Prairie Island 2
2Q/2007 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: FIN Finding
FAILURE TO MAINTAIN SAFETY INJECTION RELAYS
Green. A finding of very low safety significance was self-revealed when a Unit 2 train A safeguards actuation and reactor trip occurred during the performance of the safeguards logic test at power. The actuation occurred because of a failure of the actuation relay to reset. The relay did not reset because of high electrical resistance across the relay contacts due to an oxide layer that accumulated through time. The oxide layer was due to a failure to perform periodic preventive maintenance on the reset contacts as recommended by the manufacturer and failure to periodically replace the relays as recommended by industry guidance. The licensee has entered this finding into the corrective action program. The immediate corrective actions were to replace the Unit 2 train A safeguards relays with new ones and to revise the logic test procedures to keep the relays in the test mode until the reset is verified. The procedure enhancement would not be required if the reset functioned as designed. Planned actions to prevent recurrence included replacement of all similar relays during the next refueling outage and implementation of a preventive maintenance optimization project.

This finding was greater than minor significance because it was associated with the Initiating Events cornerstone attribute of “Equipment Performance,” and affected the cornerstone objective to limit those events which upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding was determined to be of very low safety significance because it did not contribute to the likelihood that mitigation equipment or functions would be unavailable. No violation of NRC requirements occurred. The cause for the finding affected the cross-cutting area of problem identification and resolution in the operating experience aspect because the licensee did not effectively use internally generated lessons learned and vendor recommendations to institutionalize changes to the station preventive maintenance process (P.2(b)).
Inspection Report# : 2007003 *(pdf)*

Significance: G Dec 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PERFORM A MAGNETIC PARTICLE EXAMINATION IN ACCORDANCE WITH ASME CODE SECTION XI
The inspectors identified a Non-Cited Violation of 10 CFR 50.55(a)(g)(4) for failure to perform a Magnetic Particle examination (MT) of the full required exam surface on a steam generator feedwater nozzle weld (N-1) in accordance with the American Society of Mechanical Engineers (ASME) Section XI Code. The licensee subsequently reperformed the MT in accordance with the ASME Code and entered this issue into their corrective action program.

This finding is greater than minor significance because it is associated with the initiating events cornerstone attribute of equipment performance, and affected the cornerstone objective to limit those events which upset plant safety and challenge safety systems. Absent NRC intervention, the licensee would not have performed the full Code-required exam of weld N-1 for an indefinite period of service, which would have placed the reactor coolant pressure boundary at increased risk for unanalyzed cracking, leakage, or component failure. This finding is of very low safety significance because a qualified examination was subsequently performed with no relevant indications detected. In particular, it did not result in the loss of function of the mitigating system.
Inspection Report# : 2006005 *(pdf)*

Mitigating Systems

Significance: G Jun 22, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Modification of Safeguards Screenhouse Ventilation System
The inspectors identified a finding having very low significance (Green) and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." Specifically, the licensee modified the safeguards screenhouse ventilation system by removing four fans and failed to verify or test the adequacy of the remaining ventilation exhaust fans to cool the safety-related cooling water pumps. Following discovery, the licensee entered the issue into its corrective action program, performed additional tests and calculations and revised the maximum allowable outside air temperature. There was not a cross-cutting aspect to this violation.

This issue was more than minor because it met the criteria in IMC 0612, Appendix E, "Examples of Minor Issues," Example 3j for making an issue more than minor. Specifically, without the evaluations and subsequent imposition of a new maximum outside temperature procedure limit, the inspectors had reasonable doubt that the diesel driven cooling water pumps would reliably perform their safety related function under adverse temperature conditions. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations.
Inspection Report# : 2007007 *(pdf)*

Significance: G Jun 22, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Overload Heater Sizing for Safeguards Screenhouse Ventilation Exhaust Fan
The inspectors identified a finding having very low significance and an associated non cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." Specifically, the licensee failed to ensure that the thermal overload heater for the 21 screenhouse safeguards roof exhaust fan had sufficient margin to allow proper operation under adverse conditions. Following discovery, the licensee entered the issue into its corrective action program, took actual running current measurements and performed preliminary calculations to justify operability. There was not a cross-cutting aspect to this violation.

This issue was more than minor in accordance with IMC 0612, Appendix B, "Issue Disposition Screening," because, at the time of discovery, there was reasonable doubt on the operability of fan 21. Specifically, because of the errors in setting and testing the 21 screenhouse safeguards roof exhaust fan thermal overload heater, actual field measurements and further evaluation needed to be performed in order to demonstrate that the overload heater could perform its safety function during a design basis event. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations.
Inspection Report# : 2007007 *(pdf)*

Significance: G Jun 22, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Non-Conservative Inputs for Motor-Operated Valve Calculations
The inspectors identified a finding having very low significance (Green) and an associated non cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." Specifically, the licensee used non-conservative inputs or methodologies in calculating terminal voltages or control circuit voltages to safety-related MOV motors that would be required to operate for mitigation of design bases events. Following discovery, the licensee redid a number of calculations to demonstrate MOV operability, performed an informal bounding analysis to verify that the inputs to the calculations were conservative and entered the issue into its corrective action program. There was not a cross-cutting aspect to this violation.

This issue was more than minor because it met the criteria in IMC 0612, Appendix E, "Examples of Minor Issues,"

Example 3j for making an issue more than minor. Specifically, the use of non-conservative values of motor control center voltages or starting current to calculate MOV terminal voltages or control circuit voltages to safety-related MOVs, combined with the fact that the electrical voltage analyses had not been updated for a significant period of time to reflect plant modifications, and the omission of the cooling water crossover valve, with its required safety function to close during a design bases event resulted in a condition where there was reasonable doubt on the operability of the components. Both the electrical voltage calculations and mechanical thrust and torque calculations had to be re-evaluated to determine operability of the affected safety-related MOVs. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations.
Inspection Report# : 2007007 *(pdf)*

Significance: G Aug 18, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
No Fire-Rated Damper in Return Ventilation Duct
The inspectors identified a NCV of the Prairie Island Nuclear Generating Plant's (PINGP's) Facility Operating License, Section 2.C.(4) and 10 CFR 50.48(b)(1)(I) having very low safety significance for not having a three-hour fire-rated damper installed between the AFW pump room (Fire Area 31) and the 480 Volt normal switchgear room (Fire Area 37). In the licensee's safety evaluation report (SER) dated September 6, 1979, in Section 5.10.6, the NRC stated that all ventilation return ducts that penetrate room boundaries will have fire-rated dampers (three-hour or equivalent) installed. This finding was entered into the licensee's CAP as 01044959, "SER Committed Damper Not Installed in AFWP Return Duct," dated August 17, 2006, to resolve and initiate appropriate corrective actions. In addition, the licensee established compensatory measures (i.e., an hourly fire watch).

This finding was more than minor because it affected the mitigating systems cornerstone attribute of protection against external factors (i.e., fire) and it impacted the objective of the mitigating systems cornerstone. The failure to have a three-hour fire-rated damper installed in the ventilation's return duct could allow the propagation of a fire that could impact the ability of the plant to achieve and maintain SSD. This finding was determined to be of very low safety significance based on the availability of SSD systems and because other defense-in-depth fire protection elements remained unaffected. (Section 1R05.3b.1)

Inspection Report# : 2006009 *(pdf)*

Significance: G Aug 18, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Surveillance Did Not Include TS Requirements
The inspectors identified a NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," having very low safety significance for the licensee's failure to include required instructions in a surveillance procedure. Specifically, the licensee failed to include the technical specification (TS) requirements in Surveillance Procedure (SP)-1266 "Fire Damper - 18-Month Inspection," dated June 2, 2004, to ensure that administrative controls were in place when opening the control room special ventilation system doors to inspect the fire dampers. This finding was entered into the licensee's CAP, the licensee also initiated procedure change request PCR01042837 to revise SP-1266 to reference the TS requirements.

This finding was more than minor because it could have become a more significant safety concern if the fire dampers inspection procedure was not revised to include appropriate administrative controls. Specifically, control room habitability could have been adversely affected if the ventilation duct access panel was not immediately closed during an event that could have resulted in smoke or toxic gas entry into the control room. This finding was determined to be of very low safety significance by an SDP Phase 3 evaluation.
Inspection Report# : 2006009 *(pdf)*

Significance: G Aug 18, 2006
Identified By: NRC
Item Type: NCV NonCited Violation

Lack of Smoke Detectors
The inspectors identified a NCV of the PINGP's Facility Operating License having very low safety significance for the failure to have adequate fire detection installed in accordance with the applicable NFPA codes. Specifically, the licensee failed to install detectors in beam pockets at the mezzanine areas located in the AFW pump rooms (Fire Areas 31 and 32). The inspectors determined that the cause of this finding was related to the self- and independent assessments aspect of the problem identification and resolution (PI and R) cross-cutting area because, in July of 2006, the licensee failed to identify the lack of detectors in the mezzanine areas during their evaluation of the NFPA 72E code compliance deviations for Fire Areas 31 and 32. This finding was entered into the licensee's CAP to evaluate the existing configuration in order to either justify the existing configuration as-is or implement a modification to correct the deficiency.

This finding was more than minor because it affected the mitigating systems cornerstone attribute of protection against external factors (i.e., fire) and it impacted the objective of the mitigating systems cornerstone. As a result of not having an adequate number of detectors, detection of a fire at these locations (i.e., in the AFW pump rooms) could have been delayed. This finding was determined to be of very low safety significance based on the availability of SSD equipment and the low number of ignition sources.
Inspection Report# : 2006009 *(pdf)*

Barrier Integrity

Significance:  Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PERFORM CODE VOLUMETRIC EXAMINATION OF THE 22 STEAM GENERATOR INLET NOZZLE WELD W-5
The inspectors identified a Non-Cited Violation of 10 CFR 50.55a(g)4 for failure to complete a code qualified volumetric examination of the 22 steam generator inlet nozzle weld W-5. As a corrective action, the licensee entered this issue into the corrective action program and performed an operability evaluation to accept this non-conforming weld for continued service.

This finding was of more than minor significance because it was associated with the Barrier Integrity cornerstone attribute of "Reactor Coolant System Equipment and Barrier Performance," and affected the cornerstone objective to provide reasonable assurance that physical design barriers (reactor coolant system) protect the public from radionuclide releases caused by accidents or events. Absent NRC intervention, the licensee would have relied on a limited unqualified ultrasonic examination of weld W-5, for an indefinite period of service which would have placed this reactor coolant pressure boundary weld at increased risk for undetected cracking, leakage, or component failure. This finding was of very low safety significance because the licensee performed an operability evaluation to accept the unqualified limited ultrasonic examination results (e.g., no indications). The finding is not suitable for a significance determination process evaluation, but has been reviewed by NRC management and is determined to be a finding of very low safety significance. The inspectors also determined that the cause of this finding was related to the work control aspect in the Human Performance cross-cutting area because the preventative maintenance work activity for the examination of weld W-5 was not effectively completed.
Inspection Report# : 2006004 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
CONTINUE TO PERMIT UNIT 2 CONTAINMENT ACCESS ON RADIATION WORK PERMITS THAT DO NOT AUTHORIZE ACCESS TO AIRBORNE RADIOACTIVITY LEVELS
Green. A finding of very low safety significance and two associated Non-Cited Violations were inspector-identified associated with the licensee's failure to adequately implement radiation safety procedures concerning the control and response to airborne radiological conditions in containment during the Unit 2 refueling outage (U2R24). After airborne radiological conditions were identified, station personnel continued to access the Unit 2 containment on radiation work permits that did not allow work in a posted airborne radioactivity area. Additionally, once elevated airborne radiation conditions were detected, all personnel were not evacuated from the area, as required by station procedures. The licensee entered the issue into the corrective action program. Licensee corrective actions for this issue included changes to outage planning and scheduling activities to minimize the likelihood of creating airborne conditions in containment and reinforcing the necessity for procedural compliance.

The finding was more than minor because it was associated with the Program/Process attribute of the Occupational Radiation Safety cornerstone and potentially affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. The finding was determined to be of very low safety significance because the finding did not involve As-Low-As-Reasonably-Achievable planning, collective dose was not a factor, it did not involve an overexposure, there was not a substantial potential for a worker overexposure, and the licensee's ability to assess worker dose was not compromised. The cause of the finding is related to a cross-cutting aspect in the area of human performance in work practices. Specifically, human performance work practices require that the licensee define and effectively communicate expectations regarding procedural compliance and that personnel follow procedures (H.4(b)).
Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO EVACUATE UNIT 2 CONTAINMENT UPON DETECTION OF ELEVATED AIRBORNE RADIOACTIVITY LEVELS
Green. A finding of very low safety significance and two associated NCVs were identified by the inspectors. Specifically, the licensee failed to adequately implement radiation safety procedures concerning the control and response to airborne radiological conditions in containment during the Unit 2 refueling outage (U2R24). After airborne radiological conditions were identified, station personnel continued to access the Unit 2 containment on radiation work permits that did not allow work in a posted airborne radioactivity area. Additionally, once elevated airborne radiation conditions were detected, all personnel were not evacuated from the area as required by station procedures. The licensee entered the issue into the corrective action program. Licensee corrective actions for this issue included changes to outage planning and scheduling activities to minimize the likelihood of creating airborne conditions in containment and reinforcing the necessity for procedural compliance.

The finding was more than minor because it was associated with the Program/Process attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. The finding was determined to be of very low safety significance, using the significance determination process, because the finding did not involve As-Low-As-Reasonably-Achievable planning, collective dose as a factor, an overexposure, a substantial potential for a worker overexposure, and any level of compromise of the licensee's ability to assess worker dose. The cause of the finding is related to a cross-cutting aspect in the area of human performance in work practices. Specifically, the licensee did not effectively follow procedures and communicate expectations regarding procedural compliance and follow procedures (H.4(b)).
Inspection Report# : 2007003 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO EVALUATE CONCENTRATIONS OF RADIOACTIVE MATERIAL AND THE

POTENTIAL RADIOLOGICAL HAZARDS
A self-revealed finding of very low safety significance and an associated violation of NRC requirements were identified for the failure to perform adequate evaluation of concentrations or quantities of radioactive material and the potential radiological hazards. Specifically, the licensee failed to adequately assess the radiological hazards and the potential for creating an airborne work area as required in 10 CFR 20.1501, which resulted in unplanned intakes of radioactive material.

The finding was more than minor because it was associated with the Occupational Radiation Safety cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. The occurrence involved the program and process attribute of the objective because procedures were not adequately used to control exposure due to radioactive contamination. A Non-Cited Violation of 10 CFR 20.1501 was identified for the failure to cause surveys to be made that are reasonable under the circumstances to evaluate concentrations of radioactive material and the potential radiological hazards. Corrective actions taken by the licensee for this finding include: 1) developing an Apparent Cause Evaluation (ACE); 2) completing a department “human performance clock” reset to elevate awareness of the safety consequences of the human performance problems; and 3) developing a fleet team to evaluate the way Radiation Work Permits are written to determine if the process can be improved to prevent future similar failures. The fleet team evaluation was still in process during the inspection.
Inspection Report# : 2006004 *(pdf)*

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Last modified : August 24, 2007