

Millstone 2

Initiating Events



Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)



Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)



Significance: Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)



Significance: Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded

its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)

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Significance: Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)

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Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

G

Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

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Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not

only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

G

Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)

W

Significance: Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform

its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRCs Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which

involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.
Inspection Report# : [2000007\(pdf\)](#)

Barrier Integrity

G

Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

G

Significance: May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding. Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification. Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump. Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation. Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a

related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : March 01, 2002