, the NRC has enhanced security at the nation's nuclear facilities by:

- Issuing over 30 security advisories to NRC licensees to enhance the security posture of the NRC-licensed facilities.
- Performing onsite physical security vulnerability assessments to evaluate the effectiveness of the enhanced security measures that have been put into place post-September 11th.
- Issuing Orders to all nuclear power plant licensees on February 25, 2002, to further enhance security at these facilities.
- Establishing on April 7, 2002, the Office of Nuclear Security and Incident Response (NSIR) which will improve timeliness and consistency of communications among NRC's employees and with NRC's external stakeholders. The consolidation also integrates NRC management of classified and sensitive safeguards information and secure communication facilities.
- Participating in several intra-governmental task forces with the Office of Homeland Security, the Federal Bureau of Investigation, Department of Transportation, Department of Energy, and others to keep abreast of the current threat environment and to communicate our actions to other Federal agencies. This will ensure an appropriate and balanced response throughout the entire energy-critical infrastructure of our nation.

The NRC is confident that these measures have significantly improved nuclear plant security.

D. A. Lochbaum

- 5 -

As provided by 10 CFR 2.206, we will take action on your request within a reasonable time. I have assigned Mr. David H. Jaffe to be the Petition Manager for your petition. Mr. Jaffe can be reached at 301-415-1439. Your petition is being reviewed by the Division of Inspection Program Management, the Division of Systems Safety and Analysis, and the Division of Engineering, which are all within the Office of Nuclear Reactor Regulation. In addition, your petition is being reviewed by NSIR. I have enclosed for your information a copy of the notice we are filing with the Office of the Federal Register for publication. I have also enclosed a copy of Management Directive 8.11, "Review Process for 10 CFR 2.206 Petitions," and the associated brochure, NUREG/BR-0200, "Public Petition Process," prepared by the NRC Office of Public Affairs.

Sincerely,

/RA/

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Enclosures: 1. *Federal Register* Notice
2. Management Directive 8.11
3. NUREG/BR-0200

cc: See next page

D. A. Lochbaum

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Sincerely,

/RA/

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

- Enclosures: 1. *Federal Register* Notice
 2. Management Directive 8.11
 3. NUREG/BR-0200

cc: See next page

DISTRIBUTION: See attached list

Enclosure Two: ML011380727 & Enclosure 3, ML021090560

Package: ML020890004 Letter dated 3/27/02 ML021010092

ACCESSION Nos.: Incoming: ML020740269, Letter dated 03/21/02 (ML020910319) and Letter dated 3/22/02(ML020940185)

Ltr dated 3/17/02 (Adams: ML021010092

Response: ML020890002

*See previous concurrence

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DATE	5/7/02	5/7/02	5/8/02	04/11/02	4/25/02	04/11/02

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SAFETY AT OPERATING NUCLEAR PLANTS

Dated: May 8, 2002

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U.S. NUCLEAR REGULATORY COMMISSIONRECEIPT OF REQUEST FOR ACTION UNDER 10 CFR 2.206

Notice is hereby given that by petition dated March 11, 2002, and supplements dated March 21, 22, and 27, 2002, Mr. David A. Lochbaum, Nuclear Safety Engineer in the Washington, D.C. Office of the Union of Concerned Scientists (petitioner), and the co-petitioners identified in the petition supplements dated March 21 and March 22, 2002, have requested that the U.S. Nuclear Regulatory Commission (NRC or the Commission) take action with regard to the nuclear power facilities listed in Attachment 1 to the petition (multiple facilities). The petitioners request that the NRC immediately issue orders to the owners of all operating nuclear power plants to take measures that will reduce the risk from sabotage of irradiated fuel. Specifically, those measures are:

- (1) The NRC should “impose a 72-hour limit for operation when the number of operable onsite alternating current power sources (i.e., emergency diesel generators) is one less than the number in the Technical Specification limiting condition for operation. This 72-hour limit would be applicable when the nuclear plant is in any mode of operation other than hot shutdown, cold shutdown, refueling, or defueled.” Oconee Nuclear Station does not rely on emergency diesel generators but “equivalent protection for its emergency power supply” should be provided. The NRC should also “cease and desist issuing NOEDs [Notices of Enforcement Discretion] that allow nuclear reactors to operate for longer periods of time with broken emergency diesel generators.” This requested action would apply to the facilities listed in Attachment 1 to the petition.
- (2) The NRC should “impose a minimum 24-hour time-to-boil for the spent fuel pool water. This limit would be applicable at all times.” This requested action would apply to the facilities listed in Attachment 1 to the petition.

The petition also requested that the NRC hold a public meeting to precede “the Petition Review Board (PRB) non-public meeting regarding this petition” and assign “someone other than the Director of NRR [Office of Nuclear Reactor Regulation] to be responsible for our petition. The Deputy Executive Director for Reactor Programs or the Deputy Director of NRR would be acceptable to UCS [Union of Concerned Scientists].”

The request is being treated pursuant to 10 CFR 2.206 of the Commission's regulations. The request has been referred to the Director, NRR. As provided by Section 10 CFR 2.206, appropriate action will be taken on this petition within a reasonable time. On March 26, 2002, the petitioner participated in a teleconference with the PRB to discuss the petition, as supplemented. The PRB considered the petitioner's contributions to the teleconference in deciding on the requests for immediate action and in setting the schedule for review of the petition. A copy of the petition and its supplements is available for inspection at the Commission's Public Document Room (PDR), at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible from the Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who

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have problems in accessing the documents in ADAMS, should contact the NRC PDR Reference staff by telephone at 1-800-397-4209 or 301-415-4737 or by e-mail to pdr@nrc.gov.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland, this 8th day of May 2002.