



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION IV  
1600 E. LAMAR BLVD.  
ARLINGTON, TX 76011-4511

January 18, 2017

Mr. William F. Maguire  
Site Vice President  
Entergy Operations, Inc.  
River Bend Station  
5485 U.S. Highway 61N  
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION – NRC INTEGRATED INSPECTION  
REPORT 05000458/2016004

Dear Mr. Maguire:

On December 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station, Unit 1. On January 10, 2017, 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 did not identify any finding or violation of more than minor significance.

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, and Requests for Withholding."

Sincerely,

/RA/

Gregory G. Warnick, Chief  
Project Branch C  
Division of Reactor Projects

Docket No.: 05000458  
License No.: NPF-47

Enclosure:  
Inspection Report 05000458/2016004  
w/Attachment: Supplemental Information

SUBJECT: RIVER BEND STATION – NRC INTEGRATED INSPECTION  
REPORT 05000458/2016004

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000458

License: NPF-47

Report: 05000458/2016004

Licensee: Entergy Operations, Inc.

Facility: River Bend Station

Location: 5485 U.S. Highway 61N  
St. Francisville, LA 70775

Dates: October 1 through December 31, 2016

Inspectors: J. Sowa, Senior Resident Inspector  
B. Parks, Resident Inspector  
T. Sullivan, Acting Resident Inspector  
B. Larson, Senior Operations Engineer  
S. Hedger, Operations Engineer  
M. Bloodgood, Operations Engineer  
E. Cushing, Nuclear Engineer, Inspector U/I

Approved By: G. Warnick, Chief  
Project Branch C  
Division of Reactor Projects

## **SUMMARY**

IR 05000458/2016004; 10/01/2016 – 12/31/2016; River Bend Station; Integrated Inspection Report

The inspection activities described in this report were performed between October 1 and December 31, 2016, by the resident inspectors at River Bend Station and inspectors from the NRC's Region IV office and other NRC offices. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

No findings were identified.

## PLANT STATUS

River Bend Station began and ended the inspection period at 100 percent reactor thermal power with no significant departures from full power.

## REPORT DETAILS

### 1. REACTOR SAFETY

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

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

##### Readiness for Seasonal Extreme Weather Conditions

##### a. Inspection Scope

On November 30, 2016, the inspectors completed an inspection of the station's readiness for seasonal extreme weather conditions. The inspectors reviewed the licensee's adverse weather procedures for seasonal low temperatures and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to the onset of freezing weather, the licensee had corrected weather-related equipment deficiencies identified during the previous seasonal extreme cold weather season.

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

- Emergency diesel generators
- Reactor core isolation cooling
- High pressure core spray

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

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

##### b. Findings

No findings were identified.

## **1R04 Equipment Alignment (71111.04)**

### Partial Walkdown

#### a. Inspection Scope

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

- October 5, 2016, Division I standby liquid control
- October 17, 2016, Division II residual heat removal
- October 19, 2016, reactor core isolation cooling

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

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

#### b. Findings

No findings were identified.

## **1R05 Fire Protection (71111.05)**

### Quarterly Inspection

#### a. Inspection Scope

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

- October 12, 2016, diesel generator A and diesel generator A control room, fire area DG-6/Z-1
- October 12, 2016, diesel generator B and diesel generator B control room, fire area DG-4/Z-1
- October 12, 2016, standby cooling tower pump A room and transformer room, fire areas PH-1/Z-1 and PH-1/Z-2
- October 12, 2016, standby cooling tower pump B room and transformer room, fire areas PH-2/Z-1 and PH-2/Z-2

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

These activities constitute four quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On November 17, 2016, the inspectors observed the performance of licensed operators in the simulator. The inspectors observed the interaction between the trainers and the operators to verify compliance with the River Bend Station simulator scenario RSMS-OPS-314. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed the modeling and performance of the simulator during the requalification activities.

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

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance

a. Inspection Scope

On December 3 and 4, 2016, the inspectors observed the performance of on-shift licensed operators in the plant's main control room. Two different operating crews on two different shifts were assessed. At the time of the observations, the plant was in a period of heightened activity due to surveillance testing of the residual heat removal system.

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

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

b. Findings

No findings were identified.

.3 Biennial Review of Requalification Program

The licensed operator requalification program involves two training cycles that are conducted over a two year period. In the first cycle, the annual cycle, the operators are

administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination.

a. Inspection Scope

To assess the performance effectiveness of the licensed operator requalification program, the inspectors reviewed both the operating test and written examination quality and observed licensee administration of a portion of the annual operating test while on site. The operating test observed included five job performance measures and three scenarios. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content and to determine if feedback of performance analyses into the requalification training program was being accomplished.

On October 5, 2016, the licensee informed the inspectors of the following operating test results:

- 6 of 6 crews passed the simulator portion of the operating test
- 41 of 41 licensed operators passed the simulator portion of the operating test
- 41 of 41 licensed operators passed the job performance measure portion of the operating test
- 37 of 41 licensed operators passed the written examination

There were no remediations performed for the operating tests. The individuals that failed the written examinations were remediated, retested, and passed their retake examinations.

The inspectors observed examination security measures in place during administration of the examinations (including controls and content overlap) and reviewed any remedial training and re-examinations, if necessary. The inspectors also reviewed medical records of eight licensed operators for conformance to license conditions and the licensee's system for tracking qualifications and records of license reactivation for two operators.

The inspectors reviewed simulator performance for fidelity with the actual plant and the overall simulator program of maintenance, testing, and discrepancy correction.

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

b. Findings

No findings were identified.



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

### **.1 Routine Maintenance Effectiveness**

#### **a. Inspection Scope**

The inspectors reviewed one instance of degraded performance or condition of safety-related structures, systems, and components (SSCs):

- November 21, 2016, containment ventilation unit cooler HVR-UC1B, functional failure review

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule. The inspectors ensured that parts installed in this safety-significant system were dedicated to quality grade prior to installation.

These activities constitute completion of one maintenance effectiveness sample, as defined in Inspection Procedure 71111.12.

#### **b. Findings**

No findings were identified.

### **.2 Quality Control**

#### **a. Inspection Scope**

On October 14, 2016, the inspectors reviewed the licensee's quality control activities through a review of their control of quality parts during maintenance associated with the replacement of the low pressure core spray line fill pump discharge check valve. The inspectors also reviewed whether quality control verifications were properly specified in accordance with the licensee's quality assurance program, and were implemented as specified, during work associated with the replacement of the low pressure core spray line fill pump discharge check valve.

These activities constitute completion of one quality control sample, as defined in Inspection Procedure 71111.12.

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

#### **a. Inspection Scope**

On November 17, 2016, the inspectors reviewed a risk assessment performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk. Planned maintenance on the Division II

standby service water system while the Division II emergency diesel generator was out of service for maintenance required the licensee transition to yellow risk.

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

These activities constitute completion of one maintenance risk assessment and emergent work control inspection sample, as defined in Inspection Procedure 71111.13.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed one operability determination that the licensee performed for degraded or nonconforming structures, systems, and components (SSCs):

- October 13, 2016, operability determination of reactor core isolation cooling trip throttle valve failure to reset (CR-RBS-2016-06393)

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

These activities constitute completion of one operability and functionality review sample, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed two post-maintenance testing activities that affected risk-significant SSCs:

- October 12, 2016, WO 00423710, "Cleaning Eddy Current System Testing of SFC-1E1A," following heat exchanger restoration and installation of plugs into tube sheet

- November 21, 2016, WO 52728521, “EGS-EG1B Division II Emergency Diesel Generator Post-Maintenance Operability Test,” following Division II emergency diesel generator maintenance outage

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

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

b. Findings

No findings were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

The inspectors observed two risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the SSCs were capable of performing their safety functions:

In-service tests:

- October 6, 2016, STP-309-6301, “Division I EDG Fuel Oil Transfer Pump and Valve Operability Test,” performed on October 5, 2016

Other surveillance tests:

- October 5, 2016, STP-309-0201, “Division I Diesel Generator Operability Test,” performed on October 5, 2016

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

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

b. Findings

No findings were identified.

## **Cornerstone: Emergency Preparedness**

### **1EP6 Drill Evaluation (71114.06)**

#### Emergency Preparedness Drill Observation

##### a. Inspection Scope

The inspectors observed an emergency preparedness drill on October 25, 2016, to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenario, observed the drill from the simulator and emergency operations facility, and attended the post-drill critique. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the licensee in the post-drill critique and entered into the corrective action program for resolution.

These activities constitute completion of one emergency preparedness drill observation sample, as defined in Inspection Procedure 71114.06.

##### b. Findings

No findings were identified.

### **4. OTHER ACTIVITIES**

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

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

#### **.1 Reactor Coolant System Specific Activity (BI01)**

##### a. Inspection Scope

The inspectors reviewed the licensee's reactor coolant system chemistry sample analyses for the period of November 2015 through November 2016 to verify the accuracy and completeness of the reported data. The inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample on November 30, 2016. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constitute verification of the reactor coolant system specific activity performance indicator, as defined in Inspection Procedure 71151.

##### b. Findings

No findings were identified.

.2 Reactor Coolant System Total Leakage (BI02)

a. Inspection Scope

The inspectors reviewed the licensee's records of reactor coolant system total leakage for the period of October 2015 through September 2016 to verify the accuracy and completeness of the reported data. The inspectors observed the performance of the reactor coolant system leakage surveillance procedure on November 3, 2016. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constitute verification of the reactor coolant system leakage performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

**40A2 Problem Identification and Resolution (71152)**

.1 Routine Review

a. Inspection Scope

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

b. Findings

No findings were identified.

.2 Semiannual Trend Review

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program, performance indicators, system health reports, and other documentation to identify trends that might indicate the existence of a more significant safety issue. To verify that the licensee was taking corrective actions to address adverse trends that might indicate the existence of a more significant safety issue, the inspectors reviewed corrective action program documentation associated with the following adverse trend:

- From January 1, 2016, to March 31, 2016, the station exhibited an adverse trend in procedural quality. Despite the implementation of corrective actions

associated with the apparent cause evaluation, this adverse trend continued through the third quarter of 2016.

These activities constitute completion of one semiannual trend review sample, as defined in Inspection Procedure 71152.

b. Observations and Assessments

The inspectors' review produced the following observations and assessments:

- The station identified a negative trend in procedural quality in February 2016. The station conducted an apparent cause evaluation for three examples between January 10, 2016, and February 10, 2016, with abnormal, system operating, and surveillance testing procedures where procedural guidance did not prevent potential risk-significant events or introduced unnecessary risk to the station. These examples included:
  - SOP-0031, "Residual Heat Removal System," did not include guidance to prevent a loss of shutdown cooling associated with opening breakers for shutdown cooling suction valves.
  - STP-109-6302, "Main Steam Isolation Valve Quarterly Partial Stroke Operability Test," did not consider the risk of performing the test online.
  - AOP-0005, "Loss of Condenser Vacuum," did not contain adequate margin on a loss of vacuum to allow operators to preemptively trip the main turbine.
- The station wrote Condition Report CR-RBS-2016-01341 to capture the trend and generate an apparent cause evaluation. The apparent cause evaluation concluded that the apparent cause of the trend was that the operations procedure validation and verification process did not adequately address the identification and mitigation of risk. Corrective actions implemented included screening existing procedures for their impact on risk and verifying appropriate risk mitigation activities were in place.
- The inspectors observed that the negative trend in procedure quality continued into the fourth quarter of 2016. Specifically, multiple instances of inadequate procedural quality were observed during the period:
  - The NRC conducted a licensed operator examination in September 2016. One green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," with ten examples of failing to provide appropriate qualitative and quantitative criteria in alarm response procedures and abnormal operating procedures was identified. Of these ten examples, four of the licensee's abnormal operating procedures did not contain adequate immediate actions as required by Regulatory Guide 1.33, Revision 2. The details of this finding are contained in NRC Inspection Report 05000458/2016301 (ADAMS ML16291A546).

- The NRC conducted a supplemental inspection in accordance with Inspection Procedure 95001 in September 2016. The inspectors noted that procedure quality was a contributor in several of the root and contributing causes of significant performance issues. For example, procedure quality issues were displayed in root cause evaluations RCE 2015-05473, where the site's procedure to control reactor water level was poor, and RCE 2016-00210, where steps to specifically prevent a loss of shutdown cooling were removed from River Bend Station's Procedure SOP-0031, "Residual Heat Removal." Another example of procedure quality was displayed in root cause evaluation RCE 2015-05469, where River Bend Station's Procedure SOP-0093, "Condensate Demineralizers," the inadvertent isolation of all demineralizers by a nuclear equipment operator. From these examples, the inspectors noted that the procedures lacked detail because of complacency and the licensee relied heavily on skill of the craft. The details of this observation are contained in NRC Inspection Report 05000458/2016012 (ML16355A077).
- The NRC conducted a target set inspection in October 2016. The inspection resulted in four green, non-cited violations. Two of these violations were associated with procedural quality. Specifically, 1) the station did not have an adequate procedure to ensure completion of auxiliary and control building operator actions performed in a security event, and 2) the station did not have an adequate procedure to ensure procedural changes were evaluated for their impact on target sets. The details of these findings are contained in NRC Inspection Report 05000458/2016404 (ML16327A499).

c. Findings

No findings were identified

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected one issue for an in-depth follow-up:

- On September 22, 2016, Nuclear Logistics Incorporated (NLI) issued a Part 21 notification indicating that Masterpact circuit breakers may fail to reclose when a close signal of greater than 200 milliseconds is applied while the breaker is charging the closing springs. This potential failure mechanism was different from the potential failure mechanisms that NLI had alerted the licensee to in earlier correspondence (see NRC Inspection Report 05000458/2016003, ML16315A174). The licensee addressed the Part 21 notification by showing, through a circuit analysis, that previous modifications that the station had implemented on Masterpact circuit breakers were sufficient to address the new potential failure mechanism.

The inspectors reviewed the licensee's circuit analysis and verified its assumptions against source documentation. The inspectors inquired into

whether the licensee had consulted NLI in reaching its conclusion, and whether NLI agreed with that conclusion. In response to the inspectors' inquiry, the licensee contacted NLI and obtained written concurrence that the previously implemented modifications were sufficient to address the new potential failure mechanism.

On December 5, 2016, the inspectors completed their review of the licensee's corrective actions for the new potential failure mechanism. The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews, and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to address the vulnerability.

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

b. Findings

No findings were identified.

**40A3 Follow-up of Events and Notices of Enforcement Discretion (71153)**

.1 (Closed) Licensee Event Report (LER) 05000458/2014-002-01, "Reactor Scram Due to Average Power Range Monitor High-flux Signal Following a Malfunction of the Main Turbine Electro-hydraulic System"

a. Inspection Scope

On October 17, 2014, a reactor scram occurred in response to a high neutron flux signal from the average power range monitors. Immediately prior to the signal, an apparent malfunction in the main turbine electro-hydraulic control system caused both the main turbine steam bypass valves to fully open and also commanded all four main turbine control valves to close. The resulting increase in reactor steam pressure caused reactor power to immediately rise to the trip setpoint of the average power range monitors, at which point the actuation of the reactor protection system occurred. After the scram occurred, an operator in the auxiliary control room erroneously removed all the main condensate system demineralizers from service, isolating condensate flow to the suction header of the main feedwater pumps. The running feedwater pumps tripped on low suction pressure. The misoperation of the demineralizer system was promptly corrected, and the main feedwater system was restored to service.

This LER is a revision to LER 05000458/2014-002-00. This revision incorporates information discovered during the licensee's causal analysis associated with the reactor scram described above. The licensee could not determine the specific failure mechanism of the electro-hydraulic control system that caused the reactor scram. The licensee identified potential failure points and replaced the associated circuit cards. After conducting a human performance review regarding the isolation of condensate demineralizers, the licensee made appropriate procedure revisions.

The inspectors reviewed the LER and determined that the report adequately summarized the event. A performance deficiency and associated finding were



previously documented in Section 4OA2.2 of NRC Inspection Report 05000458/2015001 (ML15127A601). LER 05000458/2014-002-01 is closed.

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 05000458/2016-007-01, "Operations Prohibited by Technical Specifications Due to Failure to Implement Required Actions Within Completion Time"

a. Inspection Scope

On May 25, 2016, it was determined that there had been a violation of technical specifications during a recent planned maintenance outage of the Division I emergency diesel generator (EDG). During that outage, three material deficiencies of various subcomponents were discovered while conducting maintenance tasks. The initial operability screening of each deficiency determined that the as-found condition did not, by itself, cause the EDG to be inoperable. However, the associated condition report for each item was flagged as "inoperable." These determinations should have, thus, caused the operators to invoke the requirements of Technical Specification 3.8.1 and perform common cause evaluations to assure that the same conditions did not exist on the operable Division II EDG. This action was not performed.

Approximately four days following the discovery of the material deficiencies, system engineers documented operability evaluations which concluded that none of these conditions posed any potential challenge to the ability of the EDG to fulfill its safety function. It was confirmed that no similar conditions were present on the Division II EDG. The deficiencies were corrected prior to restoration of the Division I EDG to an operable status.

This LER is a revision to LER 05000458/2016-007-00. This revision incorporated information discovered during the licensee's causal analysis associated with the violation described above. The causal analysis identified another example of a similar technical specification violation that occurred on February 18, 2014, for the failure to conduct a common cause evaluation for an inoperable EDG.

The inspectors reviewed the LER and determined that the report adequately summarized the event. A performance deficiency and associated finding were previously documented in Section 4OA2.2 of NRC Inspection Report 05000458/2016002 (ML16211A189). LER 05000458/2016-007-01 is closed.

b. Findings

No findings were identified.

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

#### **4OA6 Meetings, Including Exit**

##### Exit Meeting Summary

On December 22, 2016, the inspectors briefed Messrs. T. Schenk, Regulatory Assurance Manager, and K. Stupak, Training Manager, and other members of the licensee's staff of the licensed operator requalification program inspection results. The licensee representatives acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 10, 2017, the inspectors presented the inspection results to Mr. W. Maguire, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

D. Burnett, Director, Emergency Planning, Entergy South  
M. Chase, Director, Regulatory and Performance Improvement  
R. Conner, Manager, Nuclear Oversight  
R. Cook, Manager, Security  
K. Crissman, Senior Manager, Maintenance  
S. Durbin, Superintendent, Nuclear Operations Training  
D. Fletcher, Manager, Supply Chain  
B. Ford, Senior Manager, Fleet Regulatory Assurance  
J. Hedgepeth, Senior Operations Instructor, Nuclear  
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P. Lucky, Manager, Performance Improvement  
W. Maguire, Site Vice President  
J. O'Connor, Senior Manager, Production  
S. Peterkin, Manager, Radiation Protection  
J. Reynolds, Senior Manager, Operations  
D. Sandlin, Manager, Design & Program Engineering  
T. Schenk, Manager, Regulatory Assurance  
K. Stupak, Manager, Training  
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D. Williamson, Senior Licensing Specialist  
J. Wilson, Manager, Chemistry

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Closed

05000458/2014-002-01	LER	Reactor Scram Due to Average Power Range Monitor High-flux Signal Following a Malfunction of the Main Turbine Electro-hydraulic System (Section 4OA3)
05000458/2016-007-01	LER	Operations Prohibited by Technical Specifications Due to Failure to Implement Required Actions Within Completion Time (Section 4OA3)

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

#### Condition Reports (CRs)

CR-RBS-2014-02274    CR-RBS-2016-07075

#### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
	RBS Work Order Attribute Report for Winter Reliability	11/29/2016

#### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AOP-0029	Severe Weather Operation	038
OSP-0043	Freeze Protection and Temperature Maintenance	029

### **Section 1R04: Equipment Alignment**

#### Condition Reports (CRs)

CR-RBS-2016-05446    CR-RBS-2016-05766    CR-RBS-2016-05860    CR-RBS-2016-05865  
 CR-RBS-2016-06065    CR-RBS-2016-06329    CR-RBS-2016-06393    CR-RBS-2016-06971

#### Drawing

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PID-27-16A	System 201 Standby Liquid Control	14

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SOP-0028	Standby Liquid Control System (SYS #201)	17
SOP-0031	Residual Heat Removal System (SYS #204)	335
SOP-0035	Reactor Core Isolation Cooling System (SYS #209)	053

**Section 1R05: Fire Protection**

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FSAR Figure 1.2-28	General Arrangement – Diesel Generation Building	12
FSAR Figure 1.2-44	General Arrangement – Standby Service Water Pumphouse	23
R-STM-00250	Fire Protection and Detection System Training Manual	7
TR 3.7.9.1	Technical Requirement – Fire Suppression Systems	122
TR 3.7.9.2	Technical Requirement – Spray and/or Sprinkler Systems	5

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
DG-098-050	Pre-Fire Strategies, Diesel Generation B Room Fire Area DG-4/Z-1	3
DG-098-051	Pre-Fire Strategies, Diesel Generation B Room Fire Area DG-4/Z-1	4
DG-098-054	Pre-Fire Strategies, Diesel Generation A Room Fire Area DG-6/Z-1	4
DG-098-055	Pre-Fire Strategies, Diesel Generation A Room Fire Area DG-6/Z-1	4
SP-118-450	Pre-Fire Strategies, Standby Cooling Tower Pump A Room Fire Area PH-1/Z-1	3
SP-118-451	Pre-Fire Strategies, Standby Cooling Tower Pump B Room Fire Area PH-2/Z-1	3
SP-137-460	Pre-Fire Strategies, Standby Cooling Tower Pump A Transformer Room Fire Area PH-1/Z-2	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SP-137-461	Pre-Fire Strategies, Standby Cooling Tower Pump B Transformer Room Fire Area PH-2/Z-2	1

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

Condition Reports (CRs)

CR-RBS-2014-02448	CR-RBS-2014-05746	CR-RBS-2014-06276	CR-RBS-2014-06357
CR-RBS-2015-02354	CR-RBS-2015-02539	CR-RBS-2015-03622	CR-RBS-2015-08890
CR-RBS-2016-00210	CR-RBS-2016-04835	CR-RBS-2016-04875	CR-RBS-2016-04947
CR-RBS-2016-05846	CR-RBS-2016-07552		

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Simulator Operability Tests	
	Reactor Core Performance Tests	
	2015 Annual Operating Tests	
	2016 Annual Operating Tests	
	2016 Biennial Written Examinations	
OLTS Report 9	Active Operators Count – RBS	August 23, 2016
OLTS Report 14	License Restrictions Report – RBS	August 23, 2016
RBS-TT	Simulator Transient Tests	

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AOP-0001	Reactor Scram	31
AOP-0002	Main Turbine and Generator Trips	27
AOP-0003	Automatic Isolations	34
AOP-0005	Loss of Main Condenser Vacuum/Trip of Circulating Water Pump	27
AOP-0006	Condensate/Feedwater Failures	22
AOP-0007	Loss of Feedwater Heating	29
AOP-0010	Loss of One RPS Bus	21
AOP-0024	Thermal Hydraulic Stability Controls	28

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AOP-0035	Safety Relief Valve Stuck Open	20
EIP-2-001	Classification of Emergencies	26
EN-OP-103	Reactivity Management	6
EN-OP-115	Conduct of Operations	017
EN-TQ-112	Medical Program	17
EN-TQ-114	Licensed Operator Requalification Training Program Description	10
EN-TQ-114-AOEJPM	Annual Operating Exam JPM Quality Checklist	5
EN-TQ-114-AOESIM	Annual Operating Exam Simulator Scenario Set Quality Checklist	6
EN-TQ-200	Training Oversight Program	22
EN-TQ-202	Simulator Configuration Control	9
EN-TQ-210	Conduct of Simulator Training	9
EN-TQ-217	Examination Security	5
EOP-0001	RPV Control	27
EOP-0001A	RPV Control, ATWS	27
EOP-0002	Primary Containment Control	16
EOP-0003	Secondary Containment and Radioactive Release Control	17
EOP-0004	Contingencies	15
GOP-0002	Power Decrease/Plant Shutdown	73
GOP-0005	Power Maneuvering	325
OSP-0015	Problem Annunciator Resolution Program	307
OSP-0022	Operations General Administrative Guidelines	101
OTP-10-03	Critical Tasks	1
R-DAD-TQ-024	RBS Simulator Performance Testing	4
SOP-0031	Residual Heat Removal System (System #204)	335

## Regulatory Guide

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RG-1.114	Guidance to Operators at the Controls and to Senior Operators in the Control Room of a Nuclear Power Plant	3

## **Section 1R12: Maintenance Effectiveness**

### Condition Reports (CRs)

CR-RBS-1995-00689	CR-RBS-2006-00811	CR-RBS-2015-07890	CR-RBS-2016-04890
CR-RBS-2016-04899	CR-RBS-2016-05330	CR-RBS-2016-05461	CR-RBS-2016-06055
CR-RBS-2016-07868	CR-RBS-2016-07932	CR-RBS-2016-07942	CR-RBS-2016-07965
CR-RBS-2016-08009	CR-RBS-2016-08118		

### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
0228.231-058-056C	Velan Disc – Spring BC Piston Check Reference Table	C
166846	Licensee Procurement Engineering Evaluation	0
166863	Licensee Procurement Engineering Evaluation	0
BOP-PT-16-021	Liquid Penetrant Examination	9
BOP-VT-16-016	Visual Examination System Leakage	7
IOM-SFVM006-14	Installation and Operation Manual for Velan Forged Steel Valves	1
N-532-5	ASME Section XI, Division I Code Case for the Repair/Replacement Activity Documentation Requirements and Inservice Inspection Summary	January 4, 2011
RB-450380-06-01	Weld Map	0
SEP-CV-RBS-001	River Bend Station Check Valve Program Review and Concurrence Sheet	1
USAR Section 3.11.6	Maintenance and Surveillance Program	

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ADM-0085	Periodic Maintenance Program	7
ADM-0096	Risk Management Program Implementation and On-Line Maintenance Risk Assessment	325
EN-DC-143	Engineering Health Reports	18



Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-DC-203	Maintenance Rule Program	3
EN-DC-204	Maintenance Rule Scope and Basis	3
EN-DC-205	Maintenance Rule Monitoring	5
EN-DC-206	Maintenance Rule (a)(1) Process	3
EN-LI-102	Corrective Action Program	27
EN-MA-118	Foreign Material Exclusion	10
OSP-0022	Operations General Administrative Guidelines	101
STP-205-6301	LPCS Pump and Valve Operability Test	24
STP-403-0303	Containment Unit Cooler HVR-UC1B Flow Rate Verification	305

Work Orders (WOs)

WO 00429669	WO 00450380	WO 00450681	WO 00454670-01
WO 00454670-02			

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

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ADM-0096	Risk Management Program Implementation and On-line Maintenance Risk Assessment	321
ADM-0096	Risk Management Program Implementation and On-line Maintenance Risk Assessment	323
EN-WM-104	On Line Risk Assessment	012
EN-WM-104	On Line Risk Assessment	014

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

Condition Reports (CRs)

CR-RBS-2014-02793	CR-RBS-2014-05130	CR-RBS-2016-06393
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Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-FAP-OM-012	Prompt Investigation, Notifications and Duty Manager Responsibilities	13

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-FAP-OP-006	Operator Aggregate Impact Index Performance Indicator	2
EN-OP-104	Operability Determination Process	11
EN-OP-115	Conduct of Operations	17
STP-207-5255	RCIC/RHR Isolation-RHR Equipment Room Ambient Temperature High Channel Calibration and Logic System Functional Test	302

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

Condition Reports (CRs)

CR-RBS-2016-05893	CR-RBS-2016-06007	CR-RBS-2016-06087	CR-RBS-2016-06109
CR-RBS-2016-06195	CR-RBS-2016-06309	CR-RBS-2016-06478	CR-RBS-2016-06493
CR-RBS-2016-06571	CR-RBS-2016-06682	CR-RBS-2016-06772	CR-RBS-2016-06914
CR-RBS-2016-07742	CR-RBS-2016-07753	CR-RBS-2016-07774	CR-RBS-2016-07784
CR-RBS-2016-07786			

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	SFC Spent Fuel Pool Heat Exchanger Plugging Map	August 27, 2016
	Struthers Installation, Operation and Maintenance Instructions for Fuel Pool Coolers Mark Nos. 1SFC*E1A & B	February 6, 1980
EC-66118	Process Tube Plugging Calculation for SFC Heat Exchanger SFC-E1A and SFC-E1B	0
EC-66743	Eval Changed Fuel Pool Cooler SFC E1A/B Installed Operation and Maintenance Material Welded Plug Procedure to Allow Application With or Without Tube Installed	0
EC-68072	Start Air Admission Valves Hot Stroke Test Division II Emergency Diesel Generator EGS-EG1B	0
VTD-C634-0257	Cooper Group Parts List for Air Start Valve	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CMP-9267	Heat Exchanger Repairs	12

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EN-IS-108	Working in Hot Environments	10
EN-MA-118	Foreign Material Exclusion	10
STP-309-0207	Division II Diesel Generator 184-Day Operability Test	023
STP-309-0612	Division II Diesel Generator 24-Hour Run	042

Regulatory Guides

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RG-1.9	Selection, Design, and Qualification of Diesel Generator Units Used as Standby (Onsite) Electric Power Systems at Nuclear Power Plants	2
RG-1.9	Application and Testing of Safety-Related Diesel Generators in Nuclear Power Plants	4

Work Orders (WOs)

WO 00361643 WO 52728521	WO 00411364	WO 52461488	WO 52728496
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**Section 1R22: Surveillance Testing**

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
S-E53-38	Technical Justification of E&DCR C-20861A and E&DCR C-21107	0
S-E125-38	Qualification of 1EGS*PNL3A, 3B Hold-Down per E&DCR C-21344	0

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EE-38J	Arrangement Sill Details Standby Diesel Generator Building EL. 98'-0"	6
PID-08-09A	System 309 Diesel Generator	14

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STP-309-0201	Division I Diesel Generator Operability Test	54

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STP-309-6301	Div I EDG Fuel Oil Transfer Pump and Valve Operability Test	21

Work Orders (WOs):

WO 0052714785      WO 52703772-01

**Section 1EP6: Drill Evaluation**

Training Document

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RDRL-EP-1602	Site Drill Scenario	1

**Section 4OA1: Performance Indicator Verification**

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
Engineering Report RBS-SA-06-0001	RBS Mitigating System Performance Index (MSPI) Basis Document	2
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7
RBF1-16-0135	Electronic Submittal of Third Quarter 2016 NRC Performance Indicator Information	October 24, 2016

Procedure

<u>Number</u>	<u>Title</u>	<u>Revision</u>
COP-0001	Sampling Via Various Balance of Plant Systems	23
COP-0032	Startup and Operation of the Reactor Sample Panel	10
CSP-0006	Chemistry Surveillance and Scheduling System	41
EN-LI-114	Performance Indicator Process	7
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7

## Section 4OA2: Problem Identification and Resolution

### Condition Reports (CRs)

CR-RBS-2014-04091	CR-RBS-2014-06284	CR-RBS-2015-08463	CR-RBS-2016-00210
CR-RBS-2016-01310	CR-RBS-2016-01341	CR-RBS-2016-01702	CR-RBS-2016-01712
CR-RBS-2016-03637	CR-RBS-2016-06564		

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AOP-0005	Loss of Main Condenser Vacuum/Trip of Circulating Water Pump	24
SOP-0031	Residual Heat Removal System	335
STP-109-6302	MSIV Quarterly Partial Stroke Operability Test	19