

September 19, 2013

Mr. David Lochbaum, Director
Nuclear Safety Project
Union of Concerned Scientists
PO Box 15316
Chattanooga, TN 37415

Dear Mr. Lochbaum:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to your letter of May 21, 2013, that expresses your concerns about the NRC allowing power plants to operate with up to 1.0 gallon per minute (gpm) of unidentified leakage, potentially allowing licensees to operate with reactor coolant pressure boundary leakage. The NRC is focused on safety and is indeed enforcing the appropriate regulatory requirements for pressure boundary leakage, consistent with the agency's long-standing practices.

You noted in your letter that operating with pressure boundary leakage is specifically prohibited by plant technical specifications. You indicated that there were no findings associated with the August 2012 leak found at Palisades, although the condition is not permitted by the operating license. You further cited several examples at other facilities where licensees determined—after shutting down the plant—that the sources of unidentified leakage had been through the pressure boundary. In each of the cases you cited, the NRC exercised enforcement discretion and either did not issue a violation or issued a non-cited violation. Based on this, you stated that the NRC is failing to enforce regulatory requirements.

With regard to the Palisades situation, while the special inspection report you cite did not identify any findings, the agency, in a subsequent inspection report, did issue a finding and an associated non-cited violation of NRC requirements. This finding was issued because of the licensee's failure to take corrective actions to prevent the recurrence of control rod drive mechanism cracking and leakage, as noted in inspection report 05000255/2013002 (available in the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession No. ML13134A329).

The NRC staff recognizes that the technical specification limit of 1.0 gpm of unidentified leakage allows a licensee to operate its plant up to this limit and that some unidentified leakage might later be determined to be through the pressure boundary. The NRC has concluded that up to 1.0 gpm unidentified leakage is acceptable because the limit is sufficiently low such that a technical specification required shutdown would take place before the leak compromises safety. Commercial nuclear power plants in the United States include safety systems that are designed to mitigate loss-of-coolant accidents, and thereby protect public health and safety in the unlikely event of a pressure boundary failure. Unidentified leakage is monitored because it could indicate a potential degradation in the pressure boundary that licensees must assess and act on to prevent a significant failure. As stated in Regulatory Guide 1.45, Revision 0, "Reactor Coolant Pressure Boundary Leakage Detection Systems", "A small amount of unidentified

leakage may be impractical to eliminate, but it should be reduced to a small flow rate, preferably less than one gallon per minute (gpm), to permit the leakage detection systems to detect positively and rapidly a small increase in flow rate. Thus a small unidentified leakage rate that is of concern will not be masked by a larger acceptable identified leakage rate.” Regulatory Guide 1.45 is available at ADAMS Accession No. ML003740113. As such, the staff position is that unidentified leakage must be kept to a minimal amount (i.e., less than 1.0 gpm) to permit detection systems to rapidly detect a small increase in flow rate to allow operators to take necessary corrective action.

In your letter, you stated, “When unidentified leakage is initially detected and when an increased unidentified leakage is detected, a plant owner could conservatively assume that at least some might be pressure boundary leakage and promptly shut down their reactors to conduct the inspections necessary to make that determination.” All power plants have some amount of leakage, some of which may be classified as unidentified leakage. The licensee and the NRC resident inspectors routinely monitor and track trends in unidentified leakage to detect potential degradation issues. In addition to monitoring adverse leakage trends, the licensee must inspect pressure boundary components that are susceptible to known degradation mechanisms as required by NRC regulations and the American Society of Mechanical Engineers’ codes. Requiring plants to make unnecessary shutdown transients each time a small amount of unidentified leakage is detected would not have a safety benefit.

With regard to taking enforcement action in the examples cited in your letter, you stated a concern that licensees were not given civil penalties for having pressure boundary leakage. In accordance with the NRC Enforcement Policy, civil penalties are considered for all Severity Level I, II and III violations, as assessed through the traditional enforcement process, and for violations assessed under the Reactor Oversight Process’ Significance Determination Process for issues that involve actual consequences or involve willful violations of the requirements. The examples of pressure boundary leakage mentioned in your letter did not meet the criteria for civil penalty consideration.

For some of the cases you cited, the NRC chose to exercise enforcement discretion, in accordance with the NRC Enforcement Policy and Enforcement Manual, because the pressure boundary leakage did not involve a licensee performance deficiency, as defined in Inspection Manual Chapter (IMC) 0612, “Power Reactor Inspection Reports,” (available in ADAMS at Accession No. ML12244A483). In each of the cases you cited, the NRC staff carefully inspected and evaluated the particular circumstances to determine if a performance deficiency existed and then took the appropriate action in accordance with agency enforcement guidance.

Finally, I would like to briefly discuss the role of the Reactor Oversight Process in monitoring licensee performance when their plants have unidentified leakage. A key part of the process is that NRC inspectors verify that licensees conduct appropriate activities to identify sources of unidentified reactor coolant system leakage and take appropriate corrective action, as needed. In addition, NRC inspectors also quantify, track, and assess the unidentified leak rate trend at nuclear power plants. This is to ensure that licensees are monitoring and taking appropriate actions to reduce unidentified leakage when leakage trends exist and to ensure that the proper levels of NRC management are informed of potential adverse trends. As a result, both the licensees’ and the NRC’s staff are focused on ensuring that unidentified reactor coolant system leakage is tracked and that attempts are made to identify leakage sources in a timely

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manner. These efforts are designed to ensure that technical specification requirements for leakage are met and to ensure that public health and safety are maintained.

On behalf of the Commission, I want to thank you for your continued involvement in matters related to nuclear safety. Your interest and feedback are important to help us to fulfill our public health and safety mission in an open and transparent manner.

Sincerely,

/RA/

Allison M. Macfarlane

cc: Listserv