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Writer's Direct Dial Number:

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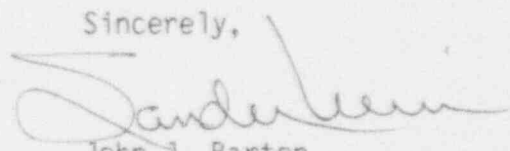
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Licensee Event Report

This letter forwards one (1) copy of Licensee Event Report (LER) 93-002. On February 24, 1993 GPUN requested a two (2) day extension of the due date for this LER. Mr. J. Rogge, Section Chief, NRC Region II granted that request in a telephone conversation with Mr. P. Czaya, Manager, Oyster Creek Licensing. Accordingly, this LER is being submitted with an extended due date of February 26, 1993.

Sincerely,


John J. Barton
Vice President and Director
Oyster Creek

JJB/TB:jc
Enclosure

cc: Administrator, Region 1
Senior NRC Resident Inspector
Oyster Creek NRC Project Manager

(LER-COVLTRS)

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S PDR

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Oyster Creek, Unit 1

DOCKET NUMBER (2)

015101010219 1 OF 017

TITLE (4)
Reactor Coolant Exceeds Temperature Limit While Shutdown Due to Personnel ErrorEVENT DATE (5)
MONTH DAY YEAR
01 25 93
LER NUMBER (6)
SEQUENTIAL NUMBER
002
REVISION NUMBER
00
REPORT DATE (7)
MONTH DAY YEAR
02 26 93
OTHER FACILITIES INVOLVED (8)
FACILITY NAME
DOCKET NUMBER (8)
0151010101OPERATING MODE (9)
N
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 6. (Check one or more of the following) (11)
20.402(b) 20.405(e) 50.73(a)(2)(iv) 50.73(b)
20.405(a)(1)(i) 50.36(a)(1) 50.73(a)(2)(vi) 50.73(c)
20.405(a)(1)(ii) 50.36(a)(2) 50.73(a)(2)(vii) OTHER (Specify in Abstract
below and in Text, NRC Form
200A)
20.405(a)(1)(iii) X 50.73(a)(2)(iii) 50.73(a)(2)(viii)
20.405(a)(1)(iv) 50.73(a)(2)(iv) 50.73(a)(2)(ix)
20.405(a)(1)(v) 50.73(a)(2)(v) 50.73(a)(2)(x)

LICENSEE CON. ACT FOR THIS LER (12)

NAME
Lynne W. Munzing, Operations Engineer
TELEPHONE NUMBER
AREA CODE
609 971-4389

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) X NO
EXPECTED SUBMISSION DATE (15)
MONTH DAY YEAR

ABSTRACT (Limit to 1400 words; i.e., approximately fifteen single-space typewritten lines) (16)

On January 25, 1993 at 1730 hours, plant personnel discovered that reactor metal temperature was above 212 degrees F without Primary Containment in effect, without Isolation Condensers operable, without Containment Spray/Emergency Service Water operable, with only one system of the Core Spray operable, and without a Shift Technical Advisor stationed. The plant was shut down for a refueling outage at the time. Reactor water level had been lowered in accordance with a temporary procedure change which did not provide for sufficient forced circulation to cool the reactor. The cause of the event was personnel error in improper implementation of technical guidance and subsequent reviews prior to implementation which did not recognize the error. The event had safety significance in that reactor temperature exceeded 212 degrees F for several hours without detection. Immediate corrective action was taken to reduce reactor coolant temperature and cancel the temporary procedure change. Future corrective actions include: revising the Shutdown Cooling operating procedure, reviewing the effectiveness of safety review of temporary procedure changes, discussion with personnel involved with the procedure change, and training of procedure reviewers.

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TEXT (If more space is required, use additional NRC Form 305A's) (17)

DATE OF OCCURRENCE

The event was discovered on January 25, 1993 at 1730 hours.

IDENTIFICATION OF OCCURRENCE

Reactor coolant temperature exceeded 212 degrees F without Primary Containment integrity in effect and, a Shift Technical Advisor was not stationed. These are conditions prohibited by Technical Specifications and are considered reportable in accordance with 10 CFR 50.73(a)(2)(i)(B). In addition, the Limiting Conditions for Operation (LCO) for the Containment Spray/Emergency Service Water System, Core Spray System and Isolation Condenser System were entered because the coolant temperature increased above 212 degrees F.

CONDITIONS PRIOR TO OCCURRENCE

The plant was in a refueling outage since November 28, 1992. On January 23, 1993, at 1100 hours the plant secured from the reactor vessel pressure test. The reactor was shut down, the mode switch was in REFUEL, reactor level was 165 inches above the top of active fuel (TAF), and reactor coolant temperature was 180 degrees F. The reactor was vented through the head vent (CFI - VTV). One Reactor Recirculation (IEEE - AD) loop was in service, one Recirculation loop was open, and the remaining three Recirculation loops were idle or isolated. Two Shutdown Cooling (IEEE - BD) loops were operating with a combined flow rate of 3100 gallons/minute.

DESCRIPTION OF OCCURRENCE

Plant management decided to perform two refueling outage work activities in parallel. These activities were Reactor Recirculation Pump maintenance requiring all pumps to be shut down and the Main Steam Isolation Valves (MSIV) (IEEE - SB, CFI - ISV) local leak rate test (LLRT). These two activities had conflicting requirements for reactor water level. With all Reactor Recirculation Pumps out of service, plant procedures for Shutdown Cooling system operation require reactor water level to be raised to at least 185" TAF to assure adequate circulation from the reactor core to the vessel annulus. The MSIV LLRT requires that the reactor water level be below 180" TAF and the reactor vessel to be pressurized with air to approximately 40 psig. This condition of RPV level below 185" TAF also requires one recirculation loop to be open to ensure level indication remains operable.

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

DESCRIPTION OF OCCURRENCE
(Cont'd)

The reactor water level conflict could be resolved if it could be demonstrated that the Shutdown Cooling system could provide adequate core flow with reactor water level below 185" TAF. Due to a previous event, an analysis had been performed to determine the technical feasibility of operating in this configuration. The analysis (Technical Data Report (TDR) 1095, in draft format at the time) subsequently determined that the configuration was feasible, however, the magnitude of the shutdown cooling system flow was critical. Based on this analysis, a temporary procedure change was implemented. Reactor water level was then lowered to 168" TAF.

The last operating Reactor Recirculation Pump was secured at 1122 hours on January 23, 1993. The MSIV LLRT was commenced at 2250 hours on January 24. Reactor vessel pressurization for the MSIV LLRT began at 0124 hours on January 25, and a pressure of 43.2 psig was reached at 0303 hours. Unknown to the Control Room operators, reactor vessel metal temperature rose above 212 degrees F at 1210 hours. MSIV LLRT concluded at 1630 hours and reactor vessel pressure was vented through the Isolation Condenser vents. Still unknown to the Control Room Operators, reactor vessel metal temperature peaked at 228 degrees F at 1650 hours.

An engineer reviewing the temporary procedure change which allowed level to be decreased to less than 185" TAF noticed that the reactor vessel metal temperature was greater than 212 degrees F, and informed the Control Room Group Shift Supervisor (GSS) at 1730 hours. The GSS directed Control Room Operators to maximize flow rate in the two operating Shutdown Cooling loops and to place the third Shutdown Cooling loop in service. At 1804 hours, reactor vessel metal temperature was reduced below 212 degrees F. To ensure adequate core cooling, reactor water level was raised to 190-200" TAF and Reactor Recirculation Pump 'A' was started. Once satisfied that the core was adequately mixed, the GSS changed the reactor water level control band to 162-168" TAF as prescribed by the MSIV LLRT procedure.

Final conditions established at 2330 hours on January 25 were reactor vessel temperature 120-130 degrees F, reactor water level 162-168" TAF, one Reactor recirculation loop in service with the remaining loops idle or isolated, and two Shutdown Cooling loops in service with a combined flow of 4850 gpm.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

APPARENT CAUSE OF OCCURRENCE

The root cause of the event was personnel error. Not all technical requirements in TDR 1095 for Shutdown Cooling system operation were transferred into the temporary procedure change. Subsequent reviews of the temporary procedure change prior to implementation did not recognize the error.

The temporary change did not establish the same Shutdown Cooling flow rate used in TDR 1095. TDR 1095 concludes that with RPV level in a band of 138-175" TAF, two Shutdown Cooling loops in operation will adequately cool the core as long as only one Reactor Recirculation loop is open. An additional assumption in the body of the TDR but not in the conclusion, is that each loop of Shutdown Cooling is operating at its design flow rate of 3000 gpm, for a total flow rate of 6000 gpm. The steps in the temporary change did not require a minimum flow rate of 6000 gpm.

ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT

At the beginning of the event, on January 23 at 1122 hours, the last reactor recirculation pump was secured. The reactor coolant temperature at this time was 180 degrees F and reactor water level was 168" TAF. The Shutdown Cooling system was in service with two pumps operating at a total flow rate of 3100 gpm and one recirculation loop was open. This configuration did not provide sufficient forced circulation through the core because level in the core region remained below the spillover point (the point at which water flows over from the core to the reactor vessel downcomer region, 185" TAF). Lack of forced circulation caused reactor coolant temperature in the core region to increase. Reactor vessel metal temperatures began to increase and exceeded 212 degrees F at 1210 hours on January 25. Reactor vessel metal temperatures peaked at 228 degrees F at 1650 hours on January 25 and began to decrease. When operators increased Shutdown Cooling flow upon discovery of the excessive temperature, the maximum reactor cooldown rate achieved based upon reactor vessel metal temperatures was 67 degrees F per hour, which is within the 100 degrees F per hour allowed by Technical Specifications.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT
(Cont'd)

When reactor vessel temperature exceeded 212 degrees F, various Technical Specification requirements became effective.

Additional instrumentation required to be in service was:

- Reactor high pressure (scram)
- High flow in the Main Steam Lines (Reactor Isolation)
- High temperature in Main Steam Tunnel (Reactor Isolation)
- High Radiation in Main Steam Line Tunnel (Reactor Isolation)
- Low-low reactor water level (Reactor isolation, containment isolation, Isolation Condenser initiation, Reactor Building (IEEE - NG) isolation and Standby Gas Treatment (IEEE - BH) system initiation)
- Average Power Range Monitors (IEEE - IG)(scram)

The required instrumentation was operable or the action statement in the Technical Specifications was met, since all control rods were fully inserted, the Main Steam Isolation Valves were closed, and the Isolation Condenser valves were closed.

Additional systems required to be in service were:

Isolation Condenser: Isolation Condensers were not operable but were available for use if needed. The Isolation Condenser isolation valves had been closed to support the MSIV LLRT. Reactor coolant temperature was reduced below 212 degrees F within 12 hours of the coolant temperature excursion indicated by vessel metal temperature. With coolant temperature below 212 degrees F the LCD no longer applied.

Primary Containment: Primary Containment was not being maintained. Reactor coolant temperature was reduced below 212 degrees F within 12 hours of the coolant temperature excursion indicated by vessel metal temperature. With coolant temperature below 212 degrees F the LCD no longer applied.

Core Spray: Secondary Containment was intact and one Core Spray system was operable. Reactor coolant temperature was reduced below 212 degrees F within 12 hours of the coolant temperature excursion indicated by vessel metal temperature. With coolant temperature below 212 degrees F the LCD no longer applied.

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ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT
(Cont'd)

Containment Spray/Emergency Service Water: This system was not operable due to maintenance activity. Reactor coolant temperature was reduced below 212 degrees F within 12 hours of the coolant temperature excursion indicated by vessel metal temperature. With coolant temperature below 212 degrees F the LCO no longer applied.

Additional administrative control:

Shift Technical Advisor required to be on shift: No Shift Technical Advisor was present in the Control Room. This is a condition prohibited by Technical Specifications.

Although the procedure was deficient, the operators correctly followed the procedure as written when they established and maintained plant conditions following the reactor vessel pressure test. Once the high vessel metal temperature was recognized, operator action was timely and appropriate. Based on TDR 1095, raising the Shutdown Cooling system flow rate to 7500 gpm by itself was enough to assure adequate core coolant mixing. In addition, action was taken to raise reactor water level and restore recirculation flow to improve the flow rate and mixing through the core.

Technical Specification 6.8.3 allows temporary changes to procedures provided the following restrictions are met:

- The intent of the original procedure is not altered
- The change is approved by two members of the management staff who are qualified as Responsible Technical Reviewer and knowledgeable in the area affected by the change. For changes which may affect the operational status of facility systems or equipment, one of the two individuals must hold a Senior Reactor Operator's license.
- The change must be reviewed and approved within 14 days.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT
(Cont'd)

Plant Procedure 107, Procedure Control, implements these requirements and imposes some additional administrative controls. The temporary change met all Technical Specification requirements but did not meet one additional administrative requirement in that it was not reviewed by the Shift Technical Advisor on duty at the time the change was implemented on 1/22/93.

This event does have safety significance in that reactor coolant temperature exceeded 212 degrees F without detection and the excessive temperature existed for several hours before it was discovered. The safety significance is minimal since there was no potential for an offsite release under these conditions. If a loss of coolant accident had occurred, fuel integrity would not have been affected because there was adequate cooling from the Emergency Core Cooling System, additionally, there would have been no driving head to cause an offsite release.

CORRECTIVE ACTIONS

Upon discovery of reactor metal temperature greater than 212 degrees F, immediate corrective action was taken to reduce temperature to less than 212 degrees F. Reactor coolant temperature was reduced below 212 degrees F by 1804 hours. The procedure temporary change was canceled on January 25, 1993.

Future corrective actions include:

Revise the Shutdown Cooling operating procedure to correctly implement the technical guidance of the finalized TDR 1095.

Review the effectiveness of the safety review of temporary changes.

Discuss this event with the individuals involved.

Provide training on this event to all site personnel who perform technical and safety reviews.

SIMILAR EVENTS

None