



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 E. LAMAR BLVD.  
ARLINGTON, TX 76011-4511

April 25, 2016

Mr. Michael R. Chisum  
Site Vice President  
Entergy Operations, Inc.  
17265 River Road  
Killona, LA 70057-0751

**SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 – NRC INTEGRATED  
INSPECTION REPORT 05000382/2016001**

Dear Mr. Chisum:

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Waterford Steam Electric Station, Unit 3. On April 21, 2016, 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 one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violations or significance of the 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.

If you disagree with the cross-cutting aspect assignment 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.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 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

M. Chisum

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Sincerely,

**/RA/**

Jeffrey Josey, Acting Chief  
Projects Branch D  
Division of Reactor Projects

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

Enclosure:

Inspection Report 05000382/2016-001  
w/ Attachments:

1. Supplemental Information
2. The following items are requested for  
the Occupational Radiation Safety  
Inspection

cc w/ encl: Electronic Distribution

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Letter to Michael R. Chisum from Jeffrey Josey April 25, 2016

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 – NRC INTEGRATED  
INSPECTION REPORT 05000382/2016001

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000382

License: NPF-38

Report: 05000382/2016001

Licensee: Entergy Operations, Inc.

Facility: Waterford Steam Electric Station, Unit 3

Location: 17265 River Road  
Killona, LA 70057

Dates: January 1 through March 31, 2016

Inspectors: F. Ramírez, Senior Resident Inspector  
C. Speer, Resident Inspector  
B. Hagar, Senior Project Engineer  
L. Carson, II, Senior Health Physicist  
N. Greene, PhD, Health Physicist

Approved By: Jeffrey Josey  
Acting Chief, Projects Branch D  
Division of Reactor Projects

## SUMMARY

IR 05000382/2016001; 01/01/2016 – 03/31/2016; Waterford Steam Electric Station, Unit 3; Maintenance Risk Assessments and Emergent Work Control

The inspection activities described in this report were performed between January 1 and March 31, 2016, by the resident inspectors and inspectors from the NRC's Region IV office. One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

### Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," section a(4), for the licensee's failure to assess and manage the increase in risk during an auxiliary component cooling water system work window. Specifically, the licensee failed to re-assess risk when a dry cooling tower fan in the component cooling water system was declared unavailable during the ongoing auxiliary component cooling water system work window. As a result, for approximately 6 hours, on-line risk was maintained as Green when it should have been elevated to Orange, which would have required additional risk management actions. The licensee entered this issue into their corrective action program as Condition Report CR-WF3-2016-0660. Corrective actions included restoring the dry cooling tower fan to available status such that risk returned to Green and sending a communication to operations supervisors to re-emphasize the requirements to adequately address unavailability of plant components.

The inspectors determined that the performance deficiency was more than minor, and therefore a finding, because it was associated with the configuration control 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, by not ensuring the risk assessment was adequate when an additional component was emergently declared unavailable, the licensee proceeded with a maintenance work window with no understanding of the increased risk associated with a different plant configuration. The inspectors used Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," dated May 19, 2005, Flowchart 1, "Assessment of Risk Deficit," and determined the need to calculate the risk deficit to determine the significance of this issue. The risk deficits were assumed to be equal to the incremental core damage probability (ICDP)<sub>actual</sub> and incremental large early release probability (ILERP)<sub>actual</sub>. The Waterford probabilistic risk assessment model yielded an incremental core damage probability (ICDP), or actual increase in risk during this work window, of  $6.1 \times 10^{-8}$ . The regional senior reactor analyst evaluated the licensee's risk significance evaluation and agreed with the results from the licensee's model. The ILERP, screened out as not risk significant. In accordance with Flowchart 1 in Appendix K, because

the ICDP was less than  $1 \times 10^{-6}$  and the ILERP was less than  $1 \times 10^{-7}$ , the finding screened as having very low safety significance (Green).

This finding has a procedure adherence cross-cutting aspect in the area of human performance, because individuals did not follow processes, procedures, and work instructions. Specifically, when the additional dry cooling tower fan was declared unavailable, the licensee did not re-assess risk as soon as practical as specified in site procedures [H.8]. (Section 1R13)

### **Licensee-Identified Violations**

A violation of very low safety significance that 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 and remained at 100 percent power for the duration of the inspection period.

## REPORT DETAILS

### 1. REACTOR SAFETY

#### Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Readiness for Seasonal Extreme Weather Conditions

###### a. Inspection Scope

On January 5, 2016, the inspectors completed an inspection of the station's readiness for seasonal extreme cold weather conditions. The inspectors reviewed the licensee's adverse weather procedures for the cold weather conditions and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to the onset of cold weather, the licensee had corrected weather-related equipment deficiencies identified during the previous cold weather season.

The inspectors selected four risk-significant systems that were required to be protected from cold weather conditions:

- fire protection system train A
- fire protection system train B
- security diesel generator
- emergency diesel generator fuel oil storage

The inspectors reviewed the licensee's procedures and design information to ensure the systems would remain functional when challenged by cold weather conditions. The inspectors verified that operator actions described in the licensee's procedures were adequate to maintain readiness of these systems. The inspectors walked down portions of these systems to verify the physical condition of the cold weather protection features.

These activities constituted one sample of readiness for seasonal adverse weather, as defined in Inspection Procedure 71111.01.

###### b. Findings

No findings were identified.



.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On January 21, 2016, the inspectors completed an inspection of the station's readiness for impending adverse weather conditions. The inspectors reviewed plant design features, the licensee's procedures to respond to tornadoes and high winds, and the licensee's implementation of these procedures. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant.

These activities constituted one sample of readiness for impending adverse weather conditions, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

**1R04 Equipment Alignment (71111.04)**

.1 Partial Walk-Down

a. Inspection Scope

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

- On January 21, 2016, component cooling water train A with train B out of service for maintenance
- On February 24, 2016, low pressure safety injection train A following maintenance
- On March 2, 2016, emergency feedwater train B with train A out of service for maintenance
- On March 22, 2016, containment spray train A with train B out of service for maintenance

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the systems were correctly aligned for the existing plant configuration.

These activities constituted four partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

.2 Complete Walk-Down

a. Inspection Scope

On February 3, 2016, the inspectors performed a complete system walk-down inspection of the auxiliary component cooling water system. The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the existing plant configuration. The inspectors also reviewed outstanding work orders, open condition reports, in-process design changes, temporary modifications, and other open items tracked by the licensee's operations and engineering departments. The inspectors then visually verified that the system was correctly aligned for the existing plant configuration.

These activities constituted one complete system walk-down sample, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

**1R05 Fire Protection (71111.05)**

Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on five plant areas important to safety:

- On January 15, 2016, fire area RAB 6, electrical penetration area
- On January 15, 2016, fire area RAB 32, auxiliary component cooling water room and pipe penetration area
- On March 5, 2016, fire area RAB 18, component cooling water heat exchanger A
- On March 5, 2016, fire area RAB 16, emergency diesel generator 3A
- On March 5, 2016, fire area ROOF E, main steam isolation valve room B

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted five quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On March 8, 2016, the inspectors observed an evaluated simulator scenario performed by an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed the modeling and performance of the simulator during the observation.

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 Review of Licensed Operator Performance

a. Inspection Scope

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. The inspectors observed the operators' performance of the following activities:

- On February 3, 2016, control room observation during the failure of the pressurizer level control system
- On February 12, 2016, control room observation during a toxic chemical release in the vicinity of the plant

In addition, the inspectors assessed the operators' adherence to plant procedures, including conduct of operations procedures, 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.

## **1R12 Maintenance Effectiveness (71111.12)**

### **a. Inspection Scope**

The inspectors reviewed two instances of degraded performance or condition of safety-related structures, systems, and components:

- On February 2, 2016, emergency diesel generator room ventilation system
- On February 29, 2016, auxiliary component cooling water system

The inspectors reviewed the extent of condition of possible common cause structure, system, and component failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the structures, systems, and components. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

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

### **b. Findings**

No findings were identified.

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

### **a. Inspection Scope**

The inspectors reviewed two risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- On January 26, 2016, risk assessment associated with work on wet cooling tower fan 4A
- On January 27, 2016, risk assessment associated with work on dry cooling tower fan 12A

The inspectors verified that these risk assessment were performed timely and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessments and verified that the licensee implemented appropriate risk management actions based on the result of the assessments.

The inspectors also observed portions of three emergent work activities that had the potential to cause an initiating event and to affect the functional capability of mitigating systems:

- On January 20, 2016, emergent work on core element assembly drive mechanism motor generator set B
- On March 4, 2015, emergent work on core element drive mechanism control system
- On March 23, 2016, emergent yellow risk due to isolation of the essential chiller train AB

The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected structures, systems, and components.

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

b. Findings

Failure to Assess and Manage the Increase in Risk from Emergent Maintenance Activities

Introduction. The inspectors identified a Green non-cited violation of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," section a(4), for the licensee's failure to assess and manage the increase in risk during an auxiliary component cooling water (ACCW) system work window. Specifically, the licensee failed to re-assess risk when a dry cooling tower fan in the component cooling water (CCW) system was declared unavailable during the ongoing ACCW system work window. As a result, for approximately 6 hours, on-line risk was maintained as Green when it should have been elevated to Orange, which would have required additional risk management actions.

Description. On January 26, 2016, the licensee was conducting planned maintenance on train A of the ACCW system. In addition to ACCW train A, other unavailable plant equipment included dry cooling tower fan 1A, the train B CCW pump, and the emergency diesel generator B2 air receiver. For this work window, the Plant Safety Index had been assessed as 9.3, which meant on-line risk was Green.

At 8:47 a.m., dry cooling tower fan 12A started in slow speed with the control switch in the off position. The control room operators placed dry cooling tower fan 12A in fast speed to maintain its availability. At 11:58 a.m., operations personnel opened the circuit breaker for dry cooling tower fan 12A because the fan started cycling and did not consistently remain in fast speed. When the operators opened the breaker for dry cooling tower fan 12A, the fan was declared unavailable for on-line risk purposes. Since Waterford Technical Specification 3.7.3, "Component Cooling Water and Auxiliary Component Cooling Water Systems," allows up to three dry cooling tower fans to be inoperable before entering the Limiting Condition for Operation Action Statement, operations personnel did not consider it a priority to immediately assess the impact of this additional unavailability on on-line risk. Consequently, the site proceeded with the maintenance activities on the ACCW system as planned.

At 5:45 p.m., a risk assessment was completed and operations personnel discovered that the Plant Safety Index had changed to 7.6 when dry cooling tower fan 12A was declared unavailable. As a result, the plant's on-line risk was Orange and had been in that condition for nearly 6 hours. After this discovery, the licensee took actions to lower on-line risk by closing the breaker on dry cooling tower fan 12A and restoring it to available status. The plant's on-line risk was restored to Green at 7:45 p.m. the same day.

During their review of this issue, the inspectors noted that the licensee had not identified the inadequate timeliness with which the risk assessment was performed. Procedure EN-WM-104, "On-Line Risk Assessment," step 5.2[1](a) states that operations will perform risk assessments for emergent items, unplanned maintenance activities, or conditions impacting risk as soon as practical using quantitative and/or qualitative considerations. The inspectors also noted that this failure to adequately assess and manage risk was not recognized as a failure to meet site expectations since operations personnel were under the mindset that it was not a significant issue because this condition was allowed by plant technical specifications.

Analysis. The inspectors determined that the licensee's failure to re-assess and manage the increase in risk during an ACCW system work window when dry cooling tower fan 12A became unexpectedly unavailable was a performance deficiency which was reasonably within their ability to foresee and correct. The performance deficiency was more than minor, and therefore a finding, because it associated with the configuration control 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, by not ensuring the risk assessment was adequate when an additional component was emergently declared unavailable, the licensee proceeded with a maintenance work window with no understanding of the increased risk associated with a different plant configuration. As a result, additional risk mitigating actions were not performed and activities to restore the plant to a lower risk condition were delayed.

The inspectors used Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," dated May 19, 2005, Flowchart 1, "Assessment of Risk Deficit," and determined the need to calculate the risk deficit to determine the significance of this issue. The risk deficits were assumed to be equal to the incremental core damage probability (ICDP)<sub>actual</sub> and incremental large early release probability (ILERP)<sub>actual</sub>. The Waterford probabilistic risk assessment model yielded an incremental core damage probability (ICDP), or actual increase in risk during this work window, of  $6.1 \times 10^{-8}$ . The regional senior reactor analyst evaluated the licensee's risk significance evaluation and agreed with the results from the licensee's model. The ILERP, screened out as not risk significant. In accordance with Flowchart 1 in Appendix K, because the ICDP was less than  $1 \times 10^{-6}$  and the ILERP was less than  $1 \times 10^{-7}$ , the finding screened as having very low safety significance (Green).

This finding had a cross-cutting aspect in the area of human performance, procedure adherence, because individuals did not follow processes, procedures and work instructions. Specifically, when dry cooling tower fan 12A was declared unavailable, the licensee did not re-assess risk as soon as practical as specified in site procedures [H.8].

Enforcement. Title 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," section a(4), states, in part, that the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities.

Contrary to the above, on January 26, 2016, the licensee failed to assess and manage risk that resulted from a proposed maintenance activity. Specifically, during an ACCW system maintenance work window, a dry cooling tower fan in the CCW system was emergently declared unavailable; however, the increase in risk was not adequately accounted for in a timely manner in accordance with site procedures. As a result, for approximately 6 hours, on-line risk was maintained as Green when it should have been elevated to Orange, which would have required additional risk management actions. The licensee entered this issue into their corrective action program as Condition Report CR-WF3-2016-0660. Corrective actions included restoring the dry cooling tower fan to available status such that risk returned to Green, and sending a communication to operations supervisors to re-emphasize the requirements to adequately address unavailability of plant components. Because the licensee has entered the issue into their corrective action program and the finding is of very low safety significance, this violation of 10 CFR 50.65(a)(4) is being treated as a non-cited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000382/2016001-01, "Failure to Assess and Manage the Increase in Risk from Emergent Maintenance Activities."

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

### **a. Inspection Scope**

The inspectors reviewed five operability determinations and functionality assessments that the licensee performed for degraded or nonconforming structures, systems, or components:

- On January 14, 2016, operability determination of the component cooling water system
- On February 1, 2016, operability determination of reactor coolant pump 1B
- On February 16, 2016, operability determination of startup channel #1
- On February 17, 2016, functionality assessment of the fire protection system
- On February 25, 2016, functionality assessment of the pressurizer pressure control system

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded structure, system, or component to be operable or functional, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability or functionality. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability or functionality of the degraded structures, system, or component.

These activities constitute completion of five operability and functionality review samples as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

**1R18 Plant Modifications (71111.18)**

a. Inspection Scope

On January 11, 2016, the inspectors reviewed a permanent modification to the speed sensors associated with reactor coolant pump 2A and core protection calculator B. The inspectors reviewed the design and implementation of the modification. The inspectors verified that work activities involved in implementing the modification did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the operability of the structures, systems, or components as modified.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed five post-maintenance testing activities that affected risk-significant structures, systems, or components:

- On January 13, 2016, dry cooling tower fan 8B
- On January 21, 2016, wet cooling tower fans train A
- On February 10, 2016, nitrogen accumulator #6
- On March 10, 2016, emergency feedwater pump B
- On March 23, 2016, containment spray B header isolation valve CS-125B

The inspectors reviewed licensing- and design-basis documents for the structures, systems, or components and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected structures, systems, or components.

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



b. Findings

No findings were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

The inspectors observed five risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the structures, systems, and components were capable of performing their safety functions:

In-service tests:

- On January 6, 2015, nitrogen accumulator #5
- On February 12, 2016, auxiliary component cooling water pump B

Other surveillance tests:

- On January 11, 2016, review of missed surveillance for wet and dry cooling tower operability
- On February 25, 2016, core protection calculator train A
- On March 1, 2016, containment spray pump A

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected structures, systems, and components following testing.

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

b. Findings

No findings were identified.

**2. RADIATION SAFETY**

**Cornerstones: Public Radiation Safety and Occupational Radiation Safety**

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

a. Inspection Scope

The inspectors assessed the licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities. The inspectors assessed the licensee's implementation of appropriate radiation monitoring and exposure control

measures for both individual and collective exposures. The inspectors walked down various portions of the plant and performed independent radiation dose rate measurements. The inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors reviewed licensee performance in the following areas:

- The review of plant isotopic mix and percent abundance, including hard-to-detect radionuclides and potential alpha hazards
- 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 monitoring, 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, implementation of EDEX, and the application of dosimetry to effectively monitor exposure for work in areas with significant dose rate gradients
- Controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools
- 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
- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

These activities constitute completion of the radiological hazard assessment and exposure controls inspection, as defined in Inspection Procedure 71124.01.

b. Findings

No findings were identified.

## **2RS3 In-plant Airborne Radioactivity Control and Mitigation (71124.03)**

### **a. Inspection Scope**

The inspectors evaluated whether the licensee controlled in-plant airborne radioactivity concentrations consistent with ALARA principles and that the use of respiratory protection devices did not pose an undue risk to the wearer. During the inspection, the inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance in the following areas:

- The licensee's use, when applicable, of installed ventilation systems as part of its engineering controls
- Utilization of temporary ventilation systems (e.g., high-efficiency particulate air units) to support work in contaminated areas
- Airborne monitoring protocols, air quality and quantity for supplied air devices and SCBA bottles.
- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of NIOSH certified equipment, qualification and training of personnel, and user performance
- Evaluations for the use of respirators in lieu of engineering controls to maintain occupational doses ALARA
- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Audits, self-assessments, and corrective action documents related to in-plant airborne radioactivity control and mitigation since the last inspection

These activities constitute completion of the in-plant airborne radioactivity control and mitigation inspection, as defined in Inspection Procedure 71124.03.

### **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**

##### 4OA1 Performance Indicator Verification (71151)

###### .1 Unplanned Scrams per 7000 Critical Hours (IE01)

###### a. Inspection Scope

The inspectors reviewed licensee event reports for the period of January 1 through December 31, 2015, to determine the number of scrams that occurred. The inspectors compared the number of scrams reported in these licensee event reports to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of one unplanned scrams per 7000 critical hours performance indicator as defined in Inspection Procedure 71151.

###### b. Findings

No findings were identified.

###### .2 Unplanned Power Changes per 7000 Critical Hours (IE03)

###### a. Inspection Scope

The inspectors reviewed operating logs, corrective action program records, and licensee performance indicator data for the period of January 1 through December 31, 2015, to determine the number of unplanned power changes that occurred. The inspectors compared the number of unplanned power changes documented to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of one unplanned power outages per 7000 critical hours performance indicator as defined in Inspection Procedure 71151.

###### b. Findings

No findings were identified.

.3 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors reviewed the licensee's basis for including or excluding in this performance indicator each scram that occurred between January 1 and December 31, 2015. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of one unplanned scrams with complications performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors verified that there were no unplanned exposures or losses of radiological control over locked high radiation areas and very high radiation areas during the period of October 1, 2015 to December 31, 2015. The inspectors reviewed a sample of radiologically controlled area exit transactions showing exposures greater than 100 mRem. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the occupational exposure control effectiveness performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.5 Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed corrective action program records for liquid or gaseous effluent releases that occurred between October 1, 2015 and December 31, 2015, and were reported to the NRC to verify the performance indicator data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the radiological effluent technical specifications (RETS)/offsite dose calculation manual (ODCM) radiological effluent occurrences performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

**4OA2 Problem Identification and Resolution (71152)**

.1 Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

On February 18, 2016, the inspectors reviewed the licensee's apparent cause evaluation entitled "Misalignment Between Problem Statements, Causes and Corrective Actions and Misclassifications of Condition Reports," for an in-depth follow-up. The licensee had initiated this evaluation to address several deficiencies that had been identified with the creation and disposition of condition reports.

The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to ensure the resolution of issues that had been previously identified with the corrective action program. In addition, the inspectors verified that condition reports were initiated in a timely manner, and were classified appropriately.

These activities constitute completion of one annual follow-up sample as defined in Inspection Procedure 71152.

b. Findings

No findings were identified.

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

**.1 (Closed) Licensee Event Report 05000382/2015-005-01, "Manual Reactor Trip due to Low Steam Generator Levels"**

On June 3, 2015, at approximately 5:05 p.m., the control room operators manually tripped the reactor in anticipation of an automatic reactor trip. The inspectors' review of the reactor trip was documented in NRC Integrated Inspection Report 05000382/2015003. Following the reactor trip, off-site power train B failed to transfer from the unit auxiliary transformer to the unit startup transformers. Subsequently, emergency diesel generator B started and powered the safety-related train B electrical buses. In reviewing the causes of the failure of the fast bus transfer, the inspectors reviewed a performance deficiency associated with the design of the alarm circuit installed for the fast bus transfer electrical components. However, since the alarm circuit did not play a role in the failure of the fast bus transfer, the inspectors determined the performance deficiency to be minor. The previous revision of this licensee event report was included as part of this review. This licensee event report is closed.

**.2 (Closed) Licensee Event Report 05000382/2014-004-03, "Emergency Diesel Generators Rendered Inoperable by Potential Water Intrusion into Diesel Fuel Oil Feed Tanks"**

During a plant walk-down on October 22, 2014, the inspectors identified through-wall corrosion on the emergency diesel generator fuel oil day tank vents. The holes in these vent pipes could have allowed water to enter the day tanks and contaminate the diesel fuel oil, challenging the operability and functionality of both safety-related emergency diesel generators. The inspectors documented their findings in NRC Inspection Reports 05000382/2014007 and 05000382/2015001. The inspectors reviewed the licensee event report associated with this event and did not identify additional performance deficiencies. The previous revisions of this licensee event report were included as part of this review. This licensee event report is closed.

These activities constitute completion of two event follow-up samples, as defined in Inspection Procedure 71153.

#### **4OA5 Other Activities**

**Temporary Instruction 2515/190 – Inspection of the Proposed Interim Actions Associated with Near-Term Task Force Recommendation 2.1 Flooding Hazard Evaluations.**

The inspectors independently verified that the licensee's proposed interim actions would perform their intended function for flooding mitigation. Specifically:

- Through a tabletop simulation with the licensee, the inspectors reviewed the sequence of licensee activities from the initial triggers that prompt them to implement their interim actions, through full implementation of those actions. The inspectors verified not only that the associated procedures clearly describe how to implement the interim actions, but also that the licensee staff has ready access to the necessary resources.

- The inspectors visually examined each relevant flood-protection feature for any indication of degradation that could prevent the feature from performing its credited function.
- The inspectors walked down the associated manual actions, to verify that operators would have access to both the implementing procedures and the involved components during postulated adverse conditions.

Through these reviews, examinations, and walk-downs, the inspectors only identified administrative issues. The inspectors verified that the licensee entered those issues into their corrective action program.

#### **40A6 Meetings, Including Exit**

##### Exit Meeting Summary

On March 24, 2016, the inspectors presented the radiation safety inspection results to Mr. Ran Gilmore, General Plant Manager of Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On April 21, 2016, the resident inspectors presented the inspection results to Mr. Michael Chisum, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

#### **40A7 Licensee-Identified Violations**

The following violation of very low safety significance (Green) 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 violations.

- Technical Specification 6.8.1, states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, "Quality Assurance Program Requirements," Appendix A, Section 2.I, requires procedures for refueling and core alterations. Step 6.2.1 of Procedure OP-001-005, Revision 309, "RCS Drain and Fill Below RCS Hot Leg Centerline," instructs the licensee to verify, in part, that "Containment Purge is aligned for Refueling Ventilation with RAB Normal Ventilation, or adequate provisions or controls are in place to acceptably address radiological concerns." Contrary to the above, on November 18, 2015, the licensee failed to verify that Containment Purge was aligned for Refueling Ventilation with RAB Normal Ventilation or that adequate controls were in place to acceptably address radiological concerns. Specifically, the licensee proceeded with RCS fill without radiation protection monitoring for airborne radioactivity in the vicinity of the TRH hoses as required. The alignment for Refueling Ventilation was not completed because the required valve (CAP-201), which allows alignment between containment purge and refuel ventilation, was inoperable. The licensee indicated that this condition had existed since at least Refueling Outage 18 in 2012. This finding adversely affected the Occupational Radiation Safety cornerstone because it had the potential to cause a high airborne condition local to the refuel cavity and cause



unplanned exposures. The licensee's immediate corrective action was to initiate a work order to complete repairs of the inoperable CAP-201 valve. The licensee entered this issue into their corrective action program as CR-WF3-2015-08474. The significance of the finding was determined to be of very low safety significance (Green) because it was: (1) not an ALARA finding, (2) did not result in an overexposure, (3) did not involve substantial potential for an exposure, and (4) the ability to assess dose was not compromised. Licensee-identified findings do not involve cross-cutting aspects.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

M. Chisum, Site Vice President, Operations  
R. Gilmore, Acting General Manager, Plant Operations  
D. Breaud, Radiological Effluents Specialist, Chemistry  
L. Brown, Licensing Specialist, Regulatory Assurance  
J. Cary, Supervisor, Radiation Protection  
M. Chaisson, Superintendent, Radiological Operations  
J. Clavelle, Manager, Systems and Components  
D. Frey, Manager, Radiation Protection  
M. Haydel, Manager, Design & Program Engineering  
P. Hernandez, Supervisor, Reactor Engineering  
J. Jarrell, Director, Regulatory & Performance Improvement  
B. Lanka, Director, Engineering  
N. Lawless, Manager, Chemistry  
B. Lindsey, Senior Manager, Operations  
W. McKinney, Manager, Training  
S. Meiklejohn, Senior Licensing Specialist  
C. Miller, Supervisor, Radiation Protection  
L. Milster, Licensing Engineer, Regulatory Assurance  
N. Petit, Supervisor, Design Engineering  
P. Robinson, Supervisor, System & Component Engineering  
R. Sherman, ALARA Supervisor, Radiation Protection  
J. Signorelli, Manager, Emergency Planning  
R. Simpson, Superintendent, Operator Training  
M. Vollmer, CHP, Specialist Radiation Protection  
M. Zamber, Licensing Specialist, Regulatory Assurance

#### **NRC Personnel**

R. Deese, Senior Reactor Analyst

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### **Opened and Closed**

05000382-2016-001-01	NCV	Failure to Assess and Manage the Increase in Risk from Emergent Maintenance Activities (Section 1R13)
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#### **Closed**

05000382/2015-005-01	LER	Manual Reactor Trip due to Low Steam Generator Levels (Section 4OA3.1)
05000382/2014-004-03	LER	Emergency Diesel Generators Rendered Inoperable by Potential Water Intrusion into Diesel Fuel Oil Feed Tanks (Section 4OA3.2)

## LIST OF DOCUMENTS REVIEWED

### Section 1R01: Adverse Weather Protection

#### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CE-002-030	Maintaining Diesel Fuel Oil	25
OP-002-007	Freeze Protection and Temperature Maintenance	23
OP-901-521	Severe Weather and Flooding	317

#### Condition Reports

CR-WF3-2016-00656

### Section 1R04: Equipment Alignment

#### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-002-003	Component Cooling Water	316
OP-009-001	Containment Spray	306
OP-009-003	Emergency Feedwater	308
OP-009-008	Safety Injection	39

#### Condition Reports

CR-WF3-2016-01337

### Section 1R05: Fire Protection

#### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FP-001-018	Pre-fire Strategies, Development and Revision	303
RAB 16-001	Waterford S.E.S Prefire Strategy Elev. +21.00' RAB (RCA) Emergency Diesel Generator "3A"	11
RAB 18-001	Waterford S.E.S Prefire Strategy Elev. +21.00' RAB (RCA) Component Cooling Water Heat Exchanger "A"	8

Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RAB 32-001	Waterford S.E.S Prefire Strategy Elev. -4.00', -35.00' RAB (RCA) Auxiliary Component Cooling Water Room and Pipe Penetration Area	9
RAB 6-001	Waterford S.E.S Prefire Strategy Elev. +35.00' RAB Electrical Penetration Area "A"	9
ROOF E-001	Waterford S.E.S Prefire Strategy Elev. +46.00' ROOF E (MSIV B)	4

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

Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EP-004-010	Toxic Chemical Contingency Procedure	14
OP-901-110	Pressurizer Level Control Malfunction	9

**Section 1R12: Maintenance Effectiveness**

Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	System Health Report – ACC	March 2, 2016
SEP-WF3-IST-1	WF3 Inservice Testing Bases Document	3
PM Basis Template	ENS-I&C – Electronic Circuit Cards	2
EN-DC-153	Preventive Maintenance Component Classification	12
EN-DC-335	PM Basis Template	6
MRule Scoping	Auxiliary Component cooling Water	March 2, 2016
PM Basis Template	EN – Relay – Control	February 14, 2012
EN-DC-203	Maintenance Rule Program	2
EN-DC-205	Maintenance Rule Monitoring	5
EN-DC-204	Maintenance Rule Scope and Basis	3

### Condition Reports

CR-WF3-2016-00353 CR-WF3-2016-01389 CR-WF3-2012-02692 CR-WF3-2012-03280  
CR-WF3-2015-06782

## **Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
1DEV-1	Tagout: CC-110 DCT Fan 12A	January 26, 2016
EN-MA-101	Conduct of Planned Maintenance	18
EN-MA-119	Material Handling Program	24
EN-OP-102	Protective and Caution Tagging	18
EN-OP-111	Operational Decision-Making Issue (ODMI) Process	12
EN-OP-115	Control Room Logs	January 26, 2016
EN-OP-119	Protected Equipment Postings	7
EN-WM-104	On Line Risk Assessment	12
OI-037-000	Operations' Risk Assessment Guide	308
OP-100-009	Control of Valves and Breakers	40

### Condition Reports

CR-WF3-2016-00102 CR-WF3-2016-00494 CR-WF3-2016-00536 CR-WF3-2016-01522  
CR-WF3-2016-00065 CR-WF3-2016-00525 CR-WF3-2016-00426 CR-WF3-2004-1332  
CR-WF3-2016-00592 CR-WF3-2016-00628 CR-WF3-2016-00627 CR-WF3-2016-00660  
CR-WF3-2016-01944

### Work Orders

WO 00434437 WO 00412066 WO 00439799

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

### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SD-PLC	Pressurizer Level and Pressure Control	9
TD G080.0405	General Electric Instructions GEK-31879 Rev 3 For Reactor Coolant Pump Motors	0

### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
TD G080.0435	General Electric Spare Reactor Coolant Pump Motor Description	1
TD G080.0455	General Electric Spare Reactor Coolant Pump Motor Operation	0
TD G080.0465	General Electric Spare Reactor Coolant Pump Motor Maintenance	0

### Condition Reports

CR-WF3-2016-00736 CR-WF3-2015-07528 CR-WF3-2016-01131 CR-WF3-2016-00208  
CR-WF3-2015-07417 CR-WF3-2016-00906 CR-WF3-2016-00038 CR-WF3-2016-00841  
CR-WF3-2016-00770 CR-WF3-2016-00859 CR-WF3-2016-01033

### Work Orders

WO 00426387

## **Section 1R18: Plant Modifications**

### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
TMOD 62287	Replacing CPC Channel B RCP-2A Speed Sensor with COLSS RCP-2A Speed Sensor	0

### Condition Reports

CR-WF3-2015-09183 CR-WF3-2015-06798 CR-WF3-2015-9183 CR-WF3-2016-00134  
CR-WF3-2015-09570 CR-WF3-2015-06868

### Condition Reports

WO 0035505

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

### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u> <u>Date</u>
B-289	Power Distribution and Motor Data 480V MCC 3A315	January 31, 1975

Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision Date</u>
EN-MA-135	On-line Motor Electrical Testing	5
EN-WM-107	Post Maintenance Testing	5
ER-W3-2001-1091-000	Replacement Wet Cooling Tower Fan Motors, Siemens Motor	0
ME-007-057	MCE/EMAX Data Acquisition	306
OP-903-046	Emergency Feed Pump Operability Check	315
OP-903-118	Primary Auxiliaries Quarterly IST Valve Tests	37
OP-903-119	Secondary Auxiliaries Quarterly IST Valve Tests	24
OP-903-121	Safety Systems Quarterly IST Valve Tests	20
OP-903-121	Safety Systems Quarterly IST Valve Tests	21
STA-001-005	Leakage Testing of Air and Nitrogen Accumulators for Safety Related Systems	317
TD-A180.0075	Allis-Chalmers Installation Operation Maintenance Instruction Induction Motors Vertical "P" Flanged	0

Condition Reports

CR-WF3-2015-09592   CR-WF3-2016-00713   CR-WF3-2016-00712   CR-WF3-2016-00667  
 CR-WF3-2016-00619

Work Orders

WO 52451298              WO 52573126              WO 43637401

**Section 1R22: Surveillance Testing**Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
MI-003-126	Core Protection Calculator Functional Test	17
OP-903-036	Containment Spray Actuation Signal Test	305
OP-903-050	Component Cooling Water and Auxiliary Component Cooling Water Pump and Valve Operability Test	31
STA-001-005	Leakage Testing of Air and Nitrogen Accumulators for Safety Related Valves	317

## Condition Reports

CR-WF3-2016-01385

## Work Orders

WO 00412716

WO 52659370

WO 52665913

WO 52622268

## **Section 2RS1: Radiological Hazard Assessment and Exposure Controls**

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-RE-220	PWR Control of Miscellaneous Material in the Spent Fuel Pool	03
EN-RP-101	Access Control for Radiologically Controlled Areas	11
EN-RP-102	Radiological Control	04
EN-RP-105	Radiation Work Permits	14
EN-RP-108	Radiation Protection Posting	15
EN-RP-113	Response to Contaminated Spills/Leaks	08
EN-RP-121	Radioactive Material Control	12
EN-RP-122	Alpha Monitoring	09
EN-RP-123	Radiological Controls for Highly Radioactive Objects	01
EN-RP-131	Air Sampling	14
EN-RP-142	Failed Fuel Response	02
EN-RP-143	Source Control	11
EN-RP-308	Operation and Calibration of Gamma Scintillation Tool Monitors	08
EN-RP-317	Central Calibration Facility	00
EN-CY-108	Monitoring of Non-Radioactive Systems	06
EN-CY-113	PWR Chemistry Control During Shutdown	00

### Condition Reports

CR-WF3-2016-02000	CR-WF3-2016-01999	CR-WF3-2016-01985	CR-WF3-2016-01808
CR-WF3-2016-01542	CR-WF3-2016-00304	CR-WF3-2015-09348	CR-WF3-2015-09064
CR-WF3-2015-09009	CR-WF3-2015-09005	CR-WF3-2015-09004	CR-WF3-2015-08994
CR-WF3-2015-08962	CR-WF3-2015-06828	CR-WF3-2015-01992	CR-WF3-2015-01992



### Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
OL-OLW-2014-00095	Spent Fuel Pool Trash Can Storage	March 24, 2015
	GEL Laboratories Part 61 Analysis	December 8, 2015
W.O.#52516543	DCT RM-35 Calibration	June 19, 2015
	Personnel Contamination Events	2015
	Selected Air Sample Records	2015 and 2016
	Selected Radiological Survey Records	2015 and 2016
	Radioactive Material Release Log	2015 and 2016
	Semi-Annual Source Leak Check	March 2016

### Audits, Self-Assessments, and Surveillances

<u>Number</u>	<u>Title</u>	<u>Date</u>
LO-WLO-2015-0128	Pre-NRC Inspection FSA: Radiation Protection	March 1, 2016

### Radiological Work Permits

<u>Number</u>	<u>Title</u>
20150702	RF20 Disassembly of Reactor Head and All Associated Work Activities
20150705	Reassembly of Reactor Head and Associated Work Activities
20150633	Replace Resilient Seat Check Valves SI-142B and SI-143B in the Reactor Containment Building including staging/de-staging and work in Hot Shop
20160054	I&C to Enter -4 RCB to Troubleshoot RCP-2A Proximity Box
20160001	Radiation Protection Coverage
20160005	Tours and Inspections
20160059	Fuel Pool Heat Exchanger Eddy Current and Maintenance Activities
20160101	Work Activities in the Spent Fuel Pool and the Transfer Canal
20160110	Perform Work Activities in Alpha Level Three Areas in the RCA

## Section 2RS3: In-plant Airborne Radioactivity Control and Mitigation

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-FAP-OU-100	High Airborne Radioactivity in Containment	7
EN-RP-110-04	Radiation Protection Risk Assessment Process	5
EN-RP-131	Air Sampling	14
EN-RP-310	Operation and Initial Setup of the Eberline AMS-4 Continuous Air Monitor	4
EN-RP-402	DOP Challenge Testing of HEPA Vacuums and Portable Ventilation Units	4
EN-RP-404	Operation and Maintenance of HEPA Vacuum Cleaners and HEPA Ventilation Units	6
EN-RP-501	Respiratory Protection Program	5
EN-RP-502	Inspection and Maintenance of Respiratory Protection Equipment	9
EN-RP-502-01	Fire Hawk M7 SCBA	0
EN-RP-502-02	Flow Testing MSA Breathing Apparatus	0
EN-RP-502-03	Air Hawk II SCBA	0
EN-RP-503	Selection, Issue, and Use of Respiratory Protection Equipment	7
EN-RP-504	Breathing Air	3
FPF-GET-RPT	Respiratory Protection Practical Factor Guide	14
OP-001-005	RCS Drain and Fill Below RCS Hot Leg Centerline	309
OP-002-010	Reactor Auxiliary Building HVAC and Containment Purge	308

### Condition Reports

CR-WF3-2014-02243 CR-WF3-2014-02244 CR-WF3-2014-02477 CR-WF3-2015-03890  
CR-WF3-2015-08307 CR-WF3-2015-08474 CR-WF3-2015-08676 CR-WF3-2015-09206  
CR-WF3-2016-01490 CR-WF3-2016-01492

### Audits, Self-Assessments, and Surveillances

<u>Number</u>	<u>Title</u>	<u>Date</u>
LO-WLO-2015-00128	Radiation Safety IP 71124.01, and 03 and 71151 Pre NRC Inspection	January 17, 2016

### Posi 3 USB Test Results

<u>Number</u>	<u>Title</u>	<u>Date</u>
AMAG172670	SCBA MSA Firehawk M7 Air Mask	April 6, 2015
AMAG168310	SCBA MSA Firehawk M7 Air Mask	April 7, 2015
AMAG171609	SCBA MSA Firehawk M7 Air Mask	April 8, 2015
AMAG172696	SCBA MSA Firehawk M7 Air Mask	April 8, 2015
AMAG172643	SCBA MSA Firehawk M7 Air Mask	April 9, 2015
AMAG172665	SCBA MSA Firehawk M7 Air Mask	April 9, 2015
UES-6021	Facepiece Test – PD Respirators	April 9, 2015
UES-6034	Facepiece Test – PD Respirators	April 9, 2015
UES-6135	Facepiece Test – PD Respirators	April 9, 2015
UES-6331	Facepiece Test – PD Respirators	April 9, 2015
UES-6439	Facepiece Test – PD Respirators	April 9, 2015
UES-6450	Facepiece Test – PD Respirators	April 9, 2015

### HVC Filter Train Testing

<u>Number</u>	<u>Title</u>	<u>Date</u>
PO10122064	Radioiodine Test Report: Control Room Emergency Unit A – HVC A	August 8, 2014
PO10122064	Radioiodine Test Report: Control Room Emergency Unit A – HVC B	November 1, 2014

### Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
1210-0749	-4 Reactor Containment Building	October 24, 2012
1211-0090	-4 Reactor Containment Building	November 2, 2012
1211-0976	-4 Reactor Containment Building	November 14, 2012
1511-0639	-4 Reactor Containment Building	November 14, 2016
1603-0181	FHB +1 Fuel Pool Purification	March 22, 2016

#### Air Sample Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
111415-033	142B Valve Disk Grind	November 14, 2015
111415-029	Scaffold 337 Valve SI-137B	November 14, 2015
111415-027	SI 142B	November 14, 2015
111415-020	-4 Reactor Building SI 142B – General Area	November 14, 2015
111415-030	Decon Pad on 21' Reactor Building	November 14, 2015

#### Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date/Revision</u>
	SCBA Training Qualification Matrix	March 22, 2016
	SCBA Inspection Log	September 1-16, 2015
	RFO-20 Cavity Decontamination Plan	2015
	WSES-FSAR-Unit-3	307
G853	HVAC Air Flow Diagram Reactor Containment Building	307

### **Section 40A1: Performance Indicator Verification**

#### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
W3F1-2015-0029	NRC Performance Indicator (PI) Data – 2015 Quarter 1 <sup>st</sup>	0
W3F1-2015-0055	NRC Performance Indicator (PI) Data – 2015 Quarter 2 <sup>nd</sup> Quarter	0
W3F1-2015-0083	NRC Performance Indicator (PI) Data – 2015 Quarter 3 <sup>rd</sup> Quarter	0
W3F1-2016-0005	NRC Performance Indicator (PI) Data – 4 <sup>th</sup> Quarter 2015	0
W3F1-2016-0011	NRC Performance Indicator (PI) Data – Change Report Data 4 <sup>th</sup> Quarter 2015 SCRAM without complications correction	0

## **Section 4OA2: Problem Identification and Resolution**

### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-LI-102	Corrective Action Program	26

### Condition Reports

CR-WF3-2014-05641 CR-WF3-2014-05232 CR-WF3-2014-05228

## **Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion**

### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
14.21629.01.002	Failure Analysis of Allen Bradley 700-RTC Relay	November 13, 2015
EN-MA-125	Troubleshooting Control of Maintenance Activities	17
ES-P-002-00	Design Verification	January 16, 1996
NOECP-303	Design Change Packages	7
PC-3448	Annunciator and Interlock for Monitoring a Loss of Bus Transfer Capability	1

### Condition Reports

CR-WF3-2015-03566 CR-WF3-2015-03629

### Work Orders

WO 00415592

## **Section 4OA5: Other Activities**

### Procedures/Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-DC-324	Preventive Maintenance Program	15
OP-100-014	Technical Specification and Technical Requirements Compliance	332
OP-500-02	Control Room Cabinet B Alarm Response Procedure	28
OP-901-521	Severe Weather and Flooding	317
OI-037-000	Operations' Risk Assessment Guideline	308

Other Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
ML14309A597	Warning Time for Maximum Precipitation Events (prepared by the Nuclear Energy Institute)	4
WF3-CS-15-00010	Waterford Steam Electric Station Unit 3 Fukushima Flood Hazard Re-evaluation Report	0
W3F1-2015-0042	Flood Hazard Reevaluation Report Waterford Steam Electric Station, Unit 3 (Waterford 3)	July 21, 2015
WO 00420362 01	[REACTOR CONTAINMENT BUILDING - INSPECT & CLEAN ROOF DRAINS	

Condition Reports

CR-WF3-2015-01282

**The following items are requested for the  
Occupational Radiation Safety Inspection  
at Waterford-3  
(March 21 – March 25, 2016)  
Integrated Report 2016-001**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before March 7, 2016.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc.

If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact Natasha Greene at (817) 200-1154 or [Natasha.Greene@nrc.gov](mailto:Natasha.Greene@nrc.gov).

**PAPERWORK REDUCTION ACT STATEMENT**

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

**1. Radiological Hazard Assessment and Exposure Controls (71124.01) and Performance Indicator Verification (71151)**

Date of Last Inspection: October 26, 2015

- A. List of contacts and telephone numbers for the Radiation Protection Organization Staff and Technicians
- B. Applicable organization charts
- C. Audits, self-assessments, and LERs written since date of last inspection, related to this inspection area
- D. Procedure indexes for the radiation protection procedures
- E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes:
  - 1. Radiation Protection Program Description
  - 2. Radiation Protection Conduct of Operations
  - 3. Personnel Dosimetry Program
  - 4. Posting of Radiological Areas
  - 5. High Radiation Area Controls
  - 6. RCA Access Controls and Handworker Instructions
  - 7. Conduct of Radiological Surveys
  - 8. Radioactive Source Inventory and Control
  - 9. Declared Pregnant Worker Program
- F. List of corrective action documents (including corporate and sub-tiered systems) since date of last inspection:
  - a. Initiated by the radiation protection organization
  - b. Assigned to the radiation protection organization

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.

If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with IP 71151)

- G. List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)
- H. List of active radiation work permits



- I. Radioactive source inventory list:
  - a. All radioactive sources that are required to be leak tested
  - b. All radioactive sources that meet the 10 CFR Part 20, Appendix E, Category 2 and above threshold. Please indicate the radioisotope, initial and current activity (w/assay date), and storage location for each applicable source.
- J. The last two leak test results for the radioactive sources inventoried and required to be leak tested. If applicable, specifically provide a list of all radioactive source(s) that have failed its leak test within the last two years
- K. A current listing of any non-fuel items stored within your pools, and if available, their appropriate dose rates (Contact/@ 30cm)
- L. Computer printout of radiological controlled area entries greater than 100 millirems since the previous inspection to the current inspection entrance date. The printout should include the date of entry, some form of worker identification, the radiation work permit used by the worker, dose accrued by the worker, and the electronic dosimeter dose alarm setpoint used during the entry (for Occupational Radiation Safety Performance Indicator verification in accordance with IP 71151).

**3. In-Plant Airborne Radioactivity Control and Mitigation (71124.03)**

Date of Last Inspection: April 21, 2014

- A. List of contacts and telephone numbers for the following areas:
  - 1. Respiratory Protection Program
  - 2. Self-contained breathing apparatus
- B. Applicable organization charts
- C. Copies of audits, self-assessments, vendor or NUPIC audits for contractor support (SCBA), and LERs, written since date of last inspection related to:
  - 1. Installed air filtration systems
  - 2. Self-contained breathing apparatuses
- D. Procedure index for:
  - 1. Use and operation of continuous air monitors
  - 2. Use and operation of temporary air filtration units
  - 3. Respiratory protection
- E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes:
  - 1. Respiratory protection program
  - 2. Use of self-contained breathing apparatuses
  - 3. Air quality testing for SCBAs
  - 4. Use of installed plant systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation
- F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, related to the Airborne Monitoring program including:
  - 1. Continuous air monitors
  - 2. Self-contained breathing apparatuses
  - 3. Respiratory protection program

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are “searchable” so that the inspector can perform word searches.

- G. List of SCBA qualified personnel - reactor operators and emergency response personnel.
- H. Inspection records for self-contained breathing apparatuses (SCBAs) staged in the plant for use since date of last inspection.
- I. SCBA training and qualification records for control room operators, shift supervisors, STAs, and OSC personnel for the last year.

A selection of personnel may be asked to demonstrate proficiency in donning, doffing, and performance of functionality check for respiratory devices.

- J. List of respirators (available for use) by type (APR, SCBA, PAPR, etc.), manufacturer, and model.