UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E LAMAR BLVD
ARLINGTON, TX 76011-4511

November 5, 2014

Mr. Eric W. Olson, Site Vice President
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 – NRC COMPONENT DESIGN BASES INSPECTION REPORT 05000458/2014007

Dear Mr. Olson:

On August 22, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station, Unit 1. The NRC inspectors discussed the preliminary results of this inspection with Mr. Richard Gadbois, General Manager-Plant Operations, and other members of your staff. On October 1, 2014, the final inspection results were dicussed with you, and other members of your staff. The inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented five findings of very low safety significance (Green) in this report. All of these findings involved violations of NRC requirements. Additionally, the inspectors documented a licensee-identified violation which was determined to be of very low safety significance. The NRC is treating these violations as non-cited violations consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the 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, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the River Bend Station, Unit 1.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC resident inspector at the River Bend Station.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, “Public Inspections, Exemptions, Requests for Withholding,” of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the

NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/ Robert M. Latta for

Thomas R. Farnholtz, Branch Chief
Engineering Branch 1
Division of Reactor Safety

Docket: 50-458
License: NPF-47

Enclosure:
Inspection Report 05000458/2014007
w/Attachment: Supplemental Information

cc w/ encl:
Electronic Distribution for River Bend Station

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Letter to Eric W. Olson from Thomas R. Farnholtz, dated November 5, 2014

SUBJECT: RIVER BEND STATION, UNIT 1 – NRC COMPONENT DESIGN BASES INSPECTION REPORT 05000458/2014007

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000458
License:	NPF-47
Report No:	05000458/2014007
Licensee:	Entergy Operations, Inc.
Facility:	River Bend Station
Location:	5485 US Highway 61N St. Francisville, LA. 70775
Dates:	July 21 through October 1, 2014
Team Leader:	G. George, Senior Reactor Inspector
Inspectors:	A. Dunlop, Senior Reactor Inspector, NRC Region III M. Kennard, Operations Inspector N. Okonkwo, Reactor Inspector T. G. Skaggs-Ryan, Reactor Inspector
Accompanying Personnel:	S. Gardner, Beckman and Associates J. Zudans, Beckman and Associates
Approved By:	Thomas R. Farnholtz Chief, Engineering Branch 1 Division of Reactor Safety

SUMMARY

IR 05000458/2014007; 07/21/2014 – 10/01/2014; River Bend Station; Component Design Bases Inspection, Follow-up of Events and Notices of Enforcement Discretion

The report covers an announced inspection by a team of five regional inspectors and two contractors. Five findings of very low safety significance (Green) are documented in this report. All five of these findings involved violations of U.S. Nuclear Regulatory Commission (NRC) requirements. Additionally, NRC inspectors documented one licensee-identified violation of very low safety significance. The final significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after the NRC management review. Violations of NRC requirements are dispositioned in accordance with the NRC□s Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," which states, in part, "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents." Specifically, the licensee's preventive maintenance Procedure T429, "ABB 5HK Clean/Inspection," failed to incorporate completion of contact resistance testing prior to maintenance into the preventative maintenance procedures for 4160 Vac circuit breakers as specified by Entergy, the manufacturer, and industry guidance. This condition does not represent an immediate safety concern. This finding has been entered into licensee's corrective action program as Condition Report CR-RBS- 2014-4104.

  This performance deficiency was more than minor, and therefore a finding, because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to perform contact resistance tests prior to maintenance was a significant programmatic deficiency which would have the potential to cause unacceptable or degraded conditions to go undetected. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect associated with identification in the area of problem identification and resolution because the licensee failed to identify issues completely, accurately, and in a timely manner in accordance with the corrective action program [P.1]. (Section 1R21.2.4)

- Green. The inspectors identified a Green, non-cited violation of Technical Specification 5.4.1, "Procedures," which states, in part, "Written procedures shall be established, implemented, and maintained, covering the following activities: The applicable procedures recommended in Regulatory Guide 1.33, Appendix A, February 1978." Regulatory Guide 1.33, Appendix A, Section 9, "Procedures for Performing Maintenance," paragraph b., requires that preventive maintenance schedules should be developed to specify lubrication schedules, inspections of equipment, and inspection or replacement of parts that have a specific lifetime. Specifically, the licensee failed to implement the six-year cleaning and inspection preventive maintenance for Division III 4160 Vac safety-related circuit breakers, E22-S004-ACB1, E22-S004-ACB2, and E22-S004-ACB4. These conditions do not represent an immediate safety concern. These conditions have been entered into the licensees corrective action program as Condition Reports CR-RBS-2014-4106 and CR-RBS-2014-4108.

  This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to events to prevent undesirable consequences. Specifically, the licensee's failure to complete preventive maintenance reduces the reliability and capability of the safety-related circuit breakers. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect associated with design margin in the area of human performance because the licensee did not operate or maintain equipment within design margin and failed to make changes to the margin through a systematic and rigorous process [H.6]. (Section 1R21.2.6)

- Green. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," which states, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." Specifically, River Bend Station failed to accomplish operability determination activities in accordance with Procedure EN-OP-104, "Operability Determination Process," after the licensee identified that safety-related Division III 4160 Vac circuit breakers exceeded their replacement and refurbishment schedule. As an immediate corrective action, the licensee completed a new operability determination, which determined the condition as operable, but degraded/nonconforming, established an interim inspection schedule and established a plan to refurbish the breakers prior to the next refueling outage. This condition has been entered into the licensees corrective action program as Condition Report CR-RBS-2014-3872.

  The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the mitigating system cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the operability determination performed did not consider the degraded condition

of the circuit breaker so that effective interim or compensatory measures would be developed to ensure the reliability of the safety-related Division III 4160 Vac circuit breakers. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect associated with conservative bias in the area of human performance because licensee personnel failed to use conservative assumptions and did not verify the validity of the underlying assumptions used in making safety-significant decisions [H.14]. (Section 1R21.2.6)

Green. The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criteria XVI, "Corrective Action," which states in part, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Specifically, the licensee failed to correct an identified deficiency in calculations for reactor core isolation cooling steam isolation valves with the design function of closing under High Energy Line Break concurrent with degraded voltage through either a calculation revision or engineering change against the calculation. The licensee's corrective actions included completing an operability determination with test data to demonstrate operability. This finding was entered into the licensee corrective action program as Condition Report CR-RBS-2014-3977.

The performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of assuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee programmatically failed to update design basis documents to reflect plant modifications. The inspectors identified multiple opportunities for the licensee to correct this condition. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. The inspectors determined that this finding had a cross-cutting aspect associated with resolution in the area of problem identification and resolution because the licensee failed to take effective corrective actions to address issues in a timely manner commensurate with their safety significance [P.3]. (Section 1R21.2.9)

- Green. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, which states, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Specifically, the licensee failed to promptly correct a condition adverse quality by implementing compensatory measures to restore compliance with the standby service water system 30-day mission requirements pending NRC approval of a license

amendment. On July 8, 2014, the licensee implemented compensatory measures to restore compliance to ensure a 30-day inventory in the standby service water system. This issue was entered into the corrective action program as Condition Report CR-2014-3212.

This performance deficiency was more than minor, and therefore a finding, because, if left uncorrected, it would lead to a more significant safety concern. Specifically, the licensee failed to implement compensatory measures to ensure the standby service water system would meet its 30-day mission requirement. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings," the finding represented a loss of system safety function in that the ultimate heat sink could not meet its 30-day mission time to provide decay heat removal. Therefore, a detailed risk evaluation was necessary. An assessment was performed in accordance with Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The finding was determined to be of very low safety significance (Green) because the frequency of events that would require long term use of the ultimate heat sink is very low and the difference in the failure probability to replenish the ultimate heat sink in 10 days versus 30 days is very small. This was because an early depletion of the inventory would be easily detected and would become a priority. At the time that replenishment would be needed, plant conditions should be stable and local transportation arteries should be restored. This finding has a cross-cutting aspect associated with evaluation in the area of problem identification and resolution because the licensee failed to thoroughly evaluate problems to ensure that resolutions address cause and extent of condition commensurate with their safety significance [P.2]. (Section 4OA2)

Licensee-Identified Violations

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

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

This inspection of component design bases verifies that plant components are maintained within their design basis. Additionally, this inspection provides monitoring of the capability of the selected components and operator actions to perform their design basis functions. As plants age, modifications may alter or disable important design features making the design bases difficult to determine or obsolete. The plant risk assessment model assumes the capability of safety systems and components to perform their intended safety function successfully. This inspectable area verifies aspects of the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for which there are no indicators to measure performance.

1R21 Component Design Basis Inspection (71111.21)

.1 Overall Scope

To assess the ability of the River Bend Station equipment and operators to perform their required safety functions, the inspectors inspected risk-significant components and the licensee's responses to industry operating experience. The inspectors selected risk-significant components for review using information contained in the River Bend Station probabilistic risk assessments and the U. S. Nuclear Regulatory Commission's (NRC) standardized plant analysis risk model. In general, the selection process focused on components that had a risk achievement worth factor greater than 1.3 or a risk reduction worth factor greater than 1.005. The items selected included components in both safety-related and nonsafety-related systems including pumps, circuit breakers, heat exchangers, transformers, and valves. The inspectors selected the risk-significant operating experience to be inspected based on its collective past experience.

To verify that the selected components would function as required, the team reviewed design basis assumptions, calculations, and procedures. In some instances, the inspectors performed calculations to independently verify the licensee's conclusions. The inspectors also verified that the condition of the components was consistent with the design basis and that the tested capabilities met the required criteria.

The inspectors reviewed maintenance work records, corrective action documents, and industry operating experience records to verify that licensee personnel considered degraded conditions and their impact on the components. For selected components, the inspectors observed operators during simulator scenarios, as well as during simulated actions in the plant.

The inspectors performed a margin assessment and detailed review of the selected risk-significant components to verify that the design bases have been correctly implemented and maintained. This design margin assessment considered original design issues, margin reductions because of modifications, and margin reductions identified as a result of material condition issues. Equipment reliability issues were also considered in the selection of components for detailed review. These included items such as failed performance test results; significant corrective actions; repeated maintenance;

10 CFR 50.65(a)1 status; operable, but degraded conditions; NRC resident inspector input of problem equipment; system health reports; industry operating experience; and licensee problem equipment lists. Consideration was also given to the uniqueness and complexity of the design, operating experience, and the available defense-in-depth margins.

The inspection procedure requires a review of 15 to 25 total samples that include risk-significant and low design margin components, components that affect the large-early-release-frequency (LERF), and operating experience issues. The sample selection for this inspection was 18 components, 1 compenent that affects LERF, and 7 operating experience items. The selected inspection and associated operating experience items supported risk-significant functions including the following:

a. Electrical power to mitigation systems: The inspectors selected several components in the electrical power distribution systems to verify operability to supply alternating current (ac) and direct current (dc) power to risk-significant and safety-related loads in support of safety system operation in response to initiating events such as loss of offsite power, station blackout, and a loss-of-coolant accident with offsite power available. As such the inspectors selected:

    - Division II 480 Vac auxiliary building load center, EJS-SWG2B
    - Division I Motor Control Center, EHS-MCC16A
    - Division II 480 Vac control building switchgear, EJS-SWG1B
    - Division II 4160 Vac control building switchgear, ENS-SWG1B
    - Division I 125VDC switchgear, ENB-SWG-01A
    - Division III diesel generator output breaker, E22-S004-ACB1
    - Reactor protection system instrumentation

b. Components that affect large-early-release-frequency (LERF): The inspectors reviewed components required to perform functions that mitigate or prevent an unmonitored release of radiation. The inspectors selected the following components:

    - Containment penetrations

c. Mitigating systems needed to attain safe shutdown: The inspectors reviewed components required to perform the safe shutdown of the plant. As such, the inspectors selected:

    - Reactor core injection cooling steam supply valve, E51-MOV-F063
    - Reactor core injection cooling turbine and pump
    - Reactor core injection cooling transmitters and indication, PIS-N656E
    - Instrument air accumulator tanks, 5A and 5B
    - Division II Control building heating, ventilation, and cooling fans
    - Division II control building air operated dampers
    - Switchgear and battery room air operated dampers
    - Standby service water return valve, SWP-MOV-055B
    - Residual heat removal pump, E12-PC002B
    - Low pressure core spray pump
    - Low pressure coolant injection valve, E12-MOV-F042C

.2 Results of Detailed Reviews for Components:

.2.1 Division II 480V Auxiliary Building Load Center, EJS-SWG2B

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, system description, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with the Division II 480V auxiliary building load center, EJS-SWG2B. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Vendor and plant single line, schematic, wiring, and layout drawings
- Bus loading study for normal operation and design basis accident load conditions
- Circuit breaker preventive maintenance inspection and testing procedures
- Vendor data on available short circuit current
- Calculations for load flow/voltage drop, short circuit, and protection and coordination
- Protective device settings and circuit breaker ratings for short circuit conditions
- Vendor installation and maintenance manuals
- Cable sizing for the load center bus

b. Findings

No findings were identified.

.2.2 Division I Motor Control Center, EHS-MCC16A

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, system description, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with the Division I motor control center, EHS-MCC16A. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Single line, schematic, and wiring diagrams
- Load flow/voltage drop and short circuit studies
- Electrical protection and coordination study for the main and feeder breakers
- Vendor installation and maintenance manuals
- Protective device settings and circuit breaker ratings for short circuit conditions
- Circuit breaker preventive maintenance inspection and testing procedures

- Sizing for control voltage transformers
- Completed surveillance test and preventive maintenance results
- Corrective actions and modifications
- Control wiring diagrams for standby service water valve SWP-MOV-FO55B
- Preventive maintenance performed for valve SWP-MOV-FO55B controls

b. Findings

No findings were identified.

.2.3 Division II 480V Control Building Switchgear, EJS-SWG1B

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, system description, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with the Division II 480V control building switchgear, EJS-SWG1B. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Single line, schematic, and wiring diagrams
- Bus loading study during normal and design basis accident load conditions
- Load flow/voltage drop, short circuit, and protection and coordination calculations
- Protective device settings and circuit breaker ratings for short circuit conditions
- Circuit breaker preventive maintenance inspection and testing procedures
- Vendor installation diagram and maintenance manuals
- Cable sizing for the bus
- Preventive maintenance and surveillance test procedures
- Completed preventive maintenance and surveillance tests
- Modifications and corrective actions

b. Findings

No findings were identified.

.2.4 Division II 4160V Control Building Switchgear, ENS-SWG1B

a. Inspection Scope:

The inspectors reviewed the updated safety analysis report, system description, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with the Division II 4160V Control Building Switchgear, ENS-SWG1B. The inspectors also performed walk downs and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Single line, schematic, and wiring diagrams

- Bus loading study during normal and design basis accident load conditions
- Vendor data on switchgear and associated breakers available short circuit current
- Breaker coordination study
- Vendor manuals
- Cable sizing for the switchgear
- Preventive maintenance and surveillance test procedures
- Preventive maintenance and surveillances test results
- Corrective Actions and modifications

b. Findings

1. Improper Sequencing of Maintenance of 4160 Vac Circuit Breakers Prior to As-Found Tests

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control." Specifically, the licensee's preventive maintenance procedures for 4160 Vac breakers, failed to incorporate completion of as-found tests prior to maintenance of the 4160 Vac circuit breakers as specified by Entergy, manufacturers, and industry guidance.

Description. The inspectors reviewed the six-year preventive maintenance procedures for the safety-related 4160 Vac circuit breakers. During the review, the inspectors identified that Procedure T429, "ABB 5HK Clean/Inspection," did not perform appropriate as-found contact resistance tests prior to performance of maintenance of the safety-related 4160 Vac circuit breakers. The as-found contact resistance test is critical to determine if degraded conditions exist in the circuit breaker.

For example, the ABB 5HK Procedure T429 directed maintenance personnel to clean the physical condition of the circuit breaker contacts prior to performing an as-found test to determine if the circuit breakers would have performed their intended design function. In particular, step 4.5.23, states, "clean the circuit breaker's contacts and surface of the entire current carrying structure, as well as all insulation surfaces with a cloth and approved oil free solvent." Later in step 4.8, the maintenance personnel are directed to take the first main contact resistance measurement. Step 4.5.23 is completed before any as-found main contact resistance tests are performed to verify the function of the critical components of the circuit breaker.

The licensee's 4160 Vac circuit breaker maintenance and testing program was established using Preventive Maintenance Basis Template, "EN-Switchgear- Medium Voltage-1 KV to 7KV." This 4160 Vac preventive maintenance basis template establishes the cleaning, inspection, and testing program which incorporates inspection

guidance from manufacturer documents and Electrical Power Research Institute guidelines; specifically, TR-109642, “Routine Preventive Maintenance Guidance for ABB HK Circuit Breakers.” The Preventive Maintenance Basis Template, “Breaker – Detailed Inspection, Cleaning, & Testing,” section states the procedure should include performing a contact resistance test. EPRI TR 109642, Chapter 4, “Maintenance Tasks,” states that as-found inspection and tests, including contact resistance, should be completed prior to maintenance.

In March 2014 River Bend Station completed an audit, LO-RLO-2012-0111, of the Breaker Preventive Maintenance Program which identified various weaknesses. One of the weaknesses identified was that the similar 4160 Vac preventive maintenance procedures did not always incorporate industry guidance; however, corrective action documents were not generated to identify issues with the T429 procedure. Therefore, the inspectors determined that the identification cross-cutting aspect in the area of problem identification and resolution was warranted.

Analysis. The inspectors determined that failure to establish a test program which incorporates completion of contact resistance testing prior to maintenance of safety-related 4160 Vac circuit breakers was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to perform contact resistance tests prior to maintenance was a significant programmatic deficiency which would have the potential to cause unacceptable or degraded conditions to go undetected. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated June 19, 2012, Exhibit 2, “Mitigating Systems Screening Questions,” the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect associated with identification in the area of problem identification and resolution because the licensee failed to identify issues completely, accurately, and in a timely manner in accordance with the corrective action program [P.1].

Enforcement. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” which states, in part, “A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.” Contrary to the above, prior to August 21, 2014, the licensee failed to establish a test program that assured that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service was identified and performed in accordance with written test procedures which incorporated the requirements and acceptance limits contained in applicable design documents. Specifically, the licensee’s preventive maintenance Procedure T429, “ABB 5HK Clean/Inspection,” failed to incorporate completion of contact resistance testing prior to maintenance into the preventative maintenance procedures for 4160 Vac circuit breakers as specified by Entergy, manufacturer, and industry guidance. This condition does not represent an immediate safety concern.

This finding has been entered into licensee's corrective action program as Condition Report CR-RBS- 2014-4104. Because the finding is of very low safety significance (Green) and has been entered into the licensee corrective action program, this violation is being treated as non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000458/2014007-01, "Improper Sequencing of Maintenance of 4160 Vac Circuit Breakers Prior to As-Found Tests."

.2.5 Division I 125 Vdc Switchgear, ENB-SWG-01A

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, system description, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with the Division I 125 Vdc switchgear, ENB-SWG-01A. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- 125 Vdc automatic control breakers ACB 049, 563, 583, and 623
- One-line diagrams, vendor specifications, and drawings
- Short circuit calculations, to determine maximum load and interrupting duty
- Switchgear and circuit breaker maintenance results
- Modification history
- Conditions of the electrical maintenance shop
- Receipt and storage of breakers in the warehouse, with an emphasis on tracking 1E and non-1E breakers.

b. Findings

No findings were identified.

.2.6 Division III Diesel Generator Output Breaker, E22-S004-ACB1

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, system description, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with the Division III 4160 Vac diesel generator output breaker, E22-S004-ACB1. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Schematics and control wiring diagrams
- Procedures for breaker maintenance, overhaul, and surveillance test

- Completed preventive maintenance and surveillance tests
- Vendor manual and specifications for the breakers
- Load calculations of record and supporting documentation
- Coordination study and sizing of breakers
- Calculations of record for protection settings and alarms
- Breaker control power circuit for breaker and supporting equipment
- Corrective actions on failures associated with breakers
- Plant modifications on the breaker controls

b. Findings

Failure to Complete and Justify Extension of Preventative Maintenance on Division III 4160 Vac Safety Related Breakers

Introduction. The inspectors identified a Green, non-cited violation of Technical Specification 5.4.1.a, "Procedures." Specifically, the licensee failed to implement the six-year preventive maintenance schedule for safety-related Division III 4160 Vac Magne-Blast circuit breakers, E22-S004-ACB1, E22-S004-ACB2, and E22-S004-ACB4. Additionally, the licensee failed to provide an adequate technical justification for extending the preventive maintenance schedule of the circuit breakers in accordance with River Bend Station procedures.

Description. The inspectors reviewed completed preventive maintenance activities for the cleaning and inspection of safety-related Division III 4160 Vac circuit breakers under preventive maintenance task, PMRQ 9484-01. The cleaning and inspection of these circuit breakers, under PMRQ 9484-01, is performed on a once per six-year frequency. The six-year maintenance frequency is documented in the Entergy fleet Preventive Maintenance Basis Template "EN-Switchgear – Medium Voltage – 1KV to 7KV (Rev. 3-09/25/08)." The licensee previously completed cleaning and inspection activities for these safety-related circuit breakers on June 17, 2005. Therefore, the cleaning and inspection activities should have been scheduled to occur by June 2011.

On May 24, 2011, the licensee changed the preventive maintenance frequency from once per six years to once per eight years. The inspectors reviewed "PMOG Review of PM Process Change" associated with Action Request 122700, which included the reason and justification for the change. The Preventive Maintenance Oversight Group (PMOG) justification stated, "Frequency changes to support the long range outage plan for 24 month refueling cycle." The circuit breaker preventive maintenance activities were to be completed by April 18, 2015. However, this date was based on the year the previous maintenance work orders were closed, 2007, not the actual completion of the work activity, which was 2005.

Entergy Procedure EN-DC-324, "Preventive Maintenance Program," Section 5.9, states that the River Bend Station PMOG can make risk-based decisions regarding preventive maintenance implementation. However, the frequency change associated with Action Request 122700 did not include an adequate risk-based justification for this decision. Therefore, there was not a risk-based justification to increase from a six-year frequency to a eight-year frequency.

While reviewing the work orders to perform cleaning and inspection activities, the inspectors noted that, as of August 21, 2014, safety-related circuit breakers, E22-S004-ACB1 (Division III EDG Output Breaker), E22-S004-ACB2 (HPCS Motor Feeder Breaker), and E22-S004-ACB4 (Division III Offsite Power Supply) had exceeded their six-year, plus grace period of twenty-five percent, preventive maintenance frequency to clean and inspect the circuit breakers. The preventive maintenance for the subject circuit breakers were scheduled to occur in 2013; however, the maintenance was not completed.

Analysis. The inspectors determined that the failure to implement the cleaning and inspection of safety-related Division III 4160 Vac circuit breakers in accordance with the specified preventive maintenance schedule was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to events to prevent undesirable consequences. Specifically, failure to implement preventive maintenance reduces the reliability and capability of the safety-related circuit breakers. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect associated with design margin in the area of human performance because the licensee did not operate or maintain equipment within design margin and failed to make changes to the margin through a systematic and rigorous process [H.6].

Enforcement. The inspectors identified a Green, non-cited violation of Technical Specification 5.4.1, "Procedures," which states, in part, "Written procedures shall be established, implemented, and maintained covering the following activities: The applicable procedures recommended in Regulatory Guide 1.33, Appendix A, February 1978." Regulatory Guide 1.33, Appendix A, Section 9, "Procedures for Performing Maintenance," paragraph b., requires that preventive maintenance schedules should be developed to specify lubrication schedules, inspections of equipment, and inspection or replacement of parts that have a specific lifetime. Contrary to the this, from June 17, 2005, to August 21, 2014, the licensee failed to implement applicable procedures recommended in Regulatory Guide 1.33, Appendix A, Section 9, "Procedures for Performing Maintenance." Specifically, the licensee failed implement the six-year cleaning and inspection preventive maintenance for Division III 4160 Vac safety-related circuit breakers, E22-S004-ACB1, E22-S004-ACB2, and E22-S004-ACB4. These conditions have been entered into the licensees corrective action program as Condition Reports CR-RBS-2014-4106 and CR-RBS-2014-4108. Because this finding was of very low safety significance (Green) and was entered into the licensee's corrective action program, this violation is being treated as an non-cited violation, consistent with Section 2.3.2.a of NRC Enforcement policy: NCV 05000458/2014007-02, "Failure to Complete and Justify Extension of Preventative Maintenance on Division III 4160 Vac Safety Related Breakers."

Failure to Perform an Adequate Operability Determination for Missed Preventive Maintenance on Safety-Related Circuit Breakers

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings." Specifically, the licensee failed to correctly evaluate the operability of safety-related Division III 4160 Vac circuit breakers that exceeded their replacement/refurbishment schedule.

Description. The inspectors reviewed Condition Report CR-RBS-2014-1977 which documented that the licensee did not implement the 12-year replacement/refurbishment schedule for safety-related Division III 4160 Vac Magne-Blast circuit breakers E22-S004-ACB1, installed September 3, 1997; E22-S004-ACB2, installed June 3, 1999; E22-S004-ACB3, installed November 11,1998; E22-S004-ACB4, installed May 18, 1999); and E22-S004-ACB5, installed March 4,1999. The preventive maintenance schedule is documented in Entergy fleet Preventive Maintenance Basis Template "EN-Switchgear – Medium Voltage – 1KV to 7KV (Rev. 3-09/25/08)." The operability determination associated with this condition report determined that the Division III circuit breakers were operable.

The inspectors determined that the licensee did not recognize that the failure to implement the preventive maintenance schedule for the Division III 4160 Vac Magne-Blast circuit breakers resulted in a degraded or nonconforming condition. The failure to implement the preventive maintenance schedule was contrary to Technical Specification 5.4.1, "Procedures," to implement preventive maintenance schedules in accordance with Regulatory Guide 1.33, Appendix A, Section 9, "Procedures for Performing Maintenance." Based on NRC Manual Chapter 0326, "Operability Determinations and Functionality Assessments for Conditions Adverse to Quality or Safety," and Entergy Procedure EN-OP-104, "Operability Determination Process," the inspectors determined that the failure to implement preventive maintenance schedule was a degraded condition in which the qualification of the circuit breakers were not maintained. Additionally, this condition was also a nonconforming condition because the condition involved a failure of the licensee to meet its current licensing basis.

Therefore, because a degraded or nonconforming condition existed, the inspectors determined that the licensee failed to declare that the Division III 4160 Vac circuit breakers and its associated high pressure core spray system was in an operable, but degraded/nonconforming condition in accordance with Section 5.3, "Immediate Determination," of Procedure EN-OP-104, "Operability Determination Process."

Analysis. The inspectors determined that the licensee's failure to declare Division III 4160 Vac circuit breakers and its associated high pressure core spray system in an operable, but degraded/nonconforming condition in accordance with Procedure EN-OP-104 was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the mitigating system cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the operability determination performed did not consider the degraded condition of the circuit breaker so that effective interim or compensatory measures would be developed to ensure the reliability of the safety-related Division III 4160 Vac circuit breakers. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance

Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect associated with conservative bias in the area of human performance because licensee personnel failed to use conservative assumptions and did not verify the validity of the underlying assumptions used in making safety-significant decisions [H.14].

Enforcement. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," which states, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." Contrary to the this, prior to August 21, 2014, the licensee failed to accomplish activities affecting quality in accordance with documented instruction or procedures. Specifically, River Bend Station failed to accomplish operability determination activities in accordance with Procedure EN-OP-104, "Operability Determination Process," after the licensee identified that safety-related Division III 4160 Vac circuit breakers exceeded their replacement and refurbishment schedule. As an immediate corrective action, the licensee completed a new operability determination, which determined the condition as operable but degraded/nonconforming, established an interim inspection schedule, and established a plan to refurbish the breakers prior to the next refueling outage. This condition has been entered into the licensees corrective action program as Condition Report CR-RBS-2014-3872. Because this violation was of very low safety significance, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000458/2014007-03, "Failure to Perform an Adequate Operability Determination for Missed Preventive Maintenance on Safety-Related Circuit Breakers."

.2.7 Reactor Protection System Instrumentation

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, system description, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with the reactor protection system instrumentation. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Vendor manuals and preventive maintenance activities for the following:
- Motor-Generator set
- Agastat relays
- Breakers
- Power supplies (capacitors)
- Electrical Protection Assemblies (EPA)
- Isolator Assemblies

- Contactor, relay, solenoid and switch sub-component response time tests

b. Findings

No findings were idenitified.

.2.8 Containment Electrical Penetrations

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, system description, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with the containment electrical penetrations. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Vendor assembly drawings, calculations, and breaker curves
- Interrupting duty and breaker coordination for protection of penetration assemblies
- Circuit breaker maintenance results were reviewed for adverse conditions
- Penetration protection breaker surveillance tests and surveillance frequency
- Assembly specifications, bills of material, and equipment environmental qualifications

b. Findings

No findings were identified.

.2.9 Reactor Core Injection Cooling Steam Supply Valves, E51-MOVF063 and E51-MOVF064

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with reactor core isolation cooling steam supply valves, E51-MOV-F063 and E51-MOV-F064. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Maximum differential pressure, required stem thrust, and stroke time calculations
- Calculations and design basis documents to validate test acceptance criteria
- Component maintenance history and corrective action program reports
- Procedures for preventive maintenance, inspection, and testing

- Calculations for actuator output under design basis conditions
- Calculations for minimum required thrust during design basis conditions
- Environmental design requirements under design basis conditions

b. Findings

Failure to Correct Identified Negative Safety Margin in Design Documents for Reactor Core Isolation Cooling Valves under Postulated High Energy Line Break Conditions

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," involving the licensee's failure to assure that conditions adverse to quality are promptly identified and corrected. Specifically, the licensee failed to correct design basis documents to demonstrate reactor core isolation cooling (RCIC) steam supply valves E51-MOVF063 and E51-MOVF064 close during postulated high energy line break conditions.

Description. Reactor core isolation cooling (RCIC) motor operated valve, E51-MOVF063, is the inboard steam supply valve and an inboard containment isolation valve. The E51-MOVF063 valve is in series with an outboard steam supply valve and an outboard containment isolation valve, E51-MOVF064. E51-MOVF063/64 have dual safety functions, first, to remain open and supply steam to the RCIC turbine, and second, to close under a RCIC isolation signal or a containment isolation signal. The RCIC isolation signal examined was the high energy line break (HELB) concurrent with degraded voltage scenario.

The ability for E51-MOVF063/64 to close under postulated HELB with degraded voltage is determined by comparing the numerical value of the actuator output capability under degraded voltage conditions to the minimum required thrust to close. The actuator output capability under degraded voltage should be larger than the minimum required thrust, meaning that the available thrust is larger than the required thrust and the valves will close. The actuator output capability under degraded voltage is a function of the operator output at reduced voltage and the stem factor. The motor operator output under degraded voltage is obtained by using the Commonwealth Edison Method, which de-rates the motor-name plate for elevated temperatures. The stem factor is obtained analytically or through testing.

The inspectors reviewed the calculations supporting the design function of the E51-MOVF063/64 valves. From the River Bend Station Calculation 13.18.2.3*204, "NRC Generic Letter 89-10 Design Basis Review for E51-MOVF63/64," the inspectors determined the actuator output for E51-MOVF063/64 under degraded voltage is less than the minimum required thrust, and represent a safety margin of –20.9 percent and –22.1 percent, respectively. While revising this calculation, the licensee recognized that the operability and design function of the valves was not supported and entered the condition into the corrective action program as Condition Report CR-RBS-2011-8093. As stated in Condition Report CR-RBS-2011-8093, the licensee addressed operability of the valve by using a revised degraded voltage and stem factors acquired through testing to calculate a revised minimum available thrust resulting in a positive safety margin of approximately 0.9 percent and 1.1 percent, respectively. However, the licensee failed to update Calculation 13.18.2.3*204, "NRC Generic Letter 89-10 Design Basis Review for E51-MOVF-63/64" to demonstrate that both E51-MOVF063/64 would be capable of performing their design function. From December 2011 to August 20, 2014, the licensee

had the following opportunities to identify that the design basis function of E51-MOVF63/64 was not supported by the design basis calculations:

- During Revision 5 of Calculation 13.18.2.3*204 NRC Generic letter 89-10 Design Basis Review for E51-MOVF-63/64

- Condition Report CR-RBS-2011-8093 identified the negative safety margin and demonstrated operability for E51-MOVF63/64

- Stem factor test results from Refuel 17 for both E51-MOVF-63/64 were employed to determine the valve operability

- Engineering Change EC-31715 provided revised degraded voltages for minimum available thrust which were employed to determine the valves operability

- Calculation G13.18.2.3*316 Rev. 6 references Condition Report CR-RBS-2011-8093 as basis for accepting negative safety margin for E51-MOVF-63/64

Subsequent to the identification of this condition, the licensee was able to demonstrate that E51-MOVF063/64 would perform the safety function of closing under a High Energy Line Break concurrent with degraded voltage through an operability determination using a combination of test data and unofficial calculations. The licensee entered this condition into the corrective action program at Condition Report CR-RBS-2014-3977, with a corrective action to update Calculation 13.18.2.3*204, "NRC Generic Letter 89-10 Design Basis Review for E51-MOVF-63/64."

Analysis. The inspectors determined that the failure to promptly correct design basis calculations for E51-MOVF063/64 to support the design function of closing under degraded voltage concurrent with High Energy Line Break, through either a revision of the calculation or engineering changes against the calculation, was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of assuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee programmatically failed to update design basis documents to reflect plant modifications. The inspectors identified multiple opportunities for the licensee to correct this condition. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. The inspectors determined that this finding had a cross-cutting aspect associated with resolution in the area of problem identification and resolution because the licensee failed to take effective corrective actions to address issues in a timely manner commensurate with their safety significance [P.3].

Enforcement. The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criteria XVI, "Corrective Action," which states in part, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Contrary to this requirement, from December 2011 to August 12, 2014, the licensee failed to assure that conditions adverse to quality are promptly corrected. Specifically, the licensee failed to correct an identified negative safety margin in calculations for RCIC containment isolation valves with the design function of closing under High Energy Line Break concurrent with degraded voltage through either a calculation revision or engineering change to the calculation. This finding was entered into the licensee corrective action program as Condition Report CR-RBS-2014-3977. The licensee's corrective actions included completing an operability determination with test data to demonstrate operability. Because this violation was of very low safety significance, this violation is being treated as an non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000458/2014007-04, "Failure to Correct Identified Negative Safety Margin in Design Documents for Reactor Core Isolation Cooling Valves under Postulated High Energy Line Break Conditions."

.2.10 Reactor Core Injection Cooling Turbine and Pump

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with ractor core isolation cooling turbine and pump to ensure design basis requirements specification were met. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Maintenance work order history from the past three years
- Environmental design requirements under design and licensing basis conditions
- Purchase specification requirements and vendor certification documents.

b. Findings

No findings were identified.

.2.11 Reactor Core Injection Cooling Transmitters and Indication, PIS-N656E

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with reactor core injection cooling transmitters and indication, PIS-N656E. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Environmental qualifications and design specifications
- Calculations and engineering changes related to the transmitter setpoints
- Components calibration history, calibration frequency, and testing
- Modification to relocate digital RCIC controls to the Control Building

b. Findings

No findings were identified.

.2.12 Instrument Air Accumulator Tanks, 5A & 5B

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with instrument air accumulator tanks, 5A & 5B. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Design basis requirements in response to transient and accident events, including supply of air to the control building heating, ventilation, and air-conditioning (HVAC) air-operated dampers

- Calculations to verify sufficient air is available to operate the safety-related control building dampers for a 24-hour period

- Inservice testing procedures, recent test results, and trends in test data were reviewed to verify that instrument air check valves, solenoid valves, and relief valves associated with the accumulator tanks were properly tested and were capable to perform their safety function

b. Findings

No findings were identified.

.2.13 Division II Control Building HVAC Fans, HVC-ACU1B, HVC-FN1B, HVC-ACU2B, HVC-FN2B, and HVC-FN3B/D

a. Inspection Scope:

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with Division II control building HVAC fans, HVC-ACU1B, HVC-FN1B, HVC-ACU2B, HVC FN2B, and HVC-FN3B/D. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Design basis requirements in response to transient and accident events, including supply of filtered outside air to the control room envelope, sufficient air flow to maintain ambient conditions within design limits for personnel comfort and equipment performance

- Calculations to verify the fans can exhaust sufficient air to maintain the battery rooms hydrogen concentration within specified limits

- Inservice testing procedures, recent test results, and trends in test data were reviewed to verify that the fans would start on a simulated actuation signal and provide sufficient flow to perform their safety function

b. Findings

No findings were identified.

.2.14 Control Building Air Operated Dampers AOD19A, AOD19B, AOD19C, AOD19D, AOD19E, AOD19F, AOD43A, and AOD43B

a. Inspection Scope:

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with control building air operated dampers AOD19A, AOD19B, AOD19C, AOD19D, AOD19E, AOD19F, AOD43A, and AOD43B. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Design basis requirements in response to transient and accident events, including supply of instrument air to the dampers, maintaining a positive pressure in the control room envelope, and redirecting the supply of outside air through air charcoal filter trains

- Calculations to verify sufficient air is available to operate the safety-related control building dampers for a 24-hour period based on air usage and leakage

- Surveillance procedures and recent test results were reviewed to verify that the dampers properly repositioned as required on a simulated actuation signal, and control room envelope air inleakage testing

b. Findings

No findings were identified.

.2.15 Switchgear and Battery Room Air Operated Dampers AOD5B, AOD12B, AOD12A, and AOD5A

a. Inspection Scope:

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with switchgear and battery room air operated Dampers AOD5B, AOD12B, AOD12A, and AOD5A. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Design basis requirements in response to transient and accident events, including supply of instrument air to the dampers
- The calculation to verify sufficient air is available to operate the safety-related control building dampers for a 24-hour period based on air usage and leakage
- Surveillance procedures and recent test results were reviewed to verify that the dampers properly repositioned as required on a simulated actuation signal

b. Findings

No findings were identified.

.2.16 Service Water Return Valve SWP-MOV-055B

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with standby service water valve SWP-MOV55B. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its design basis function. Specifically, the inspectors reviewed:

- Component maintenance history
- Component replacement modification using the Entergy modification process as well as post-modification testing for IST as well as Generic Letter 89-10 and 95-06 programs
- Component Part 21 associated with this valve that identifies a potential issue with excessive unseating torque identified by the valve manufacture, to assure the issue is evaluated to assure continued operational readiness
- Calculations for weak link analyses, Generic Letter 89-10 calculations, margins associated with the valve qualification, periodic verification analyses in

accordance with Generic Letter 96-05, to verify that the valve meets design basis capability requirements

- IST test procedures and test trends as well as full flow test results on this valve, to assure the valve remains operationally ready

- Procedures associated with position indication verification to assure compliance with position verification testing requirements

b. Findings

No findings were identified.

.2.17 Residual Heat Removal Pump, E12-PC002B

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with residual heat removal pump, E12-PC002B. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Component maintenance history, work orders, and corrective action program reports to verify the monitoring of potential degradation

- Calculations for required net positive suction head, system hydraulic analyses to assure the pump will provide the required flow and pressure under the most limiting design basis conditions

- IST test procedures, full flow and periodic test results, and test trends to assure the pump remains operationally ready and can fulfill the most limiting design basis requirements

b. Findings

No findings were identified.

.2.18 Low Pressure Core Spray Pump, E21-PC001

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with low pressure core spray pump, E21-PC001. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Component maintenance history and work orders

- Calculations for required Net Positive Suction Head, system hydraulic analyses to assure the pump will provide the required flow and pressure under the most limiting design basis conditions

- IST test procedures, full flow and periodic test results and test trends to assure the pump remains operationally ready and can fulfill the most limiting design basis requirements

b. Findings

No findings were identified.

.2.19 Low Pressure Coolant Injection Valve, E12-MOV-F042C

a. Inspection Scope

The inspectors reviewed the updated safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with low pressure coolant injection valve, E12-MOVF042C. The inspectors also performed walkdowns and conducted interviews with system engineering and design personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the inspectors reviewed:

- Component maintenance history to verify the monitoring for potential degradation

- Calculations for weak link analyses, Generic Letter 89-10 calculations, margins associated with the valve qualification, periodic verification analyses in accordance with Generic Letter 96-05, to verify that the valve meets design basis capability requirements and complies with MOV program requirements

- IST test procedures and test trends to assure valve remains operationally ready

- Baseline and periodic verification processes, test procedures and test results associated with Generic Letter 89-10/96-05 to assure requirements for this valve are established and maintained for the life of the plant

- Modifications to the component during the life of the plant to assure that the component remains fully operable and meets all programmatic and regulatory requirements

b. Findings

No findings were identified.

.3 Results of Reviews for Operating Experience

.3.1 NRC Information Notice 2005-30, Safe Shutdown Potentially Challenged by Unanalyzed Internal Flooding Events and Inadequate Design

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of NRC Information Notice 2005-30, "Safe Shutdown Potentially Challenged by Unanalyzed Internal Flooding Events and Inadequate Design," under their operating experience program. Specifically, the inspectors reviewed the licensee's evaluation to ensure the maintenance and design issues discussed in this NRC notification had been addressed and any corrective actions specified were appropriate.

b. Findings

No findings were identified.

.3.2 NRC Information Notice 2010-27, "Ventilation Systems Preventive Maintenance and Design Issues"

a. Inspection Scope

The inspectors reviewed the licensee's documented evaluation and disposition NRC Information Notice 2010-27, "Ventilation System Preventive Maintenance and Design Issues," under their operating experience program. Specifically, the inspectors reviewed the licensee's evaluation to ensure the maintenance and design issues discussed in this NRC notification had been addressed and any corrective actions specified were appropriate.

b. Findings

No findings were identified.

.3.3 NRC Information Notice 2012-11, "Age Related Capacitor Degradation"

a. Inspection Scope

The inspectors reviewed the licensee's documented evaluation and disposition of NRC Information Notice 2012-11, "Age Related Capacitor Degradation," under their operating experience program. Specifically, the inspectors reviewed the licensee's evaluation to ensure the maintenance and design issues discussed in this NRC notification had been addressed and any corrective actions specified were appropriate.

b. Findings

No findings were identified.

.3.4 NRC Information Notice 2012-14, “Motor-Operated Valve Inoperable Due to Stem-Disc Separation”

a. Inspection Scope

The inspectors reviewed the licensee’s documented evaluation and disposition of NRC Information Notice 2012-14, “Motor-Operated Valve Inoperable Due to Stem-Disc Separation,” under their operating experience program. Specifically, the inspectors reviewed the licensee’s evaluation to ensure the maintenance and design issues discussed in this NRC notification had been addressed and any corrective actions specified were appropriate.

b. Findings

No findings were identified.

.3.5 NRC Information Notice 2013-14, “Potential Design Deficiency in MOV Control Circuitry”

a. Inspection Scope

The inspectors reviewed the licensee’s documented evaluation and disposition of Information Notice 2013-014, “Potential Design Deficiency in MOV Control Circuitry,” under their operating experience program. Specifically, the inspectors reviewed the licensee’s evaluation to ensure the maintenance and design issues discussed in this NRC notification had been addressed and any corrective actions specified were appropriate.

b. Findings

No findings were identified.

.3.6 NRC Information Notice 2014-03, “Turbine-Driven Auxiliary Feedwater Pump Overspeed Trip Mechanism Issues”

a. Inspection Scope

The inspectors reviewed the licensee’s documented evaluation and disposition of Information Notice 2014-03, “Turbine-Driven Auxiliary Feedwater Pump Overspeed Trip Mechanism Issues,” under their operating experience program. Specifically, the inspectors reviewed the licensee’s evaluation to ensure the maintenance and design issues discussed in this NRC notification had been addressed and any corrective actions specified were appropriate.

b. Findings

No findings were identified.

.3.7 Part 21 NRC-21-2012-39-00, "Failure of Safety Related Breaker Control Device Due to a Common Cause"

a. Inspection Scope

The inspectors reviewed the licensee's documented evaluation and disposition of NRC Part 21 2012-39-00, "Failure of Safety Related Breaker Control Device Due to a Common Cause," under their operating experience program. Specifically, the inspectors reviewed the licensee's evaluation to ensure the maintenance and design issues discussed in this NRC notification had been addressed and any corrective actions specified were appropriate.

b. Findings

No findings were identified.

.4 Results of Reviews for Operator Actions

a. Inspection Scope

The inspectors selected risk-significant components and operator actions for review using information contained in the licensee's probabilistic risk assessment. This included components and operator actions that had a risk achievement worth factor greater than two or Birnbaum value greater than 1E-6.

For the review of operator actions, the inspectors observed operators during simulator scenarios associated with the selected components as well as observing simulated actions in the plant.

The selected operator actions were:

- Defeating the High Drywell Pressure and Low RPV water level containment vent and purge isolation interlocks. The inspectors observed an in-plant job performance measure where one operator completes Enclosure 28 of Emergency Operating Procedure 5. This activity was observed on two separate operators. This action is required to make reactor core isolation cooling available as an injection source. This activity was satisfactorily performed within the required time.

- Align alternate power to E51-MOV063 from the Safe Shutdown Panel. The inspectors observed an in-plant job performance measure to align E51-MOV063 from its normal power supply and controls to the alternate shut down panel using the guidance provided in Attachment 14 of Abnormal Operating Procedure 31. The activity was observed on two separate operators. This action is necessary for isolation during Event E51-XHE-FO-ALTPW that requires this valve to be energized from that alternate source to isolate a steam line rupture outside containment. This action is also required when a shut down from outside the control room is required. This activity was completed satisfactorily.

Recognize and direct the field operator to power ES51-MOV063 from the remote shut down panel from indications available in the control room. The inspectors observed a simulator scenario that required the operator to diagnose that E51-MOV063 had lost power and will not close as needed to stop a steam line rupture outside of containment. The simulator scenario evaluated the ability to use the emergency operating procedure and abnormal operating procedures for a reactor core isolation cooling steam line break outside of primary containment with isolation failure. The scenario started at 90 percent reactor power due to condensate pump B being tagged out of service for motor inspection, mechanical maintenance has taken an oil sample on the reactor core isolation cooling turbine and the crew is directed to perform a slow roll of the turbine per Station Operation Procedre 35. During the reactor core isolation cooling run, EJS*SWG1B trips and locks out. The steam line break is inserted up stream of E51-F064. The reactor core isolation cooling supply isolation valve E51-F064 isolates, but E51-F063 does not due to the loss of Division II power. The reactor is manually scrammed and transfer from normal to preferred power is completed. At this time, MPS-SWG1A will trip resulting in a loss of all condensate and feedwater. Additional failures were inserted to remove remaining injection sources to establish the conditions that were outlined in PRA event, E51-XHE-FO-ALTPW. The task that the operating crew was evaluated on was the ability to recognize that power is lost to E51-F063 and the valve is needed to be closed and dispatch a field operator to align Division I power to this valve in order to isolate the steam leak. This simulator scenario was performed on two separate operating crews. Both crews were able to determine the correct actions to perform with in the time requirements assumed in event E51-XHE-FO-ALTPW. The first operating crew determined the need to close MOV-63 within 1 minute of the initiation event and directed the work control center to dispatch an operator to align the valve to alternate power supply in twelve minute. The second operating crew immediately identified the need to power the valve from the alternate power supply and dispatched the Reactor Building Operator to perform the actions within four minutes. The activity was completed satisfactory.

- Provide makeup to standby cooling tower using compensatory actions. LAR 2013-18 requested that the NRC approve crediting makeup to the standby cooling tower at approximately 22 days following a LOP-LOCA to account for leakage and for operations where more than the minimum required single division of Standby Service Water is in operation. Pending final resolution of a license amendment request, River Bend Station implemented compensatory measures to ensure that the standby cooling tower inventory is sufficient to meet the 30 day mission time of operation post-LOCA without normal makeup and considering leakage out of the standby service water system. River Bend Station issued Standing Order Number 287 which provided guidance on maintaining inventory of the standby service water system. Operations department performed a detailed walkdown of three methods available to the station to provide makeup. The methods included using the water from the circulating water flume utilizing a portable diesel driven pump, utilizing the fire water system powered from a portable diesel generator, and aligning temporary power to the deepwell pumps to provide makeup. All methods provided acceptable procedural guidance and all equipment that would be required was verified to be available and accessible. There were no issues noted during this walk down.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152)

a. Inspection Scope

The inspectors reviewed condition reports associated with the non-cited violations previously identified in NRC Inspection Report 05000458/2011008, "River Bend Station-NRC Component Design Bases Inspection-Inspection Report 05000458/2011008." Specifically, the inspectors reviewed corrective actions for non-cited violation associated with the residual heat removal heat exchangers and standby service water cooling tower. In addition, this report contains the following issue that has problem identification cross-cutting aspects:

b. Findings

Failure to Promptly Correct Adverse Conditions Associated with Non-cited Violation 05000458/2011008-06

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly correct a condition adverse to quality. Specifically, the licensee failed to promptly correct a condition adverse quality by implementing compensatory measures to restore compliance with the standby service water design requirements.

Description. On October 27, 2011, the NRC identified a Severity Level IV, non-cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," because River Bend Station failed to obtain a license amendment, pursuant to 10 CFR 50.90, prior to crediting nonsafety-related makeup capability to meet ultimate heat sink inventory requirement to provide 30-day cooling water supply.[1] River Bend Station entered this non-cited violation into the corrective action program as Condition Report 2011-07674. The licensee's corrective action, in association with other corrective actions, was to obtain a licensee amendment for this condition.

On February 10, 2014, the licensee submitted license amendment request LAR 2013-18 to the NRC under Entergy Letter RBG-47432. On July 2, 2014, based on safety concerns identified by the NRC during the license amendent request review, the licensee withdrew the license amendment request. The NRC concerns were that the licensee failed to address, in the license amendment request, the current system leakage's affect on the current operability and functional capability of the standby service water system to provide 30 days cooling water supply requirement. Additionally, the licensee did not provide information on the maximum allowed leakage with or without the

[1] River Bend Station – NRC Component Design Basis Inspection Report 05000458/2011008, page 30, "Failure to Obtain NRC Approval for Change to Ultimate Heat Sink Inventory Requirements." (ML113400127)

use of makeup to ensure the system met its functional design requirements. On July 8, 2014, River Bend Station implemented compensatory measures to restore the standby service water system inventory to comply with the 30-day mission requirement. The compensatory measures included increasing the minimum water level of the standby cooling water tower basin and actions to reduce the heat load on the system during a design basis accident.

The inspectors determined, between October 27, 2011, and July 8, 2014, the licensee failed to implement compensatory measures to restore compliance with the standby service water system 30-day mission requirements until NRC approval of a license amendment. Without the implementation of the compensatory measure, River Bend Station could not ensure that the standby service water system would meet its functional requirements to supply cooling water for 30 days.

Analysis. The inspectors determined that the failure to promptly correct a condition adverse to quality existing in the standby service water system was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because, if left uncorrected, it would lead to a more significant safety concern. Specifically, the licensee failed to implement compensatory measures to ensure the standby service water system would meet its 30-day mission requirement. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings," the finding represented a loss of system safety function in that the ultimate heat sink could not meet its 30-day mission time to provide decay heat removal. Therefore, a detailed risk evaluation was necessary. An assessment was performed in accordance with Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The finding was determined to have very low safety significance (Green) because the frequency of events that would require long term use of the ultimate heat sink is very low and the difference in the failure probability to replenish the ultimate heat sink in 10 days versus 30 days is very small. This was because an early depletion of the inventory would be easily detected and would become a priority. At the time that replenishment would be needed, plant conditions should be stable and local transportation arteries should be restored. This finding has a cross-cutting aspect associated with evaluation in the area of problem identification and resolution because the licensee failed to thoroughly evaluate problems to ensure that resolutions address cause and extent of condition commensurate with their safety significance [P.2].

Enforcement. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," which states, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Contrary to the above, from October 27, 2011, to July 8, 2014, the licensee failed to assure that a conditions adverse quality were promptly identified and corrected. Specifically, the licensee failed to promptly correct a condition adverse quality by implementing compensatory measures to restore compliance with the standby service water system 30-day mission requirements until NRC approval of a license amendment. This issue was entered into the corrective action program as Condition Report CR-2014-3212. The licensee implemented compensatory measures to restore compliance to ensure a 30-day inventory in the standby service water system. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program, this violation is

being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000458/2014007-05, "Failure to Promptly Correct Adverse Conditions associated with Non-cited Violation 05000458/2011008-06."

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

This activity constitute completion of 1 event follow-up sample, as defined in Inspection Procedure 71153.

(Opened and Closed) Licensee Event Report 05000458/2014-003-00, Operations Prohibited by Technical Specifications Due to Concurrent Inoperability of Reactor Protection System Channels

On June 10, 2014, with the plant operating at 100 percent power, technicians performing a scheduled surveillance test found that one instrument channel in the reactor protection system failed its time response acceptance criterion. This was the second of two such tests that failed in similar fashion. Since it is conceivable that the second tested channel was out of specifications at the time the first channel was tested, this condition caused independent redundant channels in the same trip system to be inoperable at the same time. The actions required by the applicable Limiting Condition for Operation were not taken since the operators were not aware of the latent condition at the time ofthe first surveillance test failure.

One licensee-identified violation is documented in Section 4OA7 of this report.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On August 22, 2014, the inspectors presented the preliminary inspection results to Mr. Richard Gadbois, General Manager-Plant Operations, 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.

On October 1, 2014, the inspectors presented the final inspection results, via telephone, to Mr. Olson, 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.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a non-cited violation.

- The inspectors reviewed a licensee identified violation for 10 CFR 50 Appendix B, Criterion III, Design Control, which states, "Measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components." Contrary to the above, since November 20, 1985, the licensee failed to review the suitability of relays in the main steam isolation valve closure reactor trip

loop of the reactor protection system to prevent the selection of relays that could drift to challenge the response time test acceptance criteria. The licensee entered this issue into the corrective action program as Condition Report CR-RBS-2014-02833.

The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the finding would have the potential to lead to a more significant safety concern. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings," the finding represented a potential loss of system safety function; therefore a detailed risk evaluation was necessary. The finding required a detailed risk evaluation because it involved the potential loss of a safety function. A senior reactor analyst performed the detailed risk evaluation. When main steam isolation valves, turbine trip valves, and control valve fast closure events occur, the reactor core experiences a pressure transient. The pressure transient causes voids in the core to collapse, which constitutes a significant reactivity addition. To prevent exceeding reactor core thermal limits, the reactor is designed to trip early in the valve closure stroke. The two affected thermal limits included the "Critical Power Ratio" and the "Linear Heat Generation Rate." The analyst noted that the worst case consequence, if these trips did not function at all, would involve exceeding these thermal limits and possibly causing limited fuel cladding damage. Even if these trips did not function, backup trips, such as high pressure trips, were functional and would have shut down the reactor. If the thermal limits were exceeded fuel leaks could occur, but significant core damage would not occur. The purpose of the significance determination process is to assess the potential for significant core damage. Therefore, there was no quantifiable increase in the core damage frequency from this finding. The core damage frequency was much less than 1E-6 and the finding was of very low safety significance (Green). The diverse reactor protection system helped to minimize the significance of this finding.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
A. Thornton, Engineer
B. Cole, Manager, Radiation Protection
B. Mashburn, Director-Engineering
C. Miller, Manager, Site Projects & Maintenance Services
D. Baker, Senior Engineer
D. Sensing, Engineer
E. DeWeese, Senior Staff Engineer
E. Frey, Technical Specialist
E. Olson, Vice President,Operations
E. Robertson, Senior Staff Engineer
F. Corley, Manager, Design & Program Engineering
I. Wells, Supervisor, Engineering
J. Arms, Supervisor, Engineering
J. Clark, Manager, Regulatory Assurance
J. Henderson, Shift Manager, Operations
J. Maher, Manager, Systems & Components Engineering
J. Wieging, Senior Manager, Production
K. Huffstatler, Senior Licensing Engineer
M. Jurey, Supervisor, Quality Assurance
M. Ponzo, Supervisor, Maintenance
M. Raymond, Supervisor, Training
P. Lucky, Manager, Performance Improvement
R. Barrios, Engineer
R. Doerr, Supervisor, Engineering
R. Gadbois, General Manager, Plant Operations
S. Carter, Operations Shift Manager

NRC Personnel
A. Barrett, Resident Inspect
J. Sowa, Senior Resident Inspector
G. Replogle, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000458/2014007-01	NCV	Improper Sequencing of Maintenance of 4160 Vac Circuit Breakers Prior to As-Found Tests (Section 1R21.2.4)
05000458/2014007-02	NCV	Failure to Complete and Justify Extension of Preventative Maintenance on Division III 4160 Vac Safety Related Breakers (Section 1R21.2.6)

05000458/2014007-03	NCV	Failure to Perform an Adequate Operability Determination for Missed Preventive Maintenance on Safety-Related Circuit Breakers (Section 1R21.2.6)
05000458/2014007-04	NCV	Failure to Correct Identified Negative Safety Margin in Design Documents for Reactor Core Isolation Cooling Valves under Postulated High Energy Line Break Conditions (Section 1R21.2.9)
05000458/2014007-05	NCV	Failure to Promptly Correct Adverse Conditions Associated with Non-cited Violation 05000458/2011008-06 (Section 4OA2)
05000458/2014-003-00	LER	Operations Prohibited by Technical Specifications Due to Concurrent Inoperability of Reactor Protection System Channels (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Calculations

Number	Title	Revision
0221.431-000-009-0_DRN80-498	Revised Nozzle Loads on RHR Pump B	1
7222.250-000-012C	105 percent Power Uprate Evaluation Report GE Task No. 16.0, Reactor Core Isolation Cooling System	300
7230.439-000*009A	Weak Link Analysis for 30 Inch Tricentric Valves	300
BV39.1	Fan External Total Pressure Units HVC*ACU1A and 1B	0
BV39.2	Fan External Total Pressure Units HVC*ACU2A and 2B	0
E-129	Load Tabulation 13.8 and 4.16 KV Systems	5
E-131	ETAP Report Short Circuit Analysis Case 4 (RTX-XSR1E at LOWER 3)	2
E-133	Drywell Penetration Bypass Leak Rate	1
E-143	Node Voltages: Battery 1A LOP-LOCA with Charger Failure	11
E-167	5KV Power Cable sizing Ampacity and Minimum Lengths	1
E-190-0	Electrical Penetration I^2 T Coordination Curves	2
E-192	Standby Diesel Generator Loading Calculation	9
E-200	Breaker Coordination Study EJS-SWG1b	2
E-210	Cable Loop Length Criteria For Voltage Drop AC Ckts.	2

Calculations

Number	Title	Revision
EC 38810	Revise Calculation PB-315 to Evaluate the Use of 8 Air Bottles to Maintain HVC Air Supply	0
EC-31715	MOV Terminal Voltage at LAL Reset for Automatic and at LAL Dropout for Manual	
G13.18.10.0*016	Verify Emergency Core Cooling Systems (ECCS), and Reactor Core Isolation Cooling (RCIC) System are Adequately Protected from Air Entrainment due to Vortexing	1
G13.18.15.1*73	Qualified Life-EGP and FGP Normally Energized Agastat Relays	0
G13.18.15.2*141	Maximum Thrust Calculation for E51-MOVF063 and E51-MOVF064	0
G13.18.2.1.059	Control Building Heat Load Evaluation during LOCA w/ Offsite Power Available and Normal Operating Conditions	4
G13.18.2.1-092	Control Building Div. I and II Battery Rooms Hydrogen Concentration	0
G13.18.2.2*006	LPCS and RHR-A Pum Interaction During Minimum Flow Operation	0
G13.18.2.3*206	G.L 89-10 Design Basis Review for E51-MOVF063 and F064	5
G13.18.2.3*244	G.L. 89-10 Design Basis Review for E12-MOVFO42C	6
G13.18.2.3*293	G.L. 89-10 Design Basis Review for SW-MOV-55A	1c
G13.18.2.3*316	GL 96-05 MOV Periodic Static Test Frequency	6
G13.18.2.3*325	River Bend Station NRC Generic Letter 96-05 AC MOV Actuator Output Capability Calculation	2
G13.18.2.3*425	Classification of GL 89-10 MOVs per JOG MOV PV Program Methodology	2
G13.18.2.4*058	NPSH Calculation for RHR Mode A-2 Loop C	1
G13.18.2.6*067	Flow Through LPCS and RHR Pumps When Both are in Minimum Recirculation Mode Simultaneously	0
G13.18.2.6*186	NPSH Determination for SPC and RHR Pumps When They are Lined up to the Reactor Vessel at the Same Time.	0
G13.18.2.7*032	ECCS Operability During Loss of Decay Heat Removal	0

Calculations

Number	Title	Revision
G13.18.2.7*113	Reload Analysis Inputs Basis	0
G13.18.2.8.043	Instrument Air System Tank Relief Valves 1IAS*RV38A and 1IAS*RV38B Discharge Piping Verification	0, 0A
G13.18.3.6*009	Division III 125 VDC Battery Sizing, Load Flow, Circuit Voltage Drop, Short Circuit, Charger Verification and Cable Verification	4
G13.18.3.6*016	Degraded Voltage Calculation for Class IE Buses and 480V Motor Operated Valves	2
G13.18.3.6*021	DC System Analysis Methodology and Scenario Development	1
G13.18.3.6*005	Coordination Study of Class 1E Low Voltage Protective Devices	05
G13.18.4.0*013	LPCS Fill Pump PC002 Suction Pressure Requirement	0
G13.18.4.0*018	LPCS Flow Versus Reactor Pressure	2
G13.18.4.0*17	RHR Flow Versus Reactor Pressure	1
G13.18.4.0*18	LPCS Flow Versus Reactor Pressure	2
G13.18.6.1.C71*003	Instrument Loop Uncertainty Setpoint Determination for Turbine Control Valve Fast Closure RPS Trip	0
G13.18.6.1.C71*004	Instrument Loop Uncertainty Setpoint Determination for Turbine Stop Valve Closure RPS Trip	0
G13.18.6.1.C71*005	Scram Bypass from Turbine Control Valve and Turbine Stop Valve Closure at Low Power	1
G13.18.6.1.RPS*001	Setpoint Calculation for EPA UV,OV, and UF trips	1
G13.18.9.4-059	Calculation, Equipment Qualification Doses to Conax Penetrations	0
PB-315	Air Accumulator Tank Sizing for Category I Air Operated Dampers	5
PN-268	RHR System Pumps TDH and NPSHA Except LPCI (Mode a-2) Operation	5
PN-340	LPCS System Resistance Curves and Design Verification	2
PN-48	Subsystem Fill Pump Calculation of TDH, NPSH, and Heat Dissipation Capabilities	3

Drawings

Number	Title	Revision/Date
0221_421_000_023	LPCS Pump Curve	June 17, 1977
0230.439-000-011	Tricentric Valve TBV 30 in.- CL 150 Lug W/SMB-00-25/H3BC	301
0230.439-000-012	Tricentric Valve TBV 30 in.- CL 150 Lug W/SMB-00-25/H3BC	301
0242.533.265.020	Standby 480V Load Center Three Line Diagram, 1EJS*LDC2B	301
0242.533.614.001	Control Diagram For AKR-30 EO Type Replacement Breaker	300
0242.533.614.003	Control Diagram For AKR-30 EO Type Replacement Breaker	300
0242.562.082.386	1EHS-MCC16B, Schematic and Wiring Diagram for FVR Starter	C
0242.562.082.429	Front and Rear View, Wiring Diagram EHS-MCC16B	301
12210-EB-40A-7	Floor and Equipment Drainage Aux BLDG. EL 70'-0" Sht.1	7
12210-EB-40B-9	Floor and Equipment Drainage Aux BLDG. EL 70'-0" Sht.2	9
241.211	Arrgt Elec Penetrations Plan and Details	2
241.211-156-011	Wiring Legend LVC and LVI Electrical Penetration	301
33-51128-E227	Indoor Metal Clad Switchgear 5HK-250, 1200A, 4160V, 3PH, 3W, 60HZ General Arrangement Dwg.	11
87220A	General Electric Atomic Power Equipment Division RCIC Pump Drive – Terry Type GS-2	December 1, 1976
98499D	Instrument Wiring Diagram – RCIC Unit	May 23, 1974
BE-270A	Circuit Breaker Trip Device Settings 125VDC Bus ENB-SWG01A	4
EE0-001ZG	125VDC One Line Diagram Standby Bus A ENB-SWG01A, ENB-PNL02A,03A	22
EE-001AB	480V One Line Diagram, Standby Bus 1EJS*LDC 1B and 2B	19
EE-001AC	Start-up Electrical Distribution Chart	46

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EE-001E	13.8KV One Line Diagram Bus INPS-SWG1B	13
EE-001L	4160 V One Line Diagram, Standby Bus 1ENS-SWG1B	15
EE-001WB	480V One Line Diagram, EHS – MCC16B, Standby Cooling Tower, No. 1	13
EE-001YA	480V One Line Diagram, EHS – MCC16A, Standby Cooling Tower, No. 1	13
EE-006DB	Wiring Diagram NSSS Miscellaneous Details	6
EE-009RA	480V Wiring Diagram, EHS – MCC16B, Standby Cooling Tower, Area	9
EE-011ZL	4160V One-line Diagram Bus 1NNS-SWG6A and 6B	12
EK-313B	Instrument Piping Standby Cooling Tower	3
EP-089D	Fuel, Reactor & Auxiliary BLDGS. Floor Drain Sump Discharge Piping	6
EP-108D	Tunnel Piping Plan North of Turbine Building	8
ESK-06SWP06, Sh.1	Elementary Diagram 480KV Control Circuit Service Water System MOV's	22
ESK-06SWP06, Sh.2	Elementary Diagram 480KV Control Circuit Service Water System MOV's	22
ESK-5SWP05	Elem. Diag. 4.16KV SWGR Standby Service Water Pump P25	20
FSK-22-9A	Loop Diagram 1HVC*19, Sh. 1	6
FSK-22-9C	Loop Diagram 1HVC*5, Sh. 1	5
GE-22A377AG	Reactor Protection System, Sh's. 1-6	6
GE-762E427AA, Sh. 1	Instrument and Electrical Diagram Reactor Protection System	11
GE-762E427AA, Sh. 2	Instrument and Electrical Diagram Reactor Protection System	6
GE-828E531AA, Sh. 1	Elementary Diagram Reactor Protection System	31
GE-828E531AA, Sh. 10	Elementary Diagram Reactor Protection System	32
GE-828E531AA, Sh. 17	Elementary Diagram Reactor Protection System	26
GE-828E531AA, Sh. 18	Elementary Diagram Reactor Protection System	26

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GE-828E531AA, Sh. 19	Elementary Diagram Reactor Protection System	23
GE-828E531AA, Sh. 2	Elementary Diagram Reactor Protection System	31
GE-828E531AA, Sh. 2A	Elementary Diagram Reactor Protection System	22
GE-828E531AA, Sh. 3	Elementary Diagram Reactor Protection System	28
GE-828E531AA, Sh. 4	Elementary Diagram Reactor Protection System	25
GE-828E531AA, Sh. 4	Instrument and Electrical Diagram Reactor Protection System	4
GE-828E531AA, Sh. 5	Elementary Diagram Reactor Protection System	28
GE-828E531AA, Sh. 6	Elementary Diagram Reactor Protection System	27
GE-828E531AA, Sh. 7	Elementary Diagram Reactor Protection System	26
GE-828E531AA, Sh. 8	Elementary Diagram Reactor Protection System	27
GE-828E531AA, Sh. 9	Elementary Diagram Reactor Protection System	37
GE-944E981	Element Diagram RPS MG Set Control System	11
ICD0221_431_000_009	RHR Pump and Motor	4
KA-PCD-DFR-183-CD-A	Line no. 1-dfr-004-183-3, Sh. 1	A
KA-PCD-DFR-183-CD-A	Line no. 1-dfr-004-183-3, Sh. 2	A
LSK-13.03A	Logic Diagram, 125VDC Normal and Standby Battery System	8
LSK-22-08.01C	Logic Diagram, Yard Structures - Ventilation	6
LSK-22-08.01E	Logic Diagram, Yard Structures - Ventilation	6
LSK-22-08.01E	Logic Diagram, Yard Structures - Ventilation	9
LSK-24-11.02A	Logic Diagram, Standby Station Service Load Center Supply Bus Distribution ACB Control	12
LSK-24-13.03D	Logic Diagram, 125VDC Normal and Standby Battery System	9
PID-09-10E	Engineering P&I Diagram System 256 Service Water – Standby	20
PID-12-01B	Engineering P&I Diagram System 122 Air-Instrument	36

Drawings

Number	Title	Revision/Date
PID-22-9A	Engineering P&I Diagram System 402 HVAC Control BLDG	18
PID-22-9B	Engineering P&I Diagram System 402 HVAC Control BLDG	14
PID-22-9C	Engineering P&I Diagram System 402 HVAC Control BLDG	10
PID-22-9D	Engineering P&I Diagram System Cat I End Users Served by Instr. Air Sys Root Valves “System 122”	3
PID-27-05A	Engineering P&I Diagram System 205 Low Pressure Core Spray	23
PID-27-07A	Engineering P&I Diagram System 204 Residual Heat Removal-LPCI	38
PID-27-07B	Engineering P&I Diagram System 204 Residual Heat Removal-LPCI	42
PID-27-07C	Engineering P&I Diagram System 204 Residual Heat Removal-LPCI	25
PID-32-09J	Engineering P&I Diagram System 609 Drains – Floor and Equipment	22
PID-32-09-K	Engineering P&I Diagram System 609 Drains – Floor and Equipment	19
Training	Service Water System	
Training	RHR B	
Training	LPCS	

Design Basis Documents

Number	Title	Revision
245.600	General Design Criteria, Operability Time Document	0
SDC-118_130_256	Service Water System Design Criteria System Numbers 118, 130 and 256	5
SDC-204	RHR System Design Criteria System 204	4
SDC-205	Low Pressure Core Spray System Design Criteria System Number 205	3

Design Basis Documents

Number	Title	Revision
SDC-209	Reactor Core Isolation Cooling System Design Criteria System Number 209	5
SDC-305	Safety Related 125VDC System Design Criteria	2
SDC-402/410	Control Bldg. HVAC System, Control Bldg. Chilled Water System, Ventilation Chilled Water System Design Criteria, System Numbers 402, 410	3
SDC-508	Reactor Protection System Design Criteria	1
TCBD – 107	Design Basis Document for Motor Operated Valves / GL 89-10	3

Procedures

Number	Title	Revision/Date
1.ILIAS.038	Control BLDG Air Damper Header A Pressure Loop	2
1.ILIAS.039	Control BLDG Air Damper Header B Pressure Loop	2
AOP-0001	Reactor Scram	28
AOP-0002	Main Turbine and Generator Trips	26
AOP-0003	Automatic Isolations	33
AOP-0004 Attachment 13	Loss of Offsite Power Makeup to Standby Cooling Tower form CIRC Water Flume	50
AOP-0004 Attachment 12	Loss of Offsite Power Makeup to Standby Cooling Tower with Fire Water	50
AOP-0004 Attachment 15	Loss of Offsite Power Operation of FPW-P4	50
AOP-0004 Attachment 14	Loss of Offsite Power Makeup to Standby Cooling Tower Using Temporary Power to the Deepwell Pumps	50
AOP-0006	Condensate/Feedwater Failures	19
AOP-0031 Attachment 14	Shutdown from Outside the Main Control Room Reactor Building Operator Actions	322
CA8303220001	Standby 480V Load Center	March 18, 1983
CI8305310002	Installation and Operating Instruction Manual 480V Standby Load Centers	June 1, 1983

Procedures

Number	Title	Revision/Date
ECH-S-0007	Purchase Specification for Replacement Low Voltage Air Circuit Breakers (Safety Related, Harsh Environment)	0
EN-AD-101	Procedure Process	20
EN-AD-101-01	NMM Procedure Writer Manual	12
EN-DC-126	Engineering Calculation Process	5
EN-DC-205	Maintenance Rule Monitoring	5
EN-DC-206	Maintenance Rule (a)(1) Process	3
EN-DC-207	Maintenance Rule Periodic Assessment	3
EN-DC-304	MOV Thrust/Torque Setpoint Calculations	2
EN-DC-312	Motor Operated Valve (MOV) Test Data Review	3
EN-DC-313	Procurement Engineering Process	10
EN-DC-324	Preventive Maintenance Program	13
EN-LI-104	Self Assessment and Benchmark Process	10
EN-MP-112	Shelf Life Program	5
EN-MP-120	Material Receipt	7
EOP-1	RPV Control	26
EOP-3	Secondary Containment and Radioactive Release Control	16
EOP-5 Enclosure 28	Defeating High Drywell Pressure and Low RPV Water Level Containment Vent and Purge isolation Interlocks	314
GOP-0005	General Operating Procedure-Power Maneuvering	320
IM-052-07860-1	Instruction Manual for NLI/Square D Masterpact AC Breaker (Replacement for GE AKR-30 and AKR-50)	1
PMRQ 9484	EN-Switchgear – Medium Voltage – 1KV – 7KV	3
RBNP-001	Development and Control of RBS Procedure	35
S345-0148	Instruction Manual for NLI/Square D Masterpact AC Breaker (Replacement for GE AKR-30 and AKR-50)	0
SDC-302	Safety Related 4.16KV Electrical Distribution System Design Criteria	1
SDC-303	Safety Related 480V Electrical Distribution System Design Criteria	1

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Number	Title	Revision/Date
SOP-0022	Instrument Air System (System #122)	332
SOP-0035	Reactor Core Isolation Cooling System	47
SOP-0058	Control Building HVAC System (SYS. #402)	21
STP-051-4851	RPS Main Steam Line Isolation Valves Closure Response Time Test	0
STP-051-4851	RPS Main Steam Line Isolation Valves Closure Response Time Test	3
STP-209-6310	RCIC Quarterly Pump and Valve Operability Test	38
STP-209-6501	RCIC Pump and Valve Operability Test	5
STP-209-6800	RCIC Cold Shutdown Valve Operability Test	303
STP-256-6604	DIV II Service Water Two Year Position Indication Verification Test	302
STP-302-0102	Power Distribution System Operability Check	17
STP-302-0602	DIV II Off-Site AC Sources Transfer Test	2
STP-302-1203	ENS-SWG1B Loss of Voltage Channel Function Test	8
STP-302-1205	ENS-Degraded Voltage Channel Function Test	8
STP-302-1601	ENS-SWG1B Loss of Voltage Channel Calibration and Logic System Test	21
STP-302-1603	ENS-SWG1B Degraded Voltage Channel Calibration and Logic System Functional Test	25
STP-302-1703	ENS-SWG3A-ACB35 and ENS-SWG4A-ACB36 Inspection	2
STP-302-1704	ENS-SWG3B-ACB37 and ENS-SWG4B-ACB38 Inspection	2
STP-303-1601	120 and 480VAC Breaker Overload Functional Test	30
STP-303-1700	120 and 480VAC Breaker Inspection	19
STP-309-0602	Division II ECCS Test	40
STP-505-4804	RPS-APRM Flow Biased Simulated Thermal Power-High, Neutron Flux-High Resp Time Test	9
STP-508-4811	Response Time Test of Scram Relays	2
STP-508-4812	RPS Channel A Response Time Test	301
STP-508-4813	RPS Channel B Response Time Test	301

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Number	Title	Revision/Date
STP-508-4814	RPS Channel C Response Time Test	301
STP-508-4815	RPS Channel D Response Time Test	301
T1870	CKTBRK Maintain MAGNE BLAST 4.16KV	July 20, 2011
T431	5HK Breaker Post-Maintenance After	January 25, 2007
T788	Clean And Inspect 480V Switchgear	August 23, 2010
T8127	MOV SWP-MOV55B SIGNATURE TESTING	September 10, 2010
T8494	Clean And Inspect 4.16KV Switchgear	December 9, 2008
T9372	Electrical Post-Maintenance Test	September 26, 2006
T975	Dry Type Transformer and Interrupter Switch	February 25, 2009
TDP-0087	GE Hitachi Technical Design Procedure- Reload Calculation	8
TP-256-6302	DIV II Standby Service Water Quarterly Valve Operability Test	22
SEP-RBS-IST-1	RBS Inservice Testing Bases Document Site Engineering Programs	4
SEP-RBS-IST-2	RBS Inservice Testing Plan Site Engineering Program Section	5
SEP-RBS-IST-3	RBS Inservice Testing Cross Reference Document Site Engineering Programs	4
EN-DC-311	MOV Periodic Verification	4
EN-DC-331	MOV Program	3
CEP-IST-4	Standard on Inservice Testing	307

Condition Reports

1996-00937	2007-04305	2008-00081	2008-00608	2008-01250
2008-04710	2008-06872	2010-00061	2010-00196	2010-00802
2010-00802	2010-02432	2010-02911	2010-03915	2011-00359
2011-00533	2011-00691	2011-00765	2011-01123	2011-01123

Condition Reports

2011-04095	2011-05060	2011-07713	2011-08093	2012-00679
2012-01000	2012-01578	2012-02659	2012-02773	2012-02777
2012-02778	2012-02964	2012-03439	2012-03439	2012-03534
2012-03588	2012-03642	2012-03651	2012-03651	2012-04165
2012-04534	2012-04666	2012-04666	2012-05154	2012-05154
2012-06791	2012-07110	2012-07201	2013-01364	2013-02223
2013-02223	2013-04247	2013-04360	2014-00398	2014-00517
2014-01111	2014-01673	2014-01681	2014-01794	2014-01977
2014-02754	2014-02815	2014-02833	2014-02833	2014-02940
2014-03214	2014-03652	2014-03977	2014-1977	CR-HQN-2008-00688
LO-RLO-2011-0070				

Condition Reports Generated during the Inspection

2014-03579	2014-03577	2014-03583	2014-03594	2014-03635
2014-03627	2014-03684	2014-03853	2014-03872	2014-04104
2014-04105	2014-04106	2014-04108	2014-04101	2014-03556
2014-03648	2014-03589	2014-04163	2014-04164	2014-03541
2014-03636	2014-03629	2014-03624	2014-03610	2014-03611
2014-03596	2014-03584	2014-03865	2014-03875	2014-03879

Work Orders

00046684-02	00074260	00078001	00116662 01	00138058
00138058	00139605	00140587	00140588	00157117-01
00157923-01	00173604-01	00198728-02	00208353	00208353
00222303	00227076	00231294-01	00234479	00234479
00262422-01	00264418	00265397	00277347	00307047
00307333	00314346	00316257-01	00316756	00317828-01
00321175	00322254-01	00343766	00365626	00379821-01
00380179	00384854	00384854	00385547	00385549

Work Orders

00386547	134790	301489-01	4621203	4621203
50788392	50990405	50990452	51000579	51008326-01
51009468	51015098-01	51040105-01	51082956	51087788
51650708-01	52032663	52227286	52230606	52278328
52296443	52306690	52330687	52331118	52331119
52331361	52331363	52331837-01	52334333	52334334
52352899-01	52364812	52369513	52371224	52377166
52382899-01	52394184-01	52401225-01	52401225-01	52403114
52406213	52406213-01	52419447	52419448	52419450
52424461	52425502	52425815	52425821	52426891
52426891-01	52427149	52427149-01	52447657	52458804
52458805	52475813-01	52476365-01	52496048-01	52524375-01
52524376-01	52549997	52555281-01	52556358	52556358
52560322 01	52560323	52563854	52566170-01	52566170-01

Miscellaneous

Number	Title	Revision/Date
	Certificate of Calibration; Amprobe Instrument ACDC1000A – AC/DC Dig. Clamp on Meter	July 16, 2008
	Certificate of Calibration; Fluke Corporation 1520 – Megohmmeter, 1000V	October 24, 2012
	Certificate of Calibration; Fluke Corporation 87 – Multimeter, True RMS	October 18, 2012
	E51_MOVF063 AL/PS/COMP/THRU As-Left (Diagnostic Test Trace)	February 8, 2008
	Valve Data Acquisition (Open/Close) E51-MOVF063	August 13, 2013
	Valve Data Acquisition (Open/Close) E51-MOVF064	August 13, 2013
	Analysis Datasheet for Static Test of Gate and Globe Valves – E51-MOVF063	August 13, 2013
	Analysis Datasheet for Static Test of Gate and Globe Valves – E51-MOVF064	August 13, 2013

Miscellaneous

Number	Title	Revision/Date
	System Health Report, 125VDC Electric Distribution & Battery Charger	Q1-2014
	System Health Report, Reactor Protection	Q1-2014
	System Health Report, 480VAC Distribution	Q1-2014
	RBS Control Room Log, 00:00 June 5, 2014 to 24:00 June 14, 2014	June 14, 2014
	NEMA to EPRI letter, re: Molded Case Circuit Breakers in Nuclear Industry	April 17, 2000
	RCIC Performance Test Data	May 31, 1983
	System Health Report 256 Service Water – Standby	July 9, 2014
	E12-MOVF042C Trend Chart	Various
	SWP-MOV55B Trend Chart	Various
	E12-PC002B RHR Pump B trend Chart	Various
	E21-PC001 Trend Chart	Various
	System Health Report – RHR and LPCI	July 9, 2014
0221_421_000_023	LPCS Pump Curve	June 17, 1977
219.702	Design Specification for Containment, Electrical Penetrations	December 14, 1983
21A9443AX	Purchase Specification Data Sheet; Pump, RCIC	June 24, 1976
21A9526AJ	Purchase Specification Data Sheet; Turbine, Steam, RCIC Drive	January 11, 1983
228.212	Valve Data Sheet E12-MOVF042C	1
22A3771	Reactor Protection System Design Spec Data Sheet	02
22A3771AG	Reactor Protection System Design Spec Data Sheet	04
230.439 Data Sheet	Valve Data Sheet – SWP-MOV55A/B	2
241.211	Specification for Electrical Penetrations	1
242.521	Specification Standby 4.16KV metal-clad switchgear and 125VDC switchgear	1
242.533	Specification Standby 480 V Load Center	July 1, 1985
283X239AA	Reactor Core Isol Cool System; Parts List	June 16, 1988

Miscellaneous

Number	Title	Revision/Date
3002004173	Relay Service Life Testing and Evaluation- Agastat EGP Relays	June 2014
302 Sys. Health Report	4.16KV Electrical System Health Report	Q1-2014
303 Sys. Health Report	480 VAC ELECTRIC DISTRIBUTION	Q1-2014
3215.480-278-004C	Service Manual for Air Operated Opposed Blade Dampers	3
3215.480-278-004-M	ASCO/QAD Solenoid Valve Installation/Maintenance Instructions	March 28, 1989
3221.236-000-002A	Isolator Assembly, GE Vendor Manual	0
3247.131-000-001A	Electrical Protection Assembly, Vendor Manual	0
6242.433-000-002A	Qualification Test Report Agastat Relays	A
8224.150-000-076B	EQ Report, RCIC Turbine Pressure, Differential Pressure, and Temperature Switches	May 1996
A585-0159	Installation/Operation/Maintenance for Tricentric Valves	3
A585-0160	Customized Bill of Material, Sheet 1	N/A
ACE CR-RBS-2012-02659	Apparent Cause Evaluation Report for Multiple Failures of Unitized Motor Starters during Testing	May 16, 2012
ARP-863-75	STBY Service Water Pump Room A extreme High Temp. Alarm No. 1152	29
C515-0106	Conax Elec Penetration Assembly, Vendor Manual	00
CD08010010001 (33-5112B)	IB-8-2-7-1, ITE Metal Clad Switchgear Instruction Manual, Issue H	October 9, 1980
E&DCR #P-20037A	Change in Penetration Spec, allowing Teflon with Engineering Approval	April 17, 1981
EC-0000005081	MODIFY PACKING GLAND FOLLOWER TO MATCH ORIGINAL CONFIGURATION FOR SWP-MOV57A/B, 96A/B, 55A/B, 501A/B, 511A/B, 506A/B, E12-MOVF068A/B	0
EC-0000023410	BCS-MOV2A Original SMC-04I LIMITORGUE Actuator is Being Replaced with L120-10-1700 Actuator. Equivalent Evaluation to Revise Applicable Actuator Drawings.	0
EC-0000035455	RE-BASELINE REFERENCE VALUES AND ACCEPTANCE LIMITS FOR B21-MOVF067D	0

Miscellaneous

Number	Title	Revision/Date
EC-0000039119	MWS-MOV138 SMC-041 LIMITORQUE ACTUATOR BEING REPLACED WITH LIMITORQUE L120-10-7.5/NCU	0
EC-2025	Evaluate the Use of Grease LONG LIFE NLGI On All Safety Related MOVs	October 25, 2008
EQAR-027	River Bend Station Environmental Qualification Assessment Report for Limitorque Motorized Valve Actuators with Class RH Insulated AC Motors	4
EQAR-036	EQ Assessment Report, Conax Penetration Assembly	3
EQAR-075	River Bend Station Environmental Qualification Assessment Report for Reactor Core Isolation Cooling Turbine Controls	4
ER-RB-2000-0345-000	SWP MOV Upgrade	0
G200-0102	Installation, Operation, and Maintenance Instructions For Models 3196ST, 3196MT, 3196XLT	0
LAR 2002-13	Electrical Equipment Protective Devices	October 8, 2002
LCR.1.ILICS.032	Reactor Core Isol Cooling Division 1 Isolation Pressure Loop	3
LO-RLO-2014-00002	Evaluation of IN 2014-04	June 20, 2014
LO-RLO-2014-0033	Relay Program-Agastat Snapshot	July 18, 2014
MR 91-0094	Modification Request: Modify Isol MOV's Per GL 89-10, Supp 3	
MWO 78414	VOTES MOV Test Report E51-MOVF063 ST-006	May 2, 2006
NEDC-30791	Product Evaluation Section; RCIC Turbine, Model #GS-2	2
NLI-QA-3366	NLI Response regarding the ANSI rated of Masterpart Breakers with IEC Rating	July 28, 2014
NRC-IN-2010-27 -A2-RBS-0001	NRC-IN-2010-27 – Ventilation System Preventive Maintenance and Design Issues	March 28, 2011
NRC-IN-2012-14-A2-RBS-0001-001	RBS Evaluation: NRC-IN-2012-14 - MOTOR-OPERATED VALVE INOPERABLE DUE TO STEM-DISC SEPARATION	November 7, 2012

Miscellaneous

Number	Title	Revision/Date
OE-NOE-2008-00372	OE Impact Evaluation	January 21, 2009
ORNL-TM-1757	The Effect of Air On the Radiation-Induced Degradation of Polytetraflouroethylene (Teflon)	February 1967
PMOS-EGP	PM Basis Template RBS_Control Relay-Agastat GP/EGP	4
PMOS-ETR	PM Basis Template RBS_Timing Relays-Agastat ETR	2
PO 10355186	Purchase order, Refurbishment Square D Masterpact Breaker	September 19, 2012
PO 1046527	Purchase order, Repair ABB 4160 Breakers (Part 21)	July 30, 2014
QC-RBS-00013259	QC Receipt Inspection Summary Data for NLI and P.O. #10161314	January 27, 2008
RBS ER 99-0574	Relocate RCIC Panel E51-PNLC002 due to increased doses from Uprate/HWC	0
RBS-SE-13-00017	Maintenance Rule Basis Document, MRDB – 204 Residual Heat Removal	0
RBS-SE-13-00019	Maintenance Rule Basis Documents MRBD-209, Reactor Core Isolation Cooling	May 22, 2013
RBS-SE-13-00027	Maintenance Rule Basis Document MRBD-122, Instrument Air System	0
RBS-SIPD-2303	RPS Agastat Relay Replacement	June 17, 2014
RLP-STM-0209	Operations Training, Reactor Core Isolation Cooling (RCIC) System	3
RPPT-STM-0209-BWRT	Reactor Core Isolation (RCIC) System	0
RPPT-STM-0209-LR	Reactor Core Isolation (RCIC) System	1
S-CRB-25151	QUALITY ASSURANCE AUDIT REPORT S-CRB-25151 QA-8-2013-RBS-01	June 21, 2013
----	Guide For Installation and Maintenance of Dry-Type Transformer	n/a
Spec. No. 242-521	Specification for 4.16KV Metal Clad Switchgear and 125VDC Switchgear	January 10, 1980
SQE 1689	Response Spectrum Curves Page, 31	0

Miscellaneous

Number	Title	Revision/Date
Standing Order # 287	Standby Cooling Tower Interim Guidance	2
V085-0105	Maintenance Manual or Forged Steel Valves Bolted Bonnet Fate, Globe, Parallel Slide and Check Valves, 2-1/2”-24”	2006
V085-0105	Maintenance Manual for Forged Steel Valves Bolted Bonnet Gate, Globe, Parallel Slide and Check Valves, 2-1/2”-24”	3
VTD-A348-0100	Specification and Adjustment, Agastat Control Relays, Vendor Manual	0
VTD-B580-107	Byron Jackson Pump Division Vertical RHR Pumps	0
VTD-L200-0100	Limitorque Type SMB Instruction and Maintenance Manual	1
VTD-V85-0138	Velan IOM for Manual Operated Bolted Bonnet Gate, Globe, Stop Check and Check Valves	0

Action Requests

122700	152809	302247