

# Turkey Point 4

## 1Q/2012 Plant Inspection Findings

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### Initiating Events

**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, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Correct Valve Deficiency Results in Both Headers of Intake Cooling Water Inoperable**

A self-revealing Non-cited violation of 10 CFR 50 Criterion XVI was identified when the licensee failed to correct a degraded butterfly valve in the Unit 3 intake cooling water system. On August 11, 2011, failure of this valve led to a loss of intake cooling water (ICW) flow to the component cooling water heat exchangers. The licensee documented the failure in their corrective action program as AR 01680272 and initiated a cause investigation. An NRC special inspection of this occurrence was documented in NRC Inspection Report 05000250/2011013.

The licensee's failure to take prompt corrective actions for a degraded valve, though it had been identified in 2007 as vibrating excessively, was a performance deficiency. This performance deficiency was considered more than minor because it could be reasonably viewed as a precursor to a significant event, the loss of all intake cooling water. A Senior Reactor Analyst in a Phase 3 risk assessment, determined the increase in risk to either unit was of very low risk significance i.e., Green. Unit 3 risk was assessed because the event occurred on that unit; however Unit 4 risk was also assessed because the same vulnerability existed on the ICW valves on that unit (e.g., similar design, maintenance history, etc.). The main contributors to the low risk results were: 1) the recovery probability of the ICW system, given the extended time available to operators before a RCP seal LOCA could occur; and 2) the multiple redundant sources available to cool the core should the CCW system fail. The dominant core damage scenarios were valid demands for a reactor trip followed by the failure to recover ICW proceeding to a RCP seal LOCA and core damage. The inspectors determined that the cause of this finding was related to the Problem Identification and Resolution cross cutting component when the licensee failed to take appropriate corrective action to address safety issues (valve fluttering) in a timely manner, commensurate with the safety significance.

Inspection Report# : [2011005](#) (*pdf*)

**Significance:**  Aug 12, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Verify or Check the Adequacy of Design for Safety-Related Components with Four Examples**

The team identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to verify or check the adequacy of design for with four examples. The licensee entered these issues into their corrective action program as ARs 1672459, 1676403, 1674790, 1675544 and 1679053, and performed evaluations to assure operability of components.

The licensee's failure to adequately perform engineering evaluations as described in the four examples was a performance deficiency. The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of Design Control and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the deficiencies described above, resulted in a reasonable doubt that safety-related equipment could perform their functions under the most limiting conditions. In accordance with NRC IMC 0609.04, "Initial Screening and Characterization of Findings", the inspectors conducted a Phase 1 Significance Determination Process (SDP) screening and determined the finding to be of very low safety significance (Green) because it was a design deficiency confirmed not to result in the loss of operability or functionality. Specifically, the licensee performed evaluations that provided reasonable assurance that the components would perform their required functions when called upon. The team determined that no cross cutting aspect was applicable to this performance deficiency because this finding was not indicative of current licensee performance.

Inspection Report# : [2011008](#) (*pdf*)

**Significance:**  Aug 12, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Maintain Adequate Records to Support Acceptance Criteria in Design Calculations**

The team identified a NCV of 10 CFR Part 50, Appendix B, Criterion XVII, "Quality Assurance Records," for the licensee's failure to maintain sufficient records to furnish evidence of activities affecting quality. Specifically, the licensee was not able to retrieve test data and calculations supporting an acceptance criterion that assures the reliability and availability of minimum MCC voltage to provide adequate voltage to MCC control circuits. The licensee entered these issues into their corrective action program as AR 1676661 and has

proposed actions to (1) implement a design modification to increase the control power transformer size for three motor operated valves (MOV), (2) add the control circuits for the 3 MOVs to the site's low margin list, and (3) re-create missing analysis and test data.

The inspectors determined that the failure to have retrievable test data and calculations to support acceptance criteria for MCC control circuit voltage was a performance deficiency. The finding was more than minor because it affected the Mitigating Systems Cornerstone attribute of Design Control, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, there was reasonable doubt as to whether safety-related MCC control circuits would have sufficient voltage to function during a degraded voltage condition. The finding was considered to be of very low safety significance (Green) since this was a design deficiency confirmed not to have resulted in a loss of operability or functionality. The team determined that no cross cutting aspect was applicable to this performance deficiency because this finding was not indicative of current licensee performance.

Inspection Report# : [2011008](#) (pdf)

**Significance:**  Aug 12, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Voltage Calculations**

The team identified a NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to perform adequate voltage calculations for safety-related equipment with two examples. The licensee entered these issues into their corrective action program as ARs 1677149, 1677149-02, 1673843, 1677149-02, 1676754 and 01676641 and performed evaluations to provide reasonable assurance that components would have adequate voltage pending forma re-analysis.

The inspectors determined that the failure to perform adequate design calculations to support the setpoint of the degraded voltage relays and the failure to perform adequate design calculations for the 120Vac instrument system was a performance deficiency. The finding was more than minor because it affected the Mitigating Systems Cornerstone attribute of Design Control, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, there was reasonable doubt as to whether the components would have adequate voltage to perform their safety function during a degraded voltage condition. The finding was considered to be of very low safety significance (Green) since this was a design deficiency confirmed not to have resulted in a loss of operability or functionality. The team determined that no cross cutting aspect was applicable to this performance deficiency because this finding was not indicative of current licensee performance.

Inspection Report# : [2011008](#) (pdf)

**Significance:**  Aug 12, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Test the SBO Cross-Tie under Loaded Conditions**

The team identified a NCV of 10 CFR 50.63 for the licensee's failure to test the station blackout (SBO) cross-tie components under loaded conditions. Since 1991, the licensee failed to verify the capability of the SBO cross-tie and associated components to carry the required amperage during post installation tests or subsequent periodic maintenance tests. The licensee entered these issues into their corrective action program as ARs 1676402 and 1680428 with an action to establish a method and frequency for loading the SBO cross-tie components.

The team determined that the licensee's failure to perform adequate post installation testing and periodic testing as required by the licensee's commitment to RG 1.155, "Station Blackout," was a performance deficiency. This finding was 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 and components that respond to initiating events to preclude undesirable consequences (i.e. core damage). Specifically, since the installation of cross-tie components to meet SBO requirements, the licensee failed to test the components in a loaded condition. The lack of testing resulted in a reduced reliability of the SBO cross-tie. In accordance with NRC IMC

0609.04, "Initial Screening and Characterization of Findings," the team conducted a Phase 1 SDP screening and determined the finding to be of very low safety significance (Green) because it was not a design issue resulting in loss of function, did not represent an actual loss of a system safety function, did not result in exceeding a TS allowed outage time, and did not affect external event mitigation. The team determined that no cross cutting aspect was applicable to this performance deficiency because this finding was not indicative of current licensee performance.

Inspection Report# : [2011008](#) (pdf)

**Significance:**  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to properly perform a procedure results in damage to an RHR pump**

A self-revealing, non-cited violation (NCV) of Technical Specifications 6.8.1.a, Procedures, was identified when operators did not properly align the RHR system from shutdown cooling mode to injection mode. As a result, the 4A RHR pump was left running with no suction source causing a failure of the pump mechanical seal and minor flooding in the Unit 4, A RHR pump room. The pump was not available for either injection or shutdown cooling operations until the seal was replaced. The issue was documented in the corrective action program as AR 1644427 and a root cause investigation was initiated.

Inspection Report# : [2011003](#) (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

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## Emergency Preparedness

**Significance:** **W** Dec 31, 2011

Identified By: NRC

Item Type: VIO Violation

### **Failure to maintain TSC habitability**

The licensee identified an Apparent Violation (AV) of 10 CFR Part 50.54(q), which requires that adequate emergency facilities and equipment to support the emergency response are provided and maintained. During the periods from December 4, 2010 to July 13, 2011, and from October 10 to October 28, 2011, the licensee failed to maintain in effect a provision of its emergency plan in that adequate emergency facilities and equipment to support emergency response were not provided when portions of the Technical Support Center ventilation system were removed from service by tagging open the ventilation system damper poser supply without compensatory measures and without an evaluation that described how effectiveness of the emergency plan was not decreased. As a result, had the facility been activated, protection of personnel assigned to respond in the TSC would not have been protected from radiological hazards that could occur in some accidents. The licensee documented this occurrence in the corrective actions program as AR 1701357.

The finding was greater than minor because it affected the Emergency Preparedness Cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The Emergency Preparedness cornerstone was affected in that during the time the Technical Support Center was not functional, it did not meet 10 CFR 50.47(b) Planning Standards program elements and personnel assigned to the TSC during an emergency may not have been protected from radiological hazards. This finding was evaluated in accordance with Manual Chapter 0609, Appendix B, Emergency Preparedness Significance Determination Process, Section 4.8 and Emergency Preparedness Significance Determination Process, Sheet 1, Failure to Comply, and determined to be a finding of low to moderate safety significance (White) because there was a loss of the planning standard function "Adequate facilities and equipment are maintained to support emergency response". The NRC considered that protection of personnel from radiological hazards could not be assured in all cases when the ventilation system was degraded. The inspectors determined that the Technical Support Center was not functional for a period of longer than 7 days from time of discovery of the ventilation system outage, to the extent that any key ERO member would not be protected from radiological hazards when completing assigned emergency response plan functions in the absence of compensatory measures. This condition occurred twice in December 2010 to July 2011 and again in October 2011. The inspectors determined that the planning standard function failure was a loss of planning standard function, "Adequate facilities and equipment are maintained to support emergency response," as described in Section 4.8 of Manual Chapter 0609, Appendix B. Using Sheet 1, Failure to Comply, significance determination process flow chart, the failure to comply, with a planning standard problem, no risk significant planning standard problem, with a planning standard function failure, results in a White significance. The two events, December 2010 to July 2011 and October 2011 were assessed as a single finding with a common performance deficiency. The cross cutting component in Problem Identification and Resolution was proposed when the licensee did not thoroughly evaluate problems with the TSC ventilation system as necessary, including properly classifying, prioritizing, and evaluating for operability and reportability, conditions adverse to quality.

10 CFR 50.54(q) requires, in part, that a licensee authorized to operate a nuclear power reactor shall follow and maintain the effectiveness of an emergency plan which meet the standards of 10 CFR 50.47(b). Planning standard 10 CFR 50.47(b)(8) specifies as a required element of a licensee's emergency response plan that adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Contrary to the above, from December 4, 2010, to July 13, 2011, and from October 10 to



October 28, 2011, the licensee failed to maintain the effectiveness of its emergency plan in that adequate emergency facilities and equipment to support emergency response were not provided and maintained. Specifically, the licensee failed to follow and maintain the effectiveness of its emergency plan when portions of the Technical Support Center (TSC) ventilation system were removed from service for maintenance, without compensatory measures. Removal of the TSC ventilation system from service without implementation of compensatory measures during these periods constituted a failure to provide and maintain an adequate emergency facility.

This violation is associated with a White Significance Determination Process finding in the Emergency Preparedness cornerstone.

Inspection Report# : [2011005](#) (*pdf*)

Inspection Report# : [2012010](#) (*pdf*)

**Significance:** N/A Dec 31, 2011

Identified By: NRC

Item Type: VIO Violation

**Failure to make a required 8 hour NRC report for major loss of emergency assessment capability**

The inspectors identified an Apparent Violation of 10 CFR 50.72(b)(3)(xiii) when a major loss of emergency assessment capability was not reported to the NRC within 8 hours as required, impacting NRC's regulatory function. The TSC ventilation system was removed from service from December 4, 2010 until July 13, 2011, affecting the habitability of the TSC for emergency responders, and the occurrence was not reported. The issue was identified to the licensee by the inspectors after review of NRC Event Number 47387.

The finding was more than minor because it impacted the NRC's regulatory process, which relies on certain plant conditions being properly reported to the NRC. Because this finding impacted the regulatory process, it was evaluated using traditional enforcement and is being considered for escalated enforcement action in accordance with NRC's Enforcement Policy. No cross-cutting aspect associated with this issue was identified.

10 CFR 50.72(b)(3)(xiii) states that a licensee shall notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any event that results in a major loss of emergency assessment capability, offsite response capability, or offsite communications capability (e.g., significant portion of control room indication, Emergency Notification System, or offsite notification system).

Contrary to the above, from December 4, 2010, to July 13, 2011, the licensee failed to report the occurrence of a major loss of emergency assessment capability. Specifically, the licensee failed to maintain an adequate emergency facility when portions of the TSC ventilation system were removed from service without compensatory measures, and the licensee failed to report the occurrence as required.

This is a Severity Level III violation (Enforcement Policy paragraph 6.6)

Civil Penalty - \$ 140,000

Inspection Report# : [2011005](#) (*pdf*)

Inspection Report# : [2012010](#) (*pdf*)

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## Occupational Radiation Safety

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## Public Radiation Safety

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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:** SL-IV Aug 12, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Update the UFSAR to Reflect Changes to the Unit 3 Fuel Oil Storage and Transfer System**

The team identified a SL-IV NCV for the licensee's failure to update the Updated Final Safety Analysis Report (UFSAR) for a modification affecting the Unit 3 emergency diesel generator fuel oil storage tank. Specifically, a common-mode failure method was not described in the UFSAR that required proceduralized manual actions during design bases rain events. The licensee entered these issues into their corrective action program as AR 1679078.

The failure to update the UFSAR as required by procedure ENG Q1-3.4 and 10 CFR 50.71(e) was a performance deficiency. This performance deficiency was considered as traditional enforcement because, not having an adequately updated UFSAR hinders the licensee's ability to perform adequate 10 CFR 50.59 evaluations and can impact the NRC's ability to perform its regulatory function such as, license amendment reviews and inspections. In addition, the team determined that the performance deficiency was material to safety because the modification resulted in a common-mode failure method that required proceduralized manual actions for the Unit 3 EDGs to meet their mission time during design bases rain events. This violation was determined to be a SL-IV violation using Section 6.1 of the NRC's Enforcement Policy because the erroneous information was not used to make an unacceptable change to the facility or procedures. Cross-cutting aspects are not assigned for traditional enforcement violations.

Inspection Report# : [2011008](#) (*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 : May 29, 2012