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

August 14, 2019

Mr. Eric Larson
Site Vice President
Entergy Operations, Inc.
Grand Gulf Nuclear Station
P.O. Box 756
Port Gibson, MS 39150

SUBJECT: GRAND GULF NUCLEAR STATION – INTEGRATED INSPECTION REPORT 05000416/2019002

Dear Mr. Larson:

On June 30, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Grand Gulf Nuclear Station. On July 11, 2019, 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.

The NRC inspectors documented one finding of very low safety significance (Green) in this report. The finding did not involve a violation of NRC requirements. Additionally, 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 of the Enforcement Policy.

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,” was performed during this inspection period to assess your evaluation of 10 previously issued violations in the area of impeding the regulatory process, and to assess the adequacy of associated corrective actions. Based on the results of this inspection, which are documented in the enclosed report, the NRC was not able to conclude that the actions taken were adequate to meet the inspection objectives. Therefore, additional inspection will be performed to continue this review under Inspection Procedure 92723 upon notification of your readiness. The additional Severity Level IV violation documented in the enclosed report, which is also in the area of impeding the regulatory process, will be included in the scope of this traditional enforcement follow-up inspection.

If you contest the violation or severity of the violation documented in this inspection report, 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 Grand Gulf.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC Resident Inspector at Grand Gulf.

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/***

Cale H. Young, Acting Chief
Reactor Project Branch C
Division of Reactor Projects

Docket No. 05000416
License No. NPF-29

Enclosure:
Inspection Report 05000416/2019002
w/attachment: Request for Information

cc w/encl: Distribution via LISTSERV®

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

| | |
|---|---|
| Docket Number: | 05000416 |
| License Number: | NPF-29 |
| Report Number: | 05000416/2019002 |
| Enterprise Identifier: | I-2019-002-0008 |
| Licensee: | Entergy Operations, Inc. |
| Facility: | Grand Gulf Nuclear Station |
| Location: | Port Gibson, MS |
| Inspection Dates: | April 1, 2019 to June 30, 2019 |
| Inspectors: | L. Carson, Senior Health Physicist<br>N. Day, Resident Inspector<br>D. Dodson, Senior Resident Inspector<br>P. Elkmann, Senior Emergency Preparedness Inspect<br>S. Hedger, Emergency Preparedness Inspector<br>W. Sifre, Senior Reactor Inspector<br>T. Steadham, Senior Resident Inspector<br>B. Tharakan, Senior Project Engineer<br>D. Reinert, Ph.D., Reactor Inspector |
| Approved By: | Cale H. Young, Acting Chief<br>Reactor Project Branch C<br>Division of Reactor Projects |

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at the Grand Gulf Nuclear Station 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.

### List of Findings and Violations

| Failure to Update the UFSAR | | | |
|---|---|---|---|
| Cornerstone | Severity | Cross-Cutting Aspect | Report Section |
| Not Applicable | Severity Level IV<br>NCV 05000416/2019002-01<br>Closed | Not Applicable | 71111.05Q |
| The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.71(e) for the licensee's failure to update the Updated Final Safety Analysis Report, Section 9A.5.<br><br>The inspectors identified over 20 discrepancies between the fire zone descriptions in the Updated Final Safety Analysis Report and the licensee's implementing documents, including Procedure 06-OP-SP64-R-0047, "Fire Rated Assembly Visual Inspection," Revision 116. The licensee periodically updated fire protection implementing procedures but did not update the Updated Final Safety Analysis Report, when needed, to reflect those changes. | | | |

| Failure to Follow Design Control Procedure | | | |
|---|---|---|---|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Initiating Events | Green<br>FIN 05000416/2019002-02<br>Closed | [H.6] - Design Margins | 71152 |
| A self-revealed, Green finding was identified when an actuation of the generator protection negative phase sequence trip caused a generator lockout and a reactor scram. The licensee failed to ensure that a recent change in the applicable trip setpoint was managed in accordance with Procedure EN-DC-115, "Engineering Change Process," Revision 21. The licensee failed to identify, evaluate, and manage a reduction in operating margin associated with the negative phase sequence trip setpoint. The setpoint was reduced from 9 percent to 5 percent as part of a digital upgrade modification; however, the licensee failed to fully evaluate the change. As a result, routine grid operations above 5 percent negative phase sequence were unmanaged and ultimately led to an unplanned reactor scram. | | | |

### Additional Tracking Items

| Type | Issue Number | Title | Report Section | Status |
|---|---|---|---|---|
| LER | 05000416/2019-001-00 | Automatic Reactor Shutdown due to Activation of Generator Lockout | 71153 | Closed |

## PLANT STATUS

Unit 1 began the inspection period at full power. On April 6, 2019, operators reduced power to approximately 56 percent for control rod pattern adjustments. Full power operation resumed on April 8, 2019. On April 9, 2019, to allow for repair of a high pressure feedwater heater leak, power was reduced to approximately 66 percent. Power was increased to approximately 94 percent on April 12, 2019, with the high pressure feedwater heaters isolated. On April 16, 2019, power was reduced to approximately 65 percent to perform power suppression testing. Following repairs to the feedwater heater and power suppression testing, the unit reached full power on April 21, 2019. On May 12, 2019, due to a significant loss of plant service water, operators manually shut down the unit. Following repairs to the plant service water electrical distribution system, the unit was started up on May 19, 2019, and full power was achieved on May 30, 2019. On June 26, 2019, in order to support replacement of a recirculation flow control valve controller, operators reduced power to approximately 96 percent. On June 27, 2019, the unit reached full power and remained at or near full power for the remainder of the 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 IMC2 515, 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 Sample (IP Section 03.03) (2 Samples)

(1) The inspectors evaluated readiness for impending adverse weather conditions for storms on April 13, 2019, and April 18, 2019;

(2) The inspectors evaluated readiness for impending adverse weather conditions for storms on May 9, 2019.

### 71111.04 - Equipment Alignment

#### Partial Walkdown Sample (IP Section 03.01) (3 Samples)

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

(1) Residual heat removal subsystem A after securing from shutdown cooling for startup on May 18, 2019;

(2) Control room air conditioning B following adjustment on capacity control valve on June 4, 2019;

(3) Recirculation system configuration due to inability to open recirculation flow control valve A on June 19, 2019.

71111.05A - Fire Protection (Annual)

Annual Inspection (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated fire brigade performance to a simulated fire in the Unit 2 switchgear room on May 2, 2019.

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (5 Samples)

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

(1) Fuel pool heat exchanger area, 185 feet auxiliary building, on May 1, 2019;
(2) Auxiliary building steam tunnel on May 15, 2019;
(3) Main control room on June 3, 2019;
(4) Division 1 switchgear room on June 4, 2019;
(5) Division 2 switchgear room on June 4, 2019.

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 02.02a.) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

(1) Division 2 switchgear room on May 4, 2019.

71111.07T - Heat Sink Performance

Triennial Review (IP Section 02.02) (3 Samples)

The inspectors evaluated heat exchanger/sink performance on the following:

(1) Division 2 emergency diesel generator jacket water cooler, Section 02.02b;
(2) Residual heat removal heat exchanger B, Section 02.02b;
(3) High pressure core spray room cooler, Section 02.02c.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (2 Samples)

(1) The inspectors observed and evaluated licensed operator performance in the control room during a downpower due to a steamleak in the high pressure feedwater heater 6B room on April 3, 2019;

(2) The inspectors observed and evaluated licensed operator performance in the control room during control rod withdrawal to reactor criticality and point of adding heat on May 18, 2019.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

(1) The inspectors observed and evaluated operator performance during a simulated suppression pool leak and loss of turbine building cooling water with an anticipated transient without scram on April 30, 2019.

71111.12 - Maintenance Effectiveness

Quality Control (IP Section 02.02) (1 Sample)

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

(1) Standby service water system on April 12, 2019.

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (6 Samples)

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

(1) Loading of Trinuke filters into cask washdown pit on April 1, 2019;

(2) High pressure core spray availability during the pump high pressure bypass surveillance on May 6, 2019;

(3) Protected system lineup with residual heat removal A in shutdown cooling on May 12, 2019;

(4) Plant service water pump power line insulator installation on May 16, 2019;

(5) Maintenance risk management during high grid demand conditions and Midcontinent Independent System Operator conservative operations declaration on June 4, 2019;

(6) Maintenance work control with plant service water pump D out of service on June 17, 2019.

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 02.02) (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

(1) Operability of standby service water A with indications of pipe wall thinning, Condition Report CR-GGN-2019-02975 on April 11, 2019;

(2) Operability of Division 1 emergency diesel generator due to loose lube oil heat exchanger bolts, Condition Reports CR-GGN-2019-03256 and CR-GGN-2019-03354 on April 26, 2019;

(3) Operability of residual heat removal B due to minimum flow valve response time, Condition Report CR-GGN-2019-03679 on May 7, 2019;

(4) Equipment qualification of outbound main steam line B drain valve due to exposed cable, Condition Reports CR-GGN-2019-03972 on May 17, 2019.

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

(1) Fire rated assembly visual inspection Procedure 06-OP-SP64-R-0047 revisions on April 1, 2019.

71111.19 - Post-Maintenance Testing

Post Maintenance Test Sample (IP Section 03.01) (8 Samples)

The inspectors evaluated the following post maintenance tests:

(1) Work Order 514019 to replace water accumulator for HCU 48-25 on April 6, 2019;

(2) Work Order 523523 to replace standby service water sparger C piping support on April 24, 2019;

(3) Troubleshooting replacement via CR-GGN-2019-03565, emergent replacement of Division 2 emergency diesel generator jacket water heater breaker on May 3, 2019;

(4) Work Order 450109 to install insulators on the plant service water electrical distribution overhead power lines on May 17, 2019;

(5) Work Order 524662 to replace solenoid and shuttle valve on outboard main steam isolation valve A on May 16, 2019;

(6) Work Order 522779 to adjust capacity control valve on June 17, 2019;

(7) Work Order 52871685 to inspect/clean inline suction filter media on June 17, 2019;

(8) Work Order 526901 to replace controller for recirculation system flow control valve A on June 24, 2019.

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated forced shutdown outage inspection activities on May 12, 2019.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (3 Samples)

(1) Work Order 52860862, high pressure core spray emergency diesel generator monthly functional test, on April 9, 2019;

(2) Work Order 52758695, Division 1 emergency diesel generator crankshaft deflection and thrust bearing test, on April 22, 2019;

(3) Turbine mechanical overspeed operability test per Procedure 06-OP-1N32-V-0002 on May 1, 2019.

71114.01 - Exercise Evaluation

Inspection Review (IP Section 02.01-02.11) (1 Sample)

The inspectors reviewed licensee drill and exercise performance between April 2017 and February 2019 and observed emergency response performance during the biennial emergency preparedness exercise conducted March 13, 2019. The inspectors also observed emergency response organization performance during a May 9, 2019, Operations Support Center drill, which was conducted because drill control issues prevented some key emergency response organization skills from being demonstrated during the March 2019 exercise. The inspectors participated in post-exercise public meetings conducted by Federal Emergency Management Agency (FEMA) Region VI on March 14, 2019, in Tensas Parish, Louisiana, and by FEMA Region IV on March 15, 2019, in Claiborne County, Mississippi.

(1) The March 13, 2019, exercise scenario simulated a tornado striking the plant switchyard, a failed emergency diesel generator, reactor coolant leakage into the drywell, and a unisolable steam leak on the reactor core isolation cooling system turbine.

## RADIATION SAFETY

71124.02 - Occupational ALARA Planning and Controls

Radiological Work Planning (IP Section 02.01) (1 Sample)

The inspectors evaluated the licensee's radiological work planning.

(1) The inspectors evaluated the licensee's radiological work planning by reviewing the following activities:

- RWP 2018-1400; RP/Decon Support for Refuel Floor;
- RWP 2018-1403: Rx Vessel Disassembly & Re-Assembly;
- RWP 2018-1511: General Maintenance in the Drywell RF21;
- RWP 2018-1513: AOV/MOV Valve Work in the Drywell;
- RWP 2018-1902: Ops Rounds; Surveillances, Tagouts and Tours;
- RWP 2018-1904: General Maintenance Activities & Support;
- RWP 2018-1908: AOV/MOV Program Valve Work, Votes, & Viper Test.

Verification of Dose Estimates and Exposure Tracking Systems (IP Section 02.02) (1 Sample)

The inspectors evaluated dose estimates and exposure tracking.

(1) The inspectors evaluated dose estimates and exposure tracking. The inspectors reviewed the following as low as reasonably achievable planning documents:

- RWP 2018-1400; RP/Decon Support for Refuel Floor;
- RWP 2018-1403: Rx Vessel Disassembly & Re-Assembly;
- RWP 2018-1511: General Maintenance in the Drywell RF21;
- RWP 2018-1513: AOV/MOV Valve Work in the Drywell;
- RWP 2018-1902: Ops Rounds; Surveillances, Tagouts and Tours;
- RWP 2018-1904: General Maintenance Activities & Support;
- RWP 2018-1908: AOV/MOV Program Valve Work, Votes, & Viper Test.

Additionally, the inspectors reviewed the following radiological outcome evaluations:

- RWP 2018-1400; RP/Decon Support for Refuel Floor;
- RWP 2018-1403: Rx Vessel Disassembly & Re-Assembly;
- RWP 2018-1511: General Maintenance in the Drywell RF21;
- RWP 2018-1513: AOV/MOV Valve Work in the Drywell;
- RWP 2018-1902: Ops Rounds; Surveillances, Tagouts and Tours;
- RWP 2018-1904: General Maintenance Activities & Support;
- RWP 2018-1908: AOV/MOV Program Valve Work, Votes, & Viper Test.

71124.04 - Occupational Dose Assessment

External Dosimetry (IP Section 02.02) (1 Sample)

(1) The inspectors evaluated the external dosimetry program implementation.

Internal Dosimetry (IP Section 02.03) (1 Sample)

The inspectors evaluated the internal dosimetry program implementation.

(1) The inspectors evaluated the internal dosimetry program implementation. The inspectors reviewed the following:

Whole Body Counts (WBCs)

- WBC No. 33580 04/23/18
- WBC No. 33201 04/06/19
- WBC No. 33043 04/12/18
- WBC No. 32447 05/04/18

In-Vitro Internal Monitoring

- In general, there were no in-vitro internal monitoring at Grand Gulf Nuclear Station from 2018 to 2019. However, in May 2018, one personnel contamination event resulted in WBCs with an assigned internal dose, and a diver provided a urine sample for tritium analysis.

Dose Assessments Performed Using Air Sampling and Derived Air Concentration-(DAC) Hour Monitoring

- During 2018 and as of June 5, 2019, Grand Gulf Nuclear Station has not needed to perform dose assessments using air sampling and DAC-hour monitoring.

Source Term Categorization (IP Section 02.01) (1 Sample)

(1) The inspectors evaluated the licensee's characterization of the source term and use of scaling factors for the use of hard-to-detect radionuclide activity.

Special Dosimetric Situations (IP Section 02.04) (1 Sample)

The inspectors evaluated the following special dosimetric situation:

(1) The inspectors evaluated special dosimetric situations. The inspectors reviewed the following:

Declared Pregnant Workers

- There were two declared pregnant workers at Grand Gulf Nuclear Station in 2018 and four declared pregnant workers as of June 5, 2019.

Effective Dose Equivalent Exposures (EDEX)

- EDEX multi-package No. MP374
- EDEX multi-package No. MP367
- EDEX multi-package No. MP366

- EDEX multi-package No. MP457
- EDEX multi-package No. MP437

Shallow Dose Equivalent

- During 2018 and as of June 5, 2019, Grand Gulf Nuclear Station has not needed to have any shallow-dose equivalent assessments performed.

Neutron Dose Assessment

- At Grand Gulf Nuclear Station, Landauer CR-39 dosimetry is used that are sensitive to fast neutrons and thermal neutrons. However, from 2018 to June 5, 2019, there have been no documented neutron exposures on Grand Gulf Nuclear Station's doses of legal record (DLRs); the lower limit of detection (LLD) is 40 mR.

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (1 Sample)

(1) January 1, 2018 - March 31, 2019

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (1 Sample)

(1) January 1, 2018 - March 31, 2019

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (1 Sample)

(1) April 1, 2018 - March 31, 2019

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

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

(1) Condition Report CR-GGN-2004-00786, corrosion on emergency diesel generator jacket cooling service water piping, on April 1, 2019;

(2) Condition Report CR-GGN-2019-01504, automatic reactor scram due to generator lockout, on May 30, 2019;

Semiannual Trend Review (IP Section 02.02) (1 Sample)

(1) The inspectors reviewed the licensee's corrective action program and maintenance program to identify trends that could be indicative of a more significant safety concern. The inspectors noted that for some work tasks, the work instructions

contained in the work authorizing document (such as a work order) contained minimal instructions on how to accomplish the intended task. As a result, craft personnel had to either identify the relevant procedures to use or rely heavily on skill-of-the-craft. While no findings were identified, the inspectors were concerned that the lack of thorough work instructions could contribute to human performance errors. Examples of work orders that the inspectors had concerns with include Work Order 52754394 and 00522779 as well as Condition Reports CR-GGN-2019-00202, 02092, 02399, 02639, and 04601.

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

Event Follow-up (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated the licensee's SCRAM response to a partial loss of plant service water on May 12, 2019.

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event reports (LERs):

(1) LER 05000416/2019-001-00, Automatic Reactor Shutdown due to Activation of Generator Lockout, (ADAMS Accession No. ML19112A058). As documented in the inspection results section below, the inspectors identified a Green finding associated with this event for the licensee's failure to follow the station procedures for design control. No additional findings were identified as a result of reviewing this LER. The inspectors also concluded that no violation of NRC requirements occurred.

**OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL**

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

From December 9, 2016, through February 7, 2019, the NRC issued 10 Severity Level IV traditional enforcement violations associated with impeding the regulatory process. These violations, which are listed below, were issued in the following NRC Inspection Reports:

- 05000416/2016007 (ADAMS Accession No. ML16348A222), dated December 9, 2016
- 05000416/2017002 (ADAMS Accession No. ML17220A152), dated August 3, 2017
- 05000416/2017007 (ADAMS Accession No. ML17339A154), dated December 1, 2017
- 05000416/2018004 (ADAMS Accession No. ML19038A437), dated February 7,2019

Specifically, the violations included:

(1) Failure to Obtain NRC Approval for Changes to the Reactor Protection System, NRC-identified NCV 05000416/2016007-02;

(2) Failure to Obtain NRC Approval for Changes to Diesel Generator Trips and Flood Mitigation Strategy, NRC-identified NCV 05000416/2016007-03;

(3) Failure to Evaluate Delaying Inspection of Diesel Fuel Oil Storage Tank, NRC-identified NCV 05000416/2016007-04;

(4) Failure to submit an annual effluent report in accordance with 10 CFR 72.44(d)(3); licensee-identified NCV documented in Inspection Report 05000416/2017002;

(5) Failure to report the results of the visual inspections of all accessible, susceptible locations of the steam dryer to the NRC staff within 60 days following startup in accordance with License Condition 2.C(46)(f), licensee-identified NCV documented in Inspection Report 05000416/2017002;

(6) Failure to submit a long-term steam dryer inspection plan based on industry operating experience along with the baseline inspection results for NRC review and approval in accordance with License Condition 2.C(46)(g), licensee-identified NCV documented in Inspection Report 05000416/2017002;

(7) Failure to notify the NRC within 4 hours of the occurrence of any event or condition that resulted in actuation of the reactor protection system when the reactor was critical in accordance with 10 CFR 50.72(b)(2)(iv)(B), licensee-identified NCV documented in Inspection Report 05000416/2017002;

(8) Failure to Update the Final Safety Analysis Report, NRC-identified NCV 05000416/2017007-04;

(9) Failure to make a timely event report for an event or condition that could have prevented fulfillment of a safety function (accident mitigation), licensee-identified NCV documented in Inspection Report 05000416/2018001;

(10) Failure to Update the Updated Final Safety Analysis Report, NRC-identified NCV 05000416/2018004-01.

In April 2019 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." The inspectors reviewed the licensee's cause evaluations and corrective actions associated with these issues in order to determine whether the licensee's actions met the Inspection Procedure 92723 inspection objectives, which include: (1) providing assurance that the cause(s) of multiple Severity Level IV traditional enforcement violations are understood by the licensee; (2) providing assurance that the extent of condition and extent of cause of multiple Severity Level IV traditional enforcement violations are identified; and (3) providing assurance that licensee corrective actions to traditional enforcement violations are sufficient to address the cause(s).

**INSPECTION RESULTS**

| Observation: Follow-up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period | 92723 |
|---|---|
| **Background**<br><br>The inspectors noted that from January 1 to December 31, 2013, the NRC issued three Severity Level IV traditional enforcement violations associated with impeding the regulatory process, as documented in Annual Assessment Letter 05000416/2013001 (ADAMS Accession No. ML14063A338), dated March 4, 2014. Inspection Procedure 92723 was performed in response to four Severity Level IV traditional enforcement violations, as | |

documented in Inspection Report 05000416/2014005 (ADAMS Accession No. ML15033A479), dated February 2, 2015. These violations involved accuracy and completeness of the Updated Final Safety Analysis Report, accuracy and completeness of information in the license renewal process, failure to report changes to the emergency plan, and failure to obtain a license amendment as required.

The inspectors also noted that from January 1 to December 31, 2015, the NRC issued seven Severity Level IV traditional enforcement violations associated with impeding the regulatory process, as documented in Annual Assessment Letter 05000416/2015006 (ADAMS Accession No. ML16061A361), dated March 2, 2016. Inspection Procedure 92723 was again performed in response to these Severity level IV traditional enforcement violations, as documented in NRC Inspection Report 05000416/2016003 (ADAMS Accession No. ML16315A372), dated November 10, 2016. These violations involved two failures to update the Final Safety Analysis Report; a failure to maintain a safety-related cable tray overfill analysis record; an incomplete and inaccurate response to NRC Bulletin 88-04; a failure to obtain a license amendment; and two failures to make required event notifications or reports.

Considering these facts, the inspectors sought to understand why failures to update the Final Safety Analysis Report, failures to make required reports, and failures to obtain license amendments were issues that have continued to be identified and documented as recently as 2019.

**Licensee Evaluation**

The inspectors reviewed the licensee's collective evaluations (completed at the "Condition Analysis" level) associated with the 10 CFR 50.59 issues and reporting issues, which included 10 CFR 50.71(e) and reporting issues. The inspectors also reviewed individual/combined evaluations associated with each of the 10 non-cited violations. The inspectors were not able to review in detail the latest revisions of the collective evaluation associated with Condition Report CR-GGN-2019-01002 (associated with 50.59 issues) and the adverse condition analysis associated with Condition Report CR-GGN-2018-01595 (associated with a late 8-hour notification) because preliminary versions of the evaluations were provided during the inspection. Evaluations reviewed included:

- CR-GGN-2019-01002, "50.59 Evaluations not Conducted as Required," which evaluated the causes of 10 CFR 50.59 related violations (three issues with four total examples). CR-GGN-2017-01483 had previously been completed to address this group of issues. The individual issues included within this collective evaluation were evaluated by the following cause evaluations:

    1. CR-GGN-2019-01007, dated March 14, 2019, which revised the licensee's evaluations associated with CR-GGN-2016-09757 (two revisions); these cause evaluations were associated with violation (3), as listed above.

    2. CR-GGN-2019-01185, dated March 20, 2019, which revised the licensee's evaluations associated with CR-GGN-2016-08298 (two revisions); these cause evaluations were associated with violations (1) and (2), as listed above.

- CR-GGN-2019-01003, "Failure to Submit Reports to the NRC," which evaluated the causes of failures to make reports to the NRC (five issues/examples) and failures to

update the Final Safety Analysis Report (two issues with four total examples). CR-GGN-2017-07970 had previously been completed to address this group of issues. The individual issues included within this collective evaluation were evaluated by the following cause evaluations:

1. CR-GGN-2017-03404, dated May 22, 2017, and later revised on March 1, 2019; this cause evaluation was associated with violations (5) and (6), as listed above

2. CR-GGN-2017-12284, dated February 20, 2018, and later revised on March 1, 2019; this cause evaluation was associated with violation (8), as listed above

3. CR-GGN-2018-01595, dated March 27, 2018, and later revised March 1, 2019; this cause evaluation was associated with violation (9), as listed above

4. CR-GGN-2019-01047, dated March 22, 2019; this cause evaluation was associated with violation (10), as listed above

5. CR-GGN-2019-01390, dated March 1, 2019, which elevated the level of evaluation of CR-GGN-2017-03092, which was documented on March 27, 2017, at the "C" significance level; these were associated with violation (4), as listed above

6. CR-GGN-2019-01391, dated March 14, 2019, which elevated the level of evaluation of CR-GGN-2017-03331, which was documented on April 4, 2017, at the "C" significance level; these were associated with violation (7), as listed above

**Assessment**

Considering all the cause evaluations and relevant condition reports the inspectors identified 16 examples where the responsible manager failed to ensure all available and relevant information was acquired by reviews of pertinent industry events in accordance with step 4[2]e of Procedure EN-LI-118, "Cause Evaluation Process," Revision 23. The licensee documented Condition Reports CR-GGN-2019-02684, CR-GGN-2019-02716, CR-GGN-2019-02733 to address these concerns. These examples included:

- Failure to review all relevant condition reports (such as CR-GGN-2015-05057) in the relevant internal operating experience section of the adverse condition analyses associated with CR-GGN-2019-01002 and CR-GGN-2019-01003

- Failure to review 17 relevant condition reports in the relevant internal operating experience section of the adverse condition analysis associated with CR-GGN-2017-12284

- Failure to include relevant internal operating experience detailed review attachments with the adverse condition analyses associated with CR-GGN-2017-12284, CR-GGN-2017-03404, CR-GGN-2019-01391, and CR-GGN-2018-01595

- Failure to perform internal operating experience repeat event reviews with the adverse condition analyses associated with CR-GGN-2018-01390, CR-GGN-2019-01047, and CR-GGN-2019-01391

- Failure to perform an adequate review of external operating experience with the adverse condition analyses associated with CR-GGN-2017-03404 and CR-GGN-2018-01390

- Failure to include relevant external operating experience detailed review attachments with the adverse condition analyses associated with CR-GGN-2017-12284, CR-GGN-2017-03404, CR-GGN-2019-01391, and CR-GGN-2018-01595

The inspectors also identified other issues during the review:

- The inspectors identified that Attachment 9.2, "UFSAR Change Process Flow Chart," of Procedure EN-LI-113-01, "Updated Final Safety Analysis Report Change Process," Revision 3, included numerous incorrect procedure step references. The licensee documented CR-GGN-2019-02674 to address the concern.

- The inspectors identified that a corrective action was not implemented to address a missed barrier identified as a factor in adverse condition analysis CR-GGN-2018-01595. This was associated with providing a procedure barrier to operators and licensing personnel when completing reportability evaluations. The licensee initiated CR-GGN-2019-02690 to address this observation.

- The licensee initiated CR-GGN-2019-02732 in response to the inspectors' questions on licensing basis document change request (LBDCR)/Updated Final Safety Analysis Report tracking not being defined.

**Conclusions**

The inspectors could not conclude that the inspection objectives were met because substantially relevant operating experience was not adequately considered and evaluated by the licensee when determining causes, extent of conditions, extent of causes, or corrective actions. Specifically, the inspectors identified that the conditions, scope, and causes associated with the two main collective evaluations and the previously performed root cause CR-GGN-2015-05057, which was associated with previous examples of incorrect maintenance of design and license basis documents, revealed substantive commonalities involving implementation and control of design change and license basis document changes; however, the CR-GGN-2015-05057 root cause analysis was not appropriately evaluated as relevant operating experience in the current evaluations. Corrective actions to prevent recurrence of root causes would be expected to prevent recurrence of the same performance deficiency.

Additionally, the licensee continues to identify LBDCR performance issues. Specifically, engineering changes with LBDCRs are still being evaluated to ensure all LBDCRs from 2000-2013 are appropriately tracked and coordinated. Also, a trend of incorrectly implemented LBDCRs during a software conversion is still being evaluated to determine causes and to ensure that conversion issues have been identified.

Finally, the inspectors could not conclude that the inspection objectives were met because the collective evaluations and additional causal analyses were being revised as of the completion of the inspection. As a result of this inspection, the licensee voluntarily determined that the conclusions of its collective evaluations needed to be reconsidered. The licensee planned to re-evaluate and revise its collective evaluations (CR-GGN-2019-01002 and CR-GGN-2019-01003) associated with the 10 violations and review the previous CR-GGN-2015-05057 root cause analysis to ensure that the causes, extent of conditions, extent of causes, and corrective actions were adequate. The licensee initiated CR-GGN-2019-02717 to document that adverse condition analyses associated with CR-GGN-2019-01002 and CR-GGN-2019-01003 did not adequately evaluate issues with configuration control of design and licensing basis documentation. The licensee informed the inspectors that a cause evaluation will be completed to address this concern.

| Failure to Update the UFSAR | | | |
|---|---|---|---|
| Cornerstone | Severity | Cross-Cutting Aspect | Report Section |
| Not Applicable | Severity Level IV<br>NCV 05000416/2019002-01<br>Closed | Not Applicable | 71111.05Q |

The inspectors identified a Severity Level IV, non-cited violation of 10 CFR 50.71(e) for the licensee's failure to update the Updated Final Safety Analysis Report, Section 9A.5.

The inspectors identified over 20 discrepancies between the fire zone description in the Updated Final Safety Analysis Report and the licensee's implementing documents, including Procedure 06-OP-SP64-R-0047, “Fire Rated Assembly Visual Inspection,” Revision 116. The licensee periodically updated fire protection implementing procedures but did not update the Updated Final Safety Analysis Report, when needed, to reflect those changes.

Description: While reviewing the fire rated assembly visual inspection criteria contained in Procedure 06-OP-SP64-R-0047, the inspectors identified discrepancies between the procedure and the Updated Final Safety Analysis Report (UFSAR), Section 9A.5. Specifically, the inspectors compared the fire barrier descriptions of 125 out of 266 fire zones described in UFSAR, Section 9A.5, with the surveillance requirements contained in Procedure 06-OP-SP64-R-0047. From this review, the inspectors identified discrepancies with 24 fire zones. The inspectors found that in some instances, the procedure classified various barriers as 3-hour fire barriers required by the technical requirements manual, while the UFSAR described them as non-rated barriers.

For example, Procedure 06-OP-SP64-R-0047 described the ceiling as a fire-rated barrier for Fire Zones 1A115 and 1A116 that was required to remain functional per the technical requirements manual. Fire Zones 1A115 and 1A116 both included the ceiling as a required barrier in the procedure because the ceiling interfaces with a fire zone in a different fire area; however, the UFSAR descriptions for Fire Zones 1A115 and 1A116 both stated that the ceiling is a non-rated barrier in those fire zones. Likewise, the west walls for Fire Zones 1A130 and 1A131 separated these zones from a different fire area and were described as required fire barriers in Procedure 06-OP-SP64-R-0047; however, the UFSAR stated that these walls were not rated barriers.

While reviewing the revision history of this procedure, the inspectors learned that the licensee had previously identified numerous discrepancies with this procedure and documented the issues in Condition Report CR-GGN-2000-00585 on April 28, 2000. Corrective actions

included revising the procedure to reflect the fire barriers required to remain operable per Technical Requirements Manual 6.2.8, but the licensee did not ensure that the UFSAR was revised to remain consistent with the procedure.

Corrective Actions: The licensee performed an apparent cause analysis and initiated a review to identify all discrepancies between the UFSAR and Procedure 06-OP-SP64-R-0047. Corrective actions planned included evaluating all the identified discrepancies and revising the procedure and/or the UFSAR as warranted by the nature of each discrepancy.

Corrective Action References: The licensee entered the issue into their corrective action program as Condition Report CR-GGN-2019-02719, 2019-02427, and 2019-02471

Performance Assessment: The inspectors determined this violation was associated with a minor performance deficiency.

Enforcement: 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.

Severity: This violation was determined to be Severity Level IV in accordance with the NRC Enforcement Policy, Example 6.1.d.3. The inspectors determined that there was a material impact on safety or licensed activities because if utilized, lack of up-to-date information in the UFSAR could have a nonconservative impact on design analyses.

Violation: As required by 10 CFR 50.71, "Maintenance of Records, Making of Reports," Section (e), "Each person licensed to operate a nuclear power reactor shall update periodically the Final Safety Analysis Report originally submitted as part of the application for the license, to assure that the information included in the report contains the latest information developed. This submittal shall contain all the changes necessary to reflect information and analyses submitted to the Commission by the applicant or licensee or prepared by the applicant or licensee pursuant to Commission requirement since the submittal of the original or the last update to the Final Safety Analysis Report." Contrary to the above, since April 28, 2000, the licensee did not update the Final Safety Analysis Report to assure that the information included in the report contains the latest information developed. Specifically, the licensee failed to update the Final Safety Analysis Report with the most up-to-date fire barrier descriptions both during and after the resolution of Condition Report CR-GGN-2000-00585.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

| Failure to Follow Design Control Procedure | | | |
|---|---|---|---|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Initiating Events | Green<br>FIN 05000416/2019002-02<br>Closed | [H.6] - Design Margins | 71152 |

A self-revealed, Green finding was identified when an actuation of the generator protection negative phase sequence trip caused a generator lockout and a reactor scram. The licensee failed to ensure that a recent change in the applicable trip setpoint was managed in accordance with Procedure EN-DC-115, "Engineering Change Process," Revision 21. The

licensee failed to identify, evaluate, and manage a reduction in operating margin associated with the negative phase sequence trip setpoint. The setpoint was reduced from 9 percent to 5 percent as part of a digital upgrade modification; however, the licensee failed to fully evaluate the change. As a result, routine grid operations above 5 percent negative phase sequence were unmanaged and ultimately led to an unplanned reactor scram.

Description: On February 23, 2019, an automatic reactor scram occurred as a result of a turbine trip. The licensee determined that a generator lockout caused the turbine trip and that the generator lockout was caused when the generator negative phase sequence protection portion of the generator protective relays 1N41M711A/B and 1N41M712A/B actuated. The relays actuated when the generator phase unbalance exceeded the trip setpoint of 5 percent. The licensee entered the issue in their corrective action program as Condition Report CR-GGN-2019-01504.

In February 1981, the generator negative phase sequence setpoint was determined to be 9 percent as documented in Calculation PR0204, Revision 0. Although the calculation determined that a setpoint of 5 percent was acceptable, physical device limitations precluded the setpoint to be set any lower than 9 percent. This setpoint was revisited on May 5, 2012, when Revision 2 to Calculation PR0204 was issued as part of Engineering Change (EC) 20838. As part of this calculation, the trip threshold was retained at 9 percent based on industry guidance and previous settings.

In May 2016, the licensee initiated a project to upgrade the analog generator protective relaying scheme to digital. The licensee hired a contractor to perform the engineering change as documented in EC 67304 using the licensee's change control program and procedures. As a part of this modification, Calculation EC-N1N41-17001 determined that the negative phase sequence trip setpoint should be changed to 5 percent; however, there was no discussion or evaluation on the effects that reducing the setpoint from 9 percent to 5 percent would have on operating margin. Had the licensee thoroughly reviewed the setpoint change, operating experience available at the time would have identified that the local electrical grid is routinely operated at greater than 5 percent unbalance. Such a review would have prompted a more thorough evaluation of the impacts of lowering the setpoint to a value that could routinely be exceeded during normal power operations.

At the time EC 67304 was issued, licensee Procedure EN-DC-115, "Engineering Change Process," Revision 21, required that the responsible engineer describe the impact on plant operating margins. One of the impact screening criteria in Attachment 9.4 of Procedure EN-DC-115 included, "Change protective relay settings, generator exciter or Automatic Voltage Regulator (AVR) settings." Although this box was checked in conjunction with the licensee's implementation of EC 67304, the inspectors could find neither an evaluation for the effects of changing this setpoint nor an evaluation for the effects of a reduced operating margin as a result of the setpoint reduction.

The licensee performed a root cause evaluation and concluded that the root cause was that engineering leadership did not ensure standards and expectations for adherence to a systematic and rigorous configuration change process were met to maintain operating margins and achieve an acceptable result to prevent an unplanned scram. Contributing causes were determined to be the failure of electrical design engineers to follow the configuration control process as described in Procedure EN-DC-115.

The licensee determined, based on previous operating experience and equipment limitations, that a setpoint of 9 percent was acceptable to provide an adequate level of protection to the

generator equipment while still maintaining an acceptable operational margin to prevent spurious trips on generator negative phase sequence from normal grid operating conditions. As a result, the licensee issued EC 81801 to change the trip setpoint back to 9 percent, which was completed under Work Order 00519151 on February 27, 2019.

Corrective Actions: Licensee corrective actions included performing a root cause evaluation, which resulted in procedure changes and training of applicable engineering staff. The negative phase setpoint was changed back to 9 percent.

Corrective Action References: The licensee entered the issue into their corrective action program as Condition Report CR-GGN-2019-01504.

Performance Assessment:

Performance Deficiency: The licensee's failure to follow the configuration control process as described in licensee Procedure EN-DC-115 is a performance deficiency. Because the licensee did not effectively evaluate the impact of reducing generator protective relay setpoints, operating margins were not managed as required by Procedure EN-DC-115.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control attribute of the Initiating Events cornerstone. Specifically, the performance deficiency contributed to an unplanned automatic reactor scram.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Specifically, because the finding only caused a reactor trip but not the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition, the finding was determined to be of very low safety significance (Green).

Cross-Cutting Aspect: H.6 - Design Margins: The organization operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defense-in-depth, and safety related equipment. Specifically, the licensee failed to carefully guard margins and did not employ a systematic and rigorous process to control operational margins when developing, reviewing, approving, and implementing EC 67304.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

## EXIT MEETINGS AND DEBRIEFS

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

- On July 11, 2019, the inspectors presented the integrated inspection results to Mr. E. Larson, Site Vice President, and other members of the licensee staff.

- On March 15, 2019, the inspectors presented the onsite inspection week debrief to Mr. T. Burnett, Director, Corporate Emergency Preparedness, Entergy, and other members of the licensee staff.

- On April 25, 2019, the inspectors presented the Inspection Procedure 92723 results to Mr. E. Larson, Site Vice President, and other members of the licensee staff.

- On May 30, 2019, the inspectors presented the emergency preparedness exercise inspection results to Mr. E. Larson, Site Vice President, and other members of the licensee staff.

- On June 7, 2019, the inspectors presented the radiation protection inspection results to Mr. E. Larson, Site Vice President, and other members of the licensee staff.

- On July 1, 2019, the inspectors presented the heat sink performance inspection results to Mr. M. Lingenfelter, Director Engineering, and other members of the licensee staff.

**THIRD PARTY REVIEWS**

Inspectors reviewed Institute on Nuclear Power Operations reports that were issued during the inspection period.

**DOCUMENTS REVIEWED**

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| 71111.07T | Calculations | 707752 | Air Handling Unit, Pump Room Cooler – Vane Axial Fan | A |
| | | MC-Q1E12-10001 | Water Hammer Analysis of the RHR System | 0 |
| | | MC-Q1P41-11001 | GGNS Standby Service Water Ultimate Heat Sink Thirty Day Performance at EPU | 0 |
| | | MC-Q1P41-12001 | SSW Dynamic Venting (CR-GGN-2011-8690 and LO-GLO-2011-0055) | 0 |
| | | MC-Q1P41-87215 | Evaluation of Low SSW (P41) Flow to the Standby Diesel Jacket Water Cooler | 1 |
| | | MC-Q1P41-97020 | Determination of Minimum Allowable SSW Flows (LOCA Lineup) to Safety Related Heat Exchangers | 14 |
| | | MC-Q1P41-99031 | Standby Service Water Flow Evaluation | 0 |
| | Drawings | C-6024 | Location of Settlement Markers and Permanent Bench Marks, Unit 1 | 1 |
| | | E12-B001 | Envelope heat Exchanger – Residual Heat Removal System | 1 |
| | Engineering Changes | 0000040821 | Justification of Plugging 10% Tubes on the Diesel Generator Jacket Water Cooler (1P75B004A/B) for CR-GGN-2012-12060 | 11/02/2012 |
| | | 0000063673 | Evaluate for Minimum RHR Tube Wall Thickness and Maximum Number of Allowed Plugged Tubes | 03/21/2016 |
| | | 0000081755 | Acceptance of Entergy Grand Gulf Failure Analysis Water Pipe System Final Report from SI | 02/21/2019 |
| | Miscellaneous | 04-1-02-1H13-P864 | Alarm Response Instruction Panel NO: 1H13-P864 | 033 |
| | | 08-S-03-10 | Chemistry Sampling Program | 056 |
| | | 460000403 | Ceramic Cooling Tower Company – Standby Service Water Cooling Towers | 300 |
| | | 460000450 | Transamerica Delaval Instruction Manual Volume 1, model DSRV-16-4 Diesel Engine/Generator | 07/17/1980 |
| | | 460000503 | Joy Nuclear Non-Containment Axivane Fan Operators Handbook | 11/22/2002 |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | | CCE 202006-0002 | Commitment Change Evaluation – AECM-90/007 | 05/25/2004 |
| | | CCE 202006-0002 | Commitment Change Evaluation – AECM-90/007 | 05/02/2006 |
| | | CCE 202006-0004 | Commitment Change Evaluation – AECM-90/007 | 10/19/2006 |
| | | GEK-83280 | Operation and Maintenance Instructions – Residual Heat Removal System Heat Exchangers | 10/26/2005 |
| | | GNRO-2008/00044 | Report of 10CFR50.59 Evaluations and Commitment Changes April 1, 2007 through March 31, 2008 | 05/19/2008 |
| | NDE Reports | 52749571.01 | Eddy Current Inspection of DGJW P75B004B | 02/25/2019 |
| | | 52749571.01 | Eddy Current Inspection of DGJW P75B004B | 02/05/2019 |
| | | BOP-UT-15-001 | UT Thickness Examination, ¾"-HBC-358, MIC-101B-116-059 | 04/27/2015 |
| | | BOP-UT-15-004 | UT Thickness Examination, HBC-155 Pipping, MIC-1061B-098-101 | 10/25/2015 |
| | | BOP-UT-15-005 | UT Thickness Examination, ¾" HBC-154 Pipping, MIC-1061B-092-022 | 07/01/2015 |
| | | BOP-UT-15-006 | UT Thickness Examination, ¾" HBD-252 Drain Pipping, MIC-1061B-093-103 | 07/01/2015 |
| | | BOP-UT-15-010 | UT Thickness Examination, Line 2" HBC-94, MIC-1061C-075-024 | 11/25/2015 |
| | | BOP-UT-15-011 | UT Thickness Examination, Line 1" HBC-96, MIC-1061C-161-005 | 10/25/2015 |
| | | BOP-UT-15-014 | UT Thickness Examination, ¾" HBC-087, MIC-1061B-314-095 | 10/25/2015 |
| | | BOP-UT-15-018 | UT Thickness Examination, 4" HBC-173, MIC-M1358K-057 | 10/25/2015 |
| | | BOP-UT-19-001 | UT Thickness Examination, 10" HBC-87 Down Stream of 1P41F023A, 1P41 Standby Service Water | 01/07/2019 |
| | | BOP-UT-19-008 | UT Thickness Examination, 10"-HBC-86-Elbow Downstream of 1P41F018A, 1P41 Standby Service Water | 04/25/2019 |
| | | BOP-VE-16-032 | Eddy Current Examination, RHR Heatexchanger | 03/02/2016 |
| | | BOP-VE-16-033 | Eddy Current Examination, RHR Heatexchanger | 03/02/2016 |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | Operability Evaluations | 06-OP-1P41-Q-0004 | Standby Service Water Loop A Valve and Pump Operability Test | 128 |
| | Procedures | 04-1-01-P41-1 | Standby Service Water System | 146 |
| | | 04-1-02-1H13-P601 | Alarm Response Instruction Panel No.: 1H13-P601 | 166 |
| | | 04-1-02-1H13-P870 | Alarm Response Instruction, Panel No. 1H13-P870 | 156 |
| | | 04-1-02-1H13-P870 | Alarm Response Instruction Panel NO: 1H13-P870 | 156 |
| | | 05-1-02-III-1 | Inadequate Decay Heat Removal | 046 |
| | | 06-OP-1P41-O-0001 | Standby Service Water Loop Siphon Line Operability Test | 102 |
| | | 06-OP-1P41-Q-0005 | Standby Service Water Loop B Valve and Pump Operability Test | 125 |
| | | 07-S-07-211 | Service Level 1 Coating Assessment | 002 |
| | | 08-S-03-14 | Chemical Additions to Plant Systems | 026 |
| | | 08-S-03-28 | SSW Emergency Water Treatment Guide | 001 |
| | | 08-S-04-120 | Chemistry Evolution at Standby Service Water | 017 |
| | | 17-S-03-29 | Generic Letter 89-13 Thermal Performance Data Collection and Analysis | 007 |
| | | CEP-WP-RBMD-1 | Repair of Base Material Defects | 002 |
| | | EN-DC-150 | Condition Monitoring of Maintenance Rule Structures | 014 |
| | | EN-DC-184 | NRC Generic Letter 89-13 Service Water Program | 006 |
| | | EN-DC-316 | Heat Exchanger Performance and Condition Monitoring | 011 |
| | | EN-EP-S-039-G | Testing Standard for Safety-Related Heat Exchangers Cooled by Standby Service Water | 005 |
| | | EN-LI-100 | Process Applicability Determination | 011 |
| | | EN-LI-100 | Process Applicability Determination | 026 |
| | | EN-LI-101 | 10 CFR 50.59 Evaluations | 009 |
| | | EN-LI-101 | 10 CFR 50.59 Evaluations | 017 |
| | | EN-OP-104 | Operability Determination Process | 016 |
| 71114.01 | Corrective Action | CR-GGN- | 2017-001874, 2017-001917, 2017-003233, 2017-003312, | |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | Documents | | 2017-003314, 2017-003687, 2017-003688, 2017-003906, 2017-004066, 2017-004067, 2017-004068, 2017-004133, 2017-006065, 2017-006802, 2017-006839, 2017-008121, 2017-008218, 2017-009814, 2017-010467, 2017-010730, 2017-010737, 2017-011841, 2017-011845, 2017-012598, 2017-012695, 2018-000429, 2018-001636, 2018-002759, 2018-002805, 2018-011059, 2018-011061, 2018-011077, 2018-012401, 2019-000501, 2019-000988, 2019-001023, 2019-001201, 2019-002014, 2019-002075, 2019-002190, 2019-002364, 2019-002369, 2019-002371, 2019-002375, 2019-002494 | |
| | Drawings | E-0300 | 34.5KV Substations (Units 1&2) Location Plan | 2 |
| | Miscellaneous | | Grand Gulf Nuclear Station Emergency Plan | 76, 77, 78 |
| | | | GGNS Repair Team Demonstration Controller-Evaluator Manual | 5/9/2019 |
| | | 2018-00221 | GGN 2018 November 14 Blue Team ERO Training Drill Report | 12/12/2018 |
| | | EN-TQ-125 | Fire Drill Scenario of 12-2-2018 | 2/3/2018 |
| | | GGNS-EP-2018HPDRILL-A | Onsite Health Physics Drill Report | 7/20/2018 |
| | Procedures | 01-S-10-3 | Emergency Planning Department Responsibilities | 24 |
| | | 10-S-01-1 | Activation of the Emergency Plan, Revision 129 | 3/5/2019 |
| | | 10-S-01-11 | Evacuation of Onsite Personnel, Revision 26 | 10/24/2017 |
| | | 10-S-01-12 | Radiological Assessment and Protective Action Recommendations, Revision 47 | 11/7/ 2017 |
| | | 10-S-01-17 | Emergency Personnel Exposure Control, Revision 19 | 6/17/2011 |
| | | 10-S-01-20 | Administration of Thyroid Blocking Agents, Revision 16 | 1/7/2015 |
| | | 10-S-01-26 | Offsite Emergency Response, Revision 14 | 10/15/2013 |
| | | 10-S-01-35 | Core Damage Assessment, Revision 6 | 8/9/2012 |
| | | 10-S-01-38 | Equipment Important to Emergency Response, Revision 5 | 5/2/2017 |
| | | 10-S-01-5 | Control of Emergency Response Equipment and Facilities, Revision 17 | 3/13/2018 |
| | | 10-S-01-6 | Notification of Offsite Agencies and Plant On-Call Emergency Personnel, Revision 56 | 1/10/2018 |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | | EN-EP-306 | Drills and Exercises, Revision 9 | 12/14/2017 |
| | | EN-EP-308 | Emergency Planning Critiques, Revision 5 | 5/11/2017 |
| | | EN-EP-310 | Emergency Response Organization Notification System, Revision 7 | 1/17/2019 |
| | | EN-EP-313 | Offsite Dose Assessment Manual using the Unified RASCAL Interface, Revision 2 | 3/31/2016 |
| | | EN-EP-609 | Emergency Operations Facility Operations, Revision 6 | 11/15/2018 |
| | | EN-EP-610 | Technical Support Center Operations, Revision 4 | 9/27/2017 |
| | | EN-EP-611 | Operations Support Center Operations, Revision 5 | 9/27/2017 |
| | | EN-EP-801 | Emergency Response Organization, Revision 16 | 11/30/2018 |
| | | EN-FAP-EP-013 | Emergency Preparedness Program Maintenance, Revision 2 | 3/29/2018 |
| 71124.02 | Corrective Action Documents | CR-GGN- | 2018-00330, 2018-00524, 2018-03376, 2018-03442, 2018-03535, 2018-03571, 2018-04065, 2018-04681, 2018-06442, 2018-07122, 2018-08989 | |
| | Miscellaneous | | 2017 Annual Radiation Protection Report | |
| | | RF-21 | GGNS Refueling Outage 21: 4/7/18 - 7/19/18, 103 Days | 8/2018 |
| | Procedures | EN-RP-105 | Radiation Work Permits | 15 |
| | | EN-RP-110 | ALARA Program | 14 |
| | | EN-RP-110-01 | ALARA Deferral Initiatives | 1 |
| | | EN-RP-110-02 | Elemental Cobalt Sampling | 0 |
| | | EN-RP-110-03 | Collective Radiation Exposure Reduction Guidelines | 4 |
| | | EN-RP-110-04 | Radiation Protection Risk Assessment Process | 7 |
| | | EN-RP-110-06 | Outage Dose Estimating and Tracking | 1 |
| | Self-Assessments | LO-GLO-2018-0127 | Pre-NRC Inspection IP71124.02 ALARA Planning & Controls | 09/23/18 |
| 71124.04 | Corrective Action Documents | CR-GGN- | 2018-03246, 2018-04298, 2018-04644, 2018-06062, 2018-06432, 2018-06460, 2018-06616, 2019-03504, | |
| | Miscellaneous | 2018 | RBS Dose by Department | 12/31/18 |
| | | 2019 | RBS Dose by Department | 05/30/19 |
| | Procedures | EN-RP-131 | Air Sampling | 16 |
| | | EN-RP-201 | Dosimetry Administration | 5 |
| | | EN-RP-202 | Personnel Monitoring | 5 |
| | | EN-RP-203 | Dose Assessment | 10 |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | | EN-RP-204-01 | Effective Dose Equivalent (EDEX) Monitoring | 3 |
| | | EN-RP-205 | Prenatal Monitoring | 3 |
| | | EN-RP-206 | Dosimeter of Legal Record Quality Assurance | 6 |
| | | EN-RP-208 | Whole Body Counting/In-Vitro Bioassay | 7 |
| | Self-Assessments | 2017 | 2017 Evaluation of Internal Dose Monitoring | |
| | | 2017 | On-Site Assessment of Landauer | 08/25/17 |
| | | LO-LGO-0178 | Pre-NRC Inspection IP71124.04 Dose Assessment | |
| 71152 | Calculations | EC-N1N41-17001 | Generator Protection | 0 |
| | | PR0204 | Generator Negative Sequence Protection | 2 |
| | Corrective Action Documents | CR-GGN- | 2019-01504 | |
| | Engineering Changes | EC-20838 | GGN EPU Main Generator Replacement | |
| | | EC-67304 | Main Generator and Transformer Relay Protection | |
| | | EC-81801 | Main Generator and Transformer Relay Protection | |
| | Procedures | EN-DC-115 | Engineering Change Process | 21 |
| | | EN-DC-156 | Technical and Quality Requirements for Engineering Contracted Services | 13 |
| | Work Orders | WO | 519151 | |
| 71153 | Corrective Action Documents | CR-GGN- | 2017-12299, 2017-12314, | |
| | Miscellaneous | LER 2017-007-00 | Engineered Safety Feature System Actuations due to the Loss of Engineered Safety Features Transformer 11 | 2/5/18 |
| | | LER 2017-007-01 | Engineered Safety Features System Actuations due to the Loss of Engineered Safety Features Transformer 11 | 12/12/18 |
| 92723 | Corrective Action Documents | | CR-HQN-2017-1356 | |
| | | | CR-WF3-2019-3425 | |
| | | CR-GGN- | 2014-03335, 2014-05539, 2015-05057, 2016-08295, 2016-08298, 2016-08327, 2016-08328, 2016-08329, 2016-09755, 2016-09756, 2016-09757, 2017-01483, 2017-03092, 2017-03101, 2017-03331, 2017-03404, 2017-07970, 2017-09154, 2017-09747, 2017-12284, 2018-01595, 2018-04199, 2019-00232, 2019-00625, 2019-01002, 2019-01003, 2019-01007, 2019-01047, 2019-01179, 2019-01185, 2019-01306, 2019-01390, 2019-01391, 2019-01916, 2019-01917, 2019-01919, | |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | | | 2019-01977, 2019-02077, 2019-02103, 2019-02417, 2019-02441, 2019-02442, 2019-02458, 2019-02491, 2019-02493, 2019-02674, 2019-02684 | |
| | Procedures | 08-S-08-5 | Plant Operations Manual Volume 8 – Environmental Procedure Environmental Reporting | 111 |
| | | EN-CY-100 | Conduct of Chemistry | 0 |
| | | EN-CY-100 | Conduct of Chemistry | 1 |
| | | EN-DC-114 | Project Management | 16 |
| | | EN-DC-115 | Engineering Change Process | 26 |
| | | EN-DC-126 | Engineering Calculation Process | 8 |
| | | EN-DC-132 | Control of Engineering Documents | 8 |
| | | EN-DC-147 | Engineering Reports | 7 |
| | | EN-DC-149 | Acceptance of Vendor Documents | 14 |
| | | EN-HU-101 | Human Performance Program | 20 |
| | | EN-LI-100 | Process Applicability Determination | 25 |
| | | EN-LI-101 | 10 CFR 50.59 Evaluations | 17 |
| | | EN-LI-102 | Corrective Action Program | 27 |
| | | EN-LI-102 | Corrective Action Program | 28 |
| | | EN-LI-102 | Corrective Action Program | 36 |
| | | EN-LI-103 | Operating License Amendments | 11 |
| | | EN-LI-106 | NRC Correspondence | 19 |
| | | EN-LI-112 | 10 CFR 72.48 Evaluations | 13 |
| | | EN-LI-113 | Licensing Basis Document Change Process | 17 |
| | | EN-LI-113-01 | Updated Final Safety Analysis Report Change Process | 3 |
| | | EN-LI-123 | NRC Inspection Support | 9 |
| | | FWKB-CM-EFFLUENT | Effluent Specialist Workbook | 1 |

**The following items are requested for the:**

**Occupational Radiation Safety Inspection**
**Integrated Report 2019-002**
**at**
**Grand Gulf Nuclear Station**
**(June 3 -6, 2019)**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **May 23, 2019**

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.0**1** 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 Louis Carson at (817)200-1221, Louis.Carson@nrc.gov.

**2. Occupational ALARA Planning and Controls (71124.02)**
Date of Last Inspection: April 23, 2018

A. List of contacts and telephone numbers for ALARA program personnel

B. Applicable organization charts

C. Copies of audits, self-assessments, and LERs, written since date of last inspection, focusing on ALARA

D. Procedure index for ALARA Program

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. ALARA Program
2. ALARA Committee
3. Radiation Work Permit Preparation

F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, related to the ALARA program. In addition to ALARA, the summary should also address Radiation Work Permit violations, Electronic Dosimeter Alarms, and RWP Dose Estimates

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 work activities greater than 1 rem, since date of last inspection
Include original dose estimate and actual dose.

H. Site dose totals and 3-year rolling averages for the past 3 years (based on dose of record)

I. Outline of source term reduction strategy

J. If available, provide a copy of the ALARA outage report for the *most recently* completed outages for each unit

K. Please provide your most recent Annual ALARA Report.

**4. Occupational Dose Assessment (Inspection Procedure 71124.04)**

Date of Last Inspection: November 21, 2016

A. List of contacts and telephone numbers for the following areas:

1. Dose Assessment personnel

B. Applicable organization charts

C. Audits, self-assessments, vendor or NUPIC audits of contractor support, and LERs written since date of last inspection, related to:

1. Occupational Dose Assessment

D. Procedure indexes for the following areas:

1. Occupational Dose Assessment

E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.

1. Radiation Protection Program
2. Radiation Protection Conduct of Operations
3. Personnel Dosimetry Program
4. Radiological Posting and Warning Devices
5. Air Sample Analysis
6. Performance of High Exposure Work
7. Declared Pregnant Worker
8. Bioassay Program

F. List of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, associated with:

1. National Voluntary Laboratory Accreditation Program (NVLAP)
2. Dosimetry (TLD/OSL, etc.) problems

3. Electronic alarming dosimeters

4. Bioassays or internally deposited radionuclides or internal dose

5. Neutron dose

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 positive whole body counts since date of last inspection, names redacted if desired

H. Part 61 analyses/scaling factors

I. The most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report or, if dosimetry is provided by a vendor, the vendor's most recent results

**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.

GRAND GULF NUCLEAR STATION – INTEGRATED INSPECTION REPORT
05000416/2019002 - August 14, 2019

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