

## Summer 2Q/2005 Plant Inspection Findings

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### Initiating Events

**G****Significance:** Jun 30, 2005

Identified By: Self Disclosing

Item Type: FIN Finding

**Failure of 1" Extraction Steam Line Due to Inadequate On-Line Leak Repair Procedure**

A self-revealing finding was identified for the use of an inadequate on-line leak repair procedure, which resulted in the line break of a 1" diameter Main Steam Turbine Casing Drain / 3rd Stage Extraction Steam Equalization Line. The on-line leak repair procedure, MMP-105.005, did not contain any instruction to verify that the subject piping maintained adequate wall thickness prior to installation of the leak sealant enclosure cavity. The licensee has performed a root cause investigation of the line failure and has entered the results into their corrective action program.

This finding is greater than minor because the procedure, if left uncorrected, could be applied to more safety significant piping systems where a similar failure could initiate a plant transient or cause complications such as loss of normal heat sink. The finding is considered to be of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The cause of this finding was an evaluation issue of the cross-cutting aspect of Problem Identification and Resolution.

Inspection Report# : [2005003\(pdf\)](#)**G****Significance:** Jun 30, 2005

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to Adequately Review and Understand the Impact of Relay Maintenance Resulting in Loss of Class 1E "B" Train Power and Automatic Start of "B" EDG and ESF Loading Sequencer**

A self-revealing non-cited violation of Technical Specification 6.8.1.a was identified for the failure to adequately review and understand the impact of protective relay maintenance/testing on the plant prior to allowing the work to commence.

This finding is greater than minor because it affected the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective, in that, the failure to adequately review and understand the impact of the work activity resulted in a perturbation in plant stability by causing a loss of power to the Class 1E "B" train vital safeguards bus (1DB), loss of power to all balance of plant buses, and automatic start of the "B" train emergency diesel generator and actuation of the Engineered Safety Features (ESF) loading sequencer. The finding is of very low safety significance because all necessary plant safety equipment responded as designed to the loss of power event, shutdown cooling flow was restored within 20 seconds without any appreciable reactor coolant system (RCS) heatup, and all "A" train redundant ESF equipment remained functional during the period. The direct cause of this finding was an organizational issue of the cross-cutting aspect of Human Performance.

Inspection Report# : [2005003\(pdf\)](#)**G****Significance:** Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to Follow Procedure for Resetting ESF Load Sequencer Results in Inadvertent Safety-Related Bus Deenergization**

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1.a was identified for an operator's failure to follow procedures while resetting the "A" train engineered safety features (ESF) loading sequencer self-test circuitry. This resulted in a loss of power to a safety-related emergency bus and the automatic starting of ESF equipment, including an emergency diesel generator to repower the bus.

This finding is more than minor because it affected the initiating events cornerstone attribute of configuration control and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions by deenergizing a safety-related electrical switchgear bus. The finding is of very low safety significance because the affected mitigating systems were able to perform their safety functions since the redundant train of ESF components was available and the affected ESF equipment responded by aligning to their accident state as expected for the initiating condition. The direct cause of this finding involved the cross-cutting area of Human Performance.

Inspection Report# : [2004005\(pdf\)](#)

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## Mitigating Systems

**Significance:**  Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Follow Startup Procedure for Aligning RHR System During Plant Heatup**

The NRC identified a non-cited violation of Technical Specification 6.8.1.a for the failure to place the "B" train Residual Heat Removal (RHR) pump control switch in pull-to-lock (PTL) prior to heating up the reactor coolant system (RCS) greater than 250 F during plant restart from the refueling outage.

This finding is more than minor because if left uncorrected, it could have resulted in a more significant safety concern, in that, had RCS heatup continued without the "B" RHR pump in PTL, it could have resulted in the pump being incapable of performing its design safety function during shutdown accident conditions. The finding is of very low safety significance because after being alerted by the NRC, the condition was corrected prior to the RCS exceeding temperatures that could have allowed flashing to occur in the "B" RHR pump suction piping had the pump automatically started and aligned to the refueling water storage tank. The direct cause of this finding was an attention issue of the cross-cutting aspect of Human Performance.

Inspection Report# : [2005003\(pdf\)](#)

**Significance:**  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Establish Procedures for Responding to a Loss of Control Room Annunciators Emergency Event (Section 1R14)**

A Non Cited Violation of Technical Specification (TS) 6.8.1.a was identified by the NRC for the failure to establish and implement procedures for events involving the loss of control room annunciators. This resulted in delays in implementing appropriate compensatory actions during an actual event involving partial loss of control room annunciators.

The inspectors determined that the licensee's failure to establish and implement written procedures for responding to loss of control room annunciators was a performance deficiency because the licensee is expected to meet TS requirements for having procedures for abnormal or emergency conditions. This finding is not suitable for Significance Determination Process (SDP) evaluation, however, this issue has been reviewed by NRC management and is determined to be a Green finding of very low safety significance because the annunciators are an aid to control room operators to enhance human performance and the lack of specific response procedures could adversely affect the licensee's ability to monitor and control the response of mitigating system equipment. The loss of annunciators was limited to only one train of safety equipment, there was no actual loss of mitigating system equipment, and no other plant transients occurred during the time period the annunciators were inoperable (Section 1R14).

Inspection Report# : [2005002\(pdf\)](#)

**Significance:**  Mar 10, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to appropriately design the Emergency Feedwater System to prevent a common mode failure of the flow control valves when the backup service water supply source is used**

An NRC identified, non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, was identified in that the licensee failed to adequately select and review for suitability, the application of materials, parts, equipment and processes that are essential to the safety-related functions of the Emergency Feedwater (EFW) System. Specifically, under certain conditions, the EFW flow control valves could become plugged from tubercles or other debris when aligned to the backup service water supply.

This finding is greater than minor because it affected the Mitigating System Cornerstone objective of equipment reliability, in that, potential plugging of the EFW flow control valves could result in a common mode failure of the EFW System. The finding is of very low significance because of the low likelihood of an event requiring the use of the backup service water supply source to the EFW pumps.

Inspection Report# : [2005007\(pdf\)](#)

**Significance:**  Mar 10, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure of corrective actions to adequately resolve a design vulnerability of the Emergency Feedwater System**

An NRC identified, non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified, in that, corrective actions taken since 1986 failed to adequately resolve a design vulnerability of the Emergency Feedwater (EFW) System. Specifically, tubercles and other debris from the backup service water source could plug the EFW flow control valves.

This finding is greater than minor because it affected the Mitigating System Cornerstone objective of equipment reliability, in that, potential plugging of the EFW flow control valves could result in a common mode failure of the EFW system. The finding is of very low significance

because of the low likelihood of an event requiring the use of the backup service water suction source to the EFW pumps. This finding has cross-cutting aspects related to problem identification and resolution.

Inspection Report# : [2005007\(pdf\)](#)

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**Significance:** Nov 19, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Procedures to Test Non-Emergency Diesel Generator Trip Bypass Relays**

The team identified a non-cited violation (NCV) of TS 6.8.1.c, Procedures and Programs, for failure to include the proper testing methodology in procedures to meet Technical Specification Surveillance Requirement 4.8.1.1.2.g.6.c. Technical Specification 4.8.1.1.2.g.6.c required testing to demonstrate that all emergency diesel generator trips other than overspeed, generator differential, and low lube oil pressure were automatically bypassed upon loss of voltage on the associated emergency bus concurrent with a safety injection signal. Procedures STP-0125-010 and STP-0125-011 did not provide for adequate testing of the bypass function as intended, and no other procedures were identified that satisfied the requirement. This resulted in the failure to test the bypass function since November 1996, when a similar test deficiency was discovered by the licensee and addressed by a temporary procedure change. The licensee performed testing, subsequent to the inspection, which demonstrated this feature operated properly and entered it into the corrective action program.

This finding is greater than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring reliable, available, and capable systems that respond to initiating events. This finding is of very low safety significance because no loss of safety function occurred and it is not related to an event external to the plant. This finding has been entered into the licensee's corrective action program as CER 0-C-04-3626. This finding has cross-cutting aspects related to problem identification and resolution.

Inspection Report# : [2004009\(pdf\)](#)

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**Significance:** Nov 19, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Take Timely Corrective Action to Address Operator Timeline Response Deficiencies**

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. The licensee failed to take timely action to correct the inability of plant operators to terminate safety injection after an inadvertent emergency core cooling system (ECCS) actuation at power within the time assumed in the plant design and licensing basis. This issue was initially identified in 1993 and had not been corrected as of the date of this inspection.

This finding is greater than minor because the inability to meet the design basis timeline is associated with the procedure quality and design control attributes of the mitigating systems cornerstone and affects the cornerstone objective of ensuring the capability that operators would be able to properly respond to an initiating event to prevent undesirable consequences. This finding was determined to be of very low safety significance because the design or qualification deficiency did not result in a loss of function per Generic Letter 91-18, Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions, Revision 1. This finding has been entered into the licensee's corrective action program as CER 0-C-04-3250. This finding has cross-cutting aspects related to problem identification and resolution.

Inspection Report# : [2004009\(pdf\)](#)

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## **Barrier Integrity**

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**Significance:** Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

#### **Failure to Follow Procedure for Adjusting Close Latch Release Rod of "A" Train RHR Pump Motor Breaker Resulting in Breaker Failure to Close**

A self-revealing non-cited violation of TS 6.8.1.a was identified for maintenance personnel's failure to properly adjust the close latch release rod associated with the "A" residual heat removal (RHR) pump motor breaker. As a consequence, the pump failed to start on October 13, 2004, during routine plant operations.

This finding is more than minor because it affected the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences by rendering inoperable safety-related equipment for removing reactor core heat. A Significance Determination Process Phase 2 analysis determined that the finding is of very low significance because the "A" RHR pump could have been placed in service to perform its safety functions by operator actions. The pump breaker could be manually closed prior to exceeding the time of bulk boiling in the reactor vessel during accident conditions. The direct cause of this finding involved the cross-cutting area of Human Performance

Inspection Report# : [2004005\(pdf\)](#)

**G****Significance:** Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to Take Adequate Corrective Actions to Preclude Repetitive Inoperability of Containment Pressure Transmitter IPT00950**

A self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the failure to take timely and adequate corrective actions to preclude repetition of a significant condition adverse to quality concerning the inoperability of reactor containment pressure transmitter IPT00950.

This finding is more than minor because it affected the barrier integrity cornerstone attribute of containment pressure control equipment performance (i.e., reactor building spray system) and adversely affected the cornerstone objective to provide reasonable assurance that the containment barrier protect the public from radionuclide releases caused by accidents or events. The finding is of very low safety significance because the event did not involve an actual reduction in the defense-in-depth for atmospheric pressure control of the reactor containment since the three redundant containment pressure instruments remained available to initiate the reactor building spray safety functions. The direct cause of this finding involved the cross-cutting area of Problem Identification and Resolution.

Inspection Report# : [2004005\(pdf\)](#)

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

**G****Significance:** Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to Perform Adequate Surveys and Properly Control Licensed Material**

A self-revealing non-cited violation of 10 CFR 20.1501 and 20.1802 was identified concerning the licensee's failure to adequately survey the content of a metal box prior to its release from the restricted area and the resulting loss of control of licensed material. The box was sold to a licensee employee and was taken to the employee's residence. When the box was later opened, an assortment of tools and material were found to be contaminated with low-level byproduct material.

This finding was more than minor because it was associated with the cornerstone attribute of material release and it affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain. The finding involving radioactive material control was determined to be of very low safety significance because it did not result in a dose to the public greater than 0.005 rem.

Inspection Report# : [2004005\(pdf\)](#)

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## Physical Protection

[Physical Protection](#) information not publicly available.

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## Miscellaneous

**Significance:** N/A Nov 19, 2004

Identified By: NRC

Item Type: FIN Finding

**Integrated Assessment for Temporary Instruction 2515/158, Functional Review of Low Margin/Risk/Significant Components and Operator Actions, Inspection**

The components and systems reviewed were found to be capable of performing their intended safety functions. Generally, design controls were sufficient in areas examined by the team. The licensee's historical response to some conditions adverse to quality was not adequate.

Specifically, the engineering solutions to potential emergency feedwater control valve plugging (Section 4OA5.2.1.1), inadequate emergency diesel generator testing (Section 4OA5.2.1.19), and potential inadequacies in the operator response timeline to an inadvertent ECCS actuation (Section 4OA5.3.1) were not comprehensive or timely.

Inspection Report# : [2004009\(pdf\)](#)

Last modified : August 24, 2005