

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

August 11, 2021

Mr. Kent Scott, Site Vice President Entergy Operations, Inc. 5485 U.S. Highway 61N St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION – INTEGRATED INSPECTION REPORT 05000458/2021002

Dear Mr. Scott:

On June 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at River Bend Station. On July 15, 2021, 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.

Two findings of very low safety significance (Green) are documented in this report. Both of these findings involved violations of NRC requirements. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations 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 River Bend Station.

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

Sincerely,

4-140

Signed by Kozal, Jason on 08/10/21

Jason W. Kozal, Chief Reactor Projects Branch C Division of Reactor Projects

Docket No. 05000458 License No. NPF-47

Enclosure: As stated

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RIVER BEND STATION – INTEGRATED INSPECTION REPORT 05000458/2021002 – DATED AUGUST 11, 2021

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ADAMS ACCESSION NUMBER: ML21222A120

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U.S. NUCLEAR REGULATORY COMMISSION Inspection Report

Docket Number:	05000458
License Number:	NPF-47
Report Number:	05000458/2021002
Enterprise Identifier:	I-2021-002-0036
Licensee:	Entergy Operations, Inc.
Facility:	River Bend Station
Location:	St. Francisville, Louisiana
Inspection Dates:	April 1, 2021 to June 30, 2021
Inspectors:	 R. Alexander, Senior Emergency Preparedness Inspector J. Drake, Senior Reactor Inspector S. Hedger, Emergency Preparedness Inspector R. Kumana, Senior Resident Inspector S. Makor, Reactor Inspector C. Wynar, Resident Inspector
Approved By:	Jason W. Kozal, Chief Reactor Projects Branch C Division of Reactor Projects

SUMMARY

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

Improper Shutdown Water Level Calibration						
Cornerstone	Significance	Cross-Cutting	Report			
		Aspect	Section			
Initiating Events	Green	None (NPP)	71111.04			
-	NCV 05000458/2021002-01					
	Open/Closed					
A self-revealed, Gre	een finding and associated non-cited violat	ion of 10 CFR Part	50, Appendix			
B, Criterion V, "Instruction, Procedures, & Drawings" was identified on March 15, 2021, for the						
licensee's failure to utilize appropriate work order instructions to calibrate the shutdown						
reactor vessel level instrument. As a result, the instrument was improperly calibrated, which						
led to a failure of vessel pressure to correlate to vessel level during a vessel pressure test. A						
loss of valid indication of reactor vessel water level occurred from approximately 1000 on						
March 14, 2021, to 2000 on March 15, 2021.						

Failure to Establish	Failure to Establish Design Specifications and Instructions for Maintenance on Trip Unit Cards					
Cornerstone	Significance	Cross-Cutting	Report			
		Aspect	Section			
Initiating Events	Green	None (NPP)	71153			
	NCV 05000458/2021002-02					
	Open/Closed					

A self-revealed, Green finding and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III was identified for the licensee's failure to ensure the design basis was correctly translated into plant specifications, drawings, procedures, and instructions. Specifically, the licensee failed to establish specifications and instructions to prevent safety-related trip unit cards from failing in ways that affected adjacent components, resulting in an unanticipated failure and safety system actuation of the high pressure core spray system at power.

Additional Tracking Items

Туре	Issue Number	Title	Report Section	Status
LER	05000458/2020-004-00	Inadvertent Initiation and Injection of High Pressure Core Spray (HPCS)	71153	Closed

PLANT STATUS

The inspection quarter began on April 1, 2021, with the reactor operating at 71 percent power following a planned downpower for a control rod pattern adjustment and main steam isolation valve testing.

River Bend Station experienced an automatic reactor scram on April 2, 2021, after the turbine control system caused a turbine trip. The licensee corrected the issue and performed a reactor startup on April 7, 2021. The licensee returned reactor power to 100 percent on April 9, 2021.

The licensee reduced power on April 10, 2021, to 60 percent for a rod pattern adjustment and restored power to 100 percent on April 11, 2021.

On May 12, 2021, the licensee commenced a downpower to 90 percent to secure condensate pump A for high vibrations, and on May 15, 2021, during condensate pump A restoration, feed pump A tripped on low suction pressure causing an automatic flow control valve runback to 73 percent power. The licensee corrected the issue and restored power to 100 percent on May 17, 2021.

On May 23, 2021, River Bend Station commenced a downpower to 63 percent power for a rod pattern adjustment. The licensee restored power to 100 percent on May 23, 2021 and remained at 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 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.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), resident and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on site as local COVID-19 conditions permitted. As part of their onsite activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D; observed risk significant activities; and completed on-site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

External Flooding Sample (IP Section 03.03) (1 Sample)

(1) The inspectors evaluated that flood protection barriers, mitigation plans, procedures, and equipment were consistent with the licensee's design requirements and risk analysis assumptions for coping with external flooding on May 26, 2021.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

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

- (1) Division II main steam positive leakage control system on April 30, 2021
- Division III 125 VDC system on May 18, 2021
- (3) Diesel fire pump 1B on June 11, 2021
- (4) Reactor pressure vessel water level instruments during Mode 4 on June 28, 2021

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated system configurations during a complete walkdown of the high pressure core spray system on June 16, 2021.

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Stairway 3 and vestibule, fire area C-11, on June 7, 2021
- (2) Air compressor canopy area on June 14, 2021
- (3) Standby liquid control area, fire area RC-4/Z-4, on May 28, 2021

71111.11Q - Licensed Operator Regualification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the Control Room during reactor startup on April 7, 2021.

Licensed Operator Regualification Training/Examinations (IP Section 03.02) (2 Samples)

- (1) The inspectors observed and evaluated simulator-based training on May 17, 2021.
- (2) The inspectors observed and evaluated simulator-based training on June 22, 2021.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (1 Sample)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

(1) Makeup water pump failures on May 26, 2021

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

(1) Verification of quality controlled components (CR-RBS-2021-03148) on April 26, 2021

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Elevated risk with one train of automatic depressurization system out of service on April 12, 2021
- (2) Elevated risk with one train of control building ventilation system and standby gas treatment system out of service on May 18, 2021
- (3) Elevated risk with high pressure core spray pump out of service on May 26, 2021
- (4) Elevated risk with reactor core isolation cooling out of service on June 14, 2021

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Operability of main steam positive leakage control system air compressor on April 2, 2021 (CR-RBS-2021-02534)
- (2) Operability of recirculation flow control valve A following hydraulic loop trip on April 15, 2021 (CR-RBS-2021-02803)
- (3) Operability of residual heat removal system with failed snubber on June 9, 2021 (CR-RBS-2021-01121)
- (4) Operability of automatic depressurization system inhibitor switch on June 9, 2021 (CR-RBS-2021-03746)
- (5) Operability of standby service water with excavation pump out of service on June 10, 2021 (CR-RBS-2021-03036)

71111.18 - Plant Modifications

<u>Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02)</u> (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) FWS-MOV7 following motor replacement (EC 0000089500)
- (2) Division I main steam positive leakage control system external components (EC 0000084735)

71111.19 - Post-Maintenance Testing

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

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) Work Order (WO) 00526450, testing of intermediate range monitor C, on April 5, 2021
- (2) WO 00550539, testing of hydraulic power loop valve RCS-MOV302C following replacement, on April 16, 2021
- (3) WO 00562946, control building heating, ventilation, and air conditioning, on April 16, 2021
- (4) WO 00526202, testing of drywell hatch following refueling outage, on April 30, 2021
- (5) WO 00562847, diesel generator run for hot cable replacement, on May 20, 2021
- (6) WO 00559159, testing of FWS-MOV7 following motor replacement, on May 24, 2021
- (7) WO 52850826, testing of unit cooler HVR-UC5 following motor replacement, on June 7, 2021
- (8) WO 00201928, testing of hydrogen igniters following replacement, on June 28, 2021

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (2 Samples)

- (1) The inspectors evaluated refueling outage RF21 activities from February 21, 2021, to March 19, 2021.
- (2) The inspectors evaluated forced outage activities due to an unplanned reactor scram from April 2, 2021, to April 7, 2021.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (4 Samples)

- (1) STP-309-0613, Revision 41, "Division III Diesel Generator 24 Hour Run," on May 28, 2021.
- (2) STP-057-3800, Revision 16, "Local Leak Rate Test Outage Summation," on June 8, 2021.
- (3) STP-203-6305, Revision 34, "HPCS Quarterly Pump and Valve Operability Test," on June 22, 2021.

(4) STP-207-4536, Revision 303, "RCIC Isolation RCIC Steam Line Flow High Channel Functional Test," on May 14, 2021.

71114.01 - Exercise Evaluation

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

(1) The inspectors evaluated the biennial emergency plan exercise conducted on May 12, 2021. The exercise scenario simulated a seismic event resulting in damage to the Division I and II emergency diesel generators and a break in and leakage from the spent fuel pool liner, a subsequent reactor core isolation cooling system line break and failure to isolate, and demonstration of extensive damage mitigation strategies consistent with 10 CFR 50.155(b)(2) to mitigate the spent fuel pool leakage.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS06: Emergency AC Power Systems (IP Section 02.05) (1 Sample)

(1) April 1, 2020 - March 31, 2021

MS07: High Pressure Injection Systems (IP Section 02.06) (1 Sample)

(1) April 1, 2020 - March 31, 2021

MS08: Heat Removal Systems (IP Section 02.07) (1 Sample)

(1) April 1, 2020 - March 31, 2021

71152 - Problem Identification and Resolution

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

(1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in maintaining operator logs that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

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

(1) Evaluation of the corrective action effectiveness by sampling issues identified during and after the Cyber Security full implementation inspection (IP 71152) completed on June 18, 2018 (ML18193B140).

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

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event report (LER):

(1) LER 05000458/2020-004-00, "Inadvertent Initiation and Injection of High Pressure Core Spray (HPCS)" (ADAMS Accession No. ML20302A456)

The inspection conclusions associated with this LER and an associated non-cited violation are documented in this report under the Inspection Results section.

Personnel Performance (IP Section 03.03) (1 Sample)

(1) The inspectors evaluated an automatic reactor scram and the licensee's performance on April 2, 2021.

INSPECTION RESULTS

Improper Shutdown Water Level Calibration						
Cornerstone	Significance	Cross-Cutting Aspect	Report Section			
Initiating Events	Green NCV 05000458/2021002-01 Open/Closed	None	71111.04			
A self-revealed, Gr Appendix B, Criteri March 15, 2021, fo calibrate the shutdo improperly calibrate during a vessel pre from approximately	een finding and associated non-cited viola on V, "Instruction, Procedures, & Drawing r the licensee's failure to utilize appropria own reactor vessel level instrument. As a ed, which led to a failure of vessel pressu ssure test. A loss of valid indication of re v 1000 on March 14, 2021, to 2000 on Ma	ation of 10 CFR Pa is" was identified of te work order (WO) result, the instrum re to correlate to ve eactor vessel water rch 15, 2021.	rt 50, n instructions to ent was essel level level occurred			
from approximately 1000 on March 14, 2021, to 2000 on March 15, 2021. <u>Description</u> : On March 14, 2021, the reactor was in cold shutdown with operators conducting activities to prepare for STP-050-0702, "Vessel Pressure Test (VPT)," prior to entering Mode 2. Operators used WO 52902287 to calibrate B21-LTN027 and C33-LTN017, which are the shutdown and upset range water level instruments (SDWL), respectively. This WO was associated with prerequisite step 25 of STP-050-0702. The WO began at 1000. Shortly thereafter, at 1133, operators initiated a reactor water cleanup blowdown to the main condenser. The calibration WO started with reactor pressure vessel level at approximately 251 inches, which was then lowered to 247 inches to meet the initial conditions for the procedure contained in the WO (230 inches – 250 inches). The WO procedure step 4.9 directed operations personnel to vent the air from and then backfill the reference leg with a suitable water supply. It did not give specific direction on how to do this, how long to fill, or to verify the reference leg is full. According to more experienced operators, operational experience suggested that it typically took approximately 20 minutes to completely fill the reference leg. The operators who performed the step stated they only filled the leg for approximately one minute. At 1630, the operators completed the WO and verified with the						

calibration procedure. While the level just prior to the calibration was about 230 inches, the final level indicated 217 inches. Despite this difference, the operators concluded that the calibration was successful.

On March 15, 2021, the VPT began at 0900, and operators began raising reactor water level with control rod drive (CRD) injection. A note in STP-050-0702 stated, "when raising reactor water level using CRD, pressure will start to rise significantly when reactor water level reaches 275 inches." Once at 275 inches as indicated on reactor water level, no pressure change was observed. Operators continued to raise level. Another note stated that at 306 inches "rated pressure conditions should be achieved." Operators continued to raise water level past 306 inches up to 320 inches. At 1600, with 320 inches indicated on the shutdown reactor water level instrument, operators evaluated the situation and determined that actual vessel level was not accurate due to an improperly filled reference leg. At 2000, the reference leg was filled, and indicated level was observed to drop approximately 70 inches to 250 inches. The operators then proceeded to complete the VPT.

The inspectors reviewed the circumstances of the event. By comparing plant data and indications, the inspectors were able to make rough estimations that an error ranging from approximately 50-70 inches was present in the shutdown reactor water level instrument from March 14, 2021, at approximately 1630 to March 15, 2021, at approximately 2000, when the error was corrected.

The inspectors identified several deficiencies within the WO instructions. Specifically, the licensee failed to have appropriate precautions in the WO calibration procedure to prevent adjusting vessel level during level instrument calibrations. The licensee also failed to ensure that the procedure had adequate directions for filling and verifying the reference leg was filled. There was also a lack of adequate acceptance criteria for the finished calibration. As a result, a discrepancy of approximately 50-70 inches between indicated and actual vessel level occurred for over a day.

Corrective Actions: The licensee restored compliance by backfilling the reference leg to ensure steps 24 and 25 of STP-050-0702 were completed and entered the deficient procedure condition into their corrective action program.

Corrective Action References: CR-RBS-2021-02287 Performance Assessment:

Performance Deficiency: The inspectors determined that improperly calibrating and verifying operation of the shutdown water level instrument, in violation of 10 CFR Part 50, Appendix B, Criterion V, was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Procedure Quality attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the reactor vessel level indication did not accurately reflect the level in the reactor vessel, and the availability of accurate level indication impacts the inventory control critical safety function during shutdown operations.

Significance: The inspectors assessed the significance of the finding using Manual Chapter 0609 Appendix G, "Shutdown Operations Significance Determination Process," since

the plant was shut down at the time of the event. To determine the significance of this shutdown finding, the inspectors reviewed Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," and used Exhibit 2, "Initiating Events Screening Questions." The inspectors concluded that the finding increased the likelihood of a shutdown initiating event and needed a Phase 2 analysis. Subsequently, a quantitative risk evaluation was performed by a senior reactor analyst using Appendix G, Attachment 3, "Phase 2 Significance Determination Process Template for BWR during Shutdown."

The shutdown event occurred during a late time window (in a refueling outage with core refueling complete) and with the reactor in plant operating state 1, which is characterized by having the vessel head installed and the reactor coolant system closed. The analyst determined that this finding was a conditional finding that involved a degradation (inaccurate vessel level indication) of the licensee's capability to mitigate an event if an event were to occur.

The analyst assumed that only loss of inventory core damage scenarios were impacted by the finding and only solved those sequences. Losses of offsite power and losses of residual heat removal were judged by the analyst to not be significantly impacted by an inaccurate vessel level indication. Consequently, the analyst solved Worksheet 1, "SDP for a BWR Plant - Loss of Inventory in POS 1 (Head on)."

The inspectors determined that the exposure time for the inaccurate level indication was 27.5 hours, being present from March 14, 2021, at approximately 1630 to March 15, 2021, at approximately 2000. Using Table 4, "Initiating Event Likelihoods for Condition Findings – BWRs," the analyst estimated the initiating event likelihood factor of 4.

In determining the significance, Step 4.4.6.C.1 prescribes decreasing the operator credit factor by two if referenced instrumentation is misleading. The analyst lowered the factors for MINJ (manual low pressure injection – leak isolated) and MINJX (manual low pressure injection – leak not isolated) top event functions from 4 to 2. Availability of injection sources was assumed to not be impacted by the level instrumentation issue. The most limiting core damage sequence was sequence 6 which tallied to a cumulative factor of 7; all other sequences tallied to a cumulative factor of 8 or higher. The analyst applied the counting rules and estimated the increase in core damage frequency from internal events of this finding to be 3.0E-7/year. External events were qualitatively screened out by the analyst because of the low probability of the external events occurring during the short exposure time. This made the estimate of the total increase in core damage frequency 3.0E-7/year (Green).

The potential risk contribution for this finding from large early release frequency (LERF) was screened using the guidance of IMC 0609, Appendix H, "Containment Integrity Significance Determination Process." For the evaluation of risk significance during shutdown, only the period within 8 days of the beginning of the outage is considered. After 8 days, it is assumed that the short-lived, volatile isotopes that are principally responsible for early health effects have decayed sufficiently such that the finding would not contribute to LERF. Since the event occurred more than 8 days from the beginning of the outage, there was no LERF contribution. Considering the above information, the senior reactor analyst determined the significance of the finding to be of very low safety significance (Green).

Cross-Cutting Aspect: Not Present Performance. No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures, & Drawings," states, in part, that activities affecting quality shall be prescribed by procedures of a type appropriate to the circumstance. The licensee established procedure STP-050-0702, "Refueling Outage Reactor Pressure Vessel Inservice Leakage Test," Revision 023, containing prerequisite steps 24 and 25, which required that the shutdown range reactor water level instrument, B21-LTN027, indication was operable and that the calibration was operable and current. Work Order PMID#50038955-01, a quality related procedure, was established to perform calibration of the level instrument.

Contrary to the above, on March 15, 2021, the licensee did not ensure that calibration of the shutdown range reactor water level instrument, an activity affecting quality, was prescribed by procedures of a type appropriate to the circumstance. Specifically, the licensee failed to ensure the WO for PMID#50038955-01 listed in step 25 of STP-050-0702 contained adequate instructions for calibrating and refilling the reference leg of the shutdown range reactor water level instrument, B21-LTN027.

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

 Observation:
 Semiannual Trend Review
 71152

 The inspectors reviewed the operations narrative log for quality of entries required by station procedures.
 The inspectors noticed a trend of incomplete information in the station's narrative logs. For guidance, the inspectors used Entergy Procedure EN-OP-115-09, Revision 4, "Maintaining the Station Narrative Log." In this procedure, Section 5.1 states:

 "ENSURE Operations Station Narrative logs contain a chronological listing of events relevant to unit operation occurring on a given shift, including:

• Any safety related systems or equipment declared operable or inoperable

• Surveillance test initiation and completion as appropriate for Tech Spec/TRM/ATR activities affecting availability or that place the unit in a limited condition of operation action statement, including entry and exit dates and times

• Major equipment status changes or events deemed necessary by Control Room personnel to aid in shift turnover

• On-line major equipment status changes. Change in a status which affects operability or availability, to include reason for the removal (e.g. testing, tagout, etc.)..." The procedure goes on to say, "RECORD information in the Station Narrative log in sufficient detail to accurately categorize system and component operability and availability."

The inspectors noted multiple examples where operators did not log specific changes or activities affecting system availability and unavailability. In addition, the inspectors noted multiple examples where the logs did not contain sufficient detail to determine whether a system was available or unavailable, as opposed to operable or inoperable. For example, during some surveillance test procedures for emergency core cooling systems, the start and stop times of the surveillance test procedure used or the entry and exit of an applicable limiting condition for operation was logged, but the points in the procedure where the system was unavailable were not. The inspectors determined that these examples did not meet the requirements of licensee Procedure EN-OP-115-09. The inspectors did not identify a finding associated with this review.

Failure to Establish Design Specifications and Instructions for Maintenance on Trip Unit Cards

Ourdo			
Cornerstone	Significance	Cross-Cutting	Report
		Aspect	Section
Initiating Events	Green	None (NPP)	71153
	NCV 05000458/2021002-02		
	Open/Closed		

A self-revealed, Green finding and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III was identified for the licensee's failure to ensure the design basis was correctly translated into plant specifications, drawings, procedures, and instructions. Specifically, the licensee failed to establish specifications and instructions to prevent safety-related trip unit cards from failing in ways that affected adjacent components, resulting in an unanticipated failure and safety system actuation of the high pressure core spray (HPCS) system at power.

<u>Description</u>: On September 3, 2020, while the station was operating at 92 percent power due to unrelated grid conditions, the plant experienced a HPCS system inadvertent initiation and injection into the core. Control Room operators took manual control of feedwater level control to maintain a stable reactor water level. Once it was verified that the system was not needed for level control, operators manually closed the injection isolation valve and performed an override of the HPCS system. Closure of the HPCS injection valve rendered HPCS incapable of responding to an automatic actuation, and the system was declared inoperable. The system was then restored to its normal lineup.

The licensee determined that a trip unit card located on instrument rack Z2 developed an electrical short and caused an amperage spike. This amperage spike caused a voltage drop on instrument rack Z1 until the fuse associated with rack Z2 opened, resulting in a restoration of power to rack Z1. The power cycling on the rack Z1 trip units caused an invalid level 2 signal for HPCS, which caused the HPCS actuation. The electrical transient also damaged other trip unit cards on rack Z2.

The licensee performed a review of the failure. The trip unit card that failed was a Rosemount Trip Unit Card Model 510DU. These trip unit cards had no established service life or preventive maintenance program that would ensure the cards would perform their function. In addition, the cards had been determined to be obsolete but were not replaced with the newer model, the Rosemount Trip Unit Card Model 710DU. The Rosemount 710DU cards service life is 20 years. The licensee discussed the failure with the vendor and determined that a service life of 20 years could have been reasonably applied to the 510DU trip units. The licensee determined that failed was in service for

34 years. Based on this evaluation, the licensee determined that the cards had been in service for a longer time than could be justified by their design.

The inspectors reviewed the licensee's evaluation and determined that the licensee should have evaluated the design of the components to ensure they had specifications and instructions necessary to maintain the design function of the HPCS system. Specifically, the failure of adjacent components affecting the design function could have been prevented by providing specifications on preventive maintenance. The inspectors determined the inadequate design control had existed from the time of initial construction.

Corrective Actions: The licensee replaced the failed components, restored the HPCS system to operable status, and established instructions for preventive maintenance on the trip unit cards.

Corrective Action References: CR-RBS-2020-03729 Performance Assessment:

Performance Deficiency: The failure to correctly translate the design basis into plant specifications was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 1 - "Initiation Events Screening Questions," the inspectors determined that the finding was of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

Cross-Cutting Aspect: Not Present Performance. No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that the licensee establish measures to assure that the design basis is correctly translated into plant specifications, drawings, procedures, and instructions.

Contrary to the above, from initial construction through September 2020, the licensee failed to establish measures to assure that the design basis was correctly translated into plant specifications, drawings, procedures, and instructions. Specifically, the licensee failed to establish specifications and instructions to prevent failures of adjacent trip unit cards from resulting in an unanticipated failure and safety system actuation.

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

EXIT MEETINGS AND DEBRIEFS

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

- On May 17, 2021, the inspectors presented the results of the cyber security followup inspection to Mr. T. Schenk, Regulatory Assurance Manager, and other members of the licensee staff.
- On June 8, 2021, the inspectors presented the emergency preparedness exercise inspection results to Mr. K. Scott, Site Vice President, and other members of the licensee staff.
- On July 15, 2021, the inspectors presented the integrated inspection results to Mr. K. Scott, Site Vice President, and other members of the licensee staff.

THIRD PARTY REVIEWS

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

DOCUMENTS REVIEWED

Inspection	Туре	Designation	Description or Title	Revision or
Procedure				Date
71114.01	Corrective Action	Condition Reports	2016-04895, 2016-05267, 2018-03659, 2018-03669, 2018-	
	Documents	(CR-RBS-)	03791, 2018-03793, 2018-03870, 2018-05283, 2019-01405,	
			2019-04496, 2019-06736, 2019-07560, 2020-01307, 2020-	
			02040, 2020-02121, 2020-04337, 2020-04470, 2020-04825,	
			2020-04925, 2021-00151, 2021-00525, 2021-01525, 2021-	
			01535, 2021-01539, 2021-03684, 2021-03687, 2021-03688,	
			2021-03694, 2021-03706	
		Work Tracking	2021-00135, CA41 through 2021-00135, CA66	
		Documents (WT-		
		WTRBS-)		
	Corrective Action	Condition Reports	2021-04056	
	Documents	(CR-RBS-)		
	Resulting from			
	Missellenseus		NPC Creded Eversion Conjer Management Presentation	05/10/2021
	Miscellarieous		NRC Graded Exercise Semior Management Presentation -	05/16/2021
			Evercise Participant Logs and Pecords from the EOE TSC	05/12/2021
			OSC IIC and Control Room Simulator	03/12/2021
			06-20-16 Team B Evaluated Exercise Report	07/27/2016
			2018 Medical Drill Report	02/19/2019
			River Bend Station After Action Report/Improvement Plan	10/31/2018
			2019 Medical Drill Report	01/13/2020
			2019 Off-Hours Accountability Drill Report	01/13/2020
			2019 RBS Drills FINAL Official Report	11/25/2019
			DEC 2019 HP Drill Report Rev 1	02/03/2020
			2018 Off-Hours Accountability Drill Report	12/19/2018
			ERO Team "D" Site Drill Report, Rev 1	03/10/2020
			ERO Team D Dress Rehearsal Drill Report, Rev 1	10/13/2020
			Health Physics - In Plant Monitoring Drill Report	04/28/2020
			Health Physics - In Plant Monitoring Drill Report	09/25/2018
			Health Physics - In Plant Monitoring Drill Report	06/12/2019
			Radiological Monitoring Drill Report	03/10/2020

Inspection	Туре	Designation	Description or Title	Revision or
Procedure				Date
			Radiological Monitoring Drill Report	12/03/2019
			ERO Team A/B Site Drill Report	10/08/2019
			ERO Team A/D Site Drill Report	09/25/2019
			ERO Team B Site Drill Report	08/21/2018
			ERO Team C NRC Evaluated Exercise Report	06/27/2018
			ERO Team "C" Site Drill Report	03/12/2019
			ERO Team "D" Site Drill Report	11/12/2019
		RBG-48042	River Bend Station Emergency Plan	48
	Procedures	ADM-0060	First Aid Team Emergencies	15
		AOP-0027	Fuel Handling Mishaps	29
		AOP-0028	Seismic Event	15
		AOP-0031	Shutdown from Outside the Main Control Room	338
		EIP-2-001	Classification of Emergencies	30
		EIP-2-006	Notifications	48
		EIP-2-012	Radiation Exposure Controls	21
		EIP-2-018	Technical Support Center	38
		EIP-2-020	Emergency Operations Facility	41
		EIP-2-024	Offsite Dose Calculations	26
		EIP-2-026	Evacuation, Personnel Accountability, and Search and	20
			Rescue	
		EN-EP-609	Emergency Operations Facility (EOF) Operations	6
		EN-EP-610	Technical Support Center (TSC) Operations	5
		EN-EP-611	Operations Support Center (OSC) Operations	6
		EPP-2-503	River Bend Station Equipment Important to Emergency	5
			Response (EITER)	
		EPP-2-701	Prompt Notification System Maintenance and Testing	33
		OSP-0066	Extensive Damage Mitigation Procedure	32
		RBNP-099	Reporting of Events Involving Loss of Emergency	0
			Preparedness Capability	
		RDRL-EP-2000	EP Evaluated Exercise (to be conducted May 12, 2021)	05/10/2021
		SOP-0091	Fuel Pool Cooling and Cleanup System	60

Inspection Procedure	Туре	Designation	Description or Title	Revision or Date
71152	Corrective Action Documents	Condition Reports (CR-RBS-)	2018-06677, 2020-01535, 2018-01596, 2018-02780, 2018- 02978, 2021-02928, 2018-00311, 2020-01936, 2020-02463, 2021-02927	
	Miscellaneous	CDA-1804-00003	Met Tower Assessment	04/03/2018
		CSWI-1300	Review of Access & Audit Log Records (Physical) Periodic Activity	09/10/2020
		CSWI-1300	Review of Access & Audit Log Records (Physical) Periodic Activity	03/29/2021
		RBG-47793	Revision 2 of the River Bend Cyber Security Plan	10/26/2017
		RLO-2019-0140	Periodic Site Cyber Security Program Review	07/21/2020
	Procedures	EN-IT-103-02	Cyber Security Periodic Activities	7
		EN-IT-103-06	Audit & Accountability	1
		EN-IT-103-07	Cyber Security Physical Access Requirements for Critical	8
	Work Orders	WO		
71152	Corrective Action	Condition Poports		
11100	Documents	(CR-RBS-)	2007-02323, 2013-00710, 2013-04311, 2020-03729	
	Work Orders	WO-	00550588-01	