

December 21, 2004

Mr. David Lochbaum
Nuclear Safety Engineer
Union of Concerned Scientists
1707 H Street, NW.
Suite 600
Washington, DC 20006-3919

Dear Mr. Lochbaum:

On behalf of the Nuclear Regulatory Commission (NRC), I am responding to your letter dated October 8, 2004, commenting on the June 18, 2004, Decision by the Director of the Office of Nuclear Reactor Regulation (Director's Decision). The Director's Decision was prepared in response to the Petition, pursuant to Section 2.206 of Title 10 of the *Code of Federal Regulations* (10 CFR 2.206), filed by you and Mr. A. Matthiessen of Riverkeeper, Inc., on September 8, 2003, regarding the emergency core cooling system (ECCS) recirculation sumps at Indian Point Nuclear Generating Unit Nos. 2 and 3 (Indian Point).

In your letter, you stated that you provided these comments because the NRC does not have a process that allows appealing a Director's Decision. You are correct in that the 10 CFR 2.206 review process does not include a means to appeal the final decision, although the process includes an opportunity for the petitioner to comment on the proposed decision. As you are aware, the Commission, at its discretion, may determine to review the Director's Decision within 25 days of the date of the decision and may direct the staff to take some other action than that in the decision. However, the Commission did not review the decision in response to your Petition.

Notwithstanding the unavailability of an appeal of Director's Decisions, the NRC staff has reviewed the comments presented in your letter, and the staff's responses to these comments are enclosed. You concluded your letter by stating that the NRC should not delay resolving the sump clogging issue for all pressurized-water reactors (PWRs), nor should we allow any schedule milestones to be delayed. The staff agrees with you and I can assure you that the staff is working diligently to complete the implementation of a resolution to this issue in all operating PWRs by December 2007.

Please feel free to contact me if you have any other questions regarding this matter.

Sincerely,

/RA/

James E. Lyons, Deputy Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Enclosure: As stated

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James E. Lyons, Deputy Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Enclosure: As stated

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DATE	12/20/04	12/20/04	11/23/04	11/19/04	11/30/04	11/23/04	12/09/04
OFFICE	PDI/D	DLPM/D	ADPT/NRR	DLPM/D			
NAME	CHolden	TMarsh	BSheron	JLyons			
DATE	12/08/04	12/08/04	12/20/04	12/21/04			

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RESPONSE TO COMMENTS FROM UNION OF CONCERNED SCIENTISTS

REGARDING THE JUNE 18, 2004, DIRECTOR'S DECISION

CONCERNING EMERGENCY CORE COOLING SYSTEM SUMPS AT

INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3 (IP2 AND 3)

The comments presented in the October 8, 2004, letter from the Union of Concerned Scientists (UCS) and the Nuclear Regulatory Commission (NRC) staff responses are as follows:

Comment 1:

In its October 8, 2004, letter, UCS indicated that the Director's Decision stated that the Petition was denied "because there is currently no basis to conclude that IP2 and 3 are operating unsafely. The staff noted that there are sources of safety margin in plant design, compensatory measures were taken to mitigate potential risks associated with the issue, and the occurrence of any accident, especially one that could potentially challenge the sump, is very unlikely."

Regarding the sources of safety margin in plant design, UCS referred to the results from an inspection conducted at Indian Point from April 1 to June 30, 2004, that cited Entergy for violating the containment sump design basis. UCS noted that the inspection report stated that the "inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for Entergy's failure to translate the emergency core cooling system (ECCS) design basis into recirculation sump modification instructions. Specifically, Entergy added penetration cover plates and alignment collars around several small pipes that penetrated the sump deck plating, and the annular gap between the collars and pipes exceeded the sump screen size. This finding is more than minor because it potentially affected the mitigating systems cornerstone objective of assuring the availability, reliability, and capability of ECCS."

Based on this information, UCS concludes that the NRC staff knew, or should have known, that Entergy had not taken actions required by Federal regulations to mitigate the known risks associated with the issue when the staff denied the Petition.

Staff Response:

On February 19, 2004, the NRC staff forwarded the proposed Director's Decision to the Petitioners for comment. The final Director's Decision was issued on June 18, 2004.

On March 30, 2004, the Petitioners provided their comments on the proposed Director's Decision. Consistent with the agency's Petition review process (as described in Management Directive 8.11), the Petitioner's comments were dispositioned, and the final Director's Decision was issued on June 18, 2004. The inspection report referenced by UCS was issued on August 11, 2004, and as noted in the letter transmitting it to the licensee, the results were discussed with the licensee on July 22, 2004. The NRC staff reviewing the Petition were not aware of the findings at the time the Decision was issued. However, the inspection finding would not have significantly changed the final Director's Decision because, as stated in the inspection report cited by UCS, "[t]his finding is considered to be of very low safety significance because there was no loss of safety function." The NRC staff further concluded that "the

Enclosure

finding was of very low safety significance (Green) by the SDP Phase 1 screening worksheet for Mitigating Systems because the containment sump screen qualification deficiency was evaluated in accordance with NRC Generic Letter 91-18 (CR-IP2-2004-1948) and was confirmed not to result in a loss of the long-term heat removal function.” Additionally, the licensee took appropriate corrective action to resolve the finding. In summary, this finding was appropriately evaluated under the Reactor Oversight Program and would not have significantly changed the Director’s Decision if it had been referenced.

The NRC staff further notes that, while it is true that compliance with all NRC regulations provides reasonable assurance of adequate protection of the public health and safety, the converse is not correct. Failure to fully comply with a regulation is not an indication of the absence of adequate protection, at least in a situation where the Commission has reviewed the noncompliance and found that it does not pose an “undue risk” to the public health and safety. As discussed above, the inspection finding was of a very low safety significance, and thus, it does not pose an undue risk to the health and safety of the public.

Comment 2:

The NRC did not know whether compensatory measures suggested in NRC Bulletin 2003-01 or recommended by the Westinghouse Owners Group (WOG) had been taken by Entergy when it denied the Petition.

Staff Response:

The comment presented by UCS regarding NRC staff performance has been forwarded to the NRC’s Office of the Inspector General (OIG).

The NRC staff did not deny the Petition based on one reason (i.e., compensatory measures) or despite the fact it lacked the knowledge as to whether the measures had been taken. Rather, there was a combination of reasons for denying the Petition. As noted in the Director’s Decision, the staff disagreed with the technical basis provided by the Petitioners in the Petition. In the Director’s Decision, the staff also pointed out the actions taken by the licensee, prior to the Bulletin’s issuance, that provide significant risk reduction benefit when considered in lieu of the compensatory measures requested in the Bulletin. The actions requested by the staff in Bulletin 2003-01 do not solely constitute the staff’s basis for denying the Petition or for allowing PWR licensees to continue operating while the staff resolves Generic Safety Issue (GSI) 191. The Bulletin measures are prudent measures intended to enhance safety (i.e., enhance each plant’s defense-in-depth) and heighten licensee awareness of the issue. The Bulletin also informed licensees that, in addition to the measures in the Bulletin, licensees may also consider plant-specific compensatory measures.

It is true that NRC staff followup on the Bulletin responses was not complete at the time of issuance of the final Director’s Decision. However, the staff did review the licensee’s response to NRC Bulletin 2003-01 prior to issuing the Director’s Decision and found it to contain existing plant features and operator training which the staff believes greatly reduces the risk from sump clogging at IP2 and 3.

Of the measures requested in the Bulletin for consideration by licensees, the NRC staff believes the greatest risk reduction benefit is achieved by ensuring that alternative water

sources are available, and that operators are trained in the use of alternate water sources. Entergy's response to the Bulletin stated that each of the Indian Point units has an additional containment sump that is separate from the recirculation sumps. The containment sumps do not utilize the recirculation pumps and are physically separate in the containment (by 90 degrees). As such, these sumps serve as an alternate water source. In addition, existing operator training already includes the conditions and procedures for use of the separate containment sump as an alternate water source and for monitoring of erratic recirculation pump flow that could be symptomatic of sump clogging. Furthermore, in its response to the Petition, the licensee identified actions taken before the issuance of the Bulletin that provided a substantial risk reduction benefit. Specifically, the licensee stated that it had removed most of the calcium silicate insulation from containment and made modifications to the low pressure ECCS to improve their available net positive suction head. Based on this information, the NRC staff concluded that, although the staff's review of the licensee's response to the Bulletin is still ongoing, the licensee's actions combined with their existing design information were sufficient to demonstrate that a significant risk reduction had already been achieved.

Comment 3:

UCS was told during a telephone conversation with the NRC staff that the staff deliberately waited until after denying our Petition before they evaluated Entergy's response.

Staff Response:

The UCS comment regarding NRC staff performance has been forwarded to the OIG.

The NRC staff did not deliberately wait until after denying your Petition before evaluating the licensee's response. Moreover, the Petition was not a factor in the Bulletin review schedule. Pursuant to the 10 CFR 2.206 process, the NRC placed a high priority on the completion of the staff's evaluation of the Petition. It is not uncommon for the staff to review all of the responses to a generic communication before issuing requests for additional information (RAIs) because the staff may identify concerns in one licensee's response that may raise questions about other responses. In this case, the staff reviewed all of the Bulletin 2003-01 responses, and the proposed measures identified by the WOG, before issuing the RAIs to licensees. There were some delays in the review schedule to give the WOG time to develop its suggested compensatory measures, receive utility review and comment on the suggested measures, and resolve utility comments. The staff's original schedule for Bulletin responses did not account for the WOG's effort. However, many licensee responses to the Bulletin indicated that they would not finalize their planned compensatory measures until they saw the WOG's report. These were the factors affecting the NRC staff's review of the Bulletin responses. Since the Petition focused on requested actions directed at the operation of a specific facility, the NRC treated the Petition with a high priority and appropriately set a schedule for staff review that was independent of the Bulletin and in advance of the final resolution.

Comment 4:

“When the NRC finally got around to the Entergy response, they found it incomplete. By letter dated September 30, 2004, the NRC staff requested additional information (RAI) from Entergy about their response to Bulletin 2003-01.”

Staff Response:

The NRC staff did review the licensee’s response to Bulletin 2003-01 for IP2 and 3 prior to issuing its proposed Director’s Decision and found that the licensee had (a) already taken significant measures to reduce the risk of sump clogging and (b) had plant-specific capabilities that reduced the risk associated with potential sump clogging. These measures were discussed in the Director’s Decision (see response to Comment 2 above). The staff notes that it is a common practice for the staff to request a further clarification of a licensee’s response by an RAI on measures to be implemented in response to a generic communication. The staff’s RAI does not necessarily mean that the licensee’s response to the Bulletin’s requested actions is inadequate. The staff routinely requests additional information to ensure that its understanding of licensee actions is complete and to verify implementation of the requested actions by the licensee.

Comment 5:

“Point: The NRC staff does not yet know if Entergy’s operating training is sufficient, but gave full credit for operator training when denying our petition.”

Staff Response:

As noted in the staff’s response to Comments 2 and 4 above, the NRC staff was aware that the licensee had existing procedures and operator training that included the ability to use the separate containment sump. The staff only requested clarification in its RAI regarding the licensee’s Bulletin response.

Comment 6:

“Point: Based on materials received from Entergy before we even submitted our petition, the NRC suspects that Entergy’s operator training is incomplete and/or deficient, but gave full credit when denying our petition.”

Staff Response:

As noted in the response to Comment 4 above, the NRC staff requested clarification from the licensee regarding operator actions and training. The fact that the staff requested this information did not mean that the staff found the training deficient. Moreover, as previously stated, the staff decision to deny your Petition was based on numerous factors that gave the staff confidence that the plant could continue to operate safely and was not based on any one factor.

Comment 7:

“The NRC staff does not yet know if Entergy implemented any of the recommended changes to the Emergency Operating Procedures, but gave full credit for all when denying our petition.”

Comment 8:

“The NRC staff does not know if Entergy’s justification for not adopting recommended compensatory measures is valid, but gave full credit when denying our petition.”

Staff Response to Comments 7 and 8:

As with any generic communication from the NRC, licensees can propose alternative ways to accomplish the goals of the requested actions (in this case, to reduce the risk associated with the potential for sump clogging). As pointed out in the Director’s Decision, the licensee for IP2 and 3 had already taken significant steps to reduce the risk for the plants before the NRC issued Bulletin 2003-01. Further, the licensee had existing plant design features and operator training in place to provide an alternate water source in addition to the ECCS recirculation sump. Licensees do not necessarily have to implement all of the requested actions in the Bulletin in order to provide an adequate Bulletin response.

Comment 9:

“The NRC staff does not know what nature, scope, or timing of compensatory measures, but did not let that lack of knowledge prevent them from giving full credit for compensatory measures when denying our petition.”

Staff Response:

As stated in the responses to Comments 2, 7, and 8 above, there were a number of reasons presented by the staff in its Director’s Decision. In this regard, the staff found that it had sufficient information to conclude that the actions requested by the Petitioners were not necessary.

Comment 10:

“The NRC staff had Entergy’s Bulletin 2003-01 response dated August 7, 2003, before we submitted our petition dated September 8, 2003, and throughout their entire deliberations on our petition. Yet the NRC staff intentionally waited until after denying our petition before reviewing Entergy’s response about compensatory measures. [...] Had the NRC staff processed Entergy’s August 7, 2003, response in a timely manner, they would have been unable to rely on compensatory measures in the Director’s Decision.”

Staff Response:

As noted in the response to Comment 3, the UCS comments about staff performance have been referred to the OIG.

In Comment 3, the NRC staff stated that the timing of the its RAI was not directly tied to the staff's response to the Petition. Furthermore, as discussed in the responses to Comments 2 and 4, the staff had a strong basis on which to determine that IP2 and 3 already had: (1) procedures in place, (2) the availability of alternate water sources, and (3) taken sufficient measures to reduce the risk of sump clogging (e.g., removing calcium silicate insulation from containment). The staff believes that these measures demonstrate that the licensee has already made a significant reduction in the risk associated with sump clogging. The staff will continue its followup, however, in order to see if there are additional measures that may be taken to further reduce risk.

Comment 11:

"The NRC staff behaved disturbingly similar to how it misbehaved in the Davis-Besse debacle. In November 2001, the NRC staff decided not to issue an order requiring FirstEnergy to shut down the Davis-Besse reactor in Ohio for safety inspections based largely on compensatory measures promised by the company. When the NRC staff examined the merits of the compensatory measures after the decision had been made, they judged them to have no safety value. [...] The NRC staff must evaluate the merits of compensatory measures BEFORE making regulatory decisions relying upon them."

Staff Response:

The comments presented by UCS regarding NRC staff performance have been forwarded to the NRC's Office of the Inspector General (OIG).

Regarding the assertion that the NRC staff must evaluate the merits of compensatory measures before making regulatory decisions, the staff agrees. As discussed above, and in the Director's Decision, this aspect was adequately addressed during the staff's consideration of the requested actions and supporting basis in the Petition. The Petitioners failed to provide a sufficient technical basis for concluding that operation of IP2 and 3 presented an undue risk to public health and safety. In fact, the staff pointed out in the Director's Decision numerous reasons why the Petitioners' technical basis was erroneous and had not provided an adequate foundation for any conclusion about the adequacy of the Indian Point sump design. In addition, the staff pointed out plant-specific design features such as the additional containment sump that reduced the risk at IP2 and 3. The staff also pointed out that the licensee had taken additional measures before the issuance of Bulletin 2003-01 that helped reduce the risk (i.e., removal of calcium silicate, pump modifications to upgrade the net positive suction head available on the low pressure ECCS pumps). The staff believes that the actions already taken by the licensee provided a significant risk benefit. Additional measures implemented by the licensee in response to Bulletin 2003-01 will provide further risk benefit.

Regarding the comments on the staff's review of the Davis-Besse reactor pressure vessel head penetration nozzle inspection schedule, UCS continues to mischaracterize the staff's review decision as being "... based largely on compensatory measures..." and that the measures were subsequently found to have "no safety value." The staff did consider and credit the compensatory measures in its decision; however, the staff clearly stated that its decision was based on the entire amount of information available to it. Unfortunately as has been previously noted in other correspondence, the NRC staff did not include its evaluation, which would have

better explained its decision with its letter dated December 4, 2001, to the Davis-Besse licensee concerning the inspection schedule.

Comment 12:

"In developing our petition, we relied on information about PWR containment sump vulnerabilities in a parametric study documented by the Los Alamos National Laboratory (LANL) and issued by the NRC as NUREG/CR-6771. The Director's Decision took us to task for using this "outdated" LANL information: [...] So, the NRC staff criticized us in June 2004 because we had used the risk information from "superceded" NUREG/CR-6771 in our September 2003 petition. We find it extremely curious, then, that the NRC staff used the risk information from NUREG/CR-6771 – not – from LA-UR-02-7562 – in its September 2004 Regulatory Analysis (RA) for Bulletin 2004-02."

Staff Response:

In September 2001, the NRC's Office of Nuclear Regulatory Research (RES) conducted a cost-benefit analysis for GSI 191 as part of the "Technical Assessment" phase of the NRC's Generic Issue Process (as described in Management Directive 6.4 "Generic Issues Program"). To perform the analysis, RES utilized risk information from LANL Report LA-UR-01-4083,¹ "GSI-191: Parametric Evaluations for Pressurized Water Reactor Recirculation Sump Performance," and adjusted the data to account for operator action. RES used the revised data to estimate cost-benefit associated with resolving GSI-191. It should be noted that RES performed their cost-estimate before LANL had completed its work on LA-UR-02-7562. In order to perform a cost-benefit analysis, the number of plants that might need to make a modification is estimated. To make this estimate, RES made a generic estimate based on the information contained in LA-UR-01-4083. RES did not make any conclusions about any specific plants. Instead RES simply estimated a range for the number of plants that might make modifications.

Cost-benefit analyses are typically performed to better inform and support NRC's generic communication process. As such, when Generic Letter 2004-02 was prepared for issuance, the cost-benefit analysis performed in 2001 was simply updated to bring the costs in line with current cost information.

Comment 13:

"What is relevant is that the NRC staff already had "detailed analysis or valid assessment" in hand and opted to overlook this information when crafting their Director's Decision.

- NRC inspectors at Indian Point between April 1st and June 30th 2004 identified that (a) Entergy was operating Indian Point outside the design basis for the containment sumps, and (b) Entergy violated federal regulations by failing to prevent debris from residing in containment and even on the containment sump screens.

¹LA-UR-01-4083 was later published as NUREG/CR-6762

- NRC staff had received Entergy's response dated August 7, 2003, to Bulletin 2003-01 that failed to adequately address operator training and compensatory measures.

[...] NRC senior management seems pre-disposed to reject any assertion that nuclear plants might be unsafe regardless of information to the contrary."

Staff Response:

Regarding the UCS assertion that NRC senior management seems pre-disposed to reject any assertion that nuclear plants might be unsafe, the comment has been forwarded to OIG. As noted in previous responses, the UCS assertions about staff performance were also forwarded to the OIG. The UCS concluding statement about the findings in the NRC inspection report and its assertion that Entergy's response failed to adequately address operator training and compensatory measures in Bulletin 2003-01 were answered in response to the earlier UCS comments discussed above.