UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

November 20, 2013

EA-12-257

Donna Jacobs, Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
Killona, LA 70057-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 – NRC INTEGRATED INSPECTION REPORT 05000382/2013004

Dear Ms. Jacobs:

On September 30, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Waterford Steam Electric Station, Unit 3 facility. On October 1, 2013, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. Further, inspectors documented a licensee-identified violation which was determined to be a Severity Level IV in this report. All of these findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

In addition, the enclosed inspection report discusses a Severity Level IV violation that was identified during the closure of unresolved item 05000382/2009010-01, documented in NRC Inspection Report 05000382/2009010 (ML093100238). This violation was evaluated in accordance with the NRC Enforcement Policy, dated September 1, 2009, (ML092440278) which was in effect at the time the special inspection report was issued. In accordance with Supplement VII, Section C.6, of that Enforcement Policy, this violation would normally be assessed as Severity Level III. However, in accordance with the Enforcement Policy, the severity level of an untimely report may be reduced depending on the circumstances surrounding the matter. Since the affected components were already removed from service as part of an unrelated manufacturer's recall and no longer considered a substantial safety hazard, the NRC concluded this violation is more appropriately assessed as Severity Level IV with a written response required.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC's review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

If you contest the violation or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the Waterford Steam Electric Station, Unit 3 facility.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC resident inspector at the Waterford Steam Electric Station, Unit 3 facility.

In accordance with Title 10 of the Code of Federal Regulations (10CFR) 2.390, “Public Inspections, Exemptions, Requests for Withholding,” a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC’s Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

*/RA/ Michael R. Bloodgood for*

Gregory E. Werner, Acting Chief
Project Branch E
Division of Reactor Projects

Docket No.: 50-382
License No.: NPF-38

Enclosures:
1. Notice of Violation EA-12-257
2. Inspection Report 05000382/2013004
   w/Attachment: Supplemental Information

Electronic Distribution to Waterford Steam Electric Station, Unit 3

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Resident Inspector (Christopher.Speer@nrc.gov)
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| Publicly Avail. | ☒Yes ☐ No | Sensitive | ☐Yes ☒ No | Sens. Type Initials | MD |

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| 11/15/13 | 11/18/13 | 11/18/13 | 11/18/13 | 11/20/2013 | |

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NOTICE OF VIOLATION

Entergy Operations, Inc. Docket No: 50-382
Waterford Steam Electric Station, Unit 3 License No: NPF-38
EA-12-257

During the NRC inspection conducted from July 20–October 19, 2009, a violation of the NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 CFR, Part 21.21(a)(1) requires, in part, that entities subject to the regulations in this part shall evaluate deviations and failures to comply to identify defects associated with substantial safety hazards as soon as practicable, and except as provided in paragraph (a)(2) of this section, in all cases within 60 days of discovery, in order to identify a reportable defect that could create a substantial safety hazard, were it to remain uncorrected.

Title 10 CFR, Part 21.21(a)(2) requires, in part, that entities subject to the regulations in the part shall ensure that if an evaluation of identified deviation or failure to comply potentially associated with a substantial safety hazard cannot be completed within 60 days from discovery of the deviation or failure to comply, an interim report is prepared and submitted to the Commission. The interim report must be submitted in writing within 60 days of discovery of the deviation of failure to comply.

Contrary to the above, from December 14, 2008 to April 29, 2010, the licensee failed to evaluate deviations and failures to comply to identify defects associated with substantial safety hazards as soon as practicable and to submit a report or interim report within 60 days of its discovery, in order to identify a reportable defect or failure to comply that could create a substantial safety hazard, were it to remain uncorrected.

Specifically, on October 14, 2008, the licensee performed bench testing on an Agastat E7024PB relay with date code 0835 and noted that the relay had a loose terminal point. Two more relays were obtained from the warehouse; one of these also had a bad terminal point. On October 27, 2008, the licensee quarantined the remaining four relays in stock. Two of these quarantined relays were identified to have similarly deficient terminal points. The licensee identified these relays as “defective” and returned them to the manufacturer, for cause evaluation. All four affected relays shared a date code of 0835. On January 28, 2009, the licensee received a report from the manufacturer, which did not provide a cause evaluation. On August 18, 2009, the licensee submitted Licensee Event Report 2009-003-00, (ML092310548). This Licensee Event Report did not mention the date code 0835 relays or loose terminal points. Rather, the Licensee Event Report described relays that failed due to incorrect adjustment of terminal blocks, a deviation different from that observed in the 0835 date code relays. On April 29, 2010, the licensee issued updated Licensee Event Report 2009003-01 (ML101230323). This revision to the Licensee Event Report described loose terminal points on two spare date code 0835 relays as one of the defects identified in its Agastat E7024PB relays. The April 29, 2010, Licensee Event Report revision would have met Part 21 evaluation and reporting requirements, but it was 501 days late.

This is a Severity Level IV violation (Supplement VII of Enforcement Policy dated September 1, 2009).

Pursuant to the provisions of 10 CFR 2.201, the Waterford Steam Electric Station, Unit 3 is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region IV, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA 12-257" and should include (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Dated this 20th day of November 2013

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

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| Docket: | 05000382 |
| License: | NPF-38 |
| Report: | 05000382/2013004 |
| Licensee: | Entergy Operations, Inc. |
| Facility: | Waterford Steam Electric Station, Unit 3 |
| Location: | 17265 River Road<br>Killona, LA 70057 |
| Dates: | July 1 through September 30, 2013 |
| Inspectors: | M. Davis, Senior Resident Inspector<br>C. Speer, Resident Inspector<br>T. Farina, Operations Engineer<br>C. Steely, Operations Engineer<br>L. Carson, Senior Health Physicist<br>L. Ricketson, Senior Health Physicist<br>C. Alldredge, Health Physicist<br>N. Greene, Health Physicist<br>P. Hernandez, Health Physicist<br>J. O'Donnell, Health Physicist<br>E. Ruesch, Senior Reactor Engineer |
| Approved By: | G. Werner, Acting Chief<br>Project Branch E<br>Division of Reactor Projects |

## SUMMARY OF FINDINGS

IR 05000382/2013004; 07/01/2013 – 09/30/2013; Waterford Steam Electric Station, Unit 3, Integrated Resident and Regional Report; Fire Protection, Post-Maintenance Testing, and Other Activities.

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspections by region-based inspectors. Two Green non-cited violations and one severity level IV violation were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG - 1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of Waterford's Facility Operating License Number NPF-38, License Condition 2.C.9, because the licensee did not implement fire protection procedure FP-001-014, "Duties of a Fire Watch." Specifically, the licensee's fire watch personnel did not implement Section 6.5 of FP-001-014 to remove firefighting equipment from work areas when securing from a fire watch. As a result, multiple undercharged fire extinguishers were left in a fire area. The inspectors determined that this would affect safety-related equipment because it would delay the response to fires in the fire areas. The licensee entered this condition into their corrective action program as CR-WF3-2013-03398 and CR-WF3-2013-03523 for resolution. The immediate corrective actions taken to restore compliance included the removal of all undercharged fire extinguishers from deactivated posts and returning them to their proper storage location.

  The failure to implement a fire protection program procedure was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external factors (i.e., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to remove undercharged fire extinguishers from work areas that contained safe shutdown equipment could hinder responses to fires in the fire area. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The initial screening directed the inspectors to use Appendix F, "Fire Protection Significance Determination Process," to determine the significance of the finding. The inspectors determined that the finding had a low degradation rating because it reflected a fire protection program element whose

performance and reliability would be minimally impacted. Specifically, in all cases identified, there were permanent fully charged portable fire extinguishers of the proper type nearby. Therefore, the finding was of very low safety significance (Green). The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the work practices component of the human performance area in that the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)] (Section 1R05).

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because the licensee did not accomplish activities affecting quality on a degraded safety-related train B component cooling water (CCW) bypass valve (CC-134B) in accordance with maintenance procedure EN-MA-101, "Fundamentals of Maintenance." Specifically, the licensee did not control and perform testing on a leaking solenoid valve related to the operation of a safety-related bypass valve (CC-134B) after maintenance personnel removed the degraded equipment from service as required by Section 5.10 of EN-MA-101. As a result, the licensee could not characterize and determine the cause of the leakage for the safety-related valve. The inspectors determined that this would challenge the safety function of the valve to provide CCW to the ultimate heat sink following a tornado event. The licensee entered this condition into their corrective action program as CR-WF3-2012-05991, CR-WF3-2012-06288, and CR-WF3-2013-04047. The immediate corrective actions taken to restore compliance included the installation of a new valve and debriefing personnel about controlling equipment removed from service when combining preventative and corrective maintenance tasks in one work order.

  The failure to control failed equipment removed from the plant to determine the cause in accordance with maintenance procedure requirements was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating System Cornerstone 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 degraded condition challenged the safety function of the valve (CC-134B) to limit the loss of CCW through damaged portions of the dry cooling tower fans following a tornado-generated missile strike. The inspectors used the NRC Inspection Manual 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The finding required a detailed analysis because it was potentially risk significant for an external event (tornado). Therefore, the senior reactor analyst performed a bounding detailed risk evaluation. The senior reactor analyst determined that the finding was of very low safety significance (Green). The bounding change to the core damage frequency was less than 3E-7/year. The finding was not significant with respect to the large early release frequency. The dominant core damage sequences included tornado induced losses of offsite power, failure of the dry cooling tower pressure boundary, failure to isolate the damaged dry cooling tower, and failure to recover instrument air. The redundant train A component cooling water system combined with the tornado

frequency helped to reduce the risk exposure. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the work control component of the human performance area in that the licensee did not appropriately coordinate work activities by incorporating actions to address the impact of changes to work scope or activity on plant and human performance [H.3(b)] (Section 1R19).

Cornerstone: Miscellaneous

- Severity Level IV. The team identified a violation of 10 CFR 21.21 that occurred when the licensee failed to submit a report or interim report on a deviation in a basic component within 60 days of discovery.

  The failure of the licensee to adequately evaluate deviations in basic components and to report defects is a performance deficiency. The NRC's significance determination process (SDP) considers the safety significance of findings by evaluating their potential safety consequences. This performance deficiency was of minor safety significance. The traditional enforcement process separately considers the significance of willful violations, violations that impact the regulatory process, and violations that result in actual safety consequences. Traditional enforcement applied to this finding because it involved a violation that impacted the regulatory process. Supplement VII to the version of the NRC Enforcement Policy that was in effect at the time the violation was identified provided as an example of a violation of significant regulatory concern (Severity Level III), "An inadequate review or failure to review such that, if an appropriate review had been made as required, a 10 CFR Part 21 report would have been made." Based on this example, the NRC determined that the violation met the criteria to be cited as a Severity Level III violation. However, because of the circumstances surrounding the violation, including the removal from service of the affected components by an unrelated manufacturer's recall, the severity of the cited violation is being reduced to Severity Level IV. Cross-cutting aspects are not assigned to traditional enforcement violations. (Section 4OA5.2)

## B. Licensee-Identified Violations

A violation of very low safety significance (Severity Level IV), which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and associated corrective action tracking numbers are listed in Section 4OA7 of this report.

## PLANT STATUS

The Waterford Steam Electric Station, Unit 3, began the inspection period at 100 percent power. On September 18, 2013, operators commenced a reactor down power to approximately 82 percent to perform maintenance on the normal level control valve 2B and the heater drain pump B, respectively. Operators began to raise power to 100 percent the same day. The unit maintained a 100 percent power for the remainder of the inspection period.

## REPORT DETAILS

### 1. REACTOR SAFETY

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity and Emergency Preparedness**

### 1R01 Adverse Weather Protection (71111.01)

Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

Since tropical depression Dorian was forecast in the vicinity of the facility for August 4, 2013, the inspectors reviewed the plant personnel's overall preparations and protection for the expected weather conditions. On August 2, 2013, the inspectors did a partial walkdown of the switchyard and the startup unit transformer systems because their functions could be affected, as a result of high winds, tornado-generated missiles, or the loss of offsite power. The inspectors evaluated the plant staff's preparations against site procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant design features and the licensee's procedures to respond to tornadoes and high winds. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors' evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the final safety analysis report and performance requirements for the systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. The inspectors also reviewed a sample of corrective action program items to verify that the licensee had identified adverse weather issues at an appropriate threshold and entered them into the corrective action program for resolution. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample of impending adverse weather conditions, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

## 1R04 Equipment Alignment (71111.04)

Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- On July 29, 2013, high pressure safety injection train B while train A was out of service for maintenance activities
- On August 20, 2013, essential chiller AB while essential chiller B was out of service for maintenance activities
- On September 5, 2013, auxiliary component cooling water train B while train A was out of service for maintenance activities

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected, while considering out of service time, inoperable or degraded conditions, recent system outages, and maintenance, modification, and testing. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, final safety analysis report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three partial system walkdown samples, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

## 1R05 Fire Protection (71111.05)

Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- On July 18, 2013, reactor auxiliary building, fire area 2, heat and ventilation mechanical room
- On July 30, 2013, reactor auxiliary building, fire area 7, relay room
- On August 12, 2013, reactor auxiliary building, fire area 39, -35' foot elevation general area
- On August 27, 2013, turbine building, fire area 2, turbine building +15.00' foot elevation west side area

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition and verified that adequate compensatory measures were put in place by the licensee for out of service, degraded, or inoperable fire protection equipment systems or features. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire protection inspection samples, as defined in Inspection Procedure 71111.05-05.

b. Findings

Introduction. The inspectors identified a Green non-cited violation of Waterford's Facility Operating License Number NPF-38, License Condition 2.C.9, because the licensee did

not implement fire protection procedure FP-001-014, “Duties of a Fire Watch.” Specifically, the licensee’s fire watch personnel did not implement section 6.5 of FP-001-014 to remove firefighting equipment from work areas when securing from a fire watch.

Description. On July 18, 2013, during a walkdown of the reactor auxiliary building (RAB) fire area number two, inspectors identified an undercharged and improperly stored fire extinguisher in the fire area. The inspectors communicated this concern to the licensee. The licensee dispatched personnel to remove the extinguisher and discovered two additional fire extinguishers in the same area with degraded charges. The licensee initiated condition report CR-WF3-2013-03398 and removed the undercharged fire extinguishers from the area. Upon further questioning from the inspectors, the licensee stated that all of the uncharged fire extinguishers identified and removed from this fire area were equipment used by fire watch personnel during recent hot work activities. The inspectors reviewed the initial condition report, hot work permits, fire protection program procedures EN-DC-127, “Control of Hot Work and Ignition Sources,” and FP-001-014, “Duties of a Fire Watch.” The inspectors noted that procedure FP-001-014 required, in part, that when a fire watch is deactivated the fire watch shall return all equipment to their proper storage location. The inspectors determined that the licensee’s fire watch personnel did not implement section 6.5.4.2 of FP-001-014 to remove firefighting equipment from work areas when securing from a fire watch. The inspectors concluded that this could affect the safety-related equipment located in the area because it would delay the response to fires in the fire area by using undercharged fire extinguishers.

In addition, the inspectors noted that procedure EN-DC-127 stated, in part, that for hot work, fire watches shall ensure that the proper fire extinguishers are available and fully charged. The inspectors questioned if the licensee could confirm if the fire extinguishers lost their charge after being left in the area over time or if personnel received the extinguishers uncharged prior to establishing their fire watch. At the time the inspectors proposed this question, the licensee could not confirm if the fire watch extinguishers were undercharged because of the improper storage or if personnel was issued degraded extinguishers. Due to the inspectors’ questioning, the licensee initiated another condition report CR-WF3-2013-03523 and determined that no controls existed to assure fire extinguishers were in acceptable condition prior to assigning them to fire watches or that fire extinguishers were returned to their proper storage location. The inspectors concluded that given the lack of controls over the fire watch extinguishers, the licensee did not ensure supervisory and management oversight of fire watches. As a result, the licensee established measures for tracking extinguishers prior to and after being assigned to fire watches. Additionally, the licensee planned to conduct training for all departments with fire watch responsibilities on procedural requirements.

Analysis. The failure to implement a fire protection program procedure was a performance deficiency. The inspectors determined that this deficiency was reasonably within the licensee’s ability to foresee and correct. The performance deficiency was more than minor because it was associated with the protection against external factors (i.e., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems

that respond to initiating events to prevent undesirable consequences. Specifically, the failure to remove undercharged fire extinguishers from work areas could hinder responses to fires in the area. The inspectors used NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The initial screening directed the inspectors to use Appendix F, "Fire Protection Significance Determination Process," to determine the significance of the finding. The inspectors determined that the finding had a low degradation rating because it reflected a fire protection program element whose performance and reliability would be minimally impacted. Specifically, in accordance with Appendix F, Attachment 2, in all cases identified, there were fully charged portable fire extinguishers of the proper type nearby. Therefore, the finding was of very low safety significance (Green). The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the work practices component of human performance area in that the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)].

Enforcement. Waterford's Facility Operating License Number NPF-38, License Condition 2.C.9, requires, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility. Final Safety Analysis Report, Section 9.5.1.6.3, specifies Procedure UNT-005-013, "Fire Protection Program," which describes responsibilities, controls, and implementing requirements for the Waterford 3 Fire Protection Program. Procedure UNT-005-013, Section 5.9.2 specifies that individual fire watch activities shall be performed in accordance with Procedure FP-001-014, "Duties of A Fire Watch." Procedure FP-001-014, Section 6.5.4.2, states, in part, that to deactivate a fire watch post, the fire watch shall return all equipment to their proper storage location.

Contrary to the above, as of July 2013, the licensee failed to comply with License Condition 2.C.9 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 and as approved in the Safety Evaluation Report. Specifically, fire watch personnel failed to return fire extinguishers assigned to fire watches to their proper storage location when the fire watch personnel deactivated their fire watch posts. The licensee entered this condition into their corrective action program as Condition Reports CR-WF3-2013-03398 and CR-WF3-2013-03523 for resolution. The immediate corrective action taken to restore compliance was to remove and store fire watch extinguishers to their proper storage location. The planned corrective actions include establishing a tool to track the return of all equipment once personnel deactivate a fire watch post.

Because this violation was of very low safety significance and the licensee entered the issue into their corrective action program, this violation was treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy:
(NCV 05000382/2013004-02, "Failure to Implement Fire Protection Program Procedure Requirements When Securing from a Fire Watch."

## 1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the final safety analysis report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- On September 16, 2013, heater drain pump B motor feeder cable
- On September 18, 2013, safeguards pump room B

These activities constitute completion of one flood protection measure inspection sample and one bunker/manhole sample, as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

## 1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

On August 14, 2013, the inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the essential chillers B and A/B. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, “Heat Exchanger Performance Monitoring Guidelines”; the licensee properly utilized bio-fouling controls; the licensee’s heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.” Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two heat sink inspection sample, as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings were identified.

## 1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On July 22, 2013, the inspectors observed a crew of licensed operators in the plant's simulator during training. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques
- Follow-up actions taken by the licensee for identified discrepancies

These activities constitute completion of one quarterly licensed operator requalification program sample, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance

a. Inspection Scope

On September 18, 2013, the inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity due to reactivity management maneuvers. The inspectors observed the operators' performance of the following activities:

- the pre-job brief
- start-up activities
- reactivity control

In addition, the inspectors assessed the operators' adherence to plant procedures, including conduct of operations procedure and other operations department policies.

These activities constitute completion of one quarterly licensed-operator performance sample, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.3 Licensed Operator Requalification Biennial Inspection (71111.11B)

The licensed operator requalification program involves two training cycles that are conducted over a 2-year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination.

a. Inspection Scope

To assess the performance effectiveness of the licensed operator requalification program, the inspectors interviewed training staff, reviewed both the operating tests and written examinations, and observed ongoing operating test activities.

The inspectors reviewed operator performance on the written exams and operating tests. These reviews included observations of portions of the operating tests by the inspectors, as well as observing exam security measures taken during written exam administration. The operating tests observed included five job performance measures and two scenarios that were used in the current biennial requalification cycle, administered to multiple operators. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content. The inspectors also reviewed medical records of 8 licensed operators for conformance to license conditions and the licensee's system for tracking qualifications and records of license reactivation.

The results of these examinations were reviewed to determine the effectiveness of the licensee's appraisal of operator performance and to determine if feedback of performance analyses into the requalification training program was being accomplished. The inspectors interviewed members of the training department and reviewed corrective actions related to operator errors to assess the responsiveness of the licensed operator requalification program to incorporate the lessons learned from both plant and industry events. Examination results were also assessed to determine if they were consistent with the guidance contained in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors", Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

In addition to the above, the inspectors reviewed examination security measures, simulator fidelity, existing logs of simulator deficiencies, and Problem Identification and

Resolution records related to training. The inspectors conducted a detailed review for quality of five full weeks of operating tests and one full written exam.

On August 8, 2013, the licensee informed the lead inspector of the results of the written examinations and operating tests for the Licensed Operator Requalification Program. The inspectors compared the written and operating test results to the Appendix I, "Licensed Operator Requalification Significance Determination Process," values and determined that there were no findings based on these results and because the individuals that failed the applicable portions of their exams and/or operating tests were remediated, retested, and passed their retake exams prior to returning to shift.

The inspectors completed one inspection sample of the biennial licensed operator requalification program.

b. Findings

One licensee-identified Severity Level IV NCV was evaluated during this inspection. It is documented in section 4OA7 of this report.

**1R12 Maintenance Effectiveness (71111.12)**

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- On September 2, 2013, essential chiller B
- On September 10, 2013, control room air handling unit train A inlet damper (HCV-103A)

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring

- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)

- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were appropriately handled by a screening and identification process and that those issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two maintenance effectiveness samples, as defined in Inspection Procedure 71111.12-05.

b Findings

No findings were identified.

**1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)**

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- On July 31, 2013, scheduled replacement of reactor trip circuit breaker number 5

- On August 19, 2013, emergent maintenance on the EDG A2 compressor component

- On August 21, 2013, scheduled maintenance on the component cooling water pump and auxiliary feedwater pump breaker with the EDG A2 and B1 air compressors out of service

- On September 3, 2013, scheduled maintenance on the switchgear ventilation system air handling unit AH-30A with EDG A1 air receiver out of service

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified

that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four maintenance risk assessments and emergent work control inspection samples, as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

**1R15 Operability Determinations and Functionality Assessments (71111.15)**

a. Inspection Scope

The inspectors reviewed the following assessments:

- On August 5, 2013, pressurizer level control system
- On August 15, 2013, essential chiller A/B
- On August 20, 2013, main steam isolation valve number 2 steam leak
- On August 25, 2013, control room air handling unit A inlet damper (HCV-103A)
- On September 5, 2013, snubber pin (FWSR-60) missing

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems along with other factors, such as engineering analysis and judgment, operating experience, and performance history. The inspectors evaluated the technical adequacy of the evaluations to ensure technical specification operability was properly justified and to verify the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and final safety analysis report to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sampling of corrective action

documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five operability evaluations inspection samples, as defined in Inspection Procedure 71111.15 - 05.

b. Findings

No findings were identified.

**1R18 Plant Modifications (71111.18)**

.1 Temporary Modifications

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded, on August 28, 2013, the inspectors reviewed the temporary modification identified as EC-45995, main steam isolation valve B to repair a bonnet vent plug.

The inspectors reviewed the temporary modification and the associated safety-evaluation screening against the system design bases documentation, including the final safety analysis report and the technical specifications, and verified that the modification did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers.

These activities constitute completion of one sample for temporary plant modifications, as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

On September 26, 2013, the inspectors reviewed key parameters associated with materials, replacement components, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the permanent modification identified as EC-46914, main feedwater isolation valve A nitrogen accumulator B tubing replacement.

The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; post modification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur; systems, structures and components' performance characteristics still meet the design basis; the modification design assumptions were appropriate; the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample for permanent plant modifications, as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings were identified.

**1R19 Post-Maintenance Testing (71111.19)**

a. Inspection Scope

The inspectors reviewed the following post-maintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- On July 29, 2013, emergency feedwater to steam generator 1 backup flow control valve (EFW-223A)
- On July 30, 2013, dry cooling tower B component cooling water bypass valve (CC-134B)
- On August 1, 2013, replaced reactor trip circuit breakers
- On August 6, 2013, corrective maintenance on the emergency generator A1 compressor pressure switch
- On September 24, 2013, replaced control room air handling unit A inlet damper (HCV-103A)

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed

- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the final safety analysis report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19-05.

b. Findings

.1 Failure to Control Failed Equipment Removed from the Plant in Accordance with Procedure Requirements

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because the licensee did not control and determine the extent of leaking safety-related bypass valve associated with the dry cooling tower B component cooling water solenoid valve (CC-134B) after maintenance personnel removed the degraded equipment from service as required by Section 5.10 of EN-MA-101.

Description. On October 31, 2012, the licensee conducted a post-maintenance leak test on the actuator for a safety-related air operate solenoid valve CC-134B. During the process of conducting the leak test, maintenance personnel identified air coming from the exhaust vent port of a solenoid valve associated with the operation of CC-134B. The licensee replaced the valve on November 1, 2012, and restored valve CC-134B to an operable status. However, the licensee did not retain the original solenoid valve for testing to determine the cause or extent of the leakage. Without supporting information regarding the leak rate or cause, the licensee assumed that CC-134B and its air accumulator were inoperable from October 20, 2011, the dates of the last satisfactory leak test, until November 1, 2012, when maintenance personnel replaced the valve.

The licensee initiated a condition report and performed an apparent cause evaluation. The inspectors performed a review of the apparent cause evaluation, the event timeline, work orders, and maintenance history of valve CC-134B. The licensee determined that the valve leakage could have adversely affected the backup air accumulator inventory. However, the licensee did not retain the leaking valve to perform any testing. As a result, the licensee could not characterize and determine the cause of the leakage for the safety-related valve. The inspectors determined that the licensee did not accomplish

activities in accordance with maintenance procedure EN-MA-101, “Fundamentals of Maintenance”. Section 5.10, Control of Failed Plant Equipment, of EN-MA-101, requires, in part, that the licensee control failed equipment removed from the plant to determine necessary testing to establish the cause of the failure.

As a part of the review of the apparent cause evaluation, the inspectors also noted that an incomplete work order contributed to discarding the solenoid valve prior to testing. The licensee combined a corrective maintenance with a preventative maintenance task into the existing work order for CC-134B during the replacement of the solenoid valve. This led to an error-trap, as explicit instructions for retaining failed parts were not a part of the preventative maintenance tasks. The immediate corrective actions taken to restore compliance included the installation of a new valve and debriefing personnel about controlling equipment removed from service when combining preventative and corrective maintenance tasks in one work order. The licensee entered this condition into their corrective action program as Condition Reports CR-WF3-2012-05991 and CR-WF3-2012-06288. However, inspectors questioned the effectiveness of the original corrective action by the licensee to have personnel briefed on the effects of combining preventative and corrective maintenance tasks in a work order. The inspectors felt that a briefing did not provide an adequate barrier to prevent this from happening again. As a result, the licensee initiated CR-HQN-2013-00709 and CR-WF3-2013-04047 to determine additional corrective actions to address the error trap. The inspectors determined that the licensee did not appropriately coordinate work activities by incorporating actions to address the impact of changes to work scope on the plant and human performance.

Analysis. The failure to control failed equipment removed from the plant to determine the cause was a performance deficiency. The inspectors determined that this deficiency was reasonably within the licensee’s ability to foresee and correct. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating System Cornerstone 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 degraded condition challenged the safety function of valve CC-134B to limit the loss of component cooling water through damaged portions of the dry cooling towers following a tornado-generated missile strike.

The inspectors used NRC Inspection Manual Chapter 0609, Attachment 4, “Initial Characterization of Findings,” and Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” to evaluate this issue. The inspectors determined that the finding required a detailed analysis because it was potentially risk significant for an external event (tornado) based on using Exhibit 4, “External Events Screening Questions”. Therefore, the senior reactor analyst performed the following bounding detailed risk evaluation:

**Tornado Statistics:** About one out of every three tornadoes (29 percent) is classified as "strong." Strong tornadoes have an average path length of 9 miles and a path width of 200 yards (approximately 1 square mile of land affected). Although very rare

(about 2 percent are violent), violent tornadoes can last for hours. Average path lengths and widths are 26 miles and 425 yards, respectively.

Since the strong tornadoes can affect approximately 1 square mile, weaker tornadoes, on average, would affect significantly less than 1 square mile. Most tornadoes are of the weaker variety. Violent tornadoes can affect approximately 6 to 7 square miles (on average), but are relatively rare. Therefore, the analyst assumed that the average tornado would affect 1 square mile of land.

The average number of tornadoes in Louisiana per year was 27.

The total area for the state of Louisiana was 51,840 square miles.

**Plant Area:** For this risk evaluation, the analyst assumed that the Waterford-3 nuclear island and switchyard occupied one square mile of land. This was conservative, in that this equipment occupies less than one square mile.

The analyst conservatively assumed that a tornado within a 1 square mile area would cause a loss of offsite power and cause physical damage to the train B dry cooling tower train. This in turn would cause the B component cooling water train to fail. Because the dry cooling towers are at least partially protected from missiles by the surrounding building, this is a very conservative assumption. Not all tornadoes will result in damaging this equipment.

**Tornado Frequency:** The frequency of a tornado hitting the Waterford-3 nuclear island and switchyard was therefore:

$$\lambda = 27 \text{ tornadoes/year} / 51840 \text{ sq miles} = 5.2E\text{-}4/\text{yr}.$$

**Calculations:** The analyst used the NRC's Waterford-3 Standardized Plant Analysis Risk (SPAR) model, Revision 8.16, with a truncation limit of E-11, to evaluate this finding. The analyst assumed a full year exposure period.

The analyst calculated the incremental conditional core damage probability (ICCDP) considering a loss of offsite power (LOOP) coincident with the failure of the train B component cooling water system. To account for an earlier finding at Waterford-3, the analyst set the basic event for alternate room cooling to 1.0. The analyst used this adjustment in both the nominal case (no performance deficiency) and the current case (with the performance deficiency). In addition, for both cases the analyst set the basic event for a LOOP to 1.0. The analyst solved only the LOOP sequences. The nominal case CCDP was 2.15E-4.

For the current case calculation, the analyst additionally set the basic events for the B and AB (swing) motor driven component cooling water pumps to 1.0. The resultant CCDP was 5.9E-3.

The initial ICCDP was therefore the difference between the nominal and current case CCDPs = 5.7E-3.

The analyst considered recovery of the instrument air system. As noted in Licensee Event Report 2012-007, dated December 31, 2012, operators could recover an instrument air compressor and power the unit from an operable running emergency diesel generator. The resident inspectors had reviewed these procedures and estimated that it may take 2.0 hours to perform this action. The analyst assumed a non-recovery probability of 0.1 for this action. The nominal non-recovery probability as specified in NUREG/CR-6883, "The SPAR-H Human Reliability Analysis Method," was 1.1E-2. Therefore, 0.1 was conservative when compared to 1.1E-2. The resultant ICCDP, considering recovery, was 5.7E-4.

The change to the core damage frequency (delta CDF) was the tornado frequency multiplied by the ICCDP = 5.2E-4/yr * 5.7E-4 = 2.9E-7/yr.

The dominant core damage sequences included tornado induced losses of offsite power, failure of the dry cooling tower pressure boundary, failure to isolate the damaged dry cooling tower, and failure to recovery instrument air. The redundant train A component cooling water system combined with the tornado frequency helped to reduce the risk exposure.

Large Early Release Frequency (LERF): To address the contribution to conditional large early release frequency, the analyst used NRC Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process," dated May 6, 2004. The finding was not significant to LERF because it did not directly affect the steam generator tube rupture or the intersystem loss of coolant accident sequences.

The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the work control component of the human performance area in that the licensee did not appropriately coordinate work activities by incorporating actions to address the impact changes to work scope or activity on plant and human performance [H.3(b)].

Enforcement. Title 10 of CFR, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Specifically, Section 5.10, "Control of Failed Plant Equipment" of maintenance procedure EN-MA-101, "Fundamentals of Maintenance," requires, in part, that it be determined "whether the component should be tested to establish cause of failure before it is scrapped."

Contrary to the above, on November 1, 2012, the licensee did not accomplish activities in accordance with maintenance procedure requirements. Specifically, the licensee did not control failed plant equipment to determine whether the component should be tested to establish the cause of failure before it was scrapped. The licensee discarded the

solenoid valve prior to performing any analysis to determine the cause or severity of the valve's failure. Consequently, the licensee assumed that the valve was unable to fulfill its safety function if called upon after a tornado-generated missile strike on dry cooling tower train B. The licensee entered this condition into their corrective action program as Condition Reports CR-WF3-2012-05991, CR-WF3-2012-06288, and CR-WF3-2013-04047 for resolution. Although corrective actions are on-going, the immediate corrective action taken to restore compliance included replacing the leaking valve and to brief personnel about the potential problems regarding combining preventative and corrective maintenance tasks in one work order.

Because this violation was of very low safety significance and the licensee entered the issue into their corrective action program, this violation was treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy:
NCV 05000382/2013004-03, "Failure to Accomplish Activities Affecting Quality on a Degraded Safety-Related Solenoid Valve In Accordance With Procedure Requirements."

## 1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors selected risk-significant surveillance activities based on risk information and reviewed the final safety analysis report, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems

- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- On August 6, 2013, surveillance test on containment vacuum relief train A control valve CVR-201A (in-service test)
- On August 19, 2013, surveillance test on auxiliary component cooling water pump B (in-service test)
- On August 22, 2013, surveillance test on containment cooling fans
- On August 28, 2013, surveillance test on low pressure safety injection pump A
- On September 9, 2013, surveillance test on component cooling water pump A/B

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five surveillance testing inspection samples, as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

**1EP6 Drill Evaluation (71114.06)**

Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on July 22, 2013, this required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator

data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These activities constitute completion of one training observation sample, as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

## 2. RADIATION SAFETY

**Cornerstone: Public Radiation Safety and Occupational Radiation Safety**

### 2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

This area was inspected to: (1) review and assess licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures, (2) verify the licensee is properly identifying and reporting Occupational Radiation Safety Cornerstone performance indicators, and (3) identify those performance deficiencies that were reportable as a performance indicator and which may have represented a substantial potential for overexposure of the worker.

The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed walkdowns of various portions of the plant, performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation reported by the licensee in the Occupational Radiation Safety Cornerstone

- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels

- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions

- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability

- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage, and contamination controls; the use of electronic dosimeters in high noise areas; dosimetry placement; airborne radioactivity monitoring; controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools; and posting and physical controls for high radiation areas and very high radiation areas

- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

- Emergency contingencies in place during the steam generator replacement activities

- Project staffing and training plans for the previous steam generator replacement activities

- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.01-05.

b. Findings

No findings were identified.

**2RS02 Occupational ALARA Planning and Controls (71124.02)**

a. Inspection Scope

This area was inspected to assess performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed licensee personnel and reviewed the following items:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements

- ALARA work activity evaluations/post job reviews, exposure estimates, and exposure mitigation requirements

- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies

- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry

- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas

- Audits, self-assessments, and corrective action documents related to ALARA planning and controls since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.02-05.

b. Findings

No findings were identified.

**2RS05 Radiation Monitoring Instrumentation (71124.05)**

a. Inspection Scope

This area was inspected to verify the licensee is assuring the accuracy and operability of radiation monitoring instruments that are used to: (1) monitor areas, materials, and workers to ensure a radiologically safe work environment; and (2) detect and quantify radioactive process streams and effluent releases. The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed licensee personnel, performed walkdowns of various portions of the plant, and reviewed the following items:

- Selected plant configurations and alignments of process, postaccident, and effluent monitors with descriptions in the Final Safety Analysis Report and the offsite dose calculation manual

- Select instrumentation, including effluent monitoring instrument, portable survey instruments, area radiation monitors, continuous air monitors, personnel contamination monitors, portal monitors, and small article monitors to examine their configurations and source checks

- Calibration and testing of process and effluent monitors, laboratory instrumentation, whole body counters, postaccident monitoring instrumentation, portal monitors, personnel contamination monitors, small article monitors, portable survey instruments, area radiation monitors, electronic dosimetry, air samplers, continuous air monitors

- Audits, self-assessments, and corrective action documents related to radiation monitoring instrumentation since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.05-05.

b. Findings

No findings were identified.

**2RS06 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)**

a. Inspection Scope

This area was inspected to: (1) ensure the gaseous and liquid effluent processing systems are maintained so radiological discharges are properly mitigated, monitored, and evaluated with respect to public exposure; (2) ensure abnormal radioactive gaseous or liquid discharges and conditions, when effluent radiation monitors are out-of-service, are controlled in accordance with the applicable regulatory requirements and licensee procedures; (3) verify the licensee's quality control program ensures the radioactive effluent sampling and analysis requirements are satisfied so discharges of radioactive materials are adequately quantified and evaluated; and (4) verify the adequacy of public dose projections resulting from radioactive effluent discharges. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendices A and I; 40 CFR Part 190; the Offsite Dose Calculation Manual, and licensee procedures required by the Technical Specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed and/or observed the following items:

- Radiological effluent release reports since the previous inspection and reports related to the effluent program issued since the previous inspection, if any

- Effluent program implementing procedures, including sampling, monitor setpoint determinations and dose calculations

- Equipment configuration and flow paths of selected gaseous and liquid discharge system components, filtered ventilation system material condition, and significant changes to their effluent release points, if any, and associated 10 CFR 50.59 reviews

- Selected portions of the routine processing and discharge of radioactive gaseous and liquid effluents (including sample collection and analysis)

- Controls used to ensure representative sampling and appropriate compensatory sampling

- Results of the inter-laboratory comparison program

- Effluent stack flow rates

- Surveillance test results of technical specification-required ventilation effluent discharge systems since the previous inspection

- Significant changes in reported dose values, if any

- A selection of radioactive liquid and gaseous waste discharge permits

- Part 61 analyses and methods used to determine which isotopes are included in the source term

- Offsite dose calculation manual changes, if any

- Meteorological dispersion and deposition factors

- Latest land use census

- Records of abnormal gaseous or liquid tank discharges, if any

- Groundwater monitoring results

- Changes to the licensee's written program for indentifying and controlling contaminated spills/leaks to groundwater, if any

- Identified leakage or spill events and entries made into 10 CFR 50.75 (g) records, if any, and associated evaluations of the extent of the contamination and the radiological source term

- Offsite notifications~~,~~ and reports of events associated with spills, leaks, or groundwater monitoring results, if any

- Audits, self-assessments, reports, and corrective action documents related to radioactive gaseous and liquid effluent treatment since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample, as defined in Inspection Procedure 71124.06-05.

b. Findings

No findings were identified.

**2RS07 Radiological Environmental Monitoring Program (71124.07)**

a. Inspection Scope

This area was inspected to: (1) ensure that the radiological environmental monitoring program verifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program; (2) verify that the radiological environmental monitoring program is implemented consistent with the licensee's technical specifications and/or offsite dose calculation manual, and to validate that the radioactive effluent release program meets the design objective contained in Appendix I to 10 CFR Part 50; and (3) ensure that the radiological environmental monitoring program monitors non-effluent exposure pathways, is based on sound principles and assumptions, and validates that doses to members of the public are within the dose limits of 10 CFR Part 20 and 40 CFR Part 190, as applicable. The inspectors reviewed and/or observed the following items:

- Annual environmental monitoring reports and offsite dose calculation manual
- Selected air sampling and thermoluminescence dosimeter monitoring stations
- Collection and preparation of environmental samples

  Operability, calibration, and maintenance of meteorological instruments
- Selected events documented in the annual environmental monitoring report which involved a missed sample, inoperable sampler, lost thermo luminescence dosimeter, or anomalous measurement
- Selected structures, systems, or components that may contain licensed material and has a credible mechanism for licensed material to reach ground water
- Records required by 10 CFR 50.75(g)

- Significant changes made by the licensee to the offsite dose calculation manual as the result of changes to the land census or sampler station modifications since the last inspection

- Calibration and maintenance records for selected air samplers and environmental sample radiation measurement instrumentation

- Inter-laboratory comparison program results

- Audits, self-assessments, reports, and corrective action documents related to the radiological environmental monitoring program since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.07-05.

b. Findings

No findings were identified.

**2RS08 Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)**

a. Inspection Scope

This area was inspected to verify the effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation regulations contained in 49 CFR Parts 171-180 for determining compliance. The inspectors interviewed licensee personnel and reviewed the following items:

- The solid radioactive waste system description, process control program, and the scope of the licensee's audit program

- Control of radioactive waste storage areas including container labeling/marking and monitoring containers for deformation or signs of waste decomposition

- Changes to the liquid and solid waste processing system configuration including a review of waste processing equipment that is not operational or abandoned in place

- Radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides

- Processes for waste classification including use of scaling factors and 10 CFR Part 61 analysis

- Shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and preparation of the disposal manifest

- Audits, self-assessments, reports, and corrective action reports radioactive solid waste processing, and radioactive material handling, storage, and transportation performed since the last inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.08-05.

b. Findings

No findings were identified.

## 4. OTHER ACTIVITIES

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security Protection**

### 4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the second Quarter 2013 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, “Performance Indicator Program.”

This review was performed as part of the inspectors’ normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings were identified.

.2 Safety System Functional Failures (MS05)

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicator for the period from the fourth quarter 2012 through the second quarter 2013. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6, and NUREG-1022, “Event Reporting Guidelines 10 CFR 50.72 and 50.73." The inspectors reviewed the licensee’s operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC integrated inspection reports for the period of October 2012 through September 2013 to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one safety system functional failures sample, as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - residual heat removal system performance indicator for the period from the third quarter 2012 through the third quarter 2013. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6. The inspectors reviewed the licensee’s operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2012 through September 2013 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index - residual heat removal system sample, as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - cooling water systems performance indicator for the period from the third quarter 2012 through the third quarter 2013. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2012 through September 2013 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index - cooling water system sample, as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

Cornerstone: Occupational Radiation Safety

The inspectors reviewed performance indicator data for the fourth quarter 2012 through the third quarter 2013. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed corrective action program records associated with high radiation area (greater than 1 rem/hr) and very high radiation area nonconformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 mrem. The inspectors also conducted walkdowns of high radiation areas (greater than 1 rem/hr) and very high radiation area entrances to determine the adequacy of the controls of these areas.

These activities constitute completion of the occupational exposure control effectiveness sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.6 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (PR01)

a. Inspection Scope

Cornerstone: Public Radiation Safety

The inspectors reviewed performance indicator data for fourth quarter 2012 through the third quarter 2013. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed the licensee's corrective action program records and selected individual annual or special reports to identify potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

These activities constitute completion of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

## 4OA2 Problem Identification and Resolution (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities

and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

c. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 In-depth Review of Operator Workarounds

a. Inspection Scope

On August 14, 2013, during a review of items entered in the licensee's corrective action program, the inspectors reviewed operator workarounds and burdens. The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of problems in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing

causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

These activities constitute completion of one in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-05

b. Findings

No findings were identified.

## 4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000382/2012-007-00, Inoperability Of A Safety Related Valve Due To Backup Air Accumulator Leakage

On October 10, 2012, during refueling outage RFO-18, the licensee identified a dual solenoid valve CC ISV0134B1/B2 associated with train B dry cooling tower component cooling water bypass valve CC-134B was leaking air through the solenoid valve exhaust vent port. Following replacement of the solenoid valve, the licensee discarded it without determining the cause or rate of leakage. The licensee determined on November 1, 2012, that the solenoid valve leakage could have adversely affected the backup air accumulator relied on to allow valve CC-134B to fulfill its safety function in the event that a tornado-generated missile damaged the train B dry cooling tower. The licensee concluded that the valve may have been inoperable since the last accumulator leak test because the rate of the leakage was unknown. As part of the review of this event, the inspectors identified a Green non-cited violation 05000382/2013004-03, “Failure to accomplish activities affecting quality on a degraded safety-related solenoid valve in accordance with procedure requirements.” The inspectors documented this violation of NRC requirements in Section 1R19 of this report. This licensee event report is closed.

## 4OA5 Other Activities

.1 (Closed) Temporary Instruction 2515/185, “Follow-up on the Industry’s Ground Water Protection Initiative”

a. Inspection Scope

The ground water protection program was inspected September 16-19, 2013, to determine whether the licensee had implemented the program elements which were found to be incomplete when previously reviewed during NRC Inspection Report 05000382/2012003. Inspectors interviewed cognizant licensee personnel and performed walk-downs.

b. Findings

The following element had been implemented since the previous review:

- Element 1.4.a – Establish written procedures outlining the decision making process for remediation of leaks and spills or other instances of inadvertent releases.

The following element had not been implemented since the previous review and is documented in the corrective action document listed with the element:

- Element 1.3.f – Establish a long-term program for preventative maintenance of ground water wells (CR-HQN-2013-00861). This element lacked an implementing procedure or process. Additionally, the appropriateness for preventative maintenance in relation to the specific type of ground water wells has yet to be determined.

.2 (Closed) Unresolved Item 05000382/2009010-01, "Failures to Evaluate Adverse Conditions for Reportability to the NRC"

On October 19, 2009, the NRC completed a special inspection at the Waterford 3 initiated in response to a series of failures of safety-related Agastat timing relays. During this inspection, the team identified two examples in which the licensee failed to adequately review a deviation observed in specific batches of relays to determine whether the deviations were required to be reported to the NRC. The first of these examples involved a number of relays from the same manufacturing lot (date code 9948) that, after being installed in the plant, were determined to be unreliable, thus deviating from procurement requirements. The second of these examples involved several relays from a different manufacturing lot (date code 0835) that also did not conform to specifications; however, the deviation of the date code 0835 relays was discovered during bench testing prior to installation. On November 5, 2009, the NRC issued inspection report 05000382/2009010, documenting an unresolved item pending a determination of whether the licensee's failures to evaluate and report the deviations constituted violations of one or more of the reporting requirements contained in 10 CFR Part 21, 10 CFR 50.72, and 10 CFR 50.73.

The NRC has determined that these deviations in basic components were not evaluated in accordance with 10 CFR 21.21(a)(1). Further, the NRC determined that had the licensee evaluated the deviations, it would have concluded that the deviations constituted defects as defined in 10 CFR 21.3. Where Part 21 applies, such defects are required to be reported to the NRC in accordance with 10 CFR 21.21(d)(1).

The NRC is developing new guidance to clarify the reporting requirements of 10 CFR Part 21 including whether in-service failure of installed parts-those subject to the reporting requirements in Part 50 (§§ 50.72 and 50.73)-are also subject to the evaluation and reporting requirements of Part 21. See Task Interface Agreement (TIA) 2010-003 (ML11319A134). However, Part 21 evaluation and reporting criteria continue to apply to basic components that are not installed. Therefore, section 4OA5.2 below documents a violation of 10 CFR Part 21 for only the date code 0835 relays, in which the deviations were discovered prior to installation of the components. No violation will be issued for the licensee's failure to evaluate the installed relays in accordance with Part 21 requirements.

.3 Failures to perform evaluations and make a report as required by 10 CFR Part 21

Introduction. The team identified a Severity Level IV violation of 10 CFR 21.21 that occurred when the licensee failed to complete an evaluation of a deviation in a basic component within 60 days of discovery.

Description. On October 14, 2008, while replacing a failed Agastat E7024PB relay, maintenance personnel noted that the replacement relay obtained from the warehouse had a loose terminal point. Two more relays were obtained from the warehouse; one of these also had a bad terminal point. On October 27, 2008, the licensee quarantined the remaining four relays in stock. Two of these were identified to have similarly deficient terminal points. All four affected relays shared a date code of 0835. The licensee identified these relays as defective. On November 4, 2008, the licensee issued a corrective action request to Tyco Electronics requesting an investigation into the cause, extent of condition, potential reporting, and development of corrective and preventive action for the Agastat E7024PB relays with date code 0835 noted to have defective terminal points.

On November 11, 2008, the licensee incorrectly determined that the deficiencies with the four 0835 date code relays were the same condition as had been previously captured in Condition Report CR-WF3-2008-4765. This condition report had been written for date code 0804 relays that had failed in service on September 11 and October 13, 2008. The licensee incorrectly documented in Condition Report CR-WF3-2008-4782 that a reportability evaluation for that previous condition would satisfy the requirements to evaluate the October 14 deficiencies for reportability.

On November 25, 2008, Tyco Electronics issued a 10 CFR 21 report regarding an Agastat E7024PB relay, date code 0813, which was manufactured with an incorrect recycle spring. Coincident with this Part 21 report, on November 26, 2008, Tyco Electronics issued a recall of Agastat E7024PB relays with date codes ranging from 0808 through 0835. This recall included seven relays with a 0835 date code that had been sold to the Waterford 3 and two which had been procured by the Waterford 3 from another station. Four of these recalled relays were the subject of the November 4, 2008, corrective action request issued to Tyco by the licensee. It was later determined that none of the relays procured by the Waterford 3 had an incorrect recycle spring installed.

On January 28, 2009, the Waterford 3 received an evaluation from Tyco Electronics which identified misadjusted terminal blocks as the cause of the failures of the two 0804 date code relays, a different failure mechanism than that initially identified for the 0835 relays. The Tyco Electronics report did not provide an evaluation for the 0835 relays.

In August 2009, the licensee issued Licensee Event Report (LER) 2009-003-00 (ML092310548). This LER did not mention relay 0835 or loose terminal points. It instead discussed incorrect adjustment of terminal blocks. In April 2010, the licensee issued an updated LER 2009-003-01 (ML101230323). This revision discussed relay 0835 and listed loose terminal points on two spare relays as a Part 21-reportable defect.

The NRC identified that the licensee had failed to evaluate the loose terminal points on the four relays with date code 0835 in accordance with 10 CFR Part 21. Though the licensee's initial actions to have the vendor perform an evaluation may have been appropriate, it was the licensee's responsibility and obligation under Part 21 to complete such an evaluation within 60 days of the initial discovery, or issue an interim report within 60 days of the initial discovery.

The initial LER or Part 21 report should have been made in December 2008 (60 days after the date of discovery in October 2008). However, the Part 21 report that describes relay 0835 was made approximately 16 months later (April 2010).

Analysis. The failure of the licensee to adequately evaluate deviations in basic components and to report defects is a performance deficiency. The NRC's significance determination process (SDP) considers the safety significance of findings by evaluating their potential safety consequences. This performance deficiency was of minor safety significance. The traditional enforcement process separately considers the significance of willful violations, violations that impact the regulatory process, and violations that result in actual safety consequences. Traditional enforcement applied to this finding because it involved a violation that impacted the regulatory process. Supplement VII to the version of the NRC Enforcement Policy that was in effect at the time the violation was identified provided as an example of a violation of significant regulatory concern (Severity Level III), "An inadequate review or failure to review such that, if an appropriate review had been made as required, a 10 CFR Part 21 report would have been made." Based on this example, the NRC determined that the violation met the criteria to be cited as a Severity Level III violation. However, in accordance with the Enforcement Policy, because the affected components were already removed from service as part of an unrelated manufacturer's recall, the severity of the cited violation is being assessed as Severity Level IV. Cross-cutting aspects are not assigned to traditional enforcement violations.

Enforcement. Title 10, CFR Part 21.21(a)(1) requires, in part, that entities subject to the regulations in this part shall evaluate deviations and failures to comply to identify defects associated with substantial safety hazards as soon as practicable except as provided in paragraph (a)(2) of this section, and in all cases within 60 days of discovery, in order to identify a reportable defect that could create a substantial safety hazard, were it to remain uncorrected.

Title 10 CFR, Part 21.21(a)(2) requires, in part, that entities subject to the regulations in the part shall ensure that if an evaluation of identified deviation or failure to comply potentially associated with a substantial safety hazard cannot be completed within 60 days from discovery of the deviation or failure to comply, an interim report is prepared and submitted to the Commission. The interim report must be submitted in writing within 60 days of discovery of the deviation of failure to comply.

Contrary to the above, from December 14, 2008, to April 29, 2010, the licensee failed to evaluate deviations and failures to comply to identify defects associated with substantial safety hazards as soon as practicable and to submit a report or interim report within

60 days of its discovery, in order to identify a reportable defect or failure to comply that could create a substantial safety hazard, were it to remain uncorrected.

Specifically, on October 14, 2008, the licensee performed bench test on an Agastat E7024PB relay with date code 0835 and noted that the relay had a loose terminal point. Two more relays were obtained from the warehouse; one of these also had a bad terminal point. On October 27, 2008, the licensee quarantined the remaining four relays in stock. Two of these quarantined relays were identified to have similarly deficient terminal points. The licensee identified these relays as "defective" and returned them to the manufacturer, Tyco Electronics, for cause evaluation. All four affected relays shared a date code of 0835. On January 28, 2009, the licensee received a report from the manufacturer, which had failed to perform the required evaluation. On August 18, 2009, the licensee submitted LER 2009-003-00, (ML092310548). This LER did not mention the date code 0835 relays or loose terminal points. Rather, the LER described relays that failed due to incorrect adjustment of terminal blocks, a deviation different from that observed in the 0835 date code relays. On April 29, 2010, the licensee issued updated LER 2009003-01 (ML101230323). This revision to the LER described loose terminal points on two spare date code 0835 relays as one of the defects identified in its Agastat E7024PB relays. The April 29, 2010, LER revision would have met Part 21 evaluation and reporting requirements, but it was 501 days late: VIO 05000382/2013004-01, "Failure to Make a Report Required by 10 CFR 21.21."

## 4OA6 Meetings, Including Exit

Exit Meeting Summary

The inspectors debriefed Mr. Carl Rich, Director of Nuclear Safety Assurance, and other members of the licensee's staff of the results of the licensed operator requalification program inspection on July 25, 2013, and telephonically exited with Mr. Carl Rich and other staff members on August 19, 2013. The licensee representatives acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On September 19, 2013, the inspectors presented the results of the radiation safety inspections to Ms. D. Jacobs, Vice President, Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 1, 2013, the inspectors presented the inspection results to Ms. D. Jacobs, Vice President, Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On November 19, 2013, a re-exit was held with Mr. John Jarrell, Regulatory Assurance Manager, and other members of your staff. The purpose of this re-exit was to further discuss the violations contained in the report.

## 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (SL-IV) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a Non-Cited Violation.

Title 10 CFR, Part 55.9, "Completeness and Accuracy of Information," requires that "information provided to the Commission by an applicant for a license or by a licensee … shall be complete and accurate in all material respects." Contrary to the above, on September 13, 2012, an NRC Form 396, "Certification of Medical Examination by Facility Licensee," was submitted to the NRC for a licensed operator applicant with inaccurate information. Specifically, a restriction for corrective lenses was omitted, even though the applicant's medical exam stated that the individual required corrective lenses. An operating license was granted by the NRC to the individual without a corrective lens restriction. The error was identified during the operator's subsequent annual medical examination in July 2013, after which the operator reported to licensing that an additional restriction was being placed on his license though his vision had not changed. The licensee confirmed that the operator had not performed any licensed duties and a revised NRC Form 396 was submitted to Region IV on July 29, 2013. The licensee documented the deficiency in Condition Report 2013-03181. The submission of inaccurate information to the NRC is a violation. The violation was evaluated using the traditional enforcement process because it impacted the NRC's ability to perform its regulatory function. The violation was determined to be Severity Level IV because it fits the example of Enforcement Policy Section 6.4.d.1(d), "Violation Examples: Licensed Reactor Operators." This section states, "SL IV violations involve**,** for example … an individual operator who met ANSI/ANS 3.4, Section 5, as certified on NRC Form 396, required by Title 10, Part CFR 55.23, but failed to report a condition that would have required a license restriction to establish or maintain medical qualification based on having the undisclosed medical condition." In this case, the individual operator did report the condition to the licensee, but the licensee failed to include that information in its original license application to the NRC.

## SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

Licensee Personnel

D. Jacobs, Vice President, Operations
K. Cook, General Manager, Plant Operations
S. Adams, Senior Manager, Production
D. Boan, Supervisor, Radiation Protection
J. Briggs, Superintendent, Electrical Maintenance
K. Crissman, Senior Manager, Maintenance
D. Frey, Manager, Radiation Protection
R. Gilmore, Manager, Systems and Components
W. Hardin, Senior Licensing Specialist, Licensing
A. James, Manager, Security
B. Lanka, Director, Engineering
N. Lawless Manager, Chemistry
B. Lindsey, Senior Manager, Operations
M. Mason, Senior Licensing Specialist, Licensing
M. Mills, Manager, Nuclear Oversight
W. McKinney Manager, Performance Improvement
S.W. Meiklejohn, Superintendent, I & C Maintenance
B. Pellegrin, Manager, Regulatory Assurance
G. Pierce, Manager, Training
R. Porter, Manager, Design & Program Engineering
D. Reider, Supervisor, Quality Assurance
C. Rich, Jr., Director, Regulatory & Performance Improvement
J. Russo, Supervisor, Design Engineering
J. Signorelli, Supervisor, Simulator Support
R. Simpson, Superintendent, Licensed Operator Requalification
P. Stanton, Supervisor, Design Engineering
J. Williams, Senior Licensing Specialist

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

| | | |
|---|---|---|
| 05000382-2013004-01 | VIO | Failure to Make a Report Required by 10 CFR 21.21 (Section 4OA5) |

Opened and Closed

| | | |
|---|---|---|
| 05000382-2013004-02 | NCV | Failure to Implement Fire Protection Program Procedure Requirements When Securing from a Fire Watch (Section 1R05) |
| 05000382-2013004-03 | NCV | Failure to Accomplish Activities Affecting Quality on a Degraded Safety-Related Solenoid Valve In Accordance With Procedure Requirements (Section 1R19) |

Closed

| | | |
|---|---|---|
| 05000382/2012-007-00 | LER | Inoperability of a Safety Related Valve Due to Backup Air Accumulator Leakage |
| 05000382/2009010-01 | URI | Failure to Evaluate Adverse Conditions for Reportability to the NRC (Section 4OA5) |

## LIST OF DOCUMENTS REVIEWED

### Section 1R01: Adverse Weather Protection

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| OP-901-521 | Severe Weather and Flooding | 309 |
| ENS-EP-302 | Severe Weather Response | 11 |

### Section 1R04: Equipment Alignment

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| OP-009-008 | Safety Injection System | 33 |
| OP-002-004 | Chilled Water System | 311 |
| OP-002-001 | Auxiliary Component Cooling Water | 305 |

**Section 1R05: Fire Protection**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| UNT-005-013 | Fire Protection Program | 12 |
| FP-001-014 | Duties of a Fire Watch | 16 |
| RAB 2-001 | Prefire Strategy Elevation +46.00' RAB HVAC Equipment Room | 12 |
| RAB 7-001 | Prefire Strategy Elevation +35.00' RAB HVAC Relay Room | 9 |
| RAB 39-001 | Prefire Strategy Elevation -35.00' RAB General Area | 11 |
| FP-001-018 | Pre Fire Strategies, Development and Revision | 301 |
| NS-TB-002 | Prefire Strategy Turbing Building +15.00' West | 2 |

CONDITION REPORTS

CR-WF3-2013-03523 CR-WF3-2013-03398

**Section 1R06: Flood Protection Measures**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-DC-346 | Cable Reliability Program | 5 |
| MNQ3-5 | Flooding Analysis Outside Containment | 4 |
| W3F1-2007-0017 | Response to Generic Letter 2007-01 | 0 |
| W3F1-2009-0066 | Clarification of Response to Generic Letter 2007-01 | 0 |
| SEP-UIP-WF3 | Underground Components Inspection Plan | 1 |

WORK ORDERS

WO 227249

**Section 1R07: Heat Sink Performance**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-DC-316 | Heat Exchanger Performance and Condition | 3 |

**Section 1R07: Heat Sink Performance**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| | Monitoring | |
| PE-001-004 | Heat Exchanger Performance | 2 |
| SEP-HX-WF3-001 | Waterford's Generic Letter 89-13 Heat Exchanger Test Basis | 0 |

**Section 1R11: Licensed Operator Requalification Program**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION/ DATE |
|---|---|---|
| EN-OP-115 | Conduct of Operations | 12 |
| EN-TQ-114 | Licensed Operator Requalification Training Program Description | 8 |
| TM-OP-100 | Operations Training Manual | 24 |
| ANSI/ANS-3.4-1983 | Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants | April 29, 1983 |
| ANSI/ANS-3.5-2009 | Nuclear Power Plant Simulators for Use in Operator Training and Examination | September 4, 2009 |
| ACAD 07-001 | Guidelines for the Continuing Training of Licensed Personnel | January 2007 |
| EN-TQ-217 | Examination Security | 2 |
| OI-024-000 | Maintaining Active SRO/RO Status | 306 |
| EN-NS-112 | Medical Program | 11 |
| TM-OP-100 | Operations Training Manual | 24 |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | DATE |
|---|---|---|
| WSIM-DIR-003-ANNUALTESTS Att. 4.1 | Steady State Test – 20%, 70%, 100% | May 5, 2013 |
| WSIM-DIR-003-ANNUALTESTS Att. 4.2 | Manual Reactor Trip | May 5, 2013 |

| | | |
|---|---|---|
| WSIM-DIR-003-ANNUALTESTS Att. 4.6 | Trip of any single RCP | May 15, 2013 |
| WWEX-LOR-11044R | 2011 LOR Biennial RO Exam Week 4 | August 4, 2011 |
| WWEX-LOR-11046R | 2011 LOR Biennial RO Exam Week 4 (Remedial) | August 18, 2011 |
| N/A | 2013 LOR Cycle Written Exam Question Matrix | July 23, 2013 |
| WWEX-LOR-13042R | 2013 LOR Biennial RO Exam Week 2 | July 18, 2013 |
| TQF-201-IM06 | Academic Review Board Recommendation | November 14, 2011 |
| N/A | Simulator Differences List | July 22, 2013 |
| DR-08-0158 | Simulator Discrepancy Report | July 28, 2008 |
| DR-13-0056 | Simulator Discrepancy Report | April 3, 2013 |
| DR-10-0239 | Simulator Discrepancy Report | September 23, 2010 |
| DR-13-0048 | Simulator Discrepancy Report | March 26, 2013 |
| DR-13-0044 | Simulator Discrepancy Report | March 25, 2013 |
| DR-12-0166 | Simulator Discrepancy Report | December 5, 2012 |
| N/A | Scenarios, LOR Annual Op Tests Weeks 1-6 (18) | July 22, 2013 |
| N/A | JPMs, LOR Annual Op Tests Weeks 1-6 (36) | July 22, 2013 |
| N/A | 2013 Annual Exam Schedule, Weeks 1-6 | July 22, 2013 |
| TQF-210-DD03 | LOR Simulator Crew Performance Evaluation Report - Crews “A” and “3” (6) | July 25, 2013 |
| W-OPS-LOR-2012-Cycles 1-6 | Requal Training Attendance Records for 2012 Cycles 1-6 | July 22, 2013 |

CONDITION REPORTS

| | | | |
|---|---|---|---|
| CR-WF3-2013-03181 | CR-WF3-2013-03441 | CR-WF3-2013-00747 | CR-WF3-2013-00961 |
| CR-HQN-2013-00708 | CR-WF3-2013-02266 | CR-WF3-2013-03522 | |

**Section 1R12: Maintenance Effectiveness**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| ECM97-006 | Design Basis for CCW Makeup | 1 |

CONDITION REPORTS

CR-WF3-2013-02876 CR-WF3-2013-3170 CR-WF3-2013-3245 CR-WF3-2013-2897

WORK ORDERS

WO 354081 WO 355051 WO 322052

**Section 1R13: Maintenance Risk Assessment and Emergent Work Controls**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-WM-104 | On Line Risk Assessment | 7 |
| | Integrated Risk Summary Form for Week of 7/29/13 8/4/13 | 0 |
| | Integrated Risk Summary Form for Week of 9/02/13 9/8/13 | 0 |
| OI-037-000 | Operations' Risk Assessment Guideline | 304 |

CONDITION REPORTS

CR-WF3-2013-03574

**Section 1R15: Operability Determinations and Functionality Assessments**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-LI-108 | Event Notification and Reporting | 8 |
| EN-OP-104 | Operability Determinations | 6 |
| EC 46218 | Provide Minimum Wall Thickness Data for Degraded Piping Identified in CR-WF3-2012-3855 | 0 |
| PS-S-004 | Thermal Expansion Evaluation of Low Temperature Piping Systems | 1 |
| EN-PS-S-021-W | Design Guide for Pipe Stress Analysis | 0 |

**Section 1R15: Operability Determinations and Functionality Assessments**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| OP-100-014 | Technical Specifications and Technical Requirement Compliance | 313 |
| OI-037-000 | Operations' Risk Assessment Guideline | 304 |
| EN-CS-S-008-MULTI | Pipe Wall Thinning Structural Evaluation | 0 |

CONDITION REPORTS

CR-WF3-2013-03641 CR-WF3-2013-02876 CR-WF3-2013-03170 CR-WF3-2013-03245
CR-WF3-2013-03855 CR-WF3-2013-4098

**Section 1R18: Plant Modifications**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EC 45995 | Main Steam Isolation Valve B to Repair a Bonnet Vent Plug | 0 |
| EC 46914 | Main Feedwater Isolation Valve A Nitrogen Accumulator B tubing replacement | 0 |

**Section 1R19: Post-Maintenance Testing**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EC 38218 | Operability Input for CR-WF3-2012-2870, ACC-126A(B) Potential Leakage | 0 |
| EC-M90-013 | Auxiliary Component Cooling Water (ACCW) Jockey Pump Analysis | 0 |
| EN-WM-107 | Post Maintenance Testing | 4 |
| MI-005-211 | Calibration of Control Valves and Accessories | 8 |
| MI-005-211 | Calibration of Control Valves and Accessories | 9 |
| MN(Q)9-50 | ACCW System Resistance | 2 |
| OP-002-001 | Auxiliary Component Cooling Water | 305 |
| OP-903-006 | Reactor Trip Circuit Breaker Test | 10 |

**Section 1R18: Plant Modifications**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| OP-903-050 | Component Cooling Water and Auxiliary Component Cooling Water Pump and Valve Operability Test | 28 |
| OP-903-065 | Emergency Diesel Generator and Subgroup Relay Operability Verification | 307 |
| OP-903-118 | Primary Auxiliaries Quarterly IST Valve Tests | 31 |
| OP-903-119 | Secondary Auxiliaries Quarterly IST Valve Test | 18 |
| STA-001-005 | Leakage Testing of Air and Nitrogen Accumulators for Safety Related Valves | 310 |
| TD-M120.0045 | Masoneilan Instruction Manual 2034 for Electro-Pneumatic Positioner Models 8012 & 8012-1-C & 8012-2-C & 8012-3-C | 0 |
| TD-M120.0055 | Masoneilan Instruction Manual ES-5000 for Electro-Pneumatic Positioner Models 8012 & 8012-2-C & 8012-3-C & 8012-5-C & 8012-6-C | 1 |
| W3-DBD-14 | Safety Related Air Operated Valves | 301 |

CONDITION REPORTS

| | | | |
|---|---|---|---|
| CR-WF3-2013-00451 | CR-WF3-2013-00447 | CR-WF3-2013-00491 | CR-HQN-2013-00709 |
| CR-WF3-2012-05991 | CR-WF3-2012-03280 | CR-WF3-2012-02870 | CR-WF3-2013-04290 |
| CR-WF3-2013-04332 | CR-WF3-2013-04324 | CR-WF3-2013-04274 | CR-WF3-2012-02870 |
| CR-WF3-2012-03217 | CR-WF3-2010-03602 | CR-WF3-2013-04047 | |

WORK ORDERS

WO 52486712 WO 360921

**Section 1R22: Surveillance Testing**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EC 18218 | Change CVRIDPIS5220A & B Setpoints | 0 |
| EC 18219 | Replace CVRIDPIS5220A, B CVRIDPIS5221A, B Design Basis | 0 |
| OP-903-050 | Component Cooling Water and Auxiliary Component | 28 |

**Section 1R22: Surveillance Testing**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| | Cooling Water Pump and Valve Operability Test | |
| OP-903-120 | Containment and Miscellaneous Systems Quarterly IST Valve Tests | 15 |
| W3-DBD-04 | Design Basis Document: Component Cooling Water, Auxiliary Component Cooling Water | 302 |
| SD-CCS | Containment Cooling and Ventilation System Description | 7 |
| OP-903-037 | Containment Cooling Fan Operability Verification | 6 |
| OP-903-037 | Safety Injection Pump Operability Verification | 19 |

WORK ORDERS

WO 227323 WO 5251325

**Section 1EP6: Drill Evaluation**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EP | Emergency Plan | 44 |
| EP-001-001 | Recognition and Classification of Emergency Conditions | 30 |

**2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-RP-101 | Access Control for Radiologically Controlled Areas | 7 |
| EN-RP-106-01 | Radiological Survey Guidelines | 0 |
| EN-RP-108 | Radiation Protection Postings | 13 |
| EN-RP-121 | Radioactive Material Control | 7 |
| EN-RP-143 | Source Control | 9 |

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

| NUMBER | TITLE | DATE |
|---|---|---|
| QA-14115-2011-W3-1 | Quality Assurance Audit – Combined Radiation Protection and Radwaste | November 16, 2011 |

CONDITION REPORTS

CR-WF3-2013-2256 CR-WF3-2013-3086 CR-WF3-2013-6848 CR-WF3-2012-06131
CR-WF3-2012-0622

RADIATION SURVEY RECORDS

| NUMBER | TITLE | DATE |
|---|---|---|
| WF3-1212-1262 | Reactor Containment Building +46-foot | December 23, 2012 |
| WF3-1210-0434 | Reactor Coolant Pump 2B | October 20, 2012 |
| WF3-1211-1617 | Reactor Coolant Pump 2B | November 24, 2012 |
| WF3-1210-0719 | Reactor Coolant Pump 2B | October 24, 2012 |
| WF3-1210-0365 | Reactor Coolant Pump 1A | October 18, 2012 |
| WF3-1210-0626 | Reactor Cavity +21-foot | October 23, 2012 |
| WF3-1210-0560 | Reactor Containment Building | October 22, 2012 |
| WF3-1210-0502 | Lower Reactor Cavity | October 21, 2012 |
| WF3-1211-1720 | Reactor Coolant Pump 1B | November 26, 2012 |
| WF3-1211-1722 | No. 1 Steam Generator Platform | November 26, 2012 |
| WF3-1211-1822 | D Ring | November 27, 2012 |

AIR SAMPLE RECORDS

| NUMBER | TITLE | DATE |
|---|---|---|
| 112512-003 | Reactor Coolant Pump 2B | November 24, 2012 |
| 112512-007 | Reactor Coolant Pump 2B | November 24, 2012 |
| 4022475 | HP Lapel Sample – Upper Cavity | October 20, 2012 |
| 4022484 | HP Lapel Sample – Canal | October 20, 2012 |
| 5019973 | HP Lapel Sample – Canal Under Reactor | October 20, 2012 |
| 5019974 | HP Lapel Sample – Canal Under Reactor | October 20, 2012 |

SEALED SOURCE INVENTORY AND LEAK TESTS

| NUMBER | DATE |
|---|---|
| 310182 | July 2, 2013 |

**2RS2 Occupational ALARA Planning and Controls (71124.02)**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-RP-105 | Radiological Work Permits | 012 |
| EN-RP-110 | ALARA Program | 011 |
| EN-RP-110-03 | Collective Radiation Exposure (CRE) Reduction Guidelines | 002 |
| EN-RP-110-04 | Radiation Protection Risk Assessment Process | 002 |
| EN-RP-110-05 | ALARA Planning and Controls | 002 |
| EN-RP-110-06 | Outage Dose Estimation and Tracking | 001 |

RADIATION WORK PERMIT ALARA PACKAGES

| NUMBER | TITLE | DATE |
|---|---|---|
| 2012-0414 | SI-109 “A” and “B” Refurbishing/Repair | February 25, 2013 |
| 2012-0515 | RCP 2B Motor Removal and Replacement. | January 10, 2013 |
| 2012-0915 | RSG Reactor Coolant System (RCS) Cutting and Welding. | January 8, 2013 |
| 2012-0916 | RSG Pipe End Decontamination (PED) Activities and Support Activities | January 25, 2013 |
| 2012-0917 | RSG Steam Generator Removal/Installation Activities and Support. Including Rigging Activities | February 18, 2013 |
| 2012-0924 | RSG Support Structure / Restraints Modifications | February 7, 2013 |

CONDITION REPORTS

| | | | |
|---|---|---|---|
| CR-W3-2012-06441 | CR-W3-2012-06446 | CR-W3-2012-06502 | CR-W3-2012-06515 |
| CR-W3-2012-06543 | CR-W3-2012-06593 | CR-W3-2012-06660 | CR-W3-2012-06770 |
| CR-W3-2012-06778 | CR-W3-2012-06843 | CR-W3-2012-06877 | CR-W3-2012-06879 |
| CR-W3-2012-07150 | CR-W3-2012-07289 | CR-W3-2012-07493 | CR-W3-2013-00306 |
| CR-W3-2013-00344 | | | |

SURVEYS

| | | | |
|---|---|---|---|
| WF3-1210-0855 | WF3-1210-0859 | WF3-1210-0932 | WF3-1210-0880 |
| WF3-1211-0112 | WF3-1211-0194 | WF3-1211-0572 | WF3-1211-0948 |
| WF3-1211-1122 | WF3-1211-1113 | WF3-1211-1116 | WF3-1211-1175 |
| WF3-1211-1189 | WF3-1211-1313 | WF3-1211-1332 | WF3-1211-1508 |
| WF3-1211-1571 | WF3-1211-1822 | WF3-1211-1907 | WF3-1212-0179 |
| WF3-1212-0812 | WF3-1212-0912 | | |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | DATE |
|---|---|---|
| CR-W3-2013-00250 | LT – Apparent Cause Evaluation Report Refuel 18 Dose Goal Exceeded<br>Refuel 18 Outage ALARA Report | May 13, 2013 |

**2RS5 Radiation Monitoring Instrumentation (71124.05)**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| MI-005-906 | Radiation Monitoring System Desk Guide | 002 |
| MI-003-387 | Condenser Vacuum Pump Discharge Wide Range Noble Gas Radiation Monitor Channel Calibration (PRMIR0002) | 12 |
| MI-003-461 | Boric Acid Condensate Discharge Liquid Effluent Radiation Monitor Channel Calibration (PRMIR0627) | 12 |
| MI-003-371 | Fuel Handling Building Ventilation System Emergency Exhaust High Range Noble Gas Radiation Monitor Channel Calibration (PRMIR3032) | 306 |
| MI-003-391 | Component Cooling Water System A or B Liquid Radiation Monitor Channel Calibration (PRMIR7050A or B) | 306 |
| CE-003-321 | Use of EG&G Ortec Gamma Spectroscopy System | 303 |
| EN-CY-110 | Chemistry Gamma Spectroscopy System Operation | 2 |
| CE-003-332 | Use of the Beckman LS6500 | 2 |
| EN-RP-301 | Radiation Protection Instrument Control | 5 |

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-RP-303-01 | Automated Contamination Monitor Performance Testing | 0 |

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

| NUMBER | TITLE | DATE |
|---|---|---|
| QS-2012-W3-008 | Quality Assurance Surveillance Report | May 15, 2012 |
| QA-14/15-2011-W3-1 | Quality Assurance Audit | November 10, 2011 |

CONDITION REPORTS

| | | | |
|---|---|---|---|
| 2013-04550 | 2013-04559 | 2013-04552 | 2013-04551 |
| 2012-04918 | | | |

RADIATION MONITORING SYSTEM CALIBRATION RECORDS

| WO# NUMBER | TITLE | DATE |
|---|---|---|
| 52321504 | PRMIR7050A, Cal CCW System Rad Monitor per MI-003-391 | March 1, 2012 |
| 52321537 | PRMIR0002, Calibrate Electronics as per MI-003-387 | August, 2012 |
| 52321563 | PRMIR0627, Cal Boric Acid Cond Disch Liquid Mon MI-003-461 | July 2, 2012 |
| 52324842 | PRMIR0002, Calibrate Flow Portion per MI003-387 | October 15, 2012 |
| 52335214 | PRMIR3032, Calibrate Electronics as per MI-003-371 | January 10, 2013 |
| 52358658 | PRMIR3032, Calibrate Flow Portion per MI-003-371 | June 3, 2013 |

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| CE-003-300 | Preparation of Liquid Samples for Radiological Chemical Analysis | 008 |

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| CE-003-509 | Routine Filter Replacement and Grab Sampling on PIG Monitors and WRGMS | 302 |
| CE-003-512 | Liquid Radioactive Waste Release Permit (Manual) | 001 |
| CE-003-513 | Gaseous Radioactive Waste Release Permit (Manual) | 303 |
| CE-003-514 | Liquid Radioactive Waste Release Permit (Computer) | 301 |
| CE-003-515 | Gaseous Radioactive Waste Release Permit (Computer) | 303 |
| CE-003-516 | Calculation and Adjustment of Radiation Monitor Setpoints | 302 |
| CE-003-700 | General Grab Sampling Techniques | 306 |
| EN-CY-102 | Laboratory Analytical Quality Control | 004 |
| EN-CY-108 | Monitoring of Nonradioactive Systems | 005 |
| EN-CY-113 | Response to Contaminated Spills/Leaks | 007 |
| MM-003-044 | Shield Building Ventilation System Surveillance | 301 |
| MM-003-045 | Control Room Air Conditioning | 304 |
| MM-003-046 | Controlled Ventilation Area System Surveillance | 301 |
| UNT-005-014 | Offsite Dose Calculation Manual | 303 |

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

| NUMBER | TITLE | DATE |
|---|---|---|
| 22873 | Audit of GEL Laboratories | December 13, 2011 |
| WLO-2013-00016 | Pre-NRC Inspection Focused Assessment | May 3, 2012 |
| 23428 | Exelon Nuclear Audit of NUCON International, Inc. | March 11, 2013 |

CONDITION REPORTS

| | | | |
|---|---|---|---|
| CR-WF3-2012-00910 | CR-WF3-2012-01284 | CR-WF3-2012-02107 | CR-WF3-2012-02240 |
| CR-WF3-2012-02491 | CR-WF3-2012-03509 | CR-WF3-2012-03956 | CR-WF3-2012-04363 |
| CR-WF3-2012-04571 | CR-WF3-2012-04840 | CR-WF3-2012-04995 | CR-WF3-2012-05597 |
| CR-WF3-2012-06182 | CR-WF3-2012-06551 | CR-WF3-2013-00282 | CR-WF3-2013-00318 |
| CR-WF3-2013-00677 | CR-WF3-2013-02795 | CR-WF3-2013-03087 | CR-WF3-2013-04547 |
| LO-WLO-2013-00016 | | | |

10 CFR 50.75(g) CONDITION REPORTS

| | |
|---|---|
| CR-WF3-2011-06065 | CR-WF3-2012-02705 |

EFFLUENT RELEASE PERMITS

| PERMIT NO | TYPE | RELEASE SYSTEM | DATE |
|---|---|---|---|
| W3LB2012-147 | Liquid | Boric Acid Condensate Tank B (BWM) | July 25, 2012 |
| W3LC2012-202 | Liquid | Turbine Building Industrial Waste Tank (TBIWS) | September 26, 2012 |
| W3LB2013-066 | Liquid | Waste Condensate Tank B (LWM) | April 2, 2013 |
| W3GC2012-079 | Gaseous | Plant Stack | June 27, 2012 |

EFFLUENT RELEASE PERMITS

| PERMIT NO | TYPE | RELEASE SYSTEM | DATE |
|---|---|---|---|
| W3GB2013-050 | Gaseous | Containment | May 9, 2013 |
| W3GC2013-057 | Gaseous | Fuel Handling Building | May 13, 2013 |

IN-PLACE FILTER TESTING RECORDS

| WORK ORDER | SYSTEM | TRAIN | TEST | DATE |
|---|---|---|---|---|
| 52434436 | Shield Building Ventilation | B | Charcoal absorber | December 19, 2012 |
| 52321632 | Shield Building Ventilation | A | HEPA Filter | February 10, 2012 |
| 52351427 | Control Room Emergency Filtration Unit | B | Charcoal absorber | March 29, 2013 |
| 52331428 | Control Room Emergency Filtration Unit | B | HEPA Filter | March 27, 2013 |

| | | | | |
|---|---|---|---|---|
| 52376581 | Controlled Ventilation Area | B | HEPA Filter | June 25, 2013 |
| 52376581 | Controlled Ventilation Area | B | Charcoal absorber | June 29, 2013 |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | DATE |
|---|---|---|
| | 2011 Annual Radiological Effluent Release Report | April 30, 2012 |
| | 2012 Annual Radiological Effluent Release Report | April 30, 2013 |
| | Intra-Laboratory Comparison Results | 2011 |
| EC-10953 | Engineering Change for Modified Release Path to Circulating Water System | May 11, 2009 |
| EC-28466 | Engineering Change for Circulating Water System Piping Rerouting | In Progress |

**2RS7 Radiological Environmental Monitoring Program (71124.07)**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| CE-003-522 | Meteorological Data Collection and Processing | 4 |
| CE-003-523 | Meteorological Monitoring Program | 1 |
| CE-003-525 | REMP Evaluations and Reports | 301 |
| CE-003-526 | Collection and Preparation of REMP Liquid Samples | 302 |
| CE-003-527 | Collection of Milk Samples | 1 |
| CE-003-528 | Collection of Sediment Samples | 1 |
| CE-003-529 | Collection of Vegetation Samples | 1 |
| CE-003-530 | Collection and Preparation of Fish Sample | 1 |
| CE-003-531 | Collection and Preparation of REMP Air Samples | 1 |
| CE-003-532 | Preparation and Distribution of REMP Thermoluminescent Dosimeters | 301 |
| CE-003-533 | REMP Shipping | 1 |
| CE-003-534 | Land Use Census | 2 |

| | | |
|---|---|---|
| ESP-8-069 | Radiological Environmental Analytical Services | 00 |
| UNT-005-014 | Offsite Dose Calculation Manual | 303 |

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-QV-108 | QA Surveillance Process | 9 |
| EN-QV-109 | Audit Process | 24 |
| | Quality Assurance Program Manual | 24 |

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-LI-104 | Pre-NRC Inspection Focused Assessment – Effluents and Environmental | 9 |

CONDITION REPORTS

| | | | |
|---|---|---|---|
| CR-WF3-2012-1360 | CR-WF3-2012-2737 | CR-WF3-2012-2942 | CR-WF3-2012-4067 |
| CR-WF3-2012-4281 | CR-WF3-2012-4296 | CR-WF3-2012-4385 | CR-WF3-2012-4408 |
| CR-WF3-2012-7354 | CR-WF3-2012-7487 | CR-WF3-2013-1967 | CR-WF3-2013-2941 |

CALIBRATION AND MAINTENANCE RECORDS

| NUMBER | TITLE | DATE |
|---|---|---|
| WO-WF3-52410699 | Primary Met Tower Calibration Package | October 2012 |
| WO-WF3-52447365 | Primary Met Tower Calibration Package | May 2013 |
| WO-WF3-52431357 | Secondary Met Tower Calibration Package | February 2012 |
| WO-WF3-52469672 | Secondary Met Tower Calibration Package | August 2013 |

MISCELLANEOUS DOCUMENTS

| TITLE | DATE |
|---|---|
| Annual Radiological Environmental Operating Report | 2011 |
| Annual Radiological Environmental Operating Report | 2012 |
| Annual Radioactive Effluent Release Report | 2011 |
| Annual Radioactive Effluent Release Report | 2012 |
| Annual Meteorological Monitoring Program Report | 2011 |
| Annual Meteorological Monitoring Program Report | 2012 |

## 2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08)

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-RP-121 | Radioactive Material Control | 7 |
| EN-RW-102 | Radioactive Shipping Procedure | 10 |
| EN-RW-104 | Scaling Factors | 3 |
| RW-002-200 | Collection & Packaging of Solid Radwaste | 303 |
| RW-002-210 | Radioactive Waste Solidification & Dewatering | 301 |
| RW-002-240 | Package and Handling Radwaste DAW | 300 |
| RW-002-300 | Blowdown Demineralizer Resin Transfer | 300 |

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

| NUMBER | TITLE | DATE |
|---|---|---|
| NUPIC Audit No. 2012-011 | Energy Solutions Mega Audit | November 23, 2012 |
| EN-LI-104 | Pre-Assessment Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation | April 24, 2012 |
| QA-14/15-20011-GGNS-1 | Quality Assurance Audit Report: Radiation Protection/Radwaste | October 11, 2011 |

CONDITION REPORTS

| | | | |
|---|---|---|---|
| CR-WF3-2011-07711 | CR-WF3-2012-03042 | CR-WF3-2012-07168 | CR-WF3-2013-00508 |
| CR-WF3-2013-01253 | CR-WF3-2013-01682 | CR-WF3-2013-02905 | CR-WF3-2013-03335 |
| CR-WF3-2013-03952 | CR-WF3-2013-04553 | CR-WF3-2013-04556 | CR-WF3-2013-04557 |
| CR-HQN-2013-00858 | CR-HQN-2013-00859 | | |

RADIOACTIVE MATERIAL AND WASTE SHIPMENTS

| NUMBER | TITLE | DATE |
|---|---|---|
| 11-1010 | Bead Resin and Dry Active Waste, Oak Ridge, TN | June 23, 2011 |
| 11-1011 | LWM Resin, Oak Ridge, TN | August 22, 2011 |
| 11-1011 | Dewatered Resin, Studsvik Erwin, TN | September 21, 2011 |
| 11-3024 | Lead Blankets, 3-Mile Island, Harrisburg, PA | February 25, 2011 |
| 12-1008 | Dry Active Waste, Energy Solutions, Oak Ridge, TN | June 21,2012 |
| 12-1009 | SGBD Resin, Energy Solutions, Oak Ridge, TN | October 24, 2012 |
| 12-3049 | Empty Fuel Cask, Energy Solutions, Oak Ridge, TN | August 9, 2012 |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION / DATE |
|---|---|---|
| FSAR Chapter 11 | WSES Updated Final Safety Analysis Report | 12 |
| FSAR Chapter 12 | WSES Updated Final Safety Analysis Report | 12 |
| | 2012 Annual Radiological Effluent Release Report | April 30, 2012 |
| | 2011 Annual Radiological Effluent Release Report | April 30, 2013 |

**Section 4OA1: Performance Indicator Verification**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-LI-104 | Performance Indicator Process | 6 |
| EN-FAP-OM-005 | Nuclear Performance Indicator Process | 0 |
| ECH-NE-09-00036 | Waterford 3 Mitigating System Performance Index Basis Document | 2 |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| NEI 99-02 | Regulatory Assessment Performance Indicator Guideline | 6 |

**Section 4OA2: Identification and Resolution of Problems**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-LI-102 | Corrective Action Process | 20 |
| EN-LI-119 | Apparent Cause Evaluation (ACE) Process | 16 |

**Section 4OA3: Event Follow-Up**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| LER 05000382/2012-007-00 | Inoperability Of A Safety Related Valve Due To Backup Air Accumulator Leakage | 0 |

**Section 4OA5: Other Activities**

PROCEDURES/DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-CY-109 | Sampling and Analysis of Groundwater Monitoring Wells | 2 |
| EN-CY-111 | Radiological Ground Water Monitoring Program | 2 |

CONDITION REPORTS

CR-HQN-2012-00676 CR-HQN-2012-00673 CR-HQN-2013-00861

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION/ DATE |
|---|---|---|
| LO-WTHQN-2011-123 | Focused Self-Assessment Report – NEI 07-07 Compliance – Waterford-3 | November 30, 2011 |
| | NEI Ground Water Protection Initiative NEI Peer Assessment Report | December 9, 2009 |
| | Ground Water Monitoring Plan – Entergy Nuclear Waterford-3 Station | 2 |