

## Farley 2

### Initiating Events

G**Significance:** Jun 30, 2001

Identified By: NRC

Item Type: FIN Finding

**Failure to effectively determine the root cause of Unit 2 Main Steam piping vibrations.**

The inspectors identified that the licensee did not effectively determine the root cause of Unit 2 Main Steam (MS) piping vibrations. This resulted in recurring failures of the MS piping supports since October 1983. The issue is of more than minor safety significance because if left uncorrected, the potential for a main steam line break could be increased. However, this finding is of very low safety significance because analyses of the piping surface damages showed them to be superficial and stress analyses of the affected piping showed that, without the damaged supports and with the maximum piping deflection, code allowable stresses were not exceeded.

Inspection Report# : [2001002\(pdf\)](#)**Significance:** N/A Jun 30, 2001

Identified By: NRC

Item Type: FIN Finding

**No Performance Monitoring criteria established for Maintenance Rule function C22A, Control of Steam Generator Level**

No Color. The inspectors identified that the licensee did not develop Maintenance Rule unavailability performance criteria for steam generator water level control, a safety-related risk significant system function. This finding is of more than minor safety significance because performance monitoring criteria is necessary to balance the reliability and availability of this risk significant function. However, this finding is of very low safety significance because there have been no failures of this function.

Inspection Report# : [2001002\(pdf\)](#)**Significance:** N/A Jun 03, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Maintenance Rule Scoping**

A Non-cited Violation of 10CFR50.65(b)(2)(iii) was identified for failing to include the function of the circulating water canal make-up valves in the Maintenance Rule program scope. The inspectors found that failures of these valves had resulted in cavitation of the Circulating Water pumps and loss of main condenser vacuum. This finding is of more than minor safety significance because failure of these valves has resulted in a loss of normal heat removal which could initiate a reactor trip. However, this finding is of very low safety significance because no actual reactor trips occurred from failures of these valves

Inspection Report# : [2001002\(pdf\)](#)G**Significance:** May 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Maintenance Procedure**

The failure to properly torque the bolting for the main generator neutral transformer in accordance with maintenance procedure FNP-2-EMP-1905.01, Main Generator Tagging and Back Feed, on May 2, 2001, was a violation of TS 5.4.1.a. This failure resulted in a loss of the main generator and a turbine/reactor trip when the bolting failed on June 23, 2001. This issue was placed in the licensee's corrective action program as CR 2001001535.

Inspection Report# : [2001003\(pdf\)](#)**Significance:** N/A Nov 17, 2000

Identified By: NRC

Item Type: FIN Finding

**WHITE PERFORMANCE INDICATOR (PI) FOR UNPLANNED POWER REDUCTIONS**

SUPPLEMENTAL INSPECTION: this inspection, performed in accordance with NRC Inspection Procedure 95001, was completed to assess the licensee's evaluation and corrective actions associated with a white Unit 1 PI for Unplanned Power Changes. The PI crosses the green-white threshold if there are more than six unplanned power changes of greater than 20% per 7,000 hours of critical operation. The licensee initiated six unplanned Unit 1 power changes during the past year; four were due to plant cooling tower problems, one was due to a feedwater pump lubricating oil pressure switch failure, and one was due to a turbine extraction steam bellows failure in the Unit 1 main condenser. The licensee reported this white PI to the NRC on October 21, 2000, during the third quarter PI submittal. During this supplemental inspection the inspectors determined that the licensee performed a comprehensive investigation and evaluation of the issues which caused the PI on Unit 1 to become white. The licensee identified the commonalities in these six unplanned power changes to be component aging and end of service life, which are being addressed

through improvements to the preventive and predictive maintenance programs. Additionally, the licensee identified that Farley management was not including the additional risk associated with power changes into their evaluation when responding to failed or degraded components. The licensee has modified their administrative procedures and will conduct formal training to assess the additional risk during power changes. The licensee has also scheduled a Safety Audit and Engineering Review effectiveness evaluation to assess the adequacy of the root cause and corrective actions.

Inspection Report# : [2000012\(pdf\)](#)



**Significance:** Aug 16, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO ADEQUATELY MONITOR THE PERFORMANCE AND LUBRICATION OF THE SAFETY RELATED 2A, 2B AND 2D SERVICE WATER PUMP MOTORS**

A non-cited violation was identified for an inadequate procedure required by Technical Specification 5.4.1 to monitor the performance of the safety related 2A, 2C, and 2D service water pump motors to ensure they had adequate bearing lubrication. As a result, the 2C service water pump motor failed and caused a small fire. This issue was evaluated as a transient initiator contributor and also contributed to the potential for internal flooding from sprinkler header discharge which had notable risk implications in the Farley Probabilistic Risk Analysis (PRA). This issue was of very low safety significance because the increase in risk from the PRA was minimal. Also, the impact of the failure and fire was contained to the 2C pump and the sprinklers only pressurized but did not discharge due to insufficient heat to open the sprinkler heads. The licensee also entered and fully addressed the problem in their corrective action system. No actual flooding existed

Inspection Report# : [2000004\(pdf\)](#)



**Significance:** Aug 25, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Properly Establish the Initial Conditions for the Unit 2 Feedwater Level Control System Switches**

The failure to properly establish the initial conditions for the Unit 2 feedwater level control system switches in accordance with surveillance test procedure FNP-2-STP-213.17, High Steam Line Flow SI Functional Test and Calibration, on August 25, 2001, was a violation of TS 5.4.1.a. This procedure omission resulted in a minor transient on the steam generator level control system, which was recovered by operator actions. This issue was placed in the licensee's corrective action program as CR 2001002123.

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

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## Mitigating Systems

**Significance:** N/A Jun 30, 2001

Identified By: NRC

Item Type: FIN Finding

**Untimely or Ineffectively Implemented Corrective Actions for Maintenance Rule Issues**

The inspectors identified that many corrective actions for Maintenance Rule issues have not been timely and effectively implemented. The finding was based on the inspectors review of the 2001 Maintenance Rule periodic assessment which identified several Maintenance Rule problems that have gone uncorrected for several years. This finding does have a credible impact on safety because Maintenance Rule issues left uncorrected could result in increased plant equipment problems, equipment unavailability, or initiating event frequency. This finding was considered to be of very low safety significance because no direct consequences have occurred due to the uncorrected problems.

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



**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**INADEQUATE MAINTENANCE PROCEDURES FOR THE 1C AND 2C EMERGENCY DIESEL GENERATORS (EDGs)**

The inspectors identified a Non-Cited Violation of Technical Specification Surveillance Requirement 13.8.3.1 for failure to assure that maintenance performed on the 1C and 2C EDGs was in accordance with the vendor manual recommendations. The licensee had not followed the vendor manual's guidance for checking the vertical drive coupling and bearings of the 1C EDG which led to a degraded condition. Although the 1C EDG was determined to be in a degraded condition, an operability evaluation concluded it could have performed its required function. Because the 1C EDG remained operable and the 2C EDG vertical shaft was found not to be damaged, this finding was determined to be of very low significance.

Inspection Report# : [2000006\(pdf\)](#)

**Significance:** N/A Oct 27, 2000

Identified By: NRC

Item Type: FIN Finding

**MAINTENANCE RULE PROGRAM IMPLEMENTATION RESULTS IN ADVERSE PERFORMANCE TREND**

**SUPPLEMENTAL INSPECTION:** This supplemental inspection was performed to assess the licensee's evaluation and corrective actions associated with a Unit 2 Degraded Mitigating Systems Cornerstone due to two White Performance Indicators (PIs) for Heat Removal System (auxiliary feedwater (AFW)) and Emergency Alternating Current (AC) Power System unavailability. This supplemental inspection, performed in accordance with inspection procedure (IP) 95002, was the final focused phase of NRC follow up to assess extent of condition and programmatic implications of the licensee evaluation findings. This inspection also focused on corrective actions to prevent recurrence of any similar conditions. The initial inspection of the Unit 2 Degraded Mitigating Systems Cornerstone in accordance with IP 95001 and IP 95002 was documented in inspection reports 50-348,364/00-07 and 348,364/00-08, respectively. The purpose of this inspection was to accomplish further supplemental inspection of breaker and turbine driven (TD) AFW pump maintenance, and Maintenance Rule implementation, due to concerns raised during the initial IP 95002 inspection. The results of this inspection concluded that the corrective actions to prevent recurrence of breaker failures were adequate to address the extent of condition for those failures. Similarly, the corrective actions for the TDAFW pump failures were adequate to address the extent of condition for those failures. However, the corrective actions were not yet fully implemented. An inspection finding without color identified problems with the licensee's Maintenance Rule program implementation. This finding is supported by several observations which indicated an adverse performance trend, including the status of breakers and the auxiliary feedwater system in Maintenance Rule (a)(1) for an extended period of time. While the risk associated with each observation was very low, this was an apparent precursor to the Unit 2 Degraded Mitigating System Cornerstone. Due to the licensee's acceptable performance in addressing and developing corrective action for these issues, the NRC supplemental inspection effort for the Unit 2 Degraded Mitigating Systems Cornerstone is complete. The White PIs associated with both units' Emergency AC Power and the Unit 2 Heat Removal System availability will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in NRC Manual Chapter 0305. NEI-99-02, Regulatory Assessment Performance Indicator Guideline, revision 0, contains guidance for the removal of fault exposure hours contributing to unavailability totals. Section 2.2, Mitigating Systems Cornerstone - Safety System Unavailability, allows the removal of fault exposure hours after 4 quarters have elapsed provided, among other criteria, that supplemental inspection activities by the NRC have been completed. Since the supplemental effort is complete, the licensee may reset the fault exposure hours for the above White PIs when the other criteria are fulfilled. Implementation of the licensee's corrective actions will be reviewed during a future inspection.

Inspection Report# : [2000011\(pdf\)](#)**Significance:** N/A Jul 21, 2000

Identified By: NRC

Item Type: FIN Finding

**UNIT 2 AUXILIARY FEEDWATER UNAVAILABILITY RESULTS IN WHITE PERFORMANCE INDICATOR AND DEGRADED CORNERSTONE**

**SUPPLEMENTAL INSPECTION:** IP 95002 was performed to assess the licensee's evaluation and corrective actions associated with a Unit 2 Degraded Mitigating Systems Cornerstone due to two White performance indicators (PIs) for Heat Removal System (auxiliary feedwater [AFW]) and Emergency Alternating Current (AC) Power System unavailability. The Unit 2 AFW unavailability resulted from 4160 volt supply breaker failures and turbine driven AFW (TDAFW) pump control system failures. The licensee determined that the root causes of these failures were ineffective preventive maintenance and corrective actions for previous problems. Causal factors included a lack of vendor guidance resulting in a lack of preventive maintenance, weak control of troubleshooting activities and post maintenance testing, poor system specialist/engineer involvement, and a lack of timely resolution for those components and systems in the enhanced monitoring classification a(1) of the Maintenance Rule. As corrective actions, the licensee implemented additional monitoring and work controls for the AFW system by system engineering, operations, and maintenance. The licensee's root cause investigation was considered thorough and the proposed corrective actions were considered acceptable. However, the NRC intends to perform additional supplemental inspection (to complete IP 95002 - see IR 00-11) in the areas of breaker maintenance, maintenance program implementation, and Maintenance Rule.

Inspection Report# : [2000008\(pdf\)](#)**Significance:** Green Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**INADEQUATE CORRECTIVE ACTIONS FOR POST MAINTENANCE TESTING OF AUXILIARY FEEDWATER PUMP**

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, for inadequate corrective actions taken relative to abnormal indications during a post maintenance test of the Unit 2 turbine driven auxiliary feedwater pump. On subsequent surveillance tests, the pump operation was erratic and often tripped on overspeed during startup and, therefore, failed to meet operability test requirements. The issue was determined to be of very low safety significance based on the limited duration and intermittent nature of the problem, on the ability of operators to recover, and because both redundant motor driven pumps were available.

Inspection Report# : [2000003\(pdf\)](#)**Significance:** Green Oct 20, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Corrective Actions for the 1C EDG Failure**

Green. A non-cited violation was identified for inadequate corrective actions, as required by 10 CFR 50 Appendix B, Criteria XVI, for failure to address a degraded condition of the 1C Emergency Diesel Generator (EDG). The licensee did not follow their Condition Report requirements to

perform a root cause and broadness review. As a result, a different degraded condition of the 1B EDG occurred, which resulted in that EDG becoming inoperable. Both of these conditions were related to not following vendor guidance in the respective EDG vendor instruction manuals as required by plant procedures. However, this finding was of very low safety significance because the 1C EDG was determined to be degraded but operable and the 1B EDG failure occurred during the refueling outage, when it was not required to be operable.

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

**Significance:** N/A Jun 02, 2000

Identified By: NRC

Item Type: FIN Finding

**EMERGENCY POWER UNAVAILABILITY RESULTS IN WHITE PERFORMANCE INDICATOR (PI)**

SUPPLEMENTAL INSPECTION: IP 95001 was performed to assess the licensee's evaluation and corrective actions associated with White Performance Indicators (PIs) for both units' emergency AC power systems. Fault exposure unavailability hours for both the unit common 1-2A and 1C emergency diesel generators (A train) resulted in each unit's PI crossing the Green to White unavailability threshold (2.5%). The licensee identified the cause as breaker failures associated with the 600 volt load centers which supply AC power to the diesel auxiliaries. The 1-2A diesel auxiliary power supply breaker failure primary root cause was a broken internal wire due to flexing. The wire had been in contact with the closing spring which most likely occurred during the manufacturing process. The 1C diesel auxiliary power supply breaker failure primary root cause was a failed relay attributed to weak Preventive Maintenance (PM), poor engineering review, reduced stock levels, and a lack of operations knowledge regarding the auto transfer scheme. As corrective actions, the licensee implemented enhanced monitoring of the EDGs and emergency AC power by system engineering, operations, and maintenance.

Inspection Report# : [2000007\(pdf\)](#)

## Barrier Integrity



**Significance:** Mar 25, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

**TECHNICAL SPECIFICATION (TS) 3.0.3 NOT ENTERED WHEN THE REACTOR COOLANT SYSTEM LEAK DETECTION WAS INOPERABLE**

The inspectors identified a non-cited violation of Unit 2 Technical Specification 3.4.15 requirements for the reactor coolant system leak detection systems. The issue was determined to be of very low safety significance because the monitors are not safety significant and redundant indications and systems were available to the operators to monitor for potential leaks. (Licensee Event Report 50-364/00-02)

Inspection Report# : [2000003\(pdf\)](#)

## Emergency Preparedness

## Occupational Radiation Safety

## Public Radiation Safety

## Physical Protection



**Significance:** Jun 21, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**PSP changes that decreased the effectiveness of the Site Security Plan (5 Examples)**

The inspector identified five apparent violations of 10CFR50.54(p) involving improper changes that the licensee had made to the Physical Security

Plan. The Physical Security Plan changes were significant in that they decreased the effectiveness of the Security Plan. (See URI 50-348,364/00-09-03) By letter dated August, 17, 2001, based on the information developed during the inspection and the information presented by the licensee at the Regulatory Conference, the NRC has determined that a violation of NRC requirements occurred. In particular, 10 CFR 50.54(p)(1) states that licensees may make no change which would decrease the effectiveness of a security plan without prior approval of the Commission. Contrary to this requirement, the NRC concluded that the licensee made changes to the PSP, without prior Commission approval, that decreased the effectiveness of the PSP, by: (1) changing the response strategy to not engage an adversary prior to entrance into Vital Areas; (2) not preventing acts intended to cause a significant release of radioactivity; (3) reducing search requirements which provided a potential pathway for unauthorized items to be introduced into the protected area; (4) replacing an automatic switch over capability in the power supply for the two-way radio system and implementing a manual action for switch over; and (5) replacing supervision of alarm security data lines with cross monitoring. Because you stated that your response strategies and implementing procedures had not been revised substantively as a result of the PSP changes and the short duration that some of the changes were in effect, the impact of these changes to your PSP was minimal. Based on this, the NRC concluded that this violation with five examples should be characterized at Severity Level IV. Because of the low safety significance of the violation, PSP revisions already implemented or approved to restore compliance, and placement of the issue into the corrective action program (Farley Condition Report 22000005326), the NRC is characterizing this violation as a non-cited violation. (The complete document can be accessed in ADAMS with Pkg #ML012340165.)

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



**Significance:** Aug 25, 2000

Identified By: NRC

Item Type: FIN Finding

#### **Response force for attempted intrusion**

The Physical Security Plan, Section 7, requires that detected or attempted intrusion at the protected area barrier, will provide sufficient time for a security response force to engage an adversary force to preclude penetration of vital area barriers and any act intended to cause a significant release of radioactivity. Licensee performance in this area will be reviewed. By letter dated August 17, 2001, FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING, the NRC concluded that [the licensee's] performance during the July 2000 force-on-force exercises resulted in a failure of a limited portion of [the] protective strategy and the loss of a complete target set during one exercise. The NRC considered the finding to be potentially predictable or occasionally repeatable, but could not conclude that [the licensee's] performance represented a broad, programmatic problem. Therefore, in accordance with the NRC's Interim Physical Protection Significance Determination Process, this finding is appropriately characterized as White. (The complete document can be accessed in ADAMS as Pkg #ML012340165.) Licensee compensatory measures were in place to address the deficiencies. SUPPLEMENTAL INSPECTION: IP 95001 was performed to assess the licensee's evaluation and corrective actions for the White inspection finding related to performance during the July 2000 Operational Safeguards Response Evaluation (OSRE). Inspection Report 2001-009 issued 12/20/2001 determined that the licensee had performed an adequate investigation and evaluation of the issues which either caused or contributed to the White inspection finding. The licensee identified the primary root cause as a less than adequate philosophy which did not seek all available inputs for improvement in the security area, including a lack of benchmarking performance against other plants or the use of outside consultants. The licensee further characterized it as a compliance versus a continuous improvement approach. The licensee's root cause also identified several contributing causes for the White inspection finding, including the lack of adequate target set development and related hardware vulnerabilities. The overall thoroughness of the root cause was adequate, but the inspector identified some possible contributing causes that had not been reviewed by the licensee, including security force workload and tracking of controller performance. The licensee implemented a variety of corrective actions to prevent recurrence including physical security (hardware), procedural, and training upgrades. The licensee established several monitoring provisions to identify and correct potential degraded performance prior to recurrence. These included a scheduled effectiveness evaluation by the Safety Audit and Engineering Review group to assess the adequacy of the root cause and the corresponding corrective actions. Training exercises incorporated significantly expanded target sets which enhanced the overall response capability of the security force. The inspection identified some areas for potential security program enhancements which were subsequently documented in the licensee's corrective action system, several of which involved a lack of structured, long term performance monitoring of security. Based on the overall satisfactory results of the inspection, the licensee's performance in completing the root cause assessment for the identified White inspection finding was considered adequate.

Inspection Report# : [2000003\(pdf\)](#)

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

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

Inspection Report# : [2001009\(pdf\)](#)



**Significance:** Aug 09, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Compensatory Measures for Suppressed Tamper Alarms**

An NCV was identified in that compensatory measure for suppressed tamper alarms associated with vital area doors, alarm panel doors, and CCTV alarm panel doors were not implemented in accordance with the Farley Physical Security Plan. While the risk was low in this case, this issue was identified as more than a minor finding because inoperable intrusion detection system tamper alarms leave the affected system component susceptible to malevolent manipulation.

Inspection Report# : [2001010\(pdf\)](#)



G**Significance:** Aug 07, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Perform an Adequate Search of Personnel**

A Non-Cited Violation (NCV) was identified when a security officer failed to properly search several individuals prior to allowing them unescorted access to the protected area (PA). Requirements violated were established in the Farley Physical Security Plan and implementing procedures. While the risk was low in this case, the issue was identified as more than a minor finding because granting site access to individuals who have not been properly searched can have a credible impact on safety. Additionally, the granting of access to improperly searched individuals can be viewed as a precursor to a significant event.

Inspection Report# : [2001010\(pdf\)](#)

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## Miscellaneous

**Significance:** N/A Sep 08, 2000

Identified By: NRC

Item Type: FIN Finding

**PROBLEM IDENTIFICATION AND RESOLUTION**

The licensee was effective at identifying problems and entering them into the corrective action program. Generally, problems entered into the corrective action program were adequately evaluated and appropriate corrective actions were identified. Formal root cause evaluations and corrective actions for significant issues were thorough and detailed. Corrective actions were implemented in a timely manner commensurate with their safety significance. Licensee audits and self-assessments adequately identified deficiencies in the corrective action program and audit findings were consistent with the NRC's observations. Based on interviews conducted during this inspection, plant employees were not reluctant to report nuclear safety issues. However, some negative observations were identified for failing to enter some issues into the corrective action system and for issues that did not receive adequate investigation and development of corrective actions or that were not assigned the appropriate severity level classification. These negative observations involved issues that were of very low safety significance.

Inspection Report# : [2000010\(pdf\)](#)**Significance:** N/A Nov 30, 2001

Identified By: NRC

Item Type: FIN Finding

**Results of PI&R Inspection**

The inspectors determined that, in general, problems were properly identified, evaluated, and corrected. A low threshold for self-identification was demonstrated. Significant problems were adequately addressed. However, some minor problems were noted including the failure to initiate Condition Reports (CRs) for equipment problems, CRs with poor documentation quality, and action items (AIs) that were not clearly linked to the problem and were not clearly focused on addressing the identified causes. Since documentation was not always complete, in many cases, the inspectors had to clear and concise in addressing the corrective action. Some self-assessments were programmatic in scope and did not assess the output or implementation of the program being assessed. Operating experience (OE) items were sometimes not evaluated, reviewed for applicability, or incorporated into site procedures, and corrective actions to determine root causes for some negative trends identified from trend analysis were not always timely.

Inspection Report# : [2001004\(pdf\)](#)**Significance:** N/A Feb 07, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Technical Specification (TS) 3.0.5 entered due to Service Water lubrication and cooling pumps inoperable**

By letter dated July 13, 2000, the NRC concluded that the service water system could have performed its intended safety function based on a vendor's analysis described in LER 50-364/2000-01-02. Due to the low safety significance of this issue, the violation should be characterized as a non-cited violation. Because this violation was identified before implementation of the Revised Reactor Oversight Program, the Significant Determination Process was not used to evaluate this finding.

Inspection Report# : [2000003\(pdf\)](#)

Last modified : March 27, 2002