

April 27, 2006

David Lochbaum
Director, Nuclear Safety Project
Union of Concerned Scientists
1707 H Street NW Suite 600
Washington D.C. 20006-3919

Dear Mr. Lochbaum,

I am responding to your letter of April 12 concerning the site area emergency declared on February 20, 2006, at LaSalle County Station, Unit 1. You indicated that our Special Inspection Team report answered many of your questions about the event. You also asked if we had analyzed the consequences of the operators inhibiting the automatic depressurization system (ADS) and disabling all of the emergency core cooling systems (ECCS) and, from a risk-informed perspective, if it would have been wiser to not intentionally disable all of the emergency core cooling systems.

The operator actions that you referred to in your letter were in accordance with the approved emergency operating procedures (EOPs), which conform with the BWR Owners Group guidelines. As discussed below, these actions were necessary to avoid cold water reactivity transients and are consistent with NRC requirements for operator actions on events such as the LaSalle, Unit 1 reactor trip that was complicated by the inability to confirm the position of more than one control rod. The Special Inspection Team noted that there was sufficient water sources available to inject water into the core during this event. Further, preventing the automatic actuation of ECCS does not preclude manual initiation by plant operators if plant conditions and indications mandate the need for additional sources of water to maintain the core covered during any conceivable plant event. The EOPs are symptom based and are vastly different from the event based EOPs that were in use at the time of the Three Mile Island (TMI) accident. This approach allows the operators to adjust their actions, consistent with EOP guidelines, to account for multiple plant indications or events. If another event had occurred, such as a loss of coolant accident, then the operators would have been directed by the EOPs to add water to maintain the core covered.

As you know from reviewing the Special Inspection Team's report, the event occurred with the reactor at approximately 6 percent power. A perturbation in the main turbine electro-hydraulic control system unexpectedly caused all five main turbine bypass valves to open. The resulting reactor water level and pressure transients caused a reactor scram. Subsequent to the scram, plant operators were unable to verify that three control rods had fully inserted into the core as designed. Additionally, the Qualified Nuclear Engineer (QNE) on shift during the event determined that a shutdown calculation could not be completed within a reasonable time. Therefore, even though the actual reactor power, pressure, and level indicated that the reactor was shutdown and safe, the operators entered EOP LGA-010, "Failure to Scram," as required.

The Special Inspection Team evaluated operator response to the event in accordance with Charter Items 1 and 2 (description of event and detailed event time-line) that was attached to the Special Inspection Team report. Specifically, the Team evaluated whether the control room operating crew had properly used EOP LGA-010 during this event. The EOP has two entry conditions: 1) more than one control rod not inserted into at least position 02 or positions indeterminate, **or** 2) the reactor will not stay shutdown under all conditions without boron per the QNE. As stated earlier, the operators could not verify the position of three control rods and the QNE was unable to make an immediate determination if the reactor would remain shutdown under all conditions. Therefore, both entry conditions for the EOP were met and the operators responded appropriately by implementing the procedure.

After entry, the next step in the EOP required the operators to inhibit ADS and to prevent the automatic actuation of the ECCS systems. These actions are consistent with Appendix B, "Technical Bases," of the BWR Owners Group Emergency Procedure and Severe Accident Guidelines, Revision 2, March 2001. These actions are intended to prevent the unintentional addition of cold water into the core shroud which could potentially impose a severe thermal transient on the reactor pressure vessel and trigger a positive reactivity event that could severely damage the core. Under failure-to-scrum conditions, the EOP preferentially uses those systems that inject outside the core shroud (such as condensate and feedwater, reactor core isolation cooling, and control rod drive) to allow the cold, unborated injection to mix with the warmer water in the downcomer before reaching the core.

Your letter suggested that there was similarity between the event at LaSalle and the events at TMI and Chernobyl, in that operators overrode important safety features. It is well-known that the operators at Three Mile Island and Chernobyl did not understand the plant conditions, and acted contrary to procedures. We have reviewed the actions by operators at LaSalle. Unlike the events you mentioned, the operators at LaSalle did understand the plant conditions, including having a realistic understanding of the condition of the reactor. We consider that their actions were appropriate for what they knew at the time, as well as what we know now. From a risk-informed perspective, the safety systems at LaSalle remained available if needed, so there was a minimal impact on plant risk due to the actions in question.

In summary, we determined that the licensee and the operators in the control room operated the plant consistent with the EOPs. Safety was not compromised as a result of inhibiting ADS or preventing the automatic initiation of the ECCS. Had plant conditions warranted, the EOPs would have directed the operators to inject additional water into the core to maintain core coverage. Sufficient water sources were available to inject water into the core during this event.

D. Lochbaum

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Thank you for your letter. We appreciate hearing from members of the public and the opportunity to respond to any questions and concerns. Should you have additional questions, or want to discuss the contents of this letter, feel free to contact either myself or Mr. Bruce Burgess (630-829-9629) of my staff.

Sincerely,

/RA/

James L. Caldwell,
Regional Administrator
Region III

D. Lochbaum

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Sincerely,

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James L. Caldwell,
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