GPU Nuclear

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C321-92-2023

January 31, 1992

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Inspection Report 50-219/91-29
Reply to Notice of Violation

The attachment to this letter contains GPU Nuclear's response to the Notice of Violation contained in Appendix A of the subject inspection report. The inspection was conducted to review an event which occurred at Oyster Creek on August 22, 1991 and assess the actions taken in response to the event by GPU Nuclear. The event involved the momentary closure of the discharge valve in all five recirculation loops when plant conditions required at least one valve to be fully open. Due to delays in receiving the inspection report, an extension of the due date to January 31, 1992 was requested by GPU Nuclear. The extension was approved by your staff on January 8, 1992.

The letter forwarding Inspection Report 91-29 requested GPU Nuclear to address the repetitive nature of the recirculation loop isolation event and the repetitive nonadherence to the facility procedures noted in the examples cited during the inspection. With regard to repetitive nonadherence to facility procedures, we have been and will continue our effort to reduce the frequency of procedural noncompliance. These efforts include our procedure upgrade program, focus on reducing human error and our continual emphasis on compliance. As discussed in the attached reply to the Notice of Violation, we offer a differing viewpoint on several of the apparent procedure noncompliances and believe there was only one action which resulted in a noncompliance. Our assessment is that the operators performed adequately during the cooldown evolution, except for the recirculation loop isolation event, given that the procedures being used created some confusion. While an ideal to be pursued is for procedures to evolve to consider all possible plant configurations and transient states, it is impractical to establish prescriptive procedural steps to account for them at all times. Since we cannot foresee and address all potential situations, some degree of flexibility should be provided to deal with the unexpected. The procedural steps and guidance permitted some flexibility, which resulted in reasonable

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judgements by our operating personnel. However, the procedural guidance was not entirely appropriate. Our procedure development activities in response to this event will help to prevent future confusion over procedural requirements that can impact the focus on the evolution at hand. It is this reduced focus which probably resulted in the most recent simultaneous closure of the five recirculation loop discharge valves since the attention of the operating crew was directed on resolving the apparent procedural conflicts.

With regard to the three inappropriate recirculation loop isolations between 1979 and 1991, personnel error was the dominant cause. However, procedural enhancements were also deemed necessary as corrective action in each case. A contributing cause of the 1987 occurrence was an overly restrictive procedure which placed unnecessary limits on the operator. Two of the three events (1979 and 1991) occurred while a recovery from a plant isolation scram was in progress. The most recent event required the use of multiple procedures whose unclear integration resulted in confusion.

The new cooldown procedure being developed will coordinate individual system operation procedures and direct greater focus on the integrated cooldown evolution. This, combined with further enhancements to the individual system procedures, we conclude should help prevent any further inappropriate five loop isolation events. Procedural requirements and guidance combined with training has resulted in immediate recognition of the errors which caused the last two recirculation loop closure events and the proper immediate corrective actions which were taken to fully open the appropriate number of loops. As noted in your inspection report this immediate action helped to minimize the safety significance of these events.

If you should have any questions, given our differing viewpoint on the procedural violations, we would propose a follow up meeting to assure we have properly communicated our basis for this position and to assure that we clearly understand your position.

Sincerely,

John J. Barton
Vice President and Director
Oyster Creek

JJB/PFC/amk
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Attachment

cc: Senior Resident Inspector
Administrator, Region I
Oyster Creek NRC Project Manager

ATTACHMENT

NRC Violation A:

10 CFR 50, Appendix "B", Criterion XVI, Corrective Action states, in part, that measures shall be established to assure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective actions taken to preclude repetition.

1. Contrary to the above, the licensee did not revise procedure 203.2, "Plant Cooldown from Hot Standby to Cold Shutdown" to provide adequate written guidance for the operators to cooldown the plant based on a June 12, 1985, Transient Assessment Report (TAR), TAR-OC-008, which addressed a main steam isolation valve (MSIV) closure scram event similar to the August 22, 1991 event. Section D.7.c. of the TAR contained a Corrective Action task to revise procedure 203.2 and Procedure 305, "Shutdown Cooling System Operating Procedure." Consequently, on August 22, 1991, the operators encountered procedural inadequacies between the Plant Cooldown Procedure 203.2, Shutdown Cooling System Operating Procedure 305, and Isolation Condenser Procedure 307. The corrective actions from the 1985 event were ineffective in that they did not preclude the repetition of a similar event on August 22, 1991.

2. Contrary to the above, during the period of December 30, 1989, to August 22, 1991, measures were not taken to update the recirculation discharge valve placard when the recirculation loop technical specification was changed in amendment #135 from a safety limit to a limiting condition for operation (LCO). The placard in the control room contained outdated information that did not alert the operators to a potential problem of isolating all five recirculation loops.

GPU Nuclear Response to NOV A:

GPU Nuclear concurs with the violation.

The corrective actions taken as a result of the June 12, 1985 event were not effective in preventing the difficulties encountered on August 22, 1991. While we don't believe it was a significant contributor to the event, the control room placard should have been changed or removed.

Corrective Actions Taken and Results Achieved:

A new station procedure directing cooldown following a reactor scram (including a reactor isolation) is currently being developed. This procedure will implement the original Transient Assessment Report (TAR) recommended corrective action by coordinating the operation of the

Shutdown Cooling, Isolation Condenser, and other systems utilized to cooldown in an isolated condition. Related changes to system operating, abnormal, and other procedures have been developed and will be issued subsequent to approval of the new cooldown procedure to correct the identified inadequacies with individual system operating requirements. Further changes are presently being considered. The placard in the control room has been updated to reflect current requirements.

Date When Full Compliance Will Be Achieved:

Full compliance will be achieved with the issuance of the new station cooldown procedure and all other procedure changes/revisions by February 29, 1992.

NRC Violation B:

Technical Specification 3.8.A requires that the two isolation condenser loops shall be operable during power operation and whenever the reactor coolant temperature is greater than 212 °F.

IC Procedure 307, section 2.2.4, requires both ICs to be operable whenever reactor coolant temperature is greater than 212 °F, and section 2.2.9 requires reactor water level to be less than 180 inches for system operation. Also, section 9.3.1 states: "When an isolation condenser is taken out of service it is considered inoperable."

Contrary to the above on August 22, 1991, the "A" and "B" ICs were taken out of service at 9:44 a.m. At the time, reactor coolant temperature was approximately 300 degrees F. At approximately 9:50 a.m. reactor water level was raised above 180 inches. Both ICs remained out of service with reactor coolant temperature greater than 212°F for approximately 70 minutes.

GPU Nuclear Response to NOV B:

GPU Nuclear does not concur with the violation.

In the event that specification 3.8.A is not met in conditions other than the RUN MODE, specification 3.8.D requires placing the plant in a cold shutdown condition. Since no time limit is stated in specification 3.8.D, specification 3.0.A is operative. 3.0.A requires the plant to be in the cold shutdown condition within 30 hours. The required action was met since the plant was not in power operation and a cooldown to cold shutdown was in progress and was completed within 30 hours. Therefore, we believe no violation of the technical specifications occurred.

IC Procedure 307 ensures that Technical Specification 3.8.A is complied with. Our assessment is that Procedure 307 was not violated. The plant was proceeding to and within a few hours of achieving the cold shutdown condition. When reactor coolant temperature and pressure are sufficiently reduced the preferred method to continue a cooldown is via

the Shutdown Cooling System. The reactor water level was increased to at least 185 inches TAF as required at that time by Procedure 305," Shutdown Cooling System Operation," to facilitate circulation through the core since the recirculation pumps were not operating. The isolation condensers were taken out of service in accordance with section 5.0 of Procedure 307, declared inoperable and isolated. The isolation condensers could have been manually initiated, if necessary, after lowering the water level and were in fact used to vent a steam bubble subsequent to the initial floodup.

Procedure 305, "Shutdown Cooling System Operation" was revised to clarify recirculation loop configuration and reactor water level requirements which will minimize removing isolation condensers from service before coolant temperature is below 212°F during future cooldowns.

NRC Violation C:

Technical Specification section 6.8.1 states: "Written procedures shall be established, implemented, and maintained that meet or exceed the requirements of NRC's Regulatory Guide 1.33" (the GPU Nuclear Operational Quality Assurance Plan references Reg Guide 1.33, Rev.2, February 1978). Regulatory Guide 1.33 includes the Station Administrative procedures and system operating procedures.

1. The Station Administrative Procedure 107, "Procedure Control" section 5.1.5.1 states: "Strict compliance with approved, controlled procedures is essential for safe operation of the plant," Section 5.1.3 states, in part: "that any written procedures which are determined to be inadequate shall be revised, temporarily if necessary," and Section 5.1.5.4.6 states: "that if in the performance of an evolution a conflict arises with an approved procedure, then the procedures will be revised prior to use by the group shift supervisor (GSS) and documented."

   Contrary to the above on August 22, 1991, the plant personnel did not revise General Plant Operating Procedure 203.2, "Plant Cooldown from Hot Standby to Cold Shutdown" when the procedure proved to be inadequate for transitioning from the isolation condensers to the shutdown cooling system. The GSS failed to revise procedures prior to their use and did not document the discrepancy between approved procedures 305, "Shutdown Cooling System Operation" and procedure 307, "Isolation Condenser System" when conflicts existed. Specifically, procedure 305 section 2.3.2.2 requires that reactor water level be above 185 inches to start the Shutdown Cooling system, and Procedure 307 section 2.2.9, requires that reactor water level be below 180 inches for the Isolation Condensers (IC) to be considered operable. The GSS

directed the control room operator (CRO) to raise reactor water level above 185 inches. This level increase was in direct conflict with approved plant procedures regarding reactor water level.

2. Shutdown Cooling procedure 305, sections 3.1.10 and 3.3.2.2, require reactor water level be raised to greater than 185 inches to maintain circulation within the core.

   Contrary to the above, on August 22, 1991, the operators lowered water level to 174 inches. Reactor water level was less than 185 inches for approximately ten minutes. The operators failed to follow the Shutdown Cooling system operating procedure.

3. The requirement to maintain at least one recirculation loop suction and discharge valve full open, if reactor coolant temperature is greater than 212 °F, in accordance with TS 3.3.F.4 is listed in the five plant procedures listed below.

   Station Procedure 203.2, "Plant Cooldown From Hot Standby to Cold Shutdown," section 3.14.

   Station Procedure 305, "Shutdown Cooling System Operation," section 3.2.6.1.

   Station Procedure 307, "Isolation Condenser System," section 2.2.2, 3.2.2, and 4.2.4.

   Abnormal Procedure 2000-ABN-3200.02, "Recirc Pump Trip," section 3.3 caution statement.

   Alarm Response "E-4-b" 2000-RAP-3024.01, "Less Than 2 Recirc Loops Open" section manual corrective actions.

   Contrary to the above on August 22, 1991, at 10:12 a.m., all five recirculation discharge valves were fully closed. Reactor coolant temperature was approximately 285°F at the time. The recirculation discharge valves remained full closed for approximately one minute. The operators failed to follow the plant procedures listed above.

GPU Nuclear Response to NOV C:

GPU Nuclear does not concur with violation C, Part 1.

Procedure 107, "Procedure Control," is misquoted in Part 1 of the violation. Section 5.1.5.4 requires any conflicts to be resolved by the GSS rather than revised as stated in the violation. Also, the reference to section 5.1.5.4.6 does not exist. At the time of the event, the CSS

discussed the situation with the operators on his shift, the Group Operating Supervisor, and the Shift Technical Advisor. After tne discussions, the GSS felt he had resolved the apparent conflicts encountered when placing the Shutdown Cooling System in service.

As discussed in our response to violation A, once the reactor temperature and pressure were reduced enough to allow operation of the Shutdown Cooling System this was the preferable method to continue the cooldown especially in light of the inability to use the main condenser. Procedure 305, "Shutdown Cooling System Operation," required reactor water level to be increased to at least 185 inches TAF to prevent temperature stratification and maintain circulation within the core when placing the system in service since no recirculation pumps were in operation. Additionally, Section 5.0 of Procedure 307, "Isolation Condenser System" describes system operation when "Reactor level is observed to be or is required to be raised above 180 inches TAF and the reactor coolant temperature is greater than 212°F" as stated in section 5.1.1. The transition from operation of the isolation condenser to shutdown cooling was in accordance with these procedural requirements.

Our evaluation shows that improved procedural guidance identifying a preferred shutdown cooling mode which does not require entering a Technical Specification action statement can be provided and that an overall integrated procedure for cooldown would be better.

We do not concur with Part 2 of violation C.

Part 2 of violation C refers to an evolution which was performed by the oncoming shift several hours after the recirculation loop discharge valve closure event. The operators proceeded to vent the reactor through the isolation condenser vents to facilitate the ongoing cooldown, by lowering reactor water level, venting the reactor, and raising water level before closing the fifth recirculation discharge valve. Procedure 305 allowed flexibility as regards reactor water level since the guidance in section 3.2.6 reads 'should' versus 'shall.' The operators correctly interpreted the intent of the procedure to mean that for normal shutdown cooling operation the water level was to be maintained above 185 inches TAF to prevent thermal stratification. While the procedure could have been clearer, the operators did not fail to follow the procedure. Moreover, we believe that the operators used good judgement in operating the Shutdown Cooling System during the initial system startup and subsequent venting evolutions when water level was increased to greater than 185 inches TAF at startup and then dropped appropriately to allow venting via the isolation condensers. We do not agree that the transient operation in order to accomplish reactor venting constituted a failure to follow procedures since this type of flexibility was allowed. Using the logic of violation C, part 2, the procedure would have been satisfied if the shutdown cooling pumps were turned off during the 10 minute period water level was lowered to vent.

This would have been unnecessary and undesirable. While it is recognized that the procedure as written could have been more precise, no failure to follow procedures occurred.

We concur with Part 3 of violation C, as stated.

The operators failed to comply with the various procedures in effect when they closed the five recirculation loop discharge valves with reactor coolant temperature greater than 212°F. Adequate guidance with regard to this requirement was contained in the procedures, however, Procedure 305, "Shutdown Cooling System Operation" could have been clearer with respect to the specific recirculation loop configuration desired to minimize thermal stratification.

Corrective Actions Taken and Results Achieved:

Changes to Procedure 305, "Shutdown Cooling System Operation" have been made to clarify recirculation loop configuration and reactor water level requirements to address thermal stratification. The revised guidance will minimize the need to remove the isolation condensers from service during future cooldowns before coolant temperature is below 212°F. Changes to Procedures 305 and 307 "Isolation Condenser System" are being developed and will provide additional guidance for the use of these systems in cooling down the reactor in an isolated condition. A new station procedure is also being developed and when issued will coordinate the use of the above procedures during cooldown evolutions.

Corrective Actions to be Taken:

The corrective actions specified above will minimize the possibility of any future potential conflicts in these procedures.

Date When Full Compliance Will Be Achieved:

Full compliance was achieved on August 22, 1991 when one of the five closed recirculation discharge valves was reopened when reactor coolant temperature was greater than 212°F. The procedure revisions described above will be issued by February 29, 1992.