

# Turkey Point 3

## 1Q/2011 Plant Inspection Findings

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### Initiating Events

**Significance:**  Sep 30, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to provide adequate instructions when working on the reactor protection system results in reactor trip**

A self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified when the licensee started corrective maintenance on the Unit 4 reactor protection system with an inadequate procedure. As a result, a reactor trip occurred when a reactor trip circuit was not placed on bypass as an initial condition needed to safely complete the work. During the event investigation, the licensee determined that neither the work order, nor the pre-job review identified the need to place the affected train of the reactor protection system on the bypass breaker.

The finding was determined to be more than minor because it affects the Initiating Events cornerstone attribute of procedure quality and adversely affected the cornerstone objective to limit the likelihood of an event that upsets plant stability by resulting in a reactor trip. The finding was evaluated in accordance with IMC 0609, Attachment 4, and determined to be of very low safety significance (Green) per SDP Phase 1 determination because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. This finding has a cross-cutting aspect in the area of Human Performance, Work Control H.3(b) because the licensee did not appropriately coordinate work activities by incorporating actions to address the need to keep personnel apprised of the operational impact of work and plant conditions that may affect work activities, resulting in a reactor trip. (1R12)

Inspection Report# : [2010004](#) (*pdf*)

**Significance:**  Jun 30, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to implement TS requirements regarding rod position indication**

A Self-Revealing Non-cited Violation of technical specification requirements was identified on Unit 3 when position indication for two rod control cluster assemblies (RCCs) drifted out of tolerance with the associated rod group position indication. Contrary to technical specification requirements, rod positions were neither re-aligned with the group counter nor was reactor power reduced to less than 90 percent within the allowed one hour action time with a potential consequence of challenging accident analysis assumptions. The issue was documented in the corrective action program as CR 2010-14724.

The finding was more than minor because if inaccurate rod position indication was left uncorrected, there was a possibility of an adverse affect of an actual rod misalignment beyond that assumed in accident analyses. The Initiating Events cornerstone was affected because rod position alignment assures that accident analysis assumptions are maintained. The inspectors evaluated the finding using NRC Inspection Manual 0609, Attachment 0609.04, Initial Screening and Characterization of Findings (because the finding had not been screened) and classified the finding of very low safety significance (Green) using the Transient Initiator tool. The cross-cutting aspect of Human Performance, Decision Making (H.1.a) was affected when supervisory personnel did not implement their roles and authorities to ensure safety by implementing Technical Specification requirements. (4OA3)

Inspection Report# : [2010003](#) (*pdf*)

**Significance:**  Jun 30, 2009

Identified By: Self-Revealing

Item Type: FIN Finding

### **Inadequate Evaluation Of Damaged Rod Control Extension Results In High Risk Evolution And Risk Condition Yellow**

A Self-revealing Finding was identified when the licensee did not manage maintenance activities adequately to identify and repair a damaged rod control drive component on Unit 3 prior to setting the reactor vessel closure head on the reactor vessel flange. As a result, the subsequently filled reactor coolant system had to be drained again to 2 feet below the reactor vessel flange (a high risk activity) placing the unit in the licensee's risk condition Yellow for repairs. The licensee documented this in condition report (CR) 2009-10284.

The finding was more than minor because it affected the Human Performance attribute of Initiating Events cornerstone and the licensee's risk assessment failed to anticipate that the maintenance activity could result in another plant draining evolution with its inherent risk of an initiating event of loss of inventory or shutdown cooling. With appropriate mitigating equipment available, the finding screened to be of very low safety significance (Green). The finding affected the cross cutting area of Human Performance, Work Practices, Supervisory & Management Oversight (H.4(c)) because the licensee did not appropriately provide oversight of work activities, including contractors, such that nuclear safety is supported. (1R20)

Inspection Report# : [2009003](#) (*pdf*)

**Significance:**  Jun 30, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

### **Maintenance causes smoke and fumes to enter the control room causing fire alarms.**

A Self-Revealing finding of very low safety significance was identified after smoke and welding fumes from maintenance entered the control room through the ventilation system causing smoke alarms. When identified, the licensee stopped the maintenance and entered the issue into the corrective action program as CR 2008-17166.

The Initiating Events cornerstone was affected when smoke alarms occurred requiring the operators to initiate actions to protect themselves and the plant. The event screened as Green when mitigating systems remained unaffected and would have functioned, if needed. The cause of the finding is related to the cross-cutting area of Human Performance, Work Practices, (H.4.b) when personnel did not follow procedures in developing the work package for metalizing operations outside of the control room. (1R05)

Inspection Report# : [2008003](#) (*pdf*)

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## **Mitigating Systems**

**Significance:**  Dec 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inappropriate procedure guidance results in degradation of boration flow path and loss of charging flow**

•Green. The inspectors identified a Non-cited violation (NCV) of Technical Specification 6.8, Procedures, when plant alarm response and off-normal procedures were not adequate to prevent lifting of a charging relief valve. As a result, during operations to assure adequate seal injection flow, a charging throttle valve was shut causing lifting of a charging system relief, diversion of charging flow, and degradation of the boration flow path. When identified to the licensee by the inspectors during review of charging anomalies, the licensee documented the occurrence in the corrective action program as CR 595200 and upgraded procedures. Although the event occurred on Unit 3, similar procedures existed on Unit 4.

Operators having shut the charging throttle valve with charging pumps running caused lifting of the charging relief valve(s), which was a performance deficiency. The resultant relief valve failure reduced the reliability of charging

flow to the loops and affected the ability of the charging system to perform its design function including providing for reactivity control and the issue was more than minor. The finding was screened as Green because the finding did not result in any loss of function because seal injection flow remained available. All significance determination screening questions were answered "No". The finding affected the cross-cutting aspect of Human Performance, Resources, (H.2.c) when operating procedures did not adequately provide accurate guidance to prevent mis-operation (shutting) of the charging throttle valve.(1R04)

Inspection Report# : [2010005](#) (pdf)

**Significance:**  Dec 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

**Scaffold blocked access to fire areas used in a control room evacuation event**

The inspectors identified a Non-cited violation (NCV) of very low safety significance when scaffolding was placed as a barricade against personnel access to doors to fire zones 108B and 104. The barricade impeded access to the 3B and 3A DC Equipment rooms through doors that are used in the event of a control room evacuation event and may have delayed or prevented operator actions to mitigate a potential fire. When identified to the licensee, the scaffolding was promptly removed and the problem was documented in AR 594112.

Using NRC Manual Chapter 0609, Appendix F, the inspectors assigned a moderate degradation rating to the deficiency because of the likely inability of the plant operators being able to implement the procedural actions within the licensee stipulated time, and the issue was more than minor.

A regional Senior Reactor Analyst evaluated the performance deficiency under the Phase 3 protocol of the Significance Determination Process. Based upon the results of that evaluation, the performance deficiency was characterized as of very low safety significance (Green) for both units. The evaluation was performed via hand calculation using elements of NRC Manual Chapter 0609, Appendix F, NUREG-6850 as amended by Frequently Asked Questions under the National Fire Protection Association 0805 pilot program. A simplified Reactor Coolant Pump (RCP) seal Loss of Coolant Accident (LOCA) failure probability based upon Westinghouse high temperature seals was used. Key human failure probabilities were estimated using standard techniques. Conditional core damage probabilities, due to a spurious Safety Injection, were derived from the licensee's most current model results. Major assumptions and dominant accident sequence for Units 3 and 4 were discussed and included in analysis section of 1R05 in the inspection report.

The cause of the finding was related to the cross-cutting aspect of Human Performance, Work Control (H.3.a) when the scaffold-barricade was constructed without a planned contingency or compensatory measure to assure that the fire mitigation activity could be accomplished within design time constraints. (1R05)

Inspection Report# : [2010005](#) (pdf)

**Significance:**  May 21, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate procedure implementation resulting in snubber failure.**

The NRC identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, for the licensee's failure to implement procedures during a visual inspection of safety related seismically qualified snubber SN-4-1039. Specifically, the licensee failed to identify missing, detached, loosened support items, or full thread engagement of all mechanical connections that led to a snubber failure as prescribed in procedure 0-OSP-105.1, Visual Inspection, Removal and Reinstallation of Mechanical Shock Arrestors, section 7.2.1.3.d. The snubber would not have been able to perform its design function to arrest shocks of the main steam piping to the C Steam Generator during seismic events or transients, such as sudden isolation of the main steam isolation valve. The licensee implemented immediate corrective actions which included replacing the snubber in containment, adding specific instructions in procedure 0-OSP-105.1 to specifically inspect the locking ring and correct installation, and to include emphasis on FPL expectations from vendor provided snubber inspection services. The licensee documented this in condition report CR 2008-31372.

The performance deficiency was more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone in that the licensee did not ensure reliability of the snubber to respond to initiating events to prevent undesirable consequences in that the snubber would not have been able to perform its design function to arrest shocks of the main steam piping to the C Steam Generator during seismic events or transients. The finding was screened using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and was determined to have a very low safety significance (Green) because the system remained operable and capable of meeting its design function with no loss of safety function of the C main steam system. This finding was reviewed for cross-cutting aspects and none were identified. (4OA2).

Inspection Report# : [2010006](#) (*pdf*)

**Significance:**  Jun 30, 2009

Identified By: NRC

Item Type: FIN Finding

### **Failure To Maintain Lighting Impedes Compensatory Measure For Failed Fire Detection.**

The inspectors identified a Green finding for failure to correct failed lighting in a Unit 4 electrical penetration room that prevented the hourly rover from adequately compensating for fire detection that was out of service. The inspectors determined that maintaining lighting in areas of degraded fire protection features is not a specific NRC requirement. The licensee documented this in CR 2009-17533.

The finding was more than minor because it affected the External Event attribute of the Mitigating Systems cornerstone and failure to correct a problem that impacted the ability of fire watch personnel to adequately compensate for out of service fire detection equipment could reasonably be viewed as a precursor to a significant fire event. The inspectors evaluated this finding using NRC Inspection Manual Chapter 0609, Appendix F, Fire Protection Significance Determination. The finding was screened as Green because the assigned fire degradation rating was low. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, Appropriate & Timely Corrective Actions (P.1(d)) because the licensee did not document and correct a problem that was previously identified. (1R05)

Inspection Report# : [2009003](#) (*pdf*)

**Significance:**  Sep 30, 2007

Identified By: NRC

Item Type: FIN Finding

### **Recurring Problems with Alternate Shutdown Communication Equipment**

The inspectors identified a finding when the licensee did not identify and correct an adverse trend of recurring problems with the alternate shutdown communications system. When identified, the licensee entered the issue into the corrective actions program and initiated a review of reliability issues with the communications equipment.

The finding is more than minor because it affects the availability and reliability of the communications system used by plant operators to mitigate certain fire scenarios. The issue was of very low safety significance because an alternate communications system (radios) was available, if needed. The cause was related to the cross-cutting area of problem identification and resolution because the adverse trend of problems with alternate shutdown communications had not been identified nor corrected by the licensee commensurate with its safety significance. (IMC 305, P.1 (d)) (4OA2)

Inspection Report# : [2007004](#) (*pdf*)

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## **Barrier Integrity**

**Significance:**  Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Monitor a Reactivity Change Results in Power Operation Above 100 Percent**

The inspectors identified a non-cited violation (NCV) of Technical Specifications 6.8.1.a, Procedures, when operators

did not adequately monitor reactor power nor the position of valve TC-3-144A, a valve which affects reactivity, during a letdown valve inservice test. As a result, the Unit 3 hourly average reactor power increased above 100 percent for about 40 minutes. When identified to the licensee by the inspectors, the issue was documented in the corrective action program as AR 1643603.

Failure to maintain positive control of reactor power was contrary to plant procedures and was a performance deficiency. The issue was more than minor because it resulted in reactor operation at 100.05 percent power for about 40 minutes. The finding involved configuration control affecting reactivity and was assigned to the Barrier Integrity Cornerstone. In accordance with screening criteria in IMC 0609, Appendix A, Phase 1, for degraded fuel barrier, the issue screened as Green. The finding was determined to be of very low safety significance because throughout the incident, thermal power remained bounded by the reactor safety analyses limit of 102% and no safety limits were exceeded. The finding affected the cross-cutting area of Human Performance, Work Practices, (H.4(a)) when operating personnel were not aware of reactor status, and human error prevention techniques, such as holding pre-job briefings, self and peer checking, and proper documentation of activities were not adequate to assure plant activities were properly performed. (Section 1R22)

Inspection Report# : [2011002](#) (*pdf*)

**Significance:**  Dec 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

**Welders failed to measure preheat and interpass temperatures**

•Green. The inspectors identified a Non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings” associated with licensee contract personnel’s failure to adhere to welding procedures during the 2010 Unit 3 refueling outage. Specifically, welders failed to measure preheat and interpass temperatures in ASME safety class containment spray pump lines using contact pyrometers, thermocouples, or temperature indicating crayons as required by procedure. As part of the immediate corrective actions, the licensee conducted a stand-down for welders to reinforce procedural compliance expectations. The licensee performed an extent of condition evaluation and entered the issue into their corrective action program as AR 585550.

The inspectors determined that the finding was more than minor because if left uncorrected, it would have become a more significant safety concern. Specifically, the failure to adhere to the welding procedures for temperature measurement affected the assurance that appropriate welding temperatures were maintained. Inadequate temperatures during welding can result in stainless steel sensitization and susceptibility of the weld to failure from intergranular stress corrosion cracking (IGSCC) affecting the containment spray system. The inspectors also determined that this finding impacted the Barrier Integrity Cornerstone human attribute and affected the cornerstone objective of ensuring the physical barriers protect the public from radionuclide releases caused by accidents. The finding was determined to be of very low safety significance because the finding did not result in an actual loss of operability or functionality of containment spray system per Table 4a, NRC Inspection Manual Chapter 0609, Attachment 4. The cause of the finding is related to the cross-cutting aspect of Human Performance, Work Practices (H.4(c)), because licensee personnel failed to ensure supervisory and management oversight activities of their contractors such that nuclear safety was ensured. (1R08)

Inspection Report# : [2010005](#) (*pdf*)

**Significance:**  Dec 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate implementation of corrective actions fail to correct a condition adverse to quality**

•Green: The inspectors identified an NCV of 10 CFR, Part 50, Appendix B, Criterion XVI, for the licensee’s failure to implement timely corrective actions to address conditions adverse to quality on the Unit 3 fuel handling manipulator crane. As a result, a lack of calibration on the manipulator crane load cell affected fuel handling interlock setpoints that protect the fuel during fuel handling activities. In addition, an inadequate testing procedure led to a procedure change implemented in the field without proper review and approval. The licensee entered this violation in their

corrective action program as AR 592683. Although the event occurred on Unit 3, similar procedures existed on Unit 4.

The inspectors determined that the licensee's failure to implement timely corrective action for lack of calibration on the manipulator crane load cell affecting fuel handling interlock setpoints and other deficiencies to be a performance deficiency. The finding was greater than minor because the Fuel Barrier Cornerstone was affected which provides reasonable assurance that physical design barriers protect the public from radionuclide releases. The finding affects the attributes of configuration control and procedure quality. The inspectors evaluated these findings using Manual Chapter 0609 SDP Phase 1 and determined that it was of very low safety significance because there was no actual challenges to the fuel barrier. The finding had cross-cutting aspect in the area of problem identification and resolution (P.1(d)) because the licensee failed to implement prescribed corrective actions to address adverse trends in a timely manner when the load cell precision drifted. (1R20)

Inspection Report# : [2010005](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

**Significance:**  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to perform adequate surveys to ensure proper estimation of radionuclide concentrations in mechanical filter waste shipments**

The inspectors identified a Green non-cited violation (NCV) of 10 CFR Part 20.1501(a) for the failure to perform adequate surveys to meet the requirements of 10 CFR Part 20 Appendix G. 10 CFR Part 20 Appendix G states that shippers of radioactive waste must identify and quantify radionuclides contained in each waste container. Specifically, the inspectors determined that the use of resin samples to characterize three shipments of mechanical filters in calendar years 2008 and 2009 was inadequate to ensure proper identification and quantification of the radionuclides present in each container. The licensee entered the issue into their corrective action program as condition report (CR) number 2009-32955.

The finding is more than minor because it is associated with the Public Radiation Safety cornerstone attribute of Programs and Processes and adversely affects the cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The finding was assessed using the Public Radiation Safety Significance Determination Process (SDP). Based on the fact that subsequent follow up analyses demonstrated that none of the filter waste was under-classified, the finding was determined to be of very low safety significance (Green). This finding has a crosscutting aspect of Human Performance, Decision Making [H.1(b)], because the decision to use resin samples to characterize filter shipments was based on incorrect assumptions, i.e., that spent resin samples would be representative of the filter waste stream, and those assumptions were not demonstrated to be conservative prior to implementation. (Section 2RS8)

Inspection Report# : [2010003](#) (*pdf*)

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# 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.

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## Miscellaneous

**Significance:** N/A Dec 02, 2010

Identified By: NRC

Item Type: FIN Finding

### 95001 Inspection

The NRC staff performed the supplemental inspection in accordance with IP 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," to assess the licensee's evaluation associated with the failure to comply with TS 5.5.1.1.a, and the failure to promptly identify and correct conditions adverse to quality. This resulted in the failure to effectively manage known degradation of Boraflex, a neutron absorber material used in the Turkey Point Unit 3 and Unit 4 spent fuel pools. The NRC staff previously characterized this issue as having low to moderate safety significance (White), as documented in NRC IR 05000250/2010009. In addition, NRC staff performed the follow up inspection for the Severity Level (SL) III violation for failure to report the condition to the NRC, in accordance with IP 92702, "Follow Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, Confirmatory Orders, and Alternate Dispute Resolution Confirmatory Orders."

During these inspections, the inspectors determined that your staff performed an adequate evaluation of the causes of the SL-III violation and White finding. Your staff's evaluation identified the root causes of the issue to be inadequate procedures for the evaluation of degraded SSCs as it relates to Technical Specification (TS) Section 5.0, and a failure to develop a comprehensive plan to ensure that the spent fuel storage racks were maintained in accordance with the design basis. Your staff also identified that there was a lack of knowledge in reviewing design basis compliance as it relates to TS Section 5.0, and there was an inadequate use of the Corrective Action Program by staff when an unwanted condition was discovered. The inspectors found the extent of condition and extent of cause reviews were adequate, and the corrective actions implemented were adequate.

The inspectors also found that the corrective actions taken for the non-cited violation were completed and acceptable. In addition, the commitments identified in Confirmatory Action Letter 2-2010-002 to address the degraded spent fuel pool storage rack neutron absorbers have been implemented, and the inspectors concluded that you re-established compliance with your license requirements for the spent fuel pool storage racks.

As a result of the NRC conclusion that the licensee appropriately addressed the above issues, the White finding associated with this issue was closed and will be considered in assessing plant performance for a total of five quarters in accordance with the guidance in IMC 0305, AOperating Reactor Assessment Program. @ The inspectors reviewed the licensee's implementation of corrective actions and found them acceptable

Inspection Report# : [2010010](#) (*pdf*)

**Significance:** N/A May 21, 2010

Identified By: NRC

Item Type: FIN Finding

### PI&R

The team concluded that, in general, problems were properly identified, evaluated, prioritized, and corrected. The threshold for initiating condition reports (CRs) was appropriately low, as evidenced by the types of problems identified and the number of CRs entered annually into the Corrective Action Program (CAP). Employees were encouraged by management to initiate CRs. However, the team identified deficiency's associated with preventative maintenance (PM) scheduling in that a number of PMs were inadvertently scheduled past their due dates when the licensee began using the PM scheduling tool LCP.net. In addition, the team identified several examples of minor equipment issues that had not been identified by the licensee and entered into the CAP. When identified, the licensee

entered these issues into the CAP. Generally, prioritization and evaluation of issues were adequate, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective and implemented in a timely manner.

The team determined that, overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and in most cases, appropriate corrective actions were developed to address the issues identified. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work and plant operations.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors determined that personnel felt free to raise safety concerns to management and use the CAP to resolve those concerns. Inspection Report# : [2010006](#) (*pdf*)

Last modified : June 07, 2011