



April 23, 2018

*Via electronic filing system*

Richard Guzman, Senior Project Manager  
Nuclear Reactor Regulation/DORL  
U.S. Nuclear Regulatory Commission  
Mail Stop O9EO3  
Washington, DC 20555-0001

**Re: Indian Point Reactor Head Leakage Detected in April 2018**

Dear Mr. Guzman:

We would like to follow up on the telephone call held on April 12, 2018 in which the Nuclear Regulatory Commission (NRC) acknowledged there has been leakage through the reactor vessel head around penetration #3 during the last operating cycle of the Indian Point 2 reactor. Entergy's summary of the issue identifies indications (i.e., cracks) in the J-groove weld as the source of that leakage. ML18098A088. The NRC's restart authorization addresses the repair to penetration #3, but does not address the question of whether other penetrations could develop similar leakage. ML18099A373.

We have a number of residual concerns. First, the NRC has yet to clearly state that this leakage is a violation of Entergy's operating license and has not stated whether there will be any consequences. We believe that the NRC should recognize that the operating license was violated and impose appropriate consequences on Entergy. Second, it appears that the current inspection regime is insufficient to ensure that there will be no repetition of this problem. The NRC should therefore either require more frequent inspections or more thorough inspections to ensure that leaks do not develop around other penetrations in the reactor head during the next operating cycle.

With regard to the first issue, to ensure safety the operating license for Indian Point 2 requires zero reactor coolant pressure boundary leakage.<sup>1</sup> Any leakage at all warrants shut down of the reactor within hours. *Id.* The solution is simple. The NRC should clearly state that Entergy violated the operating license and should impose some consequences.

The second issue is more complex. Entergy is required to inspect the penetrations through the reactor vessel head as part of the 10-year in-service inspection (“ISI”) program. Entergy submitted its in-service inspection plan to the NRC on August 17, 2016. ML16235A458. This program requires all items covered under the plan to be inspected at least once during the 10-year interval. Some items get inspected more frequently than other items, but every item in the plan gets examined at least once per decade. Entergy is also required to submit a report to the NRC within 90 days of restart from a refueling outage that describes findings and fixes to items inspected during the outage.

Entergy reported to the NRC the issues it found during the 2016 refueling outage at Indian Point 2. ML16259A386. The last page of its report indicates that reactor vessel head penetration #50 needed repair.

This 2016 refueling outage history shows how the ISI program is intended to work. Items performing a safety role, such as reactor vessel head penetrations, should be inspected in ways that are able to detect degradation before failure occurs. The penetrations' safety role is that of a pressure boundary. Their failure is shown by water passing through the boundary. The ISI report following the 2016 refueling outage showed the ISI program fulfilled its intended function of identifying needed repairs before failure. Without repair, the indication identified for penetration #50 could have propagated causing it to be unable to fulfill its safety role. Hence, Entergy fixed the penetration before restart.

In contrast, the reported leak through reactor vessel head penetration #3 during this refueling outage shows that the ISI program failed to prevent failure. As far as we can tell, there are only two potential explanations. Either indications of the crack in penetration #3 were present during earlier inspections but were missed, or this penetration was perfectly sound in 2016 but degraded quickly to the point of failure during the last two- year operating cycle. Both alternatives are unacceptable because the operating license requires zero leakage. And an effective ISI program prevents, not patches, leaks through the reactor coolant pressure boundary.

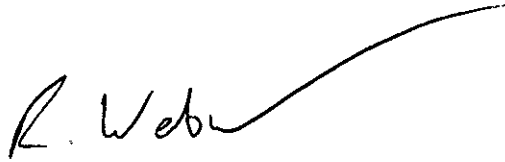
Therefore, to resolve this issue, NRC should either increase the inspection frequency to less than two years to ensure leakage from other penetrations is avoided, or it should require more thorough inspections of the penetrations before the next operating cycle is complete to ensure indications on similar penetrations are not missed.

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<sup>1</sup> Appendix A to the operating license issued by the NRC for Indian Point 2 contains the Technical Specifications. ML052720262. Technical Specification 3.4.13 covers leakage from the Reactor Coolant System (RCS) during reactor operation. LCO 3.4.13(a) limits pressure boundary leakage to zero gallons per minute and LCO 3.4.13 Actions A and B require the reactor to be shut down within at most 10 hours from the onset of pressure boundary leakage.

Please respond in writing advising us whether NRC intends to take further action to resolve these two issues and avoid future violations of Indian Point's operating license. If the NRC does not believe both issues need to be addressed, please inform us why it believes no such action is warranted.

Sincerely,

A handwritten signature in black ink that reads "R. Webster". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Richard Webster  
Legal Program Director  
Riverkeeper, Inc.

A handwritten signature in black ink that reads "David A. Lochbaum". The signature is cursive and somewhat stylized, with a prominent initial "D".

David Lochbaum  
Director, Nuclear Safety Project  
Union of Concerned Scientists

cc: John Sipos, NYSDPS  
Tom Congdon, NYSDPS