Waterford 3
4Q/2007 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Oct 07, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedure for a Fire in Vital Switchgear Room B
The inspectors identified two examples of a noncited violation of Waterford Steam Electric Station, Unit 3 Facility Operating License Condition 2.C.9 for failure to implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility. In the first example, the pre-fire strategy for vital switchgear Room B did not contain adequate information regarding the doors required to be open to allow the desired ventilation flowpath, nor did it contain the required number of smoke ejectors necessary to desmoke the switchgear room in a manner that would allow the implementation of OP-901-524, “Fire In Areas Affecting Safe Shutdown.” In the second example, the licensee did not take corrective actions for a previously identified issue in a timely fashion. Specifically, the deficiencies in the pre-fire strategy for vital switchgear Room B were first identified on August 21, 2006. The deficient procedure was not corrected until September 14, 2007, after the senior resident inspector discussed the non-conformance with licensee management. The licensee entered this deficiency into their corrective action program for resolution. The finding was more than minor because it was associated with the mitigating systems cornerstone objective (Protection Against External Factors) to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, Appendix F, Phase 1 initial qualitative screening, the issue screened as having very low safety significance because the compensatory manual action required to safely shut down the plant is not needed in order to reach hot shutdown. This finding had a crosscutting aspect in the area of problem identification and resolution. Specifically, the licensee’s personnel corrective action process failed to take appropriate corrective actions to address the safety issue in a timely manner (P.1(d)).

Inspection Report# : 2007004 *(pdf)*

Significance: G Sep 12, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Boric Acid Leak Evaluation
The inspectors identified a noncited violation of Technical Specification 6.8.1.a (Procedures) for an inadequate boric acid evaluation procedure and for the failure to follow the same procedure. Specifically, the procedure noted that small amounts of boric acid could severely corrode carbon and low alloy carbon steel, but only had engineers check drawings for carbon steel components. Components with low alloy steel on the containment spray pumps were sometimes ignored. In addition, the procedure required pictures of the boric acid condition but, for some evaluations, no pictures were taken of the containment spray pump leaks. This made trending of the condition, to check for worsening, difficult. The inspectors determined that engineers were not following the boric acid evaluation procedure when performing the evaluations, they simply filled out the forms. The procedure contained valuable insights vital for proper boric acid evaluations, whereas the forms did not. The finding was more than minor because it could, if left uncorrected, result in a more significant safety concern. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 worksheet, the finding was determined to have very low safety significance (Green) because it did not result in an actual loss of safety function for the containment spray system. The cause of the finding has a cross-cutting aspect in the area of human performance, work practices component, in that the licensee failed to effectively communicate the expectations regarding procedural compliance and personnel follow procedures (H.4(b)).

Inspection Report# : 2007004 *(pdf)*

Significance: G May 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Meet Maintenance Rule Requirements for Dry Cooling Tower Sump Pumps Failure to Meet Maintenance Rule Requirements for Dry Cooling Tower Sump Pumps
DRAFT - Green. The team identified a non-cited violation of 10 CFR 50.65(a)(2) for the failure to adequately demonstrate the performance or condition of the dry cooling tower motor-driven sump pumps. Specifically, the licensee failed to periodically verify that the pump flow rates were consistent with their design basis requirements and pump performance problems were likely to go unnoticed. Therefore, the licensee had no technical justification for continued Maintenance Rule (a)(2) status.

Failure to develop and implement technically justifiable performance criteria for the motor-driven sump pumps, for compliance with provisions of the Maintenance Rule, was a performance deficiency. The finding was greater than minor because it could be a more significant safety concern if left uncorrected. In addition, the finding was similar to non-minor finding Example 7.b in NRC Inspection Manual Chapter 0612 Appendix E, “Examples of Minor Issues,” in that there were performance concerns associated with the dry cooling tower sump pumps. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheet, the finding was determined to be a design deficiency confirmed not to result in loss of operability per Part 9900, Technical guidance, Operability Determination Process for Operability and Functional Assessment.
Inspection Report# : 2007007 *(pdf)*

Significance: G May 31, 2007
Identified By: NRC
Item Type: FIN Finding
Failure to Implement FME Procedure for Dry Cooling Tower Sumps
DRAFT - The team identified a finding for the failure to properly implement the site foreign material exclusion procedure for the dry cooling tower sumps. Specifically, the procedure required the establishment of a foreign material exclusion area if foreign materials could adversely impact equipment function. The area surrounding the dry cooling tower sumps met this criteria but the licensee failed to establish a foreign material exclusion area to protect the sump pump system from damage. The sump pumps had previously suffered damage due to foreign material intrusion.

The failure to properly implement the site foreign material exclusion procedure was a performance deficiency. The finding was more than minor because it affected the mitigating systems cornerstone objective (external factors attribute) to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheet, the finding was determined to be a design deficiency confirmed not to result in loss of operability per Part 9900, Technical guidance, Operability Determination Process for Operability and Functional Assessment. The finding had a crosscutting aspect in the area of human performance (work practices component) in that personnel failed to follow a site procedure (H.4(b)). The finding was indicative of current plant performance because the open sump and the foreign material vulnerability was known to plant personnel on an ongoing basis
Inspection Report# : 2007007 *(pdf)*

Significance: G May 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedure for Restoring Power to Dry Cooling Tower Sump Pumps
DRAFT - The team identified a non-cited violation of Technical Specification 6.8.1.a, Procedures, for inadequate procedural guidance for operators to respond to a postulated loss of offsite power event coincident with a design basis rain event. The design basis calculation specified that, during certain rain precipitation events, operators must transfer the pump power to a safety related power source within 30 minutes of a loss of offsite power to protect a safety related motor control center from flooding. The motor control centers are needed to ensure ultimate heat sink operability.

During plant walkdowns, due to the sequencing of steps in the procedure, operators took approximately 50 minutes to transfer essential power to the pumps. In addition, the procedural step was worded inappropriately because it allowed operators to wait the full 30 minutes before starting the action.

The failure to provide an emergency operating procedure that could be consistently completed within the required time limits was a performance deficiency. This finding was more than minor because it affected the mitigating systems cornerstone objective (external factors component) to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. In addition, the finding was similar to non-minor finding Example 3.k in NRC Inspection Manual Chapter 0612 Appendix E, “Examples of Minor Issues,” in that there was reasonable doubt of the operability of the system under certain heavy rain conditions. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheet, the team determined that a Phase 2 significance determination was required because the finding potentially represented a loss of system safety function. The team performed a Phase 2 significance determination and found the finding was potentially greater than Green in significance. A Region IV senior reactor analyst performed a Phase 3 significance determination and found the issue was of very low safety significance.
Inspection Report# : 2007007 *(pdf)*

Significance:  May 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Acceptance Criteria for Battery Cell-to-Cell and Terminal Connection Resistance Value
DRAFT - The Team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for the failure to ensure that the 125 Vdc safety-related batteries would remain operable if all the intercell and terminal connections were at the resistance value of 150 micro-ohms as allowed by Technical Specification Surveillance Requirement 4.8.2.1.b.2 and 4.8.2.1.c.3.

The failure to adequately verify or check a design value in accordance with NRC design control requirements was a performance deficiency. The finding was greater than minor because it affected the mitigating systems cornerstone objective (design control attribute) to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheet, the finding was determined to be a design deficiency confirmed not to result in loss of operability per Part 9900, Technical guidance, Operability Determination Process for Operability and Functional Assessment.
Inspection Report# : 2007007 *(pdf)*

Significance:  May 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Take Prompt Corrective Measures to Address Degraded Dry Cooling Towers
DRAFT - The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, for the failure to promptly correct a condition adverse to quality (dirt and debris in the dry cooling tower heat exchanger fins). The condition adversely impacted the heat exchangers’ heat removal rates. The dry cooling towers had very little design margin under some scenarios. In addition, the licensee failed to respond to trend data that showed degraded heat exchanger performance, had no basis for the specified 5 year cleaning interval specified in their heat exchanger program, and hadn’t actually cleaned the towers for approximately 11 years. This issue was entered into the licensee's corrective action program as Condition Report CR-WF3-2007-01433.

This finding was more than minor because it was similar to non-minor Example 3.k in NRC Inspection Manual Chapter 0612 Appendix E, Examples of Minor Issues, in that there was a reasonable doubt of the operability of the dry cooling towers. Using Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheet, the finding was determined to be of very low safety significance (Green) because the finding was a qualification deficiency confirmed not to result in loss of operability per Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment. The finding had a crosscutting aspect in the area of Problem Identification and Resolution (corrective action program attribute) in that the issue was identified but corrective actions were not taken in a prompt manner (P.1(d)). The issue was indicative of current performance because the system engineer was aware of the degraded cooling tower condition for several years.

Inspection Report# : 2007007 *(pdf)*

Significance: G Apr 07, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Translate Design Basis into Drawings
The inspectors identified a Green noncited violation of 10 CFR 50 Appendix B, Criterion III, “Design Control,” for failure to assure that the design basis, as specified in the license application, was correctly translated into drawings and the actual plant configuration. Specifically, Waterford Final Safety Analysis Report, Section 2.4.2.3.3.d, describes openings in the dry cooling tower cubicles that help preclude the possibility of flooding Motor Control Centers 3A315-S and 3B315-S during the probable maximum precipitation event. These openings serve as a backup to the floor drains located in each cubicle. Current plant configuration and Drawing G-499 S06, “Common Foundation Structure, Masonry,” Sheet 6, do not conform to the design basis, in that there are no openings other than the floor drains. These motor control centers control power to the wet and dry cooling tower fans, which act as the ultimate heat sink. The licensee entered this issue into their corrective action program for resolution. This finding is more than minor because it is associated with the design control attribute and affects the Mitigating Systems cornerstone objective to ensure the reliability of the dry cooling tower system during the probable maximum precipitation event on the plant site. The normal floor drains had historically clogged and the drainage openings were needed to limit flood related challenges to the motor control centers. The finding was determined to be of very low safety significance because the deficiency did not represent an actual loss of the wet and dry cooling tower systems safety functions during the past year per “Part 9900: Technical Guidance, Operability Determinations & Functional Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality”.

Inspection Report# : 2007002 *(pdf)*

Significance: G Apr 07, 2007
Identified By: NRC
Item Type: FIN Finding
Failure to Ensure that Written Procedures Adequately Incorporate Regulatory Requirements and Design Basis
The inspectors identified a finding of very low safety significance for failure to assure that the design basis for the dry cooling tower diesel-driven sump pumps was properly implemented. Specifically, the Train B dry cooling tower diesel-driven sump pump was stored near nonseismic equipment which could fall and damage the pump during an operating-basis earthquake. The dry cooling tower diesel-driven sump pumps are equipment important to safety that are required to protect the ultimate heat sink during a standard project storm coincident with an operating-basis earthquake. The licensee entered this deficiency into their corrective action program for resolution. The finding was greater than minor because it affected the mitigating systems cornerstone objective (design control attribute) to assure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Phase 1 worksheet in Manual Chapter 0609, “Significance Determination Process,” the inspectors determined that this finding was of very low safety significance because the finding was a design deficiency that was confirmed not to result in a loss of operability per “Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment.” The inspectors determined the cause of this finding was not related to a crosscutting element because the performance deficiency does not reflect current operating performance.

Inspection Report# : 2007002 *(pdf)*

Barrier Integrity

Significance: G Oct 07, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Missed Reactor Coolant System Chemistry Samples

The inspectors identified a noncited violation of Technical Specification (TS) 3.4.7 for multiple failures to complete a radiochemical analysis for EBAR (Average Disintegration Energy) determination within the required periodicity. Specifically, on thirteen out of fifteen occasions, the licensee had failed to complete the analysis and replace the old EBAR value with the new EBAR value within the TS required interval of 136 to 229 days. EBAR is the average of the sum of average beta and gamma energies per disintegration for isotopes, other than radioiodines, with half-lives greater than fifteen minutes. Daily RCS samples are compared to this calculated value in order to ensure that 10CFR50.67 dose limits at the site boundary are not exceeded in the event of an accident scenario. The licensee entered this issue into their corrective action program for resolution. The finding was more than minor because it was associated with the cladding performance attribute of the barrier integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 worksheet, the finding was determined to have very low safety significance (Green) because it only affected the fuel barrier. This finding had a crosscutting aspect in the area of human performance. Specifically, the licensee’s personnel work practices failed to support human performance by ensuring that activity status and completion are properly documented (H.4(a)).

Inspection Report# : 2007004 *(pdf)*

Significance:  Feb 12, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Identify and Correct an Adverse Condition (Welds Not In Accordance With Design)
A noncited violation of Criterion XVI of Appendix B to 10 CFR Part 50 was identified for the failure to promptly identify and correct an adverse condition (i.e., steam generator batwing-to-wrapper bar welds not in accordance with design). Specifically, in May 2005, during Refueling Cycle 13, licensee personnel found that the batwing-to-wrapper bar welds were not in accordance with design drawings, but did not enter the adverse condition into the corrective action program until December 2006. This condition was entered into the corrective action program as Condition Report WF3-2006-04395. This finding was more than minor because by not promptly entering the non-conforming welds into the corrective action program and taking actions to correct the adverse condition, it became a more significant condition when two welds failed during Operating Cycle 14. Using the guidance of Appendix J to NRC Inspection Manual Chapter 0609, “Significance Determination Process,” the finding is determined to have very low safety significance (Green) because there was no tube degradation that exceeded 40 percent through-wall which did not increase in the large early release frequency. This finding had a crosscutting aspect in the area of problem identification and resolution (corrective action) program component.[P.1(a)]

Inspection Report# : 2006012 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings

pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Last modified : February 04, 2008