



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

May 8, 2018

Mr. John Dinelli
Site Vice President
Entergy Operations, Inc.
17265 River Road
Killona, LA 70057-0751

**SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 – NRC INTEGRATED
INSPECTION REPORT 05000382/2018001**

Dear Mr. Dinelli:

On March 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Waterford Steam Electric Station, Unit 3. On April 12, 2018, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one Severity Level IV violation with no associated finding. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

From April 2017 to April 2018, the NRC issued three Severity Level IV traditional enforcement violations associated with impacting the ability of the NRC to perform its regulatory oversight function. This includes the one Severity Level IV violation documented in this report. However, the NRC will not conduct 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," because one of the violations occurred in 2006 and is not representative of present performance.

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

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Geoffrey Miller, Branch Chief
Project Branch D
Division of Reactor Projects

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

Enclosure:

Inspection Report 05000382/2018001

w/ Attachments:

1. Documents Reviewed
2. Occupational Radiation Safety Inspection Request for Information

**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 05000382

License Number: NPF-38

Report Number: 05000382/2018001

Enterprise Identifier: I-2018-001-0002

Licensee: Entergy Operations, Inc.

Facility: Waterford Steam Electric Station, Unit 3

Location: 17265 River Road
Killona, LA 70057

Inspection Dates: January 1, 2018, to March 31, 2018

Inspectors: F. Ramírez, Senior Resident Inspector
C. Speer, Resident Inspector
J. Choate, Project Engineer
J. Dixon, Senior Project Engineer
N. Greene, PhD, Senior Health Physicist
S. Money, Health Physicist
J. O'Donnell, CHP, Health Physicist

Approved By: G. Miller, Chief

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting an integrated inspection at Waterford Steam Electric Station, Unit 3, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. An NRC-identified violation and additional items are summarized in the tables below.

List of Findings and Violations

Failure to Obtain NRC Staff Authorization Prior to Changing a Procedure that Impacts Implementation of Technical Specifications			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000382/2018001-01 Closed	Not Applicable	71152
The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.59, “Changes, Tests, and Experiments,” Section (c)(1), for the licensee’s failure to submit and obtain authorization prior to implementation procedures described in the Final Safety Analysis Report.			

Additional Tracking Items

Type	Issue number	Title	Report Section	Status
LER	05000382/2017-002-00	Automatic Reactor Scram due to the Failure of Fast Bus Transfer Relays to Automatically Transfer Station Loads to Off-site Power on a Main Generator Trip	71153	Closed

PLANT STATUS

Waterford Steam Electric Station Unit 3 operated at or near 100 percent rated thermal power for the entire inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Impending Severe Weather (1 Sample)

The inspectors evaluated readiness for impending adverse weather conditions prior to the onset of and during extreme low temperatures for the area on January 16, 2018.

71111.04 - Equipment Alignment

Partial Walkdown (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Emergency feedwater train A following maintenance on January 12, 2018
- (2) Component cooling water train A with train B out of service for maintenance on January 24, 2018
- (3) Low pressure safety injection train A with train B out of service for maintenance on March 13, 2018

71111.05 - Fire Protection

Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Shutdown cooling heat exchanger rooms A and B, Fire Area RAB 33, on January 4, 2018

- (2) Switchgear room B, Fire Area RAB 8B, E, and F on February 12, 2018
- (3) Control room, Fire Area RAB 1A, B, C, and D on February 12, 2018
- (4) Component cooling water heat exchanger B, Fire Area RAB 17 on March 13, 2018
- (5) Component cooling water pump room A, Fire Area RAB 19 on March 14, 2018

71111.07 - Heat Sink Performance

Heat Sink (1 Sample)

The inspectors evaluated the ultimate heat sink performance test on January 23, 2018.

71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated operator performance in the simulator during an evaluated emergency plan exercise on February 21, 2018.

Operator Performance (1 Sample)

The inspectors observed and evaluated control room operator performance during main turbine governor valve testing on January 19, 2018.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (3 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Component cooling water on January 25, 2018
- (2) 125 Vdc distribution system on March 12, 2018
- (3) Plant protection system on March 28, 2018

Quality Control (1 Sample)

The inspectors evaluated maintenance and quality control activities associated with the following equipment performance issues:

- (1) Fuel oil storage tank A1 vendor and licensee quality documents related to receipt of segments from vendor and associated welding on March 7, 2018

71111.13 - Maintenance Risk Assessments and Emergent Work Control (3 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Risk assessment associated with maintenance on boric acid makeup tanks A and B on January 3, 2018
- (2) Risk assessment and risk management actions associated with maintenance on emergency diesel generator A on January 31, 2018
- (3) Control element assembly emergency work and unexpected limiting condition for operation on February 6, 2018

71111.15 - Operability Determinations and Functionality Assessments (6 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Core element assembly calculator 2 unexpected trend on January 2, 2018
- (2) Atmospheric dump valve A leakage on February 8, 2018
- (3) Component cooling water heat exchanger B failed performance test on February 9, 2018
- (4) Reactor coolant pump 2A oil leak on March 8, 2018
- (5) Core protection calculator Channel C failure on March 26, 2018
- (6) Ultimate heat sink on March 28, 2018

71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Dry cooling tower train A recirculation barrier installation, Phase 3, on March 16, 2018

71111.19 - Post Maintenance Testing (7 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Reactor trip circuit breaker 6 on January 9, 2018
- (2) High pressure safety injection train B on January 23, 2018
- (3) Emergency diesel generator A on February 3, 2018
- (4) Auxiliary component cooling water train B on February 21, 2018
- (5) Component cooling water pump B to AB suction cross-connect valve solenoid valve replacement on March 8, 2018
- (6) Component cooling water pump B to AB discharge cross-connect valve solenoid valve replacement on March 8, 2018
- (7) Low pressure safety injection pump B on March 14, 2018

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (3 Samples)

- (1) Emergency diesel generator A monthly surveillance on January 8, 2018
- (2) Safety Channel A nuclear instrumentation functional test on January 24, 2018
- (3) Functional test of plant protective system Channel C on February 23, 2018

71114.06 - Drill Evaluation

Emergency Planning Drill (1 Sample)

The inspectors evaluated a site emergency plan drill on February 21, 2018.

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (1 Sample)

The inspectors evaluated radiological hazards assessments and controls.

Instructions to Workers (1 Sample)

The inspectors evaluated worker instructions.

Contamination and Radioactive Material Control (1 Sample)

The inspectors evaluated contamination and radioactive material controls.

Radiological Hazards Control and Work Coverage (1 Sample)

The inspectors evaluated radiological hazards control and work coverage.

High Radiation Area and Very High Radiation Area Controls (1 Sample)

The inspectors evaluated risk-significant high radiation area and very high radiation area controls.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker performance and radiation protection technician proficiency.

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Engineering Controls (1 Sample)

The inspectors evaluated airborne controls and monitoring.

Use of Respiratory Protection Devices (1 Sample)

The inspectors evaluated respiratory protection.

Self-Contained Breathing Apparatus for Emergency Use (1 Sample)

The inspectors evaluated the licensee's self-contained breathing apparatus program.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification (5 Samples)

The inspectors verified licensee performance indicator submittals listed below:

- (1) IE01: Unplanned Scrams per 7000 Critical Hours Sample (January 1, 2017, through December 31, 2017)
- (2) IE03: Unplanned Power Changes per 7000 Critical Hours Sample (January 1, 2017, through December 31, 2017)
- (3) IE04: Unplanned Scrams with Complications (USwC) Sample (January 1, 2017, through December 31, 2017)
- (4) OR01: Occupational Exposure Control Effectiveness Sample (April 1, 2017, through December 31, 2017)
- (5) PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (April 1, 2017, through December 31, 2017)

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issue:

- (1) Implementation of change to technical specification and technical requirements compliance procedure

71153 - Follow-up of Events and Notices of Enforcement Discretion

Licensee Event Reports (1 Sample)

The inspectors evaluated the following licensee event reports which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) Licensee Event Report (LER) 05000382/2017-002-00, Automatic Reactor Scram due to the Failure of Fast Bus Transfer Relays to Automatically Transfer Station Loads to Off-site Power on a Main Generator Trip, on July 17, 2017

INSPECTION RESULTS

Failure to Obtain NRC Staff Authorization Prior to Changing a Procedure that Impacts Implementation of Technical Specifications			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000382/2018001-01 Closed	Not Applicable	71152
<p>The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," Section (c)(1), for the licensee's failure to submit and obtain authorization prior to implementation procedures described in the Final Safety Analysis Report.</p> <p><u>Description:</u> Waterford Technical Specification 3.7.4, states, in part, that two independent trains of ultimate heat sink cooling towers shall be Operable in Modes 1, 2, 3, and 4. Each train consists of a dry cooling tower and a wet cooling tower and its associated water basin. Action c of Technical Specification 3.7.4 states that with a tornado watch in effect, all nine dry cooling tower fans under the missile protected portion of the dry cooling tower shall be Operable. If the number of Operable fans is less than required, restore the inoperable fan(s) to Operable status within 1 hour, or be in at least Hot Standby within 6 hours and in Hot Shutdown within the following 6 hours. The licensee established Procedure OP-100-014, "Technical Specification and Technical Requirements Compliance," Revision 336, to provide guidance for determining Operability of equipment and ensuring compliance with the technical specifications and technical requirements manual. Procedure OP-100-014, Attachment 6.6, "Specific System Guidelines," provides guidelines on actions when declaring a system inoperable. One of the systems listed and discussed is the ultimate heat sink and its associated Technical Specification 3.7.4.</p> <p>The Process Applicability Determination process is a method for determining which plant licensing basis documents and processes are affected by a proposed activity and must be revised to reflect that activity. The licensee revised Procedure OP-100-014, Revision 336, using a Process Applicability Determination Evaluation [PAD-OP-100-014, Revision 337] to provide additional guidance on implementation of Technical Specification 3.7.4. Procedure OP-100-014, Revision 337, was implemented in February 2017 with an added note stating, in part, if the dry cooling tower fans are declared inoperable solely due to wet cooling tower fans being out of service (cascading technical specification), then Technical Specification 3.7.4.c does not need to be applied upon a tornado watch/warning. The licensee performed a technical analysis and concluded that the missile-protected dry cooling tower fans were to be considered Operable for the tornado event because wet cooling tower fan operation is not credited in the tornado event analysis.</p> <p>The licensee used Procedure EN-LI-100, "Process Applicability Determination," to evaluate the change in licensing basis documents. When answering the question, "does the proposed activity affect, invalidate, or render incorrect, OR have the potential to affect, invalidate, or render incorrect, information contained in any of the following Licensing Basis Documents?" the licensee answered "no" for impact on Operating License/Technical Specifications. However, the inspectors determined that this addition to the site procedure could adversely impact the bases for the acceptability to ultimate heat sink design and operations. As a result, that question should have been answered "yes" and the licensee would have had to prepare a licensing basis document change request. The inspectors concluded that if Procedure OP-100-014, Revision 337, would have been implemented as written, it would</p>			

have constituted a change affecting an evaluation that demonstrates the function of the ultimate heat sink.

The inspectors confirmed that between February 2017 and January 2018, there were no tornado watches that coincided with ultimate heat sink system work windows. Therefore, during the time this note was in the procedure, the licensee did not invoke the provision.

Corrective Action(s): The licensee removed the note from Procedure OP-100-014, and corrected the interpretation of the technical specification. Procedure OP-100-014, Revision 342, which removed the note, became effective January 2018. Therefore, if the wet cooling tower fans are inoperable, and there is a simultaneous tornado watch/warning, the licensee will implement Technical Specification 3.7.4, Action c.

Corrective Action Reference(s): CR-WF3-2018-02111

Performance Assessment:

Performance Deficiency: The licensee's failure to submit a licensing basis document change request when performing a change impacting technical specifications in accordance with Procedure EN-LI-100, "Process Applicability Determination," was a performance deficiency. Specifically, Procedure EN-LI-100 states that if proposed activities affect, invalidate, or render incorrect information contained in Licensing Basis Documents such as the Operating License/Technical Specifications, then the proper regulatory reviews are performed. The procedure instructs the licensee to prepare a licensing basis document change request in accordance with the licensing basis document change process.

Screening: The inspectors determined the performance deficiency was of minor significance because the licensee did not implement this procedure change and as a result, did not incur a violation of technical specifications. However, because 10 CFR 50.59 violations could potentially impede or impact the regulatory process, the inspectors processed this performance deficiency using the traditional enforcement process and the examples in Section 6.1 of the Enforcement Policy.

Enforcement:

Severity: The ROP's significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC's ability to regulate using traditional enforcement to adequately deter noncompliance. This violation was more than minor because there was a reasonable likelihood the change would require NRC review and approval prior to implementation, similar to violations assessed in Section 2.1.3 of the NRC Enforcement Manual. The inspectors determined the violation to be a Severity Level IV violation similar to violation Example 6.1.d.2 in the NRC Enforcement Policy.

Violation: As stated, in part, in 10 CFR 50.59, "Changes, Tests, and Experiments," Section (c)(1), a licensee may make changes in the facility as described in the final safety analysis report (as updated), make changes in the procedure as described in the final safety analysis report (as updated), and conduct tests or experiments not described in the final safety analysis report (as updated) without obtaining a license amendment pursuant to Sec. 50.90 only if: (i) a change to the Technical Specifications incorporated in the license is not required. The licensee established Procedure EN-LI-100, "Process Applicability Determination," Revision 19, to comply with this requirement. Attachment 9.1 of Procedure EN-LI-100 states, in part, to prepare a licensing basis document change request if

a proposed activity affects, invalidates, or renders incorrect, information contained in Technical Specifications.

Contrary to the above requirements, from February 2017, until December 2017, the licensee completed an activity that affected Technical Specifications and did not prepare a licensing basis document change request. Specifically, the licensee implemented a change to Technical Specification 3.7.4, Action c, through the implementation of Procedure OP-100-014, "Technical Specification and Technical Requirements Compliance," Revision 337, by adding a note that instructed Operations personnel to not enter Technical Specification 3.7.4.c in the event of a tornado watch/warning if the dry cooling tower fans were declared inoperable solely due to wet cooling tower fans being out of service. This action was inconsistent with the current licensing basis and would have constituted a violation of technical specifications.

Enforcement Action: Because this violation was not repetitive or willful, and was entered into the licensee's corrective action program as CR-WF3-2018-02111, this violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy.

Licensee Event Report (Closed)	Automatic Reactor Scram due to the Failure of Fast Bus Transfer Relays to Automatically Transfer Station Loads to Off-site Power on a Main Generator Trip 05000382/2017-002-00	71153
<u>Description:</u> The NRC conducted a special inspection to better understand the facts and circumstances surrounding this event. The results and findings of that inspection are documented in NRC Inspection Report 05000382/2017011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17354A690). The inspectors did not identify any new deficiencies as a result of this review. This LER is closed.		

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

On January 25, 2018, the inspectors presented the radiation safety inspection results to Mr. J. Dinelli, Site Vice President, and other members of the licensee staff.

On April 12, 2018, the resident inspectors presented the quarterly resident inspector inspection results to Mr. J. Dinelli, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

71111.01 – Adverse Weather Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-002-007	Freeze Protection and Temperature Maintenance	25
OP-901-521	Severe Weather and Flooding	325

Condition Reports (CRs)

CR-WF3-2017-09668 CR-WF3-2018-00004 CR-WF3-2018-00082 CR-WF3-2018-00098
CR-WF3-2018-00436

71111.04 - Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-002-003	Component Cooling Water	317
OP-009-003	Emergency Feedwater	309
OP-009-008	Safety Injection System	41

71111.05 - Fire Protection

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RAB1A-B-C-D-001	Control Room Proper, H&V Room, Emergency Living Quarters, and Computer Room	10
RAB8B-E-F-001	Switchgear B	12
RAB 17-001	Component Cooling Water Heat Exchanger “B”	8
RAB 19-001	Component Cooling Water Pump Room “A”	7
RAB 33-001	Shutdown Cooling Heat Exchanger Rooms “A” and “B”	8

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FP-001-018	Pre-fire Strategies, Development and Revision	304

71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-901-111	Reactor Coolant System Leak	303
OP-901-403	High Airborne Activity in Containment	4
OP-901-404	High Airborne Activity in FHB	2
OP-901-405	Fuel Handling Incident	8
OP-901-513	Spent Fuel Pool Cooling Malfunction	21
OP-902-002	Loss of Coolant Accident Recovery	20

71111.12 - Maintenance Effectiveness

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
910163-001	PCI Quality Assurance Traveler – FOST A1 Fabrication	1
EC-53943	Station Battery B Cell Lid Cracking	0
EC-57534	Station Battery A Cell Lid Cracks	0
QPP-205	Graham, Visual Inspection	17
QPP-205 Addenda	Graham, Visual Inspection addenda	1
WDT-0528	PCI Welding EDG Supplemental Fuel Oil Storage Tank	0
WF3-FOST-DN- 021	Deviation Notice for Waterford 3 Fuel Oil Storage Tank, Tank A1 – Rust and Arc Strikes on Shell	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ME-003-200	Station Battery Bank and Charger (Weekly)	314

Condition Reports (CRs)

CR-WF3-2014-05777	CR-WF3-2014-06375	CR-WF3-2014-06378	CR-WF3-2015-00842
CR-WF3-2015-01802	CR-WF3-2015-04849	CR-WF3-2015-04850	CR-WF3-2015-04854
CR-WF3-2017-03566	CR-WF3-2017-03607	CR-WF3-2017-06789	CR-WF3-2017-08771
CR-WF3-2017-08845	CR-WF3-2017-09167		

Work Orders

446024

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-903-005	Control Element Assembly Operability Check	14

71111.15 - Operability Determinations and Functionality Assessments

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Protected Equipment List	January 31, 2018
EC-40444	Revised Impact AST Dose Analyses to Address MSSV and ADV Leakages	1
EC-75901	Component Cooling Water Heat Exchanger Degraded Performance	1
ECM95-008	Ultimate Heat Sink Design Basis	3
ECS05-13	Ultimate Head Sink Containment Heat Loads	1
MNQ9-2	Component Cooling Water System	2
MNQ9-50	ACCW System Resistance	2
TD-G080.0495	General Electric Spare Reactor Coolant Pump Motor Drawings	1
WF3-ME-16-00001	Meteorological Parameters and Parameter Relationships for Design and Operability of the Waterford 3 Ultimate Heat Sink	0

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-001-002	Reactor Coolant Pump Operation	22
PE-004-021	CCW Heat Exchanger Performance Test	5

Condition Reports (CRs)

CR-WF3-2011-07700	CR-WF3-2012-02332	CR-WF3-2018-00662	CR-WF3-2018-00785
CR-WF3-2018-00948	CR-WF3-2018-00951	CR-WF3-2018-00986	CR-WF3-2018-01225

Condition Reports (CRs)

CR-WF3-2018-01426 CR-WF3-2018-01549 CR-WF3-2018-01559

Work Orders

481333 495770 495771 496893 52348919

71111.18 - Plant Modifications

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
6W12CM10	Common Mat Stress Analysis – Cooling Tower Area	2
ECC16-004	Horizontal Air Flow Barrier Roof and Gutters at Dry Cooling Tower Outside Missile Protection	0
ECM95-008	Ultimate Heat Sink Design Basis	3
MNQ9-52	Ultimate Heat Sink Performance based on data	2
WF3-ME-16-00001	Meteorological Parameters and Parameter Relationships for Design and Operability of the Waterford 3 Ultimate Heat Sink	0

Condition Reports (CRs)

CR-WF3-2012-02332

Work Orders

444257

71111.19 - Post-Maintenance Testing

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AR 184566	Replace Solenoid Valve	
AR 186060	Align PMRQs for AOV PM Optimization Program	
TD A610.0155	ASCO Installation and Maintenance Instructions for 3-Way Solenoid Valves Series 8316	0

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
ME-007-019	ASCO/AVCO/MAC/Parker Hannifin Solenoid Valves	306

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
MM-003-041	Six Year Emergency Diesel Engine Inspection	February 2, 2018
OP-903-030	Safety Injection Pump Operability Verification	35
OP-903-050	Component Cooling Water and Auxiliary Component Cooling Water Pump and Valve Operational Test	039
OP-903-118	Primary Auxiliaries Quarterly IST Valve Tests	43
OP-903-121	Safety System Quarterly IST Valve Tests	27

Condition Reports (CRs)

CR-WF3-2017-07146 CR-WF3-2018-00441 CR-WF3-2018-00808 CR-WF3-2018-01498

Work Orders

436357 52649596 52673039 52701091

71111.22 - Surveillance Testing

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
TD-C490.0485	Combustion Engineering Ex-Core Neutron Flux Monitoring System Safety Channel Operation and Maintenance Manual	April, 1985

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
MI-003-002	Safety Channel Nuclear Instrumentation Functional Test	17
OP-903-068	Emergency Diesel Generator and Subgroup Relay Operability Verification	319
OP-903-107	Plant Protection System Channel C Functional Test	312

Work Orders

52800018 52800019

71114.06 – Drill Evaluation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EP-001-010	Unusual Event	306
EP-001-020	Alert	309
EP-001-030	Site Area Emergency	308
EP-002-010	Notifications and Communications	315
OP-902-002	Loss of Coolant Accident Recovery	20

Condition Reports (CRs)

CR-WF3-2018-01082 CR-WF3-2018-01083 CR-WF3-2018-01084 CR-WF3-2018-01095

71124.01 - Radiological Hazard Assessment and Exposure Controls

Air Sample Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
OL-011518-002	Pool Purification Pump Shaft Removal	January 15, 2018
OL-02112017-013	Sluice CVC IX A	February 11, 2017
OL-032717-006	Lapel Air Sample for RWP 2017-0064	March 27, 2017
OL-040417-004	Alpha Air – RAB -35 Safeguards Room A	April 4, 2017
OL-072217-0015	Alpha Air – Letdown Valve Gallery	July 22, 2017
RF-05162017-561	Alpha Air – Top of UGS	May 16, 2017

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
LO-WLO-2017-00068 CA-00005	Pre-NRC Self-Assessment Radiation Safety – IP 71124.01	November 30, 2017

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	NSTS Annual Inventory Reconciliation Report	January 4, 2018

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Periodic Review of Plant Isotopic Mix Compared to Radiation Protection Instrument, Revision 1	September 21, 2017
	Review of Smears Taken for Alpha Characterization During RF21	September 19, 2017
	Spent Fuel Pool Inventory	October 25, 2017
	Update to the Review of the Capabilities of Our Passive Monitoring Program to Detect Intakes at Waterford-3	October 4, 2017
2017-2018	Entergy Waterford 3 Radiation Protection Department Respiratory Improvement Plan	August 10, 2017
Att. 9.6 to EN-RP-101	LHRA/VHRA Key Log	January 23-25, 2018
WO 52734309	Sealed Source Leak Test	June 22, 2017
WO 52768769	Semi-Annual Source Inventory	December 11, 2017

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-RE-220	PWR Control of Miscellaneous Materials in the Spent Fuel Pool	3
EN-RP-100	Radiation Worker Expectations	12
EN-RP-101	Access Control for Radiologically Controlled Areas	13
EN-RP-102	Radiological Control	5
EN-RP-104	Personnel Contamination Events	9
EN-RP-105	Radiological Work Permits	18
EN-RP-106	Radiological Survey Documentation	7
EN-RP-108	Radiation Protection Posting	19
EN-RP-109	Hot Spot Program	5
EN-RP-121	Radioactive Material Control	13
EN-RP-122	Alpha Monitoring	9
EN-RP-143	Source Control	13
EN-RP-315	Operation and Calibration of the CRONOS Contamination Monitor	2

Radiation Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
WF3-1704-0537	+46 Pressurizer Cubicle	April 18, 2017
WF3-1705-0049	FHB +46 Fuel Handling Area	May 1, 2017
WF3-1711-0270	FHB +46 Fuel Handling Area	November 30, 2017
WF3-1711-0271	FHB +46 Fuel Handling Area	November 30, 2017
WF3-1801-0194	RAB -4 Hallways	January 16, 2018
WF3-1801-0213	RAB -35 Hallways	January 18, 2018
WF3-1801-0262	RAB -21 Hallways	January 24, 2018

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2017-0101	Work Activities in the Spent Fuel Pool and the Transfer Canal	1
2017-0509	RF21 Remove/Replace Steam Generator Primary Manways/Diaphragms	1
2017-0510	Install/Remove Steam Generator Nozzle Dams, Pin Verification and Closure	2
2017-0705	RF21 Reassembly of Reactor Head and Associated Work Activities	0
2017-0727	RF21 Perform Reactor Vessel (ISI) Inspection Using the WestDyne (ROSA) and a Submarine	2
2018-0004	Maintenance Activities in all Radiologically Controlled Areas	0
2018-0007	Perform Various Decon and Housekeeping Activities in all Radiologically Controlled Areas	0

Condition Reports (CRs)

CR-WF3-2017-02540	CR-WF3-2017-02718	CR-WF3-2017-02956	CR-WF3-2017-03344
CR-WF3-2017-03349	CR-WF3-2017-03362	CR-WF3-2017-03799	CR-WF3-2017-03872
CR-WF3-2017-03953	CR-WF3-2017-06030	CR-WF3-2017-06758	CR-WF3-2017-07988
CR-WF3-2017-08330	CR-WF3-2018-00506	CR-WF3-2018-00507	WT-WTWF3-2017-00273

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Air Quality Testing Results

<u>Number</u>	<u>Title</u>	<u>Date</u>
296484-0	Compressed Air/Gas Quality Testing Laboratory Report	February 15, 2017
296614-0	Compressed Air/Gas Quality Testing Laboratory Report	February 16, 2017
309752-0	Compressed Air/Gas Quality Testing Laboratory Report	July 28, 2017
309780-0	Compressed Air/Gas Quality Testing Laboratory Report	July 31, 2017

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
LO-WLO-2017-00068	Pre-NRC Assessment IP 71124.03 In-Plant Airborne Radioactivity Control and Mitigation	November 23, 2017

Filtration Testing Results

<u>Number</u>	<u>Title</u>	<u>Date</u>
5257571	Charcoal Sample Testing	May 31, 2016
52577572	In-Place HEPA Filter Testing	June 1, 2016
52704414	In-Place Charcoal Filter Testing	November 8, 2017

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Inspection and Maintenance of Respiratory Protection Equipment – Face Piece Inspection Log	December 27, 2017
	Inspection and Maintenance of Respiratory Protection Equipment – SCBA Inspection Log	December 27, 2017
2017-0702-04	TEDE-ALARA Evaluation	November 15, 2016

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-RP-310	Operation and Initial Setup of the Eberline AMS-4 Continuous Air Monitor	4
EN-RP-501	Respiratory Protection Program	5

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-RP-502	Inspection and Maintenance of Respiratory Protection Equipment	10
EN-RP-502-01	Fire Hawk M7 SCBA	1
EN-RP-503	Selection, Issue And Use Of Respiratory Protection Equipment	7
EN-RP-504	Breathing Air	4

SCBA Maintenance Records

<u>Number</u>	<u>Title</u>	<u>Date</u>
UEM-6123	Posi3 USB Test Results – Complete SCBA Test	March 31, 2016
UEM-6123	Posi3 USB Test Results – Complete SCBA Test	February 13, 2017
UEM-6259	Posi3 USB Test Results – Complete SCBA Test	March 30, 2016
UEM-6259	Posi3 USB Test Results – Complete SCBA Test	February 14, 2017

Condition Reports (CRs)

CR-WF3-2016-03044	CR-WF3-2017-00011	CR-WF3-2017-00375	CR-WF3-2017-00678
CR-WF3-2017-04253	CR-WF3-2017-05533	CR-WF3-2017-06536	CR-WF3-2017-06758

71151 - Performance Indicator Verification

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
LO-WLO-2017-00068	Radiation Safety 71151 OR01 Occupational Exposure Control Effectiveness	November 29, 2017

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
W3F1-2017-0036	NRC Performance Indicator (PI) Data – 1 st Quarter 2017 ROP Data	April 12, 2017
W3F1-2017-0058	NRC Performance Indicator (PI) Data – 2 nd Quarter 2017 ROP Data	July 13, 2017

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
W3F1-2017-0076	NRC Performance Indicator (PI) Data – 3 rd Quarter 2017 ROP Data	October 6, 2017
W3F1-2018-0004	NRC Performance Indicator (PI) Data – 4 th Quarter 2017 ROP Data	January 9, 2018

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-LI-114	Regulatory Performance Indicator Process	9

71152 – Problem Identification and Resolution

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
White Paper	Cascading Technical Specifications During Emergency Diesel Generator Outages	February, 2018

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-LI-100	Process Applicability Determination Form	19
OP-100-014	Technical Specification and Technical Requirements Compliance	336, 337, 340

Condition Reports (CRs)

CR-WF3-2017-00780 CR-WF3-2017-00785

**Occupational Radiation Safety Inspection
Waterford-3
Dates of Inspection: January 22 – 26, 2018
Integrated Inspection Report 2018001**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **January 5, 2018**.

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

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

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

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

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

PAPERWORK REDUCTION ACT STATEMENT

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

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

Date of Last Inspection: 4/24/2017

- 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 4/24/2017, related to this inspection area
- D. Procedure indexes for the radiation protection procedures
- E. Please provide procedures related to the following areas noted below. Additional procedures may be requested by number after the inspector reviews the procedure indexes.
 - 1. Radiation Protection Program
 - 2. Radiation Protection Conduct of Operations, if not included in #1.
 - 3. Personnel Dosimetry
 - 4. Posting of Radiological Areas
 - 5. High Radiation Area Controls
 - 6. RCA Access Controls and Radiation Worker Instructions
 - 7. Conduct of Radiological Surveys
 - 8. Radioactive Source Inventory and Control
- F. List of corrective action documents (including corporate and sub-tiered systems) since 4/24/2017.
 - a. Initiated by the radiation protection organization
 - b. Assigned to the radiation protection organization

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.
- 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 all radioactive sources that are required to be leak tested. Indicate which sources are 10 CFR Part 20, Appendix E, Category 1 or Category 2. Please indicate the radioisotope, initial and current activity (w/assay date), and storage location for each applicable source.
- J. The last two leak test results for the Category 1 or 2 radioactive sources and any other radioactive source(s) that have failed its leak test within the last two years
- K. A list of any non-fuel items stored in the spent fuel pools, and if available, their appropriate dose rates (Contact / @ 30cm)

- L. A list of radiological controlled area entries greater than 100 millirem since 4/24/2017. The list should include the date of entry, some form of worker identification, the radiation work permit used by the worker, dose accrued by the worker, and the electronic dosimeter dose alarm set-point used during the entry (for Occupational Radiation Safety Performance Indicator verification in accordance with IP 71151).

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

Date of Last Inspection: 3/21/2016

- 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 3/21/2016 related to:
 - 1. Installed air filtration systems
 - 2. Self-contained breathing apparatuses
- D. Procedure index for:
 - 1. Use and operation of continuous air monitors
 - 2. Use and operation of temporary air filtration units
 - 3. Respiratory protection
- E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
 - 1. Respiratory protection program
 - 2. Use of self-contained breathing apparatuses
 - 3. Air quality testing for SCBAs
 - 4. Use of installed plant systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation
- F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since 3/21/2016, related to the Airborne Monitoring program including:
 - 1. Continuous air monitors
 - 2. Self-contained breathing apparatuses
 - 3. Respiratory protection program

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.
- G. List of SCBA qualified personnel - reactor operators and emergency response personnel
- H. Inspection records for self-contained breathing apparatuses (SCBAs) staged in the plant for use since 3/21/2016.
- I. SCBA training and qualification records for control room operators, shift supervisors, STAs, and OSC personnel for the last year.

A selection of personnel may be asked to demonstrate proficiency in donning, doffing, and performance of functionality check for respiratory devices
- J. List of respirators (available for use) by type (APR, SCBA, PAPR, etc.), manufacturer, and model.

WATERFORD STEAM ELECTRIC STATION, UNIT 3 – NRC INTEGRATED INSPECTION
 REPORT 05000382/2018001 DATED MAY 8, 2018

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