



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

February 14, 2013

Donna Jacobs, Vice President, Operations
Entergy Operations, Inc.
Waterford Steam Electric Station, Unit 3
17265 River Road
Killona, LA 70057-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 – NRC INTEGRATED
INSPECTION REPORT 05000382/2012005

Dear Ms. Jacobs:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Waterford Steam Electric Station, Unit 3 facility. The enclosed inspection report documents the inspection results which were discussed on January 30, 2013, with you and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

One NRC identified and one self-revealing finding, of very low safety significance (Green) were identified during this inspection.

Both of these findings were determined to involve violations of NRC requirements. Additionally, two licensee-identified violations which were determined to be of very low safety significance are listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Waterford Steam Electric Station, Unit 3 facility.

If you disagree with a 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 Waterford Steam Electric Station, Unit 3 facility.

D. Jacobs

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agencywide Document 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/

Donald B. Allen
Chief, Project Branch E
Division of Reactor Projects

Docket Nos.: 50-382
License Nos: NPF-38

Enclosure: NRC Inspection Report 05000382/2012005
Attachments:
1. Supplemental Information
2. Request for Information for Inservice Inspection Waterford Steam Electric Station, Unit 3, October 22, 2012, through November, 2012
NRC Inspection Report 05000368/2012005
3. Request for Information for the Occupational Radiation Safety Inspection at Waterford 3

cc w/ encl: Electronic Distribution

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000382

License: NPF-38

Report: 05000382/2012005

Licensee: Entergy Operations, Inc.

Facility: Waterford Steam Electric Station, Unit 3

Location: 17265 River Road
Killona, LA 70057

Dates: October 1 through December 31, 2012

Inspectors: M. Davis, Senior Resident Inspector
D. Overland, Resident Inspector
C. Speer, Reactor Inspector
D. Bradley, Project Engineer
C. Steely, Operations Engineer
W. Sifre, Senior Reactor Inspector
G. Skaggs-Ryan, Reactor Inspector
L. Ricketson, P.E., Senior Health Physicist
P. Elkmann, Senior Emergency Preparedness Inspector

Approved By: Donald Allen, Chief, Project Branch E
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000382/2012005; 10/01/2012 – 12/31/2012; Waterford Steam Electric Station, Unit 3, Integrated Resident and Regional Report; Radiological Hazard Assessment and Exposure Controls, Problem Identification and Resolution

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspection by region-based inspectors. Two Green non-cited violations of significance 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 10 CFR Part 50, Appendix B, Criterion XVI, because the licensee did not promptly identify and correct a condition adverse to quality associated with the train A safety-related component cooling water (CCW) radiation monitor (PRMIR7050A). Specifically, the licensee did not identify and correct the cause of repetitive failures of the train A CCW radiation monitor when the monitor experienced erratic radiation spikes and repeat issues with the detector. As a result, the licensee declared the radiation monitor inoperable on several occasions over a span of nine months. The licensee entered this issue into their corrective action program as CR-WF3-2012-4643. The immediate corrective actions taken to restore compliance included the replacement of all susceptible components of the radiation monitor and other associated equipment. Additionally, the licensee adjusted the low-level discriminator voltage and changed the calibration procedure to align testing with vendor recommendations.

The failure to promptly identify and correct the cause of repetitive failures associated with erratic radiation spikes and repeat issues with the radiation monitor detector 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 affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the erratic radiation spikes and issues with the detector challenged the availability and reliability of the train A CCW radiation monitor used to alert operators of radiation leaks from the reactor coolant system. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The inspectors determined that the finding was very low safety significance (Green) because it did not affect the design or qualification of a mitigating SSC, represent a loss of system function, or an actual loss of function of at least a single train for greater than its Technical

Specification's allowed outage time, and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. This finding reflected current licensee performance and had a cross-cutting aspect in the corrective action program component of the problem identification and resolution area in that the licensee did not thoroughly evaluate the problem such that the resolutions address causes and extent of conditions [P.1(c)] (Section 4OA2).

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 6.12.2 which resulted because licensee representatives failed to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool. This process created a locked high radiation area. As immediate corrective action, the workers backed away from the upper guide structure until their dose rate alarms cleared. The upper guide structure lift continued until it was in a safe condition on the stand in the deep end of the refueling pool. Corrective action to prevent recurrence was determined after licensee personnel documented the occurrence in the corrective action program as Condition Report WF3-2012-05571 and performed a root cause evaluation. To address the root cause, the governing procedure will be revised to reflect the establishment of a waterline on the upper guide structure which indicates the highest elevation it can be raised out of the water and maintain an acceptable amount of shielding.

The failure to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool was a performance deficiency. The performance deficiency was more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that it exposed workers to higher than planned dose rates. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure because the inspectors concluded there was no way to construct a scenario in which a minor alteration of circumstances would have resulted in a violation of the Part 20 limits, and (4) the ability to assess dose was not compromised. This finding reflected current licensee performance and had a cross-cutting aspect in the human performance area, work control component, in that the licensee did not plan work activities appropriately by incorporating risk insights and job site conditions, such as the effects on job site radiation levels when water shielding was reduced [H.3(a)] (Section 2RS01).

B. Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by the inspectors. Corrective actions taken and planned by the licensee have been entered into the licensee's corrective action program. These violations and associated corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The Waterford Steam Electric Station, Unit 3, began the inspection period at 100 percent power. On October 15, 2012, Operators commenced a down power to conduct activities associated with refueling outage 18. The Unit remained shutdown for the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

Partial Walkdown

a. Inspection Scope

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

- On October 3, 2012, startup transformer train B electrical line-up while startup transformer A was out of service for preventive maintenance activities
- On November 30, 2012, emergency diesel generator A during maintenance on the B train
- On December 16, 2012, low pressure safety injection train B following an extended system outage

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. 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, updated 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 71111.04-05.

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 November 7, 2012, reactor auxiliary building, fire area 13, battery room 3AS
- On November 19, 2012, fuel handling building, fire area FHB, fuel handling building
- On November 26, 2012, reactor auxiliary building, fire area 15, emergency diesel generator train 3B
- On November 27, 2012, reactor containment building, fire area RCB, reactor containment building

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. 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

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the updated 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 October 24, 2012, station service transformer manhole (M301)

These activities constitute completion of one underground bunker/manhole inspection sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

Completion of Sections .1 through .5 below constitutes completion of one sample as defined in Inspection Procedure 71111.08-05.

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, and Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspectors observed four nondestructive examination activities and reviewed three nondestructive examination activities that included four types of examination, including at least one volumetric examination. The licensee did not identify any relevant indications accepted for continued service during the nondestructive examinations.

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
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<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Main Steam	ISI-MT-12-001 Forty Inch Gate Valve Upper Body Weld	Magnetic Particle
Safety Injection	ISI-UT-12-004 Twelve Inch Pipe to Twelve inch by 8 inch Reducer Weld	Ultrasonic
Safety Injection	BOP-PT-12-032 SI Valve 143B Spool End Prep	Dye Penetrant
Safety Injection	BOP-PT-12-028 SI Valve 143B Spool End Prep	Dye Penetrant

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Safety Injection	30-018 Pipe to Valve FW-2	Radiographic
Safety Injection	30-019 Pipe to Valve FW-3	Radiographic
Safety Injection	BOP-UT-12-006 SI-142 Pipe to Valve Weld	Ultrasonic

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors also verified the qualifications of all nondestructive examination technicians performing the inspections were current.

The inspectors reviewed records for the following welding activities:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Safety Injection	SI-212B Valve Replacement	Gas Tungsten Arc Welding
Safety Injection	SI-142A Valve Replacement	Gas Tungsten Arc Welding
Safety Injection	SI-142B Valve Replacement	Gas Tungsten Arc Welding

Safety Injection

SI-143B
Valve Replacement

Gas Tungsten Arc
Welding

The inspectors verified, by review, that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX, requirements. The inspectors also verified, through observation and record review, that essential variables for the welding process were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.01.

b. Findings

No findings were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

This activity was not performed because the licensee was replacing the reactor vessel head during this refueling outage.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Procedure SEP BAC-WF3-001, "Boric Acid Corrosion Control Program (BACCP) Section" Revision 0 and "Inspection and Evaluation of Boric Acid Leaks" Revision 8. The inspectors also reviewed the visual records of the components and equipment. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components. The inspectors also verified that the engineering evaluations for those components where boric acid was identified gave assurance that the ASME Code wall thickness limits were properly maintained. The inspectors confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with requirements of the ASME Code. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.03.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities (71111.08-02.04)

a. Inspection Scope

There were no inspections during this outage as the licensee was replacing the steam generators.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection scope

The inspectors reviewed 33 condition reports which dealt with inservice inspection activities and found the corrective actions for inservice inspection issues were appropriate. The specific condition reports reviewed are listed in the documents reviewed section. From this review the inspectors concluded that the licensee had an appropriate threshold for entering inservice inspection issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also had an effective program for applying industry inservice inspection operating experience. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

These actions constitute completion of the requirements of Section 02.05.

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

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On October 9, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during a just-in-time plant shutdown training. The inspectors assessed the following areas:

- Licensed operator performance

- The modeling and performance of the control room simulator
- The quality of post-scenario critiques

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 October 16, 2012, 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 shutdown activities associated with refueling outage 18. The inspectors observed the operators' performance of the following activities:

- Plant shutdown, including the pre-job brief; and
- Reactor refueling activities

In addition, the inspectors assessed the operators' adherence to plant procedures, including the 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 Annual Inspection

a. Inspection Scope

The inspector reviewed the annual operating examination test results for 2012. Since this was the first half of the biennial requalification cycle, the licensee was not required to administer a written examination. These results were assessed to determine if they were consistent with NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," guidance and Inspection Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process," requirements. This review included the test results for a total of 11 crews composed of 52 licensed operators, which included: 39 senior operators and 13 reactor operators. There were no crew failures and no individual failures on the simulator.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- On October 9, 2012, component cooling water radiation monitor for train A
- On November 28, 2012, letdown containment isolation stop valve (CVC-101)

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 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 quarterly 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 October 3, 2012, scheduled maintenance on the startup transformer with the control room ventilation being out of service
- On October 19, 2012, scheduled maintenance to remove the reactor vessel head with the reactor coolant level being in a lowered inventory condition

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 two scheduled maintenance risk assessments inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- On October 9, 2012, train B auxiliary component cooling water heat exchanger outlet temperature control valve operator
- On November 8, 2012, emergency diesel generator A

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems. 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 updated 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 two operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

Permanent Modifications

a. Inspection Scope

The inspectors reviewed key parameters associated with energy needs, materials, replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the permanent modification identified as EC-32638, containment sump recirculation line pipe addition.

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 October 8, 2012, testing following breaker replacement for dry cooling tower fans 2A and 13A
- On November 7, 2012, testing following elastomer replacement for component cooling water header B (CC-200B)
- On November 21, 2012, testing following repairs of letdown containment isolation stop valve (CVC-101)
- On December 23, 2012, testing following replacement of containment fan cooler B

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 updated 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 four post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Waterford Steam Electric Station, Unit 3, refueling outage, which began on October 16, 2012, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity.
- Maintenance of secondary containment as required by the technical specifications.
- Refueling activities, including fuel handling and sipping to detect fuel rod leakage.
- Licensee identification and resolution of problems related to refueling outage activities.

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

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the updated 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 October 16, 2012, surveillance for main steam safety valve simmer tests
- On December 2, 2012, surveillance for tri-sodium phosphate storage baskets
- On December 8, 2012, surveillance for train A integrated emergency diesel generator engineering safety features test
- On December 17, 2012, low pressure safety injection pump B test (inservice inspection test)
- On December 27, 2012, surveillance on containment atmosphere purge exhaust valve (containment isolation valve test)

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.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 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
- 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

Introduction. The inspectors reviewed a Green self-revealing non-cited violation of Technical Specification 6.12.2 which resulted because licensee representatives failed to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool, causing a locked high radiation area. The violation had very low safety significance.

Description. On October 23, 2012, licensee representatives began moving the upper guide structure from the reactor vessel to the deep end of the refueling pool. At one point in the move, the upper guide structure was lifted to clear an in-core instrument trash can and funnel. No specific clearance was stated in the governing procedure RF-001-012, "Upper Guide Structure," Revision 307, or during the pre-job briefing. Licensee representatives later determined the upper guide structure was lifted approximately 7.5 feet above the reactor cavity floor, which may have allowed the highly radioactive ends of the in-core instruments to breach the top of the water in the refueling cavity. When the upper guide structure was lifted, four workers in the area received electronic dosimeter dose rate alarms, ranging from 1140 to 2580 mrems/hour. Because licensee representatives failed to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool, the licensee representatives inadvertently created a locked high radiation area (an area with a dose rate greater than 1000 mrem/hour) around the workers when the upper guide structure was lifted. The workers used Radiation Work Permit 20120702, "Disassembly of Reactor Head and All Associated Work Activities," Task 7. With a dose rate alarm setpoint of either 500 mrem/hour or 800 mrem/hour for workers accessing the upper guide structure lift rig, the task did not allow entry into locked high radiation areas. The workers that received dose rate alarms backed away until the alarms cleared, but the movement of the upper guide structure continued until it was placed into the deep end of the reactor cavity, a location which the licensee's representatives considered to be the safe condition. At the same time the workers received the dose rate alarms, operations personnel started raising the water level in the refueling pool, but this action was too late to prevent the higher dose rates. The workers' doses were checked and none were above the regulatory limit. Licensee representative stated that the workers' doses were typical of the doses accrued during this particular operation.

As part of the review of the occurrence, licensee personnel performed a root cause evaluation and determined the governing procedure was inadequate. Procedure RF-001-012, "Upper Guide Structure," Revision 307, did not restrict the height the upper guide structure was lifted with respect to the water level or make it possible for the elevation of the upper guide structure to be determined. The procedure did not consider and ensure the maintenance of shielding provided by the water in the refueling pool. Licensee personnel also identified two contributing causes. The technical pre-job brief and the ALARA brief were performed separately, so radiation protection personnel were not present to provide input on the possible effects of lifting the upper guide structure and losing water shielding. Personnel did not stop lifting the upper guide structure when conditions changed because water clarity affected the visual monitoring of the clearance between the bottom of the upper guide structure and the top of the in-core instrumentation trash can and funnel. Corrective actions are described below in "Enforcement."

Analysis. The failure to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool, causing a locked high radiation area, is a performance deficiency. The performance deficiency is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from

exposure to radiation, in that it exposed workers to higher than planned dose rates. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," August 19, 2008, the inspectors determined the finding had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure because the inspectors concluded there was no way to construct a scenario in which a minor alteration of circumstances would have resulted in a violation of the Part 20 limits, and (4) the ability to assess dose was not compromised. The finding was self-revealing because the licensee was alerted to the presence of high dose rates by electronic alarming dosimeters used to comply with Technical Specification 6.12.1. and not as a result of the licensee representatives' deliberate and focused observation during the course of the activity. This finding reflected current licensee performance and had a crosscutting aspect in the human performance area, work control component, in that, the licensee did not plan work activities appropriately by incorporating risk insights and job site conditions, such as the effects on job site radiation levels when water shielding was reduced. [H.3(a)]

Enforcement. The finding was a failure to comply with a regulatory requirement and resulted in a violation. The regulatory requirement was Technical Specification 6.12.2. which states, in part, that "...areas accessible to personnel with radiation levels such that a major portion of the body could receive in one hour a dose greater than 1000 mrem but less than 500 rads shall be provided with locked doors to prevent unauthorized entry." Technical Specification 6.12.2 further states that "...doors shall remain locked except during periods of access by personnel under an approved radiation work permit, which shall specify the dose rate levels in the immediate work area and the maximum allowable, stay time for the individuals in the area. For individual areas accessible to personnel...that are located within large areas, such as pressurized water reactor containment, where no enclosure exists for purposes of locking, and no enclosure can be reasonably constructed around the individual areas, then that area shall be roped off, conspicuously posted, and a flashing light shall be activated as a warning device."

Contrary to the above, in an area accessible to personnel with radiation levels such that a major portion of the body could receive in one hour a dose greater than 1000 mrem, but less than 500 rads, four workers were not under an approved radiation work permit which specified the dose rate levels in the immediate area or allowed entry into an area with dose rates greater than 1000 mrem/hr, when they entered dose rates from 1140 to 2580 mrem/hour. Additionally, in the area which was accessible to personnel and within a pressurized water reactor containment where no enclosure existed for purposes of locking and no enclosure could reasonably be constructed around the individual area, licensee representatives did not rope off, conspicuously post, and activate a flashing light as a warning device as they lifted the upper guide structure and reduced the water shielding more than planned, on October 23, 2012.

As immediate corrective action, the workers backed away from the upper guide structure until their dose rate alarms cleared. The upper guide structure lift continued until it was in a safe condition on the stand in the deep end of the refueling pool. Corrective actions to prevent recurrence were determined after licensee personnel documented it in the corrective action program as Condition Report WF3-2012-05571 and performed a root

cause evaluation. To address the root cause, which was an inadequate governing procedure, procedure RF-001-012, "Upper Guide Structure," Revision 307, will be revised to reflect the establishment of a waterline on the upper guide structure which indicates the highest elevation it can be raised out of the water and maintain an acceptable amount of shielding. The first contributing cause, separate technical and ALARA briefings, will be addressed by assigning a corrective action to the radiation protection organization to combine the technical briefing and the ALARA briefing for the remaining upper guide structure movements in Refueling Outage 18. The second contributing cause, the failure to stop lifting the upper guide structure when conditions changed, will be addressed by the inclusion of the event into operating experience and discussed before future upper guide structure movements and the installation of a camera rack that can view the bottom of the upper guide structure and any interference by looking directly across the refueling pool.

Because the violation is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report WF3-2012-05571, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000382/2012005-01: Failure to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool, causing a locked high radiation area.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

This area was inspected to verify in-plant airborne concentrations are being controlled consistent with ALARA principles and the use of respiratory protection devices on-site do not pose an undue risk to the wearer. 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:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls
- 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
- 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

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

These activities constitute completion of the one sample as defined in Inspection Procedure 71124.03-05.

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

40A1 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 third Quarter 2012 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 third quarter 2011 through the third quarter 2012. 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 July 2011 through September 2012 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 Reactor Coolant System Leakage (BI02)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for the period from the fourth quarter 2011 through the third quarter 2012. 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 logs, reactor coolant system leakage tracking data, issue reports, event reports, and NRC integrated inspection reports for the period of October 2011 through September 2012, 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 reactor coolant system leakage sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the first quarter 2011 through the third quarter 2012. 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 non-conformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 mrems. 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.

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

a. Inspection Scope

The inspectors reviewed performance indicator data for the first quarter 2011 through the third quarter 2012. 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.

40A2 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.

b. 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 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of June 2012 through December 2012 although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized condition reports associated with train A component cooling water radiation monitor failures. The inspectors reviewed the appropriateness of the assigned significance, the scope and depth of the causal analysis, and the timeliness of resolution. The inspectors assessed whether the evaluation identified likely causes for the issues and identified appropriate corrective actions to address the identified causes. The inspectors also conducted a review of the corrective actions to verify that appropriate measures were in place to prevent recurrence of the issue. In addition, the inspectors assessed whether the licensee's evaluation considered extent of condition, generic implications, common cause, and previous occurrences. The inspectors reviewed the potential impact on nuclear safety and risk to verify that the licensee had taken corrective actions commensurate with the significance of the issue. The inspectors evaluated these actions against the requirements of the licensee's corrective actions program and performance attributes contained in IP 71152, Section 03.06.

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, because the licensee did not promptly identify and correct a condition adverse to quality associated with a train A safety-related component cooling water (CCW) radiation monitor (PRMIR7050A). Specifically, the licensee did not identify and correct the cause of repetitive failures of the train A CCW radiation monitor when the monitor experienced erratic radiation spikes and repeat issues with the detector.

Description. The licensee declared the train A CCW radiation monitor (PRMIR7050A) inoperable on a number of occasions starting from January 14 through September 19, 2012. When the monitor was inoperable, the licensee took eight-hour chemistry samples of the component cooling water system to detect leaks and contamination. The inspectors noted that each time the licensee declared the radiation monitor inoperable, maintenance personnel performed troubleshooting on the monitor and its associated equipment. The inspectors reviewed the licensee's troubleshooting efforts and noted that the corrective actions taken after each failure of the monitor did not fully correct the underlying condition, resulting in inoperability of the monitor approximately 80% of the time from February 2012 to June 2012. The inspectors determined that the frequency

and severity of the failures should have prompted the licensee to perform a more extensive analysis of these problems.

On September 19, 2012, the licensee declared the radiation monitor inoperable again and initiated actions to troubleshoot the failure. However, at this time, the licensee initiated an apparent cause evaluation, which was at a higher significance level than previously assigned for work on PRMIR7050A. As part of the apparent cause evaluation, the licensee determined that the low-level discriminator voltage on the monitor was inappropriate and contrary to vendor recommendations. The licensee determined that the procedure used to set the low-level discriminator voltage changed to a method contrary to the vendor recommendation as part of a revision performed on November 29, 2001. Additionally, the licensee identified storage issues with the radiation detectors used for the monitor in that they were replacing inoperable detectors with detectors that had exceeded their useful life.

The inspectors reviewed the apparent cause evaluation, other condition reports, and corrective actions associated with the failures of the train A radiation monitor. The inspectors determined that the licensee did not identify the cause of the previous failures of the monitor going back as far as January 14, 2012, or after its subsequent failures, until the licensee conducted an apparent cause of the monitor after the September 19, 2012, failure. The inspectors concluded that due to the intermittent nature of the failures, the functional testing performed was often not adequate to demonstrate operability of the monitor. This inadequacy showed through the monitor's repeated failures after the performance of functional testing within the quarterly surveillance interval, often within days of passing the functional test. As a part of the corrective actions from the apparent cause evaluation, the licensee adjusted the low-level discriminator voltage and changed the calibration procedure to align testing with vendor recommendations.

Analysis. The failure to promptly identify and correct the cause of repetitive failures associated with erratic radiation spikes and repeat issues with the radiation monitor detector 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 affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the erratic radiation spikes and issues with the detector challenged the availability and reliability of the train A CCW radiation monitor used to alert operators of radiation leaks. The inspectors used the NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to evaluate this issue. The inspectors determined that the finding was very low safety significance (Green) because it did not affect the design or qualification of a mitigating SSC, represent a loss of system or function, nor represent an actual loss of function of at least a single train for greater than its Technical Specification allowed outage time, and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. The inspectors concluded that the finding reflected current licensee performance and involved a cross-cutting aspect in the corrective action program component of the

problem identification and resolution area in that the licensee did not thoroughly evaluate the problem such that the resolutions address causes and extent of conditions [P.1(c)].

Enforcement. Title 10 of CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," requires, in part, that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Contrary to the above, from January 14, 2012, to October 19, 2012, the licensee failed to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances were promptly identified and corrected. Specifically, the licensee did not identify and correct the cause of repetitive failures of the train A CCW radiation monitor when the monitor experienced erratic radiation spikes and repeat issues with the detector. As a result, the licensee declared the radiation monitor inoperable on several occasions over a span of nine months. The immediate corrective actions taken to restore compliance included the replacement of all susceptible components of the radiation monitor and other associated equipment. Additionally, the licensee adjusted the low-level discriminator voltage and changed the calibration procedure to align testing with vendor recommendations. This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy, because it was of very low safety significance and was entered into the licensee's corrective action program as CR-WF3-2012-4643: NCV 05000382/2012005-02: "Failure to promptly identify and correct the cause of repetitive failures associated with train A component cooling water radiation monitor."

40A3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000382/2012-005-00, Calibration Drift of I/P Transducer Causes Inoperability of Safety Related System

On June 1, 2012, the licensee declared auxiliary component cooling water (ACCW) train A inoperable due to excessive seat leakage through an air operated temperature control valve (ACC-126A). The licensee attributed the cause of the leakage to a calibration drift of the valve operator and degraded valve internals. As a part of the review of this event, the inspectors identified a non-cited violation 05000382-2012004-02, "Failure to identify and correct degraded conditions associated with the ACCW heat exchanger temperature control valve." The inspectors documented this violation in Section 1R12 of the NRC integrated inspection report 05000382-2012004. This licensee event report is closed.

.2 (Closed) Licensee Event Report 05000382/2012-005-01, Valve Degradation Causes Inoperability of Safety Related System

On July 5, and July 9, 2012, the licensee declared auxiliary component cooling water (ACCW) train A inoperable due to excessive seat leakage through an air operated temperature control valve (ACC-126A). The licensee attributed the cause of the leakage to a calibration drift of the valve operator and degraded valve internals. As a part of the review of this event, the inspectors identified a non-cited violation 05000382-2012004-02, "Failure to identify and correct degraded conditions associated with the ACCW heat exchanger temperature control valve." The inspectors documented this violation in

Section 1R12 of the NRC integrated inspection report 05000382-2012004. This licensee event report is closed.

40A5 Other Activities

.1 Follow Up Inspection for Three or More Severity Level (SL) IV Traditional Enforcement Violations in the Same Area in a 12-Month Period (IP 92723)

a. Inspection Scope

The inspectors performed Inspection Procedure 92723, "Follow Up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period," in accordance with the assessment letter dated September 4, 2012 (ML12248A374). The licensee received three Severity Level IV violations in the traditional enforcement area of impeding the regulatory process at the end of the 2011 end-of-cycle assessment period. However, at the time, the licensee did not inform the NRC as to their readiness for the inspection. From July 1, 2011, to June 30, 2012, the licensee received two additional Severity Level IV traditional enforcement violations in the same area of impeding regulatory process. The licensee later informed the inspectors of their readiness to perform this follow-up inspection activity. The inspectors reviewed the licensee's corrective action documents for each violation and the overall cause analysis for the following items:

- Problem identification
- Cause, extent of condition and extent of cause
- Evaluation of corrective actions

b. Findings and Observations

No findings were identified. The inspectors determined that the licensee properly identified the problem and causes using a systematic approach and that missed opportunities were identified. The evaluation adequately addressed the extent of condition and extent of cause. Corrective actions taken or planned were appropriate to address the causes, and schedules to measure the success for these actions were established.

.2 (Closed) NRC Temporary Instruction 2515/187 - Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

a. Inspection Scope

The inspectors verified that the licensee's walkdown packages contained the elements as specified in NEI 12-07 Walkdown Guidance document.

The inspectors accompanied the licensee on their walkdown of the reactor auxiliary building roof drains and verified that the licensee confirmed the following flood protection features:

- Visual inspection of the flood protection feature was performed if the flood protection feature was relevant. External visual inspection for indications of degradation that would prevent its credited function from being performed
- Reasonable simulation, if applicable to the site
- Critical SSC dimensions were measured
- Available physical margin, where applicable, was determined
- Flood protection feature functionality was determined using either visual observation or by review of other documents.

The independent walkdown of the flood protection features will be documented in the NRC integrated inspection report 05000382-2013002.

b. Findings

Introduction. The inspectors identified an unresolved item (URI) related to a probable maximum precipitation (PMP) flooding event that could potentially affect safety-related equipment located on the roof of the reactor auxiliary building.

Description. During a walkdown of the reactor auxiliary building roof, the inspectors identified safety-related components, electrical conduit, and power cables that are vulnerable to a PMP flooding event. The inspectors questioned whether the licensee had performed an analysis to demonstrate that the safety-related components and electrical equipment related to conduits and power cables were adequately protected from a design basis PMP. At that time, the licensee could not identify an analysis that addressed the roof drains and scupper capacities of the area or if the safety-related equipment identified on the roof would function during and after a PMP event. The licensee entered this issue of concern into their corrective action program as CR-WF3-2012-7520. The inspectors opened this unresolved item to determine if there is a performance deficiency associated with design control since the licensee did not have an analysis demonstrating adequate flooding protection. This item is unresolved pending a review of a flooding design analysis and other related documentation: URI 05000382/2012005-03: Reactor auxiliary building roof flood protection issue.

.3 (Closed) NRC Temporary Instruction 2515/188 - Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

On October 3, 2012, the inspectors accompanied the licensee on their seismic walkdowns of the boric acid makeup tank, boric acid makeup tank gravity feed valve,

and the boric acid makeup pump recirculation valves located in the reactor auxiliary building. The inspectors verified that the licensee confirmed that the following seismic features associated with SWEL item numbers 16, 40, and 89, respectively were free of the following potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing or loose hardware
- Anchorage was free of corrosion that is more than mild surface oxidation
- SSCs will not be damaged from impact by nearby equipment or structures
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment.
- Attached lines have adequate flexibility to avoid damage.
- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area.
- The area appears to be free of potentially adverse seismic interactions that could cause a fire in the area.
- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding).

The inspectors independently performed their walkdowns of the following SWEL areas using a completed walkdown record form:

- On November 6, 2012, SWEL 1 – 020, dry cooling tower B component cooling water inlet isolation valve
- On November 6, 2012, SWEL 1 – 67, essential chiller B

The inspectors verify that the licensee completed the inspections as described in paragraph 03.02.a of NRC TI-188. Observations made during the walkdown that could not be determined to be acceptable were entered into the licensee's corrective action program for evaluation. Additionally, inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the SWEL and these items were walked down by the licensee.

b. Findings

No findings were identified.

40A6 Meetings, Including Exit

Exit Meeting Summary

On October 18, 2012, the inspector discussed the results of the licensed operator annual requalification examination with Mr. John Signorelli, Simulator and Support Superintendent and Acting Training Manager. A telephonic exit meeting was held with Mr. Signorelli on October 30, 2012. The licensee acknowledged the results of the inspection presented in the final exit meeting. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On November 2, 2012, the inspectors presented preliminary 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 inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified. Licensee representatives performed a root cause evaluation of a violation discussed with the preliminary results and provided it to the inspectors. The inspectors reviewed the root cause evaluation, determined the cross-cutting aspect for the violation, and re-exited with Mr. J. Pollock, Licensing Specialist, on December 10, 2012.

On November 2, 2012, the inspectors presented the inspection results of the review of inservice inspection activities to Ms. D. Jacobs, Vice President, Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 30, 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.

40A7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements, which meet the criteria of the NRC Enforcement Policy for being dispositioned as non-cited violations.

Failure to Perform ASME Section XI Code Required Examinations

Title 10 CFR 50.55a(g)(4), which requires that components classified as ASME Code Class 1, Class 2, and Class 3 meet the requirements set forth in Section XI of the applicable editions of the ASME Boiler and Pressure Vessel Code and Addenda. Title 10 CFR 50.55(a)(g)(4)(ii) requires that inservice examination of components be conducted during successive 120-month inspection intervals and comply with the requirements of the latest edition and addenda of the Code applicable to the specific interval. Section XI (of prior and current applicable editions of the Code), Subsections IWC-5221 and IWD-5221 requires that for Class 2 and Class 3 components a system leakage test be

performed at the system pressure obtained while the system, or portion of the system, is in service performing its normal operating function. Contrary to the above, prior to October 22, 2012, for the Class 2 and Class 3 reactor vessel head leak-off lines and for safety system lines associated with the L-Wall pipe chase, the licensee failed to perform leakage tests at the system pressure obtained while the system was performing its normal operating function. The inspectors determined that the finding was of very low safety significance because it was a deficiency confirmed not to result in a loss of operability for the probabilistic risk analysis (PRA) mission time of twenty-four hours. The licensee entered this issue into their corrective action program as CR-WF3-2012-05113 and CR-WF3-2012-06039.

Failure to Establish Technical Specification Required Radiation Controls

Technical Specification 6.12.2 establishes controls for areas accessible to personnel with radiation levels such that a major portion of the whole body could receive in one hour a dose greater than 1000 mrems but less than 500 mrad and requires such areas be barricaded and conspicuously posted. In addition, such area shall be provided with locked doors to prevent unauthorized entry. Where no enclosure exists for purposes of locking and no enclosure can reasonably be constructed around the individual area, then that area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device. Contrary to this requirement, on April 1, 2012, licensee representatives discovered an area on a container in the fuel handling building with a localized dose rate of 1400 mrems/hour at 30 centimeters from the source which had not been barricaded, conspicuously posted, and locked or surrounded by a rope with flashing lights. Licensee representatives had an opportunity to identify the dose rates 13 hours earlier, when another survey was performed in the same area. The area was uncontrolled until the second survey was performed. The inspectors determined the violation had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure because the inspectors concluded there was no way to construct a scenario in which a minor alteration of circumstances would have resulted in a violation of the Part 20 limits, and (4) the ability to assess dose was not compromised. After the violation was identified, licensee representatives implemented the correct technical specification controls and documented issue in the corrective action program as CR-WF3-2012-01594. Additional information was documented in CR-WF3-2012-03192, on July 2, 2012.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Jacobs, Vice President, Operations
K. Cook, General Manager, Plant Operations
A. Barnett, Engineer, Engineering Code Programs
L. Blocker, NDS Manager
D. Boan, Supervisor, Radiation Protection
J. Brawley, ALARA Supervisor, Radiation Protection
M. Briley, Echelon, NDE Level III
K. Crissman, Manager, Maintenance
L. Dauzat, Supervisor, Radiation Protection
D. Frey, Manager Radiation Protection
C. Fugate, Manager, Licensing
L. Gaubert, Senior HP Technician, Radiation Protection
W. Hardin, Senior Licensing Specialist, Licensing
M. Haydel, Supervisor, Engineering
B. Heath, Manager, Chemistry
L. Holman, Engineer, Engineering Code Programs
B. Klienlen, Senior Lead NDE, Engineering Code Programs
B. Lanka, Manager, System Engineering
B. Lindsey, Manager, Operations
B. McGaha, NDE, Engineering Code Programs
W. McKinney, Director, Corrective Action Programs
D. Miller, Supervisor, Radiation Protection
K. Nichols, Director, Engineering
B. Pellegrin, Manager, Emergency Planning
R. Perry, Manager, Emergency Planning
G. Pickering, Senior engineer, Engineering Code Programs
G. Pierce, Manager, Training
J. Pollack, Senior Licensing Specialist, Licensing
R. Porter, Manager, Design Engineering
W. Rentz, Director, Emergency Planning, EOI
C. Rich, Jr., Director Nuclear Safety Assurance
J. Signorelli, Operations Training Instructor
D. Viener, Supervisor, Engineering Programs and Components
M. Vierra, Dosimetry Senior Technician, Radiation Protection
J. Vollmer, Dosimetry Supervisor, Radiation Protection
J. Williams, Senior Specialist, Licensing

NRC Personnel

M. Davis, Senior Resident Inspector
D. Overland, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000382-2012005-03	URI	Reactor auxiliary building roof flood protection issue (Section 4OA5)
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Opened and Closed

05000382/2012005-01	NCV	Failure to implement control measures to ensure that activated materials were not raised above or brought near the surface of the refueling pool, causing a locked high radiation area. (Section 2RS1)
05000382/2012005-02	NCV	Failure to promptly identify and correct the cause of repetitive failures associated with train A component cooling water radiation monitor. (Section 4OA2)

Closed

05000382/2012-005-00	LER	Calibration Drift of I/P Transducer Causes Inoperability of Safety Related System (Section 4OA3.1)
05000382/2012-005-01	LER	Valve Degradation Causes Inoperability of Safety Related system (Section 4OA3.2)
05000382/2515/187	TI	Inspection of Near - Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.2)
05000382/2515/188	TI	Inspection of Near - Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5.3)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-009-002	Emergency Diesel Generator	319
W3-DBD-2	Emergency Diesel Generator and Automatic Load Sequencer Design Basis Document	302
SD-EDG	Emergency Diesel Generator	16

Section 1R04: Equipment Alignment

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-903-115	Train A Integrated Emergency Diesel Generator Emergency Safety Features Test	23
OP-009-008	Safety Injection System	33

CONDITION REPORTS

CR-WF3-2012-01372 CR-WF3-2012-02274 CR-WF3-2012-02658

Section 1R05: Fire Protection

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-009-004	Fire Protection	307
UNT-005-013	Fire Protection Program	11
FHB-001	Prefire Strategy Fuel Handling Building	8
OP-009-004	Fire Protection	314
RAB 13-001	Prefire Strategy Battery Room 3A	7
RAB 15-001	Prefire Strategy Emergency Diesel Generator 3B	8
RCB-001	Prefire Strategy RCB General Area	8
UNT-005-013	Fire Protection Program	12

Section 1R06: Flood Protection Measures

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MNQ3-5	Flooding Analysis Outside Containment	0

1R08 Inservice Inspection Activities (71111.08)PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CEP-NDE-0731	Magnetic Particle Examination (MT) for ASME Section XI	3
CEP-NDE-0641	Liquid Penetrant Examination (PT) for ASME Section XI	7
CEP-NDE-0423	Manual Ultrasonic Examination of Austenitic Piping Welds (ASME XI)	5
PDI-UT-2	Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds	E
CEP-WP-003	Qualification and Control of Welders	2
CEP-WP-005	Control and Issuance of Welding Material	1
CEP-NDE-0903	VT-3 Examination	5
SEP-BAC-WF3-001	Boric Acid Corrosion Control Program (BACCP)	0
EN-DC-319	Inspection and Evaluation of Boric Acid Leaks	8
CEP-NDE-0505	Ultrasonic Thickness Examination	4
CEP-NDE-0404	Manual Ultrasonic Examination of Ferritic Piping Welds (ASME XI)	5
CEP-NDE-0400	Ultrasonic Examination	3
CEP-NDE-0255	Radiographic Examination ASME, ANSI, AWS, Welds and Components	6
CEP-NDE-0901	VT-1 Examination	4
CEP-NDE-0902	VT-2 Examination	7
CEP-NDE-0903	VT-3 Examination	5
EN-RP-150	Radiography and X-Ray Testing	8
NOECP-253	ASME Section XI Pressure Testing	22

MISCELLANEOUS DOCCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
LO-WLO-2008-0068	Waterford 3 Snapshot Self-Assessment	October 16, 2008
W3F 1-2008-0013	Revision to Request for Alternative W3-ISI-005 Request to Use ASME Code Case N-716	February 14, 2008

W3171-2008-0060	Request for Alternative W3-iSI-006 Proposed Alternative to Extend the Second 10-Year Inservice Inspection Interval for Reactor Vessel Internal Weld Examinations	September 18, 2008
W3F1-2011-0018	License Amendment Request to Relocate Technical Specifications to the Technical Requirements Manual Waterford Steam Electric Station Unit 3	November 21, 2011
ELO-LO-2006-00094	Welding Program Assessment	July 24, 2006
LO-ELO-2007-00117	Entergy Nuclear South ISI/IWE/IWL Focused Assessment	September 27, 2007

CONDITION REPORTS

CR-WF3-2012-6386	CR-WF3-2012-6342	CR-WF3-2012-5361	CR-WF3-2012-5308
CR-WF3-2012-5212	CR-WF3-2012-4321	CR-WF3-2012-4314	CR-WF3=2012-4287
CR-WF3-2012-4249	CR-WF3-2012-4247	CR-WF3-2012-3248	CR-WF3-2012-3022
CR-WF3-2012-2255	CR-WF3-2012-1720	CR-WF3-2011-5880	CR-WF3-2011-5270
CR-WF3-2011-3703	CR-WF3-2011-3441	CR-WF3-2011-3021	CR-WF3-2011-2463
CR-WF3-2011-2181	CR-WF3-2011-2148	CR-WF3-2011-2105	CR-WF3-2009-7167
CR-WF3-2005-2750	CR-WF3-2005-2733	CR-WF3-2011-5599	CR-WF3-2011-8230
CR-WF3-2011-6324	CR-WF3-2011-4324	CR-WF3-2011-2368	CR-WF3-2012-6039
CR-WF3-2011-5395			

NONDESTRUCTIVE EXAMINATION REPORTS

ISI-MT-12-001	ISI-UT-12-004	BOP-PT-12-032	BOP-PT-12-028
30-018	30-019	BOP-UT-12-006	

WORK ORDERS

27657-03	312060-01	217524	284112
284113-01	284114-01	284116-01	310037-01

Section 1R11: Licensed Operator Requalification Program

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-OP-115	Conduct of Operations	12

Section 1R12: Maintenance Effectiveness

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-153	Preventative Maintenance Component Classification	6
EN-DC-335	PM Basis Document	3

CONDITION REPORTS

CR-WF3-2012-06857 CR-WF3-2012-05280

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OI-037-000	Operations' Risk Assessment Guideline	304
EN-WM-104	Online Risk Assessment	7
EN-OU-108	Shutdown Safety Management Program	5
PLG-009-014	Conduct of Planned Outages	308

Section 1R15: Operability Evaluations

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-OP-104	Operability Determination Process	6
OP-100-014	Technical Specifications and Technical Requirement Compliance	313
OI-004-000	Operations Shift Logs	303
OP-009-002	Emergency Diesel Generator	319
TD-C629.0035	Cooper Bessemer KSV Diesel Generator Nuclear Power Plant Emergency Stand-By Operation & Maintenance Manual	20

Section 1R15: Operability Evaluations

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-LI-108-01	10 CFR 21 Evaluations and Reporting	2

CONDITION REPORTS

CR-WF3-2012-6369	CR-WF3-2012-6402	CR-WF3-2008-5115	CR-WF3-2012-2692
CR-WF3-2012-3280	CR-WF3-2012-0789		

Section 1R18: Plant Modifications

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EC-32698	Containment Sump Recirculation Line Pipe Addition	0
EN-DC-117	Post Modification Testing and Special Instructions	5
EN-DC-141	Design Inputs	12
SD-SP	Containment Sump Pumps System Description	15
ECC04-006	Feedwater Line Break Alternative Source Term Radiological Dose Consequences	2

CONDITION REPORTS

CR-WF3-2011-3610

Section 1R19: Post-Maintenance TestingPROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-MA-101	Fundamentals of Maintenance	12
EN-MA-123	Identification and Trending of Rework	5
EN-WM-102	Work Implementation and Closeout	7
EN-WM-105	Planning	10
EN-WM-107	Post Maintenance Testing	4
OP-903-033	Cold Shutdown IST Valve Tests	39
OP-903-118	Primary Auxiliaries Quarterly IST Valve Test	

CONDITION REPORTS

CR-WF3-2012-06754

WORK ORDERS

52345298 337179 335193 WR 292344

Section 1R20: Refueling and Other Outage Activities

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-010-005	Plant Shutdown	321
OP-010-006	Outage Operations	321
OP-001-003	Reactor Coolant System Drain Down	313
PLG-009-014	Conduct of Planned Outages	308
RF-005-001	Fuel Movement	309

CONDITION REPORTS

CR-WF3-2012-7140

Section 1R22: Surveillance Testing

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EC 4763	Crosby SPVD (Set Point Verification Device) Testing Instructions 4763	0
MM-007-015	Main Steam Safety Valve Test	306
OP-903-115	Train A Integrated Emergency Diesel Generator Engineering Safety Features Test	23
OP-903-027	Inspection of Containment	303
OP-903-030	Safety Injection Pump Operability	19
OP-903-033	Cold Shutdown IST Valve Tests	39

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-RP-100	Radiation Worker Expectations	7

EN-RP-101	Access Control for Radiologically Controlled Areas	6
EN-RP-102	Radiological Control	3
EN-RP-106	Radiological Survey Documentation	4
EN-RP-108	Radiological Posting	11
EN-RP-143	Source Control	9
EN-RP-201	Dosimetry Administration	3
EN-RP-205	Prenatal Monitoring	3

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
LO-WLO-2011-00105	Radiation Protection Pre-NRC Inspection Assessment	October 17-21, 2011

CONDITION REPORTS

2011-03147	2011-03238	2011-4663	2012-00491
2011-04564	2011-05474	2012-00475	2012-03316
2012-02490	2012-02720	2012-03192	2012-03587
2012-03480	2012-03482	2012-03485	2011-07680
2012-03476	2012-01594	2011-07050	2012-00653
2012-03338	2012-04688		

RADIATION WORK PERMITS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
2012-0909	RSG Encapsulation of Old Steam Generators and Old Reactor Vessel Closure Head	00
2012-0919	RSG Transport Old Steam Generators & Original Reactor Vessel Closure Head to the Old Steam Generator Storage Facility. Includes All Support Activities	00
2012-0920	RSG Westinghouse/EOI Reactor Head Replacement Project	01

RADIATION WORK PERMITS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
2012-0923	RSG Containment Coordination, Rigging, Crane Operators, Crane Installations and Support Activities Inside/Outside the Containment Building	00

SURVEYS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
101712-008	Air sample, -11 foot containment building	October 17, 2012
101912-005	Air sample, -11 foot containment building	October 19, 2012
101912-005	Air sample, -11 foot containment building	October 19, 2012

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>REVISION</u>
Root Cause Evaluation Report - EAD Dose Rate Alarms During RF-18 Upper Guide Structure Lift	<u>0</u>

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

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
UNT-001-016	Radiation Protection	302
EN-RP-106	Source Control	9
EN-RP-108	Radiation Protection Posting	11
EN-RP-122	Alpha Monitoring	6
EN-RP-143	Source Control	0
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	5
EN-RP-501	Respiratory Protection Program	4
EN-RP-502	Inspection and Maintenance of Respiratory Protection Equipment	8

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>REVISION</u>
Root Cause Evaluation Report - EAD Dose Rate Alarms During RF-18 Upper Guide Structure Lift	<u>0</u>

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

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-RP-503	Selection, Issue, and use of Respiratory Protection Equipment	5
EN-RP-504	Breathing Air	3

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
LO-WLO-2012-0018	NRC Pre-Inspection Assessment	June 11, 2012 through June 19, 2012

CONDITION REPORTS

2011-03017	2011-03147	2011-03238	2011-04663
2011-07680	2012-00475	2012-00491	2012-00595
2012-01228	2012-01711	2012-02490	2012-02720
2012-03316	2012-03338	2012-03476	2012-03480
2012-03587	2012-04663	2012-04668	2012-06052
2011-07050	2012-00653	2012-03192	2012-03485
2012-06873			

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
Self-Contained Breathing Apparatus Inspection Log	April 2011 through August 2012 (monthly)
Installed Source List	October 2012

Section 4OA2: Identification and Resolution of Problems

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-LI-102	Corrective Action Process	18
EN-LI-119	Apparent Cause Evaluation (ACE) Process	14

WORK ORDERS

304289	302774	315634
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CONDITION REPORTS

WF3-2012-4643	WF3-2012-0494	WF3-2012-1141	WF3-2012-1183	WF3-2012-2240
WF3-2012-2477	WF3-2012-0236	WF3-2012-2578		

Section 4OA3: Event Follow-Up

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
LER 05000382/2012- 005-00	Calibration Drift of I/P Transducer Causes Inoperability of Safety Related System	0
LER 05000382/2012- 005-01	Valve Degradation Causes Inoperability of Safety Related System	1

Section 4OA5: Other Activities

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-168	Fukushima Near Term Task Force Recommendation 2.3 Seismic Walkdown Procedure	0

Section 40A5: Other Activities

PROCEDURES\DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-170	Fukushima Near Term Task Force Recommendation 2.3 Flooding Walkdown Procedure	0
WF3-CS-12-00003	Seismic Walkdown Report	0
WF3-CS-12-00004	Fukushima Flooding Walkdown Report	2
OP-901-521	Severe Weather and Flooding	305

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
G210	General Arrangement Cooling Towers Plan	20
G889	Roof Plan Plumbing and Drainage	8

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ECM99-010	Dry Cooling Tower Basin Ponding Analysis	0

CONDITION REPORTS

CR-WF3-2012-0385	CR-WF3-2012-5046	CR-WF3-2012-5275	CR-WF3-2012-5061
CR-WF3-2012-7520	CR-WF3-2012-5230		

WORK ORDERS and WORK REQUEST

WR-286685	WR-287244	WR-287632
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Section 40A7: Licensee-Identified Violations

CONDITION REPORTS

CR-WF3-2012-05113	CR-WF3-2012-06039	CR-WF3-2012-01594	CR-WF3-2012-03192
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Request for Information for Inservice Inspection
Waterford Steam Electric Station, Unit 3
October 22, 2012 through November, 2012
NRC Inspection Report 05000368/2012005

Please provide the requested information. Thank you for your support.

NOTE: In an effort to keep the requested information organized, please submit the information using the same request designation. For example, the names and phone numbers for the program leads should be in a file/folder titled A.5.b.

If you have any questions or comments, please contact the lead inspector Wayne Sifre at (817) 200-1193 (Wayne.Sifre@nrc.gov) or Gwynne Skaggs Ryan at (817) 200-1563 (Gwynne.SkaggsRyan@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.

INSERVICE INSPECTION DOCUMENT REQUEST

Inspection Dates: October 22, 2012 through November 2, 2012 (on-site dates)

Inspection Procedure: IP 71111.08, "Inservice Inspection (ISI) Activities"

A. Information Requested for the In-Office Preparation Week

The following information should be sent to the Region IV office in hard copy or electronic format (ims.certrec.com preferred), in care of Wayne Sifre, by October 8, 2012, to facilitate the selection of specific items that will be reviewed during the on-site inspection week. The inspectors will select specific items from the information requested below and then request from your staff additional documents needed during the on-site inspection week (Section B of this request). We ask that the specific items selected from the lists be available and ready for review on the first day of inspection. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the inspectors, and provide subject documentation during the first day of the on-site inspection. If you have any questions regarding this information request, please contact the inspectors as soon as possible.

A.1 Inservice Inspection/Welding Programs and Schedule Information

a) Detailed schedule (including preliminary dates) of:

- i) Nondestructive examination (NDE) planned for Class 1 and 2 components and containment, to be performed as part of your ASME Section XI risk informed (if applicable) and augmented inservice inspection programs during the upcoming outage.
 - ii) Status summary of the NDE activities compared to the required inspection period percentages for this interval by category per ASME Section XI, IWX-2400.
 - iii) Reactor pressure vessel head examinations planned for the upcoming outage.
 - iv) Examinations planned for Alloy 82/182/600 components that are not included in the Section XI scope (if applicable).
 - v) Examinations planned as part of your boric acid corrosion control program (Mode 3 walkdowns, bolted connection walkdowns, etc.).
 - vi) Welding activities that are scheduled to be completed during the upcoming outage (ASME Class 1, 2, or 3 structures, systems, or components).
- b) Copy of Section XI Relief Requests and associated NRC safety evaluations.
 - c) List of NDE (ultrasonic, radiography, magnetic particle, dye penetrant, and visual) reports, which have identified relevant conditions on Class 1 and 2 systems since the beginning of the last refueling outage. This should include the previous Section XI pressure tests conducted during start-up and any evaluations associated with the results of the pressure tests. Include in the list the NDE reports, with relevant conditions, for the reactor pressure vessel head penetration nozzles that have been accepted for continued service. The list of NDE reports should include a brief description of the structures, systems, or components where the relevant condition was identified.
 - d) List, with a brief description (e.g., system, material, pipe size, weld number, and NDE performed), of the welds which have been fabricated in Class 1 and 2 component repair/replacement activities since the beginning of the last refueling outage, or are planned to be fabricated this refueling outage.
 - e) If reactor vessel weld examinations required by the ASME Code are scheduled to occur during the upcoming outage, provide a detailed description of the welds to be examined and the extent of the planned examination. Please also provide reference numbers for applicable procedures that will be used to conduct these examinations.
 - f) Copy of any 10 CFR Part 21 reports applicable to your structures, systems, or components within the scope of Section XI that have been identified since the beginning of the last refueling outage.
 - g) List of any temporary noncode repairs in service (e.g., pinhole leaks).

- h) Copies of the most recent self-assessments for the inservice inspection, welding, and Alloy 600 programs.

A.2 Boric Acid Corrosion Control Program

- a) Copy of the procedures that govern the scope, equipment and implementation of the inspections required to identify boric acid leakage and the procedures for boric acid leakage/corrosion evaluation.
- b) List of leaks (including Code class of the components) that have been identified since the last refueling outage and associated corrective action documentation. If during the last cycle, the unit was shutdown, please provide documentation of containment walkdown inspections performed as part of the boric acid corrosion control program.
- c) Copy of the most recent self-assessment performed for the boric acid corrosion control program.

A.3 Additional Information Related to all Inservice Inspection Activities

- a) List, with a brief description, of inservice inspection and boric acid corrosion control program issues (e.g., condition reports) entered into your corrective action program since the beginning of the last refueling outage. The list can be based on condition report searches using key words such as inservice inspection, ASME Code, Section XI, NDE, cracks, wear, thinning, leakage, rust, corrosion, boric acid, or errors in piping examinations.
- b) Names and phone numbers for the following program leads:
- Inservice inspection (examination, planning)
 - Containment exams
 - Reactor pressure vessel head exams
 - Snubbers and supports
 - Repair and replacement
 - Licensing
 - Site welding (engineering)
 - Boric acid corrosion control

B. Information to be provided On-site to the Inspectors at the Entrance Meeting (October 22, 2012)

B.1 Inservice Inspection/Welding Programs and Schedule Information

- a) Updated schedules for inservice inspection/NDE activities, including planned welding and contingency repair plans.
- b) For those ASME Code Class 1 and 2 welds, selected by the inspectors from the list requested in Section A, provide copies of the following documentation for each subject weld:
- i) Weld data sheet (traveler)

- ii) Weld configuration and system location
 - iii) Applicable Code edition and addenda for weldment
 - iv) Applicable Code edition and addenda for welding procedures
 - v) Applicable welding procedures and supporting procedure qualification records
 - vi) Copies of mechanical test reports identified in the procedure qualification records
 - vii) Copies of the nonconformance reports for the selected welds (if applicable)
 - viii) Radiographs of the selected welds and access to equipment for viewing radiographs (if radiographic testing was performed)
 - ix) Copies of the preservice examination records for the selected welds
 - x) Copies of welder performance qualification records applicable to the selected welds, including documentation that welder maintained proficiency in the applicable welding processes specified in the weld procedures (at least six months prior to the date of the subject work)
 - xi) Copies of NDE personnel qualifications
- c) For the inservice inspection related corrective action issues, selected by the inspectors from the list requested in Section A, provide a copy of the corrective actions and supporting documentation.
 - d) For the NDE reports with relevant conditions on Code Class 1 and 2 systems, selected by inspectors from the list requested in Section A, provide copies of the examination records, examiner qualification records, and associated corrective action documents.
 - e) Copy of, or ready access to, the most current revision of the inservice inspection program manual and plan for the current interval.
 - f) For the NDE activities, selected by the inspectors from the information requested in Section A, provide a copy of the NDE procedures used to perform the examinations (including calibration and flaw characterization/sizing procedures). For ultrasonic examination procedures qualified in accordance with ASME Section XI, Appendix VIII, provide documentation supporting the procedure qualification (e.g., the EPRI performance demonstration qualification summary sheets). Also, include qualification documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers) and NDE personnel qualification records.

B.2 Boric Acid Corrosion Control Program

- a) Boric acid walkdown inspection results, an updated list of boric acid leaks identified so far this outage, associated corrective action documentation, and overall status of planned boric acid inspections.
- b) Engineering evaluations completed for boric acid leaks identified since the end of the last refueling outage. Include a status of corrective actions to repair and/or clean these boric acid leaks. Identify specifically which known leaks, if any, have remained in service or will remain in service as active leaks.

B.3 Codes and Standards

- a) Copy of, or ready access to, applicable editions of the ASME Code (Sections V, IX, and XI) for the inservice inspection program and the repair/replacement program.

Inspector Contact Information:

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Attachment 3
The following items are requested for the
Occupational Radiation Safety Inspection
at Waterford-3
October 29 – November 2, 2012
Integrated Report 2012005

Inspection areas are listed in the attachments below.

Please provide the requested information on or before October 9, 2012.

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 Larry Ricketson at (817) 200-1165 or Larry.Ricketson@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)

Date of Last Inspection: April 25, 2011

- 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 Radworker 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 subtiered 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 documents 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

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

Date of Last Inspection: April 25, 2011

- 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
- F. A summary list of corrective action documents (including corporate and subtiered 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
- 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.

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable."

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