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

May 1, 2017

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

SUBJECT: RIVER BEND STATION – NRC INTEGRATED INSPECTION REPORT 05000458/2017001

Dear Mr. Maguire:

On March 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station, Unit 1. On April 6, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented three findings of very low safety significance (Green) in this report. All of these findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations consistent with Section 2.3.2.a of the NRC 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; and the NRC resident inspector at the River Bend Station.

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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC resident inspector at the River Bend Station.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, “Public Inspections, Exemptions, Requests for Withholding,” a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC’s Public Document Room or the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

To the extent possible, your response, if any, should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Sincerely,

/RA/

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

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

Enclosure:
Inspection Report 05000458/2017001
w/Attachments:
1) Supplemental Information
2) Request for Information for the Occupational Radiation Safety Inspection
3) Inservice Inspection Document Request

RIVER BEND STATION – NRC INTEGRATED INSPECTION REPORT 05000458/2017001 – MAY 1, 2017

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000458
License:	NPF-47
Report:	05000458/2017001
Licensee:	Entergy Operations, Inc.
Facility:	River Bend Station
Location:	5485 U.S. Highway 61N St. Francisville, LA 70775
Dates:	January 1 through March 31, 2017
Inspectors:	J. Sowa, Senior Resident Inspector B. Parks, Resident Inspector C. Young, Senior Project Engineer N. Greene, PhD, Health Physicist J. O'Donnell, CHP, Health Physicist J. Drake, Senior Reactor Inspector F. Ramirez, Senior Resident Inspector
Approved By:	G. Warnick, Chief Project Branch C Division of Reactor Projects

SUMMARY

IR 05000458/2017001; 01/01/2017 – 03/31/2017; River Bend Station; Equipment Alignment; Follow-up of Events & Notices of Enforcement Discretion; Other Activities

The inspection activities described in this report were performed between January 1 and March 31, 2017, by the resident inspectors at River Bend Station and inspectors from the NRC's Region IV office. Three findings of very low safety significance (Green) are documented in this report. All of these findings involved violations of NRC requirements. The significance of inspection findings is indicated by their color (i.e., Green, greater than Green, White, Yellow, or Red), as determined using NRC Inspection Manual Chapter 0609, "Significance Determination Process," dated April 29, 2015. Their cross-cutting aspects are determined using NRC Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated July 2016.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4, "Procedures," for the licensee's failure to follow station maintenance procedures related to the control of scaffolding in the reactor building. Specifically, the licensee installed scaffolding less than two inches from safety-related containment unit cooler HVR-UC1B without completing an engineering evaluation. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2016-07963. Corrective actions included removing the scaffolding.

  The licensee's installation of scaffolding within two inches of a safety-related containment unit cooler, without completing an engineering evaluation, 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 affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, containment unit cooler HVR-UC1B was rendered inoperable by the incorrectly installed scaffolding and remained inoperable until the scaffolding was removed. The inspectors screened the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding to be of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more trains of safety-related equipment for greater than its technical specification allowed outage time. This finding has a cross-cutting aspect in the area of human performance, avoid complacency, because the licensee failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risks, even while expecting successful outcomes. Specifically, the station failed to implement appropriate error reduction tools when it did not perform and document Procedure EN-MA-133, "Control of Scaffolding," Attachments 9.5 and 9.6, which could have prevented the scaffolding construction error [H.12]. (Section 1R04)

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4, "Procedures," for the licensee's failure to properly pre-plan and perform maintenance on safety-related components in accordance with documented instructions appropriate to the circumstances. Specifically, the licensee used work order instructions that did not contain sufficient detail for the reassembly of SWP-PVY32C, a safety-related valve in the control building ventilation system. As a result, SWP-PVY32C developed a refrigerant leak, and on November 17, 2015, the valve failed. This in turn caused the control building ventilation system to fail, and the high pressure core spray system was consequently declared inoperable. The licensee entered this condition into their corrective action program as Condition Report CR-RBS-2017-02364. Corrective actions included incorporating the torque values into the model work order instructions for future maintenance and reassembly.

  The failure to properly pre-plan and perform maintenance on safety-related components in accordance with documented instructions 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 affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, when the control building ventilation system failed, it impacted the operability of the high pressure core spray system. The inspectors screened the finding in accordance with NRC Inspection Manual Chapter 0609, "Significance Determination Process." Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2 – "Mitigating Systems Screening Questions," the inspectors determined that the finding was of very low safety significance (Green) because it did not affect the design or qualification of a mitigating structure, system, or component (and the structure, system, or component maintained its operability), it did not represent a loss of safety function, it did not represent an actual loss of function of at least a single train for greater than its technical specification outage time, and it did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant in accordance with the licensee's Maintenance Rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of human performance, challenge the unknown, because individuals did not stop when faced with uncertain conditions. Specifically, workers proceeded with assembling the valve when the torque values or torqueing sequence were not specified [H.11]. (Section 4OA3.1)

- Green. The inspectors identified a non-cited violation of Technical Specifications 3.8.4, "DC Sources - Operating," 3.8.7, "Inverters – Operating," and 3.8.9, "Distribution Systems – Operating," for the licensee's failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours. Specifically, electrical power systems required by the above limiting conditions for operation were inoperable due to the associated division of the control building chilled water system chillers being out of service and therefore unavailable to provide the technical specification support function of attendant cooling that is needed for the associated electrical systems to perform their specified safety functions. As a result of this deficiency, the station reduced the reliability and availability of systems cooled by control building chilled water system chillers by allowing configurations that did not conform to the single failure criterion. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2015-02525. Corrective actions included entering the appropriate limiting conditions for operation of affected safety-related systems when the non-safety related support system were non-functional.

The failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours was a performance deficiency. Specifically, electrical power systems required by the above limiting conditions for operation were inoperable due to the associated division of the control building chilled water system chillers being out of service and therefore unavailable to provide the technical specification support function of attendant cooling that is needed for the associated electrical systems to perform their specified safety functions. The performance deficiency was more than minor, and therefore a finding, because it was associated with the configuration control attribute of the Mitigating Systems Cornerstone, and adversely affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. As a result of this deficiency, the station reduced the reliability and availability of systems cooled by control building chilled water system chillers by allowing configurations that did not conform to the single failure criterion. The inspectors performed an initial screening of the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to require a detailed risk evaluation because it represented a loss of system and/or function. A senior reactor analyst performed a detailed risk evaluation for a previously identified performance deficiency associated with the licensee's failure to account for a loss of all control building chilled water system cooling scenario, either quantitatively or qualitatively, which resulted in uncompensated impairment to all systems associated with the main control room (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16132A144). This previously performed detailed risk evaluation bounds the risk associated with the finding dispositioned in this write-up: the failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours. Therefore, the finding was determined to be of very low safety significance (Green). No cross-cutting aspect was assigned as the performance deficiency is not indicative of current licensee performance. (Section 4OA5.2)

PLANT STATUS

River Bend Station began the inspection period at 100 percent reactor thermal power. It departed from full power as follows:

- On January 27, 2017, operators inserted a manual scram in order to shut down the plant and commence refueling outage (RFO) 19. A reactor startup was performed on March 8, 2017. A reactor scram occurred on March 10, 2017, due to equipment issues in the digital electro-hydraulic control system. The reactor was restarted on March 11, 2017, and the refueling outage was completed on March 16, 2017. The station returned the unit to 100 percent power on March 20, 2017.

- On March 31, 2017, operators reduced power to 65% for suppression testing to find and suppress a suspected fuel leak.

Power remained at or near 100 percent for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- January 3, 2017, Division III emergency diesel generator
- February 9, 2017, main steam system
- March 15, 2017, residual heat removal B system

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

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

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On February 1, 2017, the inspectors finalized a complete system walkdown inspection of the containment cooling system. The inspectors reviewed the licensee's procedures and system design information to determine the correct containment cooling lineup for the existing plant configuration. The inspectors also reviewed outstanding work orders, open condition reports, temporary modifications, and other open items tracked by the licensee's operations and engineering departments. The inspectors then visually verified that the system was correctly aligned for the existing plant configuration.

These activities constitute one equipment alignment complete system walkdown inspection sample, as defined in Inspection Procedure 71111.04.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of Technical Specification 5.4, "Procedures," for the licensee's failure to follow station maintenance procedures related to the control of scaffolding in the reactor building. Specifically, the licensee installed scaffolding less than two inches from safety-related containment unit cooler 1B (HVR-UC1B) without completing an engineering evaluation. The station corrected the problem by declaring HVR-UC1B inoperable and removing the scaffolding. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2016-07963.

Description. On November 23, 2016, the inspectors conducted a walkdown of primary containment in the reactor building and discovered scaffolding erected immediately adjacent to HVR-UC1B to support emergent maintenance. The scaffolding project was identified as number 1381 and was installed on November 20, 2016. The inspectors reviewed station Procedure EN-MA-133, "Control of Scaffolding," Revision 13. Procedure EN-MA-133, Attachment 9.2, Step 6, requires all braced scaffold members to have a minimum separation of two inches or greater from safety-related equipment. The inspectors immediately notified the main control room. Operators declared HVR-UC1B inoperable, entered the appropriate technical specification limiting condition for operation, and initiated removal of the scaffolding. Attachment 9.5 of Procedure EN-MA-133 contains an engineering evaluation required for deviations from the Attachment 9.2 spacing requirements. The inspectors requested the Attachment 9.5 engineering evaluation for review and were informed that this had not been performed. The inspectors also requested to review Attachment 9.6 of Procedure EN-MA-133, "Scaffolding Installation Checklist." This post-installation checklist contains a verification log which states that, "scaffold components do not touch plant equipment and are greater than two inches from safety-related equipment unless approved by Engineering." The inspectors were told that Attachment 9.6 was also not performed.

Analysis. The licensee's installation of scaffolding within two inches of a safety-related containment unit cooler, without completing an engineering evaluation, 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 affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, HVR-UC1B was rendered

inoperable by the incorrectly installed scaffolding and remained inoperable until the scaffolding was removed.

The inspectors screened the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding to be of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more trains of safety-related equipment for greater than its technical specification allowed outage time. This finding has a cross-cutting aspect in the area of human performance, avoid complacency, because the licensee failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risks, even while expecting successful outcomes. Specifically, the station failed to implement appropriate error reduction tools when it did not perform and document Procedure EN-MA-133, Attachments 9.5 and 9.6, which could have prevented the scaffolding construction error [H.12].

Enforcement. Technical Specification 5.4, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Section 9.a of Appendix A to Regulatory Guide 1.33 requires maintenance that can affect performance of safety-related equipment to be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. The licensee established Procedure EN-MA-133, "Control of Scaffolding," to meet the Regulatory Guide 1.33 requirement. Procedure EN-MA-133, "Control of Scaffolding," Revision 13, Attachment 9.2, Step 6, requires all braced scaffold members to have a minimum separation of two inches or greater from safety-related equipment. Contrary to the above, from November 21, 2016, to November 23, 2016, the licensee did not ensure that all braced scaffold members had a minimum separation of two inches or greater from safety-related equipment. Specifically, scaffolding project number 1381 was erected with less than two inches of separation from HVR-UC1B, which rendered this safety-related equipment inoperable. The licensee entered this condition into their corrective action program as Condition Report CR-RBS-2016-07963. The licensee restored compliance by removing the scaffolding. Because this violation was of very low safety significance (Green) and was entered into the licensee's corrective action program, it is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000458/2017001-01, "Failure to Follow Station Guidance on Control of Scaffolding."

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

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

- January 3, 2017, emergency diesel generator C room, fire area DG-5/Z-1
- January 3, 2017, residual heat removal pump A room, fire area AB-5

- January 3, 2017, residual heat removal pump B room, fire area AB-3
- January 3, 2017, residual heat removal pump C room, fire area AB-4/Z-1 and Z-2
- March 24, 2017, containment unit cooler area, fire area RC-4/Z-5

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

These activities constitute five fire protection quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On March 15, 2017, the inspectors completed an inspection of the station's ability to mitigate flooding due to internal causes. After reviewing the licensee's flooding analysis, the inspectors chose one plant area containing risk-significant structures, systems, and components that were susceptible to flooding:

- Residual heat removal pump B room, AB-070-5

The inspectors reviewed plant design features and licensee procedures for coping with internal flooding. The inspectors walked down the selected area to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether operator actions credited for flood mitigation could be successfully accomplished.

In addition, on January 3, 2017, the inspectors completed an inspection of underground bunkers susceptible to flooding. The inspectors selected two underground electrical manholes that contained risk-significant or multiple-train cables whose failure could disable risk-significant equipment:

- Electrical manhole 1EMH607
- Electrical manhole 1EMH613

The inspectors observed the material condition of the cables and splices contained in the bunkers and looked for evidence of cable degradation due to water intrusion. The inspectors verified that the cables and vaults met design requirements.

These activities constitute completion of one flood protection measures inspection sample and one bunker/manhole inspection sample, as defined in Inspection Procedure 71111.06.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

.1 Non-destructive Examination Activities and Welding Activities

a. Inspection Scope

The inspectors directly observed the following non-destructive examinations:

System	Weld Identification	Examination Type
Service Water	FWS-066A-SW005	Ultrasonic
Reactor Pressure Vessel	B13-D001-BG	Ultrasonic
Main Steam Drain	DTM-072E-FW-004	Ultrasonic
Main Steam Drain	DTM-072E-FW-005	Ultrasonic
Main Steam Drain	DTM-072E-FW-006	Ultrasonic
Jet Pump 12	RS-2	Visual
Jet Pump 11	RS-2	Visual
Jet Pump 9	Wedge WD-1	Visual

The inspectors reviewed records for the following non-destructive examinations:

System	Weld Identification	Examination Type
Shroud	H-4	Ultrasonic
Reactor Water Cleanup	XI-FW-002	Radiographic
Reactor Water Cleanup	XI-FW-003	Radiographic
Reactor Water Cleanup	XI-FW-007	Radiographic
Reactor Water Cleanup	XI-FW-014	Radiographic

During the review and observation of each examination, the inspectors observed whether activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors reviewed one indication that was previously

examined, and observed that the licensee evaluated and accepted the indication in accordance with the ASME Code and/or an NRC approved alternative. The inspectors also reviewed the qualifications of non-destructive examination technicians performing inspections to determine whether they were current.

The inspectors directly observed a portion of the following welding activities:

System	Weld Identification	Weld Type
Main Steam	MSS-001-26 FW-025	Gas Tungsten Arc Welding
Main Steam	MSS-001-26 FW-026	Gas Tungsten Arc Welding
Main Steam	MSS-001-26 FW-027	Gas Tungsten Arc Welding

The inspectors reviewed records for the following welding activities:

System	Weld Identification	Weld Type
Reactor Water Cleanup	XI-FW-007	Gas Tungsten Arc Welding
Reactor Water Cleanup	XI-FW-009	Gas Tungsten Arc Welding
Reactor Water Cleanup	XI-FW-010	Gas Tungsten Arc Welding
Reactor Water Cleanup	XI-FW-012	Gas Tungsten Arc Welding
Reactor Water Cleanup	XI-FW-014	Gas Tungsten Arc Welding

The inspectors reviewed whether the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code Section XI requirements. The inspectors also determined that essential variables were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications.

These activities constitute completion of one inservice inspection activities sample, as defined in Inspection Procedure 71111.08.

b. Findings

No findings were identified.

.2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed ten condition reports which dealt with inservice inspection activities and found the corrective actions for inservice inspection issues were appropriate. From this review, the inspectors concluded that the licensee has an appropriate threshold for entering inservice inspection issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry inservice inspection operating experience. Specific documents reviewed during this inspection are listed in Attachment 1.

b. Findings

No findings were identified.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On March 23, 2017, the inspectors observed a portion of an annual requalification test for licensed operators. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed the modeling and performance of the simulator during the requalification activities.

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

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance

a. Inspection Scope

The inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity due to a planned shutdown of the reactor in preparation for a refueling outage. The inspectors observed the operators' performance of the following activities:

- January 27, 2017, power reduction from 100 percent to 30 percent power, including the pre-job brief
- January 28, 2017, downshifting of recirculation pumps

- January 28, 2017, manual reactor scram, including pre-job brief
- January 28, 2017, plant cooldown
- January 28, 2017, shutdown cooling initiation, including the pre-job brief

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

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

Routine Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed three instances of a degraded performance or condition of safety-significant structures, systems, and components (SSCs):

- September 19, 2016, Division I emergency diesel generator jacket water cooling, functional failure review
- January 11, 2017, service water cooling, functional failure review
- February 28, 2017, chilled water pump B discharge valve, functional failure review

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constitute completion of three maintenance effectiveness inspection samples, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed five risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- January 20, 2017, green risk condition during Division II residual heat removal heat exchanger performance test
- January 30, 2017, yellow risk condition due to alternate decay heat removal unavailability while in Mode 5
- February 2, 2017, yellow risk condition due to maintenance on Division I electrical buses while in Mode 5
- February 7, 2017, yellow risk condition due to Division I electrical bus outage concurrent with impending adverse weather
- March 21, 2016, green risk condition during Division I control building chilled water pump and valve operability test and maintenance on Division I standby liquid control system

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

The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected SSCs.

These activities constitute completion of five maintenance risk assessments and emergent work control inspection samples, as defined in Inspection Procedure 71111.13.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed five operability determinations that the licensee performed for degraded or nonconforming (SSCs):

- January 17, 2017, operability determination of reactor core isolation cooling trip and throttle valve failure to reset from the main control room (CR-RBS-2017-00283)

- January 18, 2017, operability determination of E12-MOVF037A, residual heat removal pump A, return to upper pool isolation valve upon failure of signature testing (CR-RBS-2017-00110)

- January 27, 2017, operability determination of containment unit cooler 1B low outlet flow (CR-RBS-2016-07868)

- February 14, 2017, operability determination of Division II standby service water degraded flow (CR-RBS-2017-00330)

- March 7, 2017, operability determination of hydrostatic testing requirements for reactor recirculation pump A ASME Class I stuffing box (CR-RBS-2017-00293)

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

These activities constitute completion of five operability determinations and functionality assessments inspection samples, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

On March 3, 2017, the inspectors reviewed a permanent plant modification of the Division II control building and control room air conditioning units ACU1B and ACU2B to eliminate a single point failure vulnerability identified in the circuitry that controls the dampers for these units.

The inspectors reviewed the design and implementation of the modification. The inspectors verified that work activities involved in implementing the modification did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the operability of the SSC as modified.

These activities constitute completion of one permanent plant modification inspection sample, as defined in Inspection Procedure 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- January 12, 2017, work order (WO) 00443688, "HVK-CHL1B Pressure Test," following replacement of control building chiller service water pump SWP-PVY32B water pistons
- February 1, 2017, WO 00461585, "OPS Perform Operability Testing STP-403-0303," following replacement of the fan hub assembly in containment unit cooler 1B
- February 20, 2017, WO 00466455, "HVP-FN2A Failed to Auto Start During ECCS Test," following replacement of the relay base associated with the automatic starting circuitry of the Division I emergency diesel generator fan
- February 27, 2017, WO 00468265-03, "Engineering PMTP for the Install EC 69976 for Logic Changes," following installation of logic changes to the control circuitry for Division II control room and control building air conditioning units ACU-1B and ACU-2B
- March 2, 2017, WO 00392102, "OPS Perform Operability Testing STP-256-6301," following replacement of Division I standby service water header return isolation valve SWP-MOV96A
- March 7, 2017, WO 00468264-03, "Engineering PMTP for the Install EC 69975 for Logic Changes," following installation of logic changes to the control circuitry for Division I control room and control building air conditioning units ACU-1A and ACU-2A
- March 8, 2017, WO 00468264-03, "SVV-V31 Failed LLRT CR 17-00825," retest of containment isolation valve SVV-V31 following repairs associated with an earlier local leak rate test failure

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

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

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's refueling outage that concluded on March 13, 2017, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the outage plan, appropriately managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- Review of the licensee's outage plan prior to the outage
- Review and verification of the licensee's fatigue management activities
- Monitoring of shutdown and cooldown activities
- Verification that the licensee maintained defense-in-depth during outage activities
- Observation and review of operations with a potential for draining the reactor vessel (BWR)
- Observation and review of fuel handling activities
- Monitoring of heatup and startup activities

These activities constitute completion of one refueling outage sample, as defined in Inspection Procedure 71111.20.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

In-service tests:

- January 12, 2017, STP-205-6301, "LPCS Pump and Valve Operability Test," performed on January 6, 2017

Containment isolation valve surveillance tests:

- February 23, 2017, STP-208-3605, "Main Steam Line Penetration KJB-Z2 Valve Leak Rate Test," performed on February 20, 2017

Reactor coolant system leak detection tests:

- March 22, 2017, STP-050-0702, “Refueling Outage Reactor Pressure Vessel Inservice Leakage Test,” performed on March 9, 2017

Other surveillance tests:

- January 13, 2017, STP-256-6607, “Division I Standby Service Water 2 Year Position Indication Verification Test,” performed on January 6, 2017
- January 23, 2016, STP-256-6607, “Division II RHR Quarterly Valve Operability Test,” performed on January 19, 2017
- January 26, 2017, STP-055-6301, “Refuel Equipment Quarterly Valve Operability Test,” performed on January 26, 2017
- March 14, 2017, STP-403-0301, “Containment Unit Cooler HVR-UC1A Flow Rate Verification,” performed on January 2, 2017

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

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors evaluated the licensee’s performance in assessing the radiological hazards in the workplace associated with licensed activities. The inspectors assessed the licensee’s implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. During the inspection, the inspectors interviewed licensee personnel, walked down various areas in the plant, performed independent radiation dose rate measurements, and observed postings and physical controls. The inspectors reviewed licensee performance in the following areas:

- Radiological hazard assessment, including a review of the plant’s radiological source terms and associated radiological hazards. The inspectors also reviewed the licensee’s radiological survey program to determine whether radiological

hazards were properly identified for routine and non-routine activities and assessed for changes in plant operations.

- Instructions to workers, including radiation work permit requirements and restrictions, actions for electronic dosimeter alarms, changing radiological condition, and radioactive material container labeling.

- Contamination and radioactive material control, including release of potentially contaminated material from the radiologically controlled area, radiological survey performance, radiation instrument sensitivities, material control and release criteria, and control and accountability of sealed radioactive sources.

- Radiological hazards control and work coverage. During walkdowns of the facility and job performance observations, the inspectors evaluated ambient radiological conditions, radiological postings, adequacy of radiological controls, radiation protection job coverage, and contamination controls. The inspectors also evaluated dosimetry selection and placement as well as the use of dosimetry in areas with significant dose rate gradients. The inspectors examined the licensee's controls for items stored in the spent fuel pool and evaluated airborne radioactivity controls and monitoring.

- High radiation area and very high radiation area controls. During plant walkdowns, the inspectors verified the adequacy of posting and physical controls, including areas of the plant with the potential to become risk-significant high radiation areas.

- Radiation worker performance and radiation protection technician proficiency with respect to radiation protection work requirements. The inspectors determined if workers were aware of significant radiological conditions in their workplace, radiation work permit controls/limits in place, and electronic dosimeter dose and dose rate set points. The inspectors observed radiation protection technician job performance, including the performance of radiation surveys.

- Problem identification and resolution for radiological hazard assessment and exposure controls. The inspectors reviewed audits, self-assessments, and corrective action program documents to verify problems were being identified and properly addressed for resolution.

These activities constitute completion of the seven required radiological hazard assessment and exposure controls inspection samples, as defined in Inspection Procedure 71124.01.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors performed this portion of the attachment during the refueling outage in order to directly observe the licensee's ALARA process activities, including planning, implementation of radiological work controls, execution of work activities, and ALARA review of work-in-progress. During the inspection, the inspectors interviewed licensee personnel, reviewed licensee documents, and evaluated licensee performance in the following areas:

- Implementation of ALARA and radiological work controls. The inspectors observed pre-job briefings, reviewed planned radiological administrative, operational, and engineering controls, and compared the planned controls to field activities.

- Radiation worker and radiation protection technician performance during work activities performed in radiation areas, airborne radioactivity areas, or high radiation areas.

- Problem identification and resolution for ALARA and radiological work controls. The inspectors reviewed audits, self-assessments, and corrective action program documents to verify problems were being identified and properly addressed for resolution.

These activities constitute completion of three of the five required occupational ALARA planning and controls inspection samples, as defined in Inspection Procedure 71124.02, and completes the inspection.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors reviewed licensee event reports for the period of January 1, 2016, through December 31, 2016, to determine the number of scrams that occurred. The inspectors compared the number of scrams reported in these licensee event reports to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constitute verification of the unplanned scrams per 7000 critical hours performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Unplanned Power Changes per 7000 Critical Hours (IE03)

a. Inspection Scope

The inspectors reviewed operating logs, corrective action program records, and monthly operating reports for the period of January 1, 2016, through December 31, 2016, to determine the number of unplanned power changes that occurred. The inspectors compared the number of unplanned power changes documented to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constitute verification of the unplanned power outages per 7000 critical hours performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors reviewed the licensee's basis for either including or excluding in this performance indicator each scram that occurred from January 1, 2016, through December 31, 2016. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constitute verification of the unplanned scrams with complications performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors verified that there were no unplanned exposures of radiological control over locked high radiation areas and very high radiation areas during the period of April 1, 2016, to December 31, 2016. The inspectors reviewed a sample of radiologically

controlled area exit transactions showing exposures greater than 100 millirem. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constitute verification of the occupational exposure control effectiveness performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.5 Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed corrective action program records for liquid and gaseous effluent releases, and leaks and spills, which occurred between April 1, 2016, and December 31, 2016, that were reported to the NRC, to verify the performance indicator data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constitute verification of the radiological effluent technical specifications (RETS)/offsite dose calculation manual (ODCM) radiological effluent occurrences performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

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

b. Findings

No findings were identified.

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected one issue for an in-depth follow-up. On May 14, 2015, with the plant operating at full power, operators found valve SWP-V912, LSV-C3B Service Water Inlet Manual Isolation Valve, out of position in the fully closed direction. With the valve fully closed, the compressor that supplies the Division II main steam positive leakage control system (MS-PLCS) did not have an appropriate source of cooling; therefore, the Division II MS-PLCS was rendered inoperable. In the fourth quarter of 2015, the NRC issued two Green non-cited violations to the station for performance deficiencies related to the event can be found in (ADAMS Accession No. ML16041A493).

The valve had been incorrectly positioned since March of 2015. The licensee had conducted multiple 15-minute surveillance runs of the compressor in the intervening period, but had failed to recognize that the compressor had tripped prematurely during each of those runs. Upon subsequent review, the licensee determined that the failure to identify the premature trips had two apparent causes. First, annunciator P808-81A-H05, which alerts control room operators to a trip or trouble condition in the compressor, was degraded such that the annunciator would alarm and stay locked in whenever the compressor was started. With the alarm locked in, actual subsequent trip or trouble conditions were masked. Second, by procedure, control room operators secured the compressor at the end of the surveillance test by inserting an electrical trip signal from a cabinet that sits in a different part of the control room, far away from the panel that provides indications of compressor status. Consequently, operators inserted the signal at the end of the test without recognizing that the compressor had already tripped on high temperature.

The inspectors reviewed the licensee's corrective actions for the failure to identify the premature compressor trips. The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews, and compensatory actions.

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

b. Findings and Observations

On February 14, 2017, the inspectors completed their review of the licensee's corrective actions. The licensee had committed to implementing two primary corrective actions: 1) to change the surveillance test procedure to require control room operators to check that the compressor is still running prior to inserting the electrical trip signal at the end of the test, and 2) to investigate and correct the discrepancy that was causing the trip or trouble annunciator to come in any time the compressor was started. The inspectors verified that monthly surveillance test procedures for MS-PLCS had been augmented to include new steps designed to ensure that the compressor was verified to be running prior to inserting trip signals. The inspectors observed that while the licensee had attempted to diagnose and correct the problems with both divisions of MS-PLCS alarms, they had been unsuccessful in fully resolving the problem on Division I. The errant

alarm condition does not affect the operability of the system, and efforts to correct it on Division I remain ongoing.

No findings were identified.

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

.1 (Closed) Licensee Event Report (LER) 05000458/2015-007-00, "Potential Loss of Safety Function of High Pressure Core Spray Due to Failure of Main Control Building Ventilation Chiller"

a. Inspection Scope

On November 17, 2015, while the plant was at 71 percent power, the high pressure core spray (HPCS) system was declared inoperable following the failure of the operating chiller in the Division I control building chilled water (HVK) system. HVK chiller C was in service when the building operator found a refrigerant leak in the system. The licensee declared the chiller inoperable due to the leakage, and operators took action to shift the building cooling loads to the standby Division II chiller. The HVK system provides cooling to the equipment rooms housing the battery chargers and inverters for the safety-related onsite electrical distribution system. The loss of redundant cooling to the various equipment rooms in the control building required that the supported equipment in those areas be declared inoperable; therefore, HPCS was declared inoperable. The performance deficiency associated with this event is discussed below.
LER 05000458/2015-007-00 is closed.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of Technical Specification 5.4, "Procedures," associated with the licensee's failure to properly pre-plan and perform maintenance on safety-related components in accordance with documented instructions appropriate to the circumstances.

Description. On November 17, 2015, while the plant was at 71 percent power, operations personnel discovered a refrigerant leak in SWP-PVY32C, the service water outlet/bypass valve for the C chilled water compressor in the HVK system. The HVK system provides chilled water to the control building heating, ventilation, and air conditioning (HVAC) system to remove the heat from the control building. The refrigerant leak in SWP-PVY32C caused the failure of the Division I HVK system, and as a result, the HPCS system was declared inoperable.

The licensee's apparent cause evaluation, which was documented in CR-RBS-2015-08286 and dated July 13, 2016, concluded that mechanical maintenance personnel did not have adequate guidance for properly tightening the bolts when assembling valve SWP-PVY32C. Specifically, the work order instructions did not include a specific bolt tightening sequence and contained generic instructions for torque requirements. Improper torqueing of the valve, particularly the housing of the refrigerant-side pilot diaphragm, could cause a refrigerant leak. The apparent cause evaluation also determined that pilot valve upper housing misalignment could have also allowed the refrigerant to leak out. The licensee concluded that partial disassembly of the valve could cause future valve misalignment.

The valve's maintenance history revealed that there was a preventive maintenance task to rebuild the valve every 8 years. This preventive maintenance task was last accomplished on August 25, 2011. Additionally, the housing assembly was removed and reassembled during valve work on February 7, 2013. The inspectors concluded that, prior to this event, the licensee used work order instructions that did not contain sufficient detail for the reassembly of SWP-PVY32C, a safety-related valve in the HVK system.

Following this event, the licensee requested guidance from the vendor on the proper torque values and established upper housing assembly instructions to prevent future valve misalignment. During their review of this event, the inspectors identified a vendor document that was provided to the licensee in 1998 which provided actual torque values for the pilot housing and the upper housing. The inspectors therefore concluded that the licensee had an opportunity to identify that the work instructions in the field for work on safety-related SWP-PVY32C were inadequate and could have pre-planned and performed the maintenance with work instructions appropriate to the circumstances.

Analysis. The failure to pre-plan and perform maintenance on safety-related components in accordance with documented instructions appropriate to the circumstances 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 affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the incorrect assembly of SWP-PVY32C caused a refrigerant leak that resulted in the failure of the HVK system and ultimately impacted the operability of the HPCS system.

The inspectors screened the finding in accordance with NRC Inspection Manual Chapter 0609, "Significance Determination Process." Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2 – "Mitigating Systems Screening Questions," the inspectors determined that the finding was of very low safety significance (Green) because it did not affect the design or qualification of a mitigating SSC (and the SSC maintained its operability), it did not represent a loss of safety function, it did not represent an actual loss of function of at least a single train for greater than its technical specification outage time, and it did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant in accordance with the licensee's Maintenance Rule program for greater than 24 hours.

This finding had a cross-cutting aspect in the area of human performance, challenge the unknown, because individuals did not stop when faced with uncertain conditions. Specifically, workers proceeded with assembling the valve when the torque values or torqueing sequence were not specified [H.11].

Enforcement. Technical Specification 5.4, "Procedures," requires, in part, that procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Section 9.a of Appendix A to Regulatory Guide 1.33, Revision 2, requires, in part, that maintenance that can affect the performance of safety-related equipment be properly

pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.

Contrary to the above, prior to July 2016, the licensee did not ensure that maintenance that can affect the performance of safety-related equipment was performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Specifically, the licensee used work order instructions that did not contain sufficient detail for reassembly of SWP-PVY32C, a safety-related valve in the HVK system. As a result, SWP-PVY32C developed a refrigerant leak, and on November 17, 2015, the valve failed. This in turn caused the HVK system to fail, and the HPCS system was consequently declared inoperable. The licensee entered this condition into their corrective action program as Condition Report CR-RBS-2017-02364. The licensee restored compliance by incorporating the torque values into the model work order instructions for future maintenance and reassembly. Because this violation was of very low safety significance (Green) and the licensee entered the issue into their corrective action program, it is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000458/2017001-02, "Failure to Properly Pre-Plan and Perform Maintenance on the Control Building Chilled Water System."

.2 (Closed) LER 05000458/2015-008-00, "Potential Loss of Safety Function of High Pressure Core Spray Due to Failure of Main Control Building Ventilation Chiller"

a. Inspection Scope

On November 19, 2015, while the plant was at 97 percent power, the HPCS system was declared inoperable following the failure of the operating chiller in the Division II HVK system. HVK chiller D was in service when the building operator found an oil leak on that machine. The chiller subsequently tripped on low oil pressure, and the A chiller started as designed. The HVK system provides cooling to the equipment rooms housing the battery chargers and inverters for the safety-related onsite electrical distribution system. The loss of redundant cooling to the various equipment rooms in the control building requires that the supported equipment in those areas be declared inoperable; therefore, HPCS was declared inoperable.

The licensee later determined that the oil leak was caused by a failed seal on the compressor drive shaft. The licensee's apparent cause evaluation concluded that the seal failed due to age-related degradation of a setscrew holding one of the rotating elements of the seal. The licensee's corrective actions included the revision of the maintenance instructions for the chiller seals to specify the parts that must be replaced during periodic maintenance work windows. LER 05000458/2015-008-00 is closed.

b. Findings

No findings were identified.

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

4OA5 Other Activities

.1 Temporary Instruction (TI) 2515/192, "Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems"

a. Inspection Scope

The objective of this performance based temporary instruction is to verify implementation of interim compensatory measures associated with an open phase condition design vulnerability in electric power system for operating reactors. The inspectors conducted an inspection to determine if the licensee had implemented the following interim compensatory measures. These compensatory measures are to remain in place until permanent automatic detection and protection schemes are installed and declared operable for open phase condition design vulnerability. The inspectors verified the following:

- The licensee identified and discussed with plant staff the lessons learned from the open phase condition events at the U.S. operating plants, including the Byron Station open phase condition event and its consequences. This includes conducting operator training for promptly diagnosing, recognizing consequences, and responding to an open phase condition.

- The licensee updated plant operating procedures to help operators promptly diagnose and respond to open phase condition events on offsite power sources credited for safe shutdown of the plant.

- The licensee established and continues to implement periodic walkdown activities to inspect switchyard equipment such as insulators, disconnect switches, and transmission line and transformer connections associated with the offsite power circuits to detect a visible open phase condition.

- The licensee ensured that routine maintenance and testing activities on switchyard components have been implemented and maintained. As part of the maintenance and testing activities, the licensee assessed and managed plant risk in accordance with 10 CFR 50.65(a)(4) requirements.

b. Findings

No findings were identified.

.2 (Closed) Unresolved Item (URI) 05000458/2015010-01, "Technical Specification Allowed Outage Time During Loss of Non-Technical Specification Supported Systems"

a. Inspection Scope

On March 24, 2015, an NRC special inspection team identified a URI related to the licensee's treatment of the control building chilled water system (HVK) chillers as a non-technical specification support system for other technical specification systems. With one division of HVK chillers out of service, the licensee did not enter technical specification action statements associated with inoperability of other components cooled by HVK chillers, such as the AC switchgear, DC switchgear, and vital inverters. The

licensee requested a written interpretation of the technical specification requirements as they relate to the postulated failure of the control building heating, ventilation, and air conditioning (HVAC) system. The inspectors reviewed the response from the NRC and verified that the licensee took action to ensure that all applicable technical specification action statements are appropriately entered as required for future plant configurations when one division of HVK chillers is out of service.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of Technical Specifications 3.8.4, "DC Sources - Operating," 3.8.7, "Inverters – Operating," and 3.8.9, "Distribution Systems – Operating," for the licensee's failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours. Specifically, on multiple occasions, electrical power systems required by the above limiting conditions for operation (LCOs) were inoperable due to the associated division of the HVK chillers being out of service and therefore unavailable to provide the technical specification support function of attendant cooling that is needed for the associated electrical systems to perform their specified safety functions. As a result of this deficiency, the station reduced the reliability and availability of systems cooled by HVK system chillers by allowing configurations that did not conform to the single failure criterion.

Description. On March 24, 2015, the NRC completed its initial assessment of the circumstances surrounding a loss of control building ventilation, which occurred on March 9, 2015, at the River Bend Station. Based upon the risk and deterministic criteria specified in NRC Management Directive 8.3, "NRC Incident Investigation Program," the NRC initiated a special inspection in accordance with Inspection Procedure 93812, "Special Inspection." The special inspection report, 05000458/2015010, can be found in (ADAMS) as Accession No. ML16047A268.

The team identified a URI related to the licensee's treatment of the HVK system chillers as a non-technical specification support system for other technical specification systems. This URI was documented in the special inspection report as URI 05000458/2015010-01, "Technical Specification Allowed Outage Time During Loss of Non-Technical Specification Supported Systems."

The team noted that when an entire division of HVK chillers was out of service, such as chillers 1A and 1C for Division I, the licensee would only enter the Technical Specification 3.7.3, "Control Room Air Conditioning (AC) System," action statement for the condition of one control room AC subsystem being inoperable (Condition A). The licensee did not enter technical specification action statements associated with inoperability of other components cooled by HVK chillers, such as the AC switchgear, DC switchgear, and vital inverters. The licensee, instead, had incorporated a safety evaluation for the Perry Plant (ADAMS Accession No. ML020950074), dated April 5, 2002, into the bases for Technical Specification 3.0.6 and applied that document as guidance:

> *…no technical specification limits the duration of the non-technical specification support subsystem outage, even though the single-failure design requirement of the supported technical specification systems is not met. However, by*

assessing and managing risk in accordance with 10 CFR 50.65(a)(4), an appropriate duration for the maintenance activity can be determined.

The NRC team questioned whether the Perry Plant's safety evaluation could be applied generically, if the licensee improperly incorporated the safety evaluation via the 10 CFR 50.59 process, if the guidance conflicted with Section 9.2.10.3 of the Updated Safety Analysis Report (USAR) for River Bend Station, and if the safety evaluation for the Perry Plant conflicted with guidance found in Generic Letter 80-30, "Clarification of the Term 'Operable' As It Applies to Single Failure Criterion for Safety Systems Required by Technical Specification."

On August 4, 2015, the licensee requested a written interpretation of the technical specification requirements as they relate to the postulated failure of the control building heating, ventilation, and air conditioning (HVAC) system, and in particular, for the configuration that is summarized in the letter to the Perry Station. The NRC responded on September 19, 2016. The inspectors reviewed the NRC's response (ADAMS Accession No. ML16224B075) which concluded that the licensee must follow its license, including technical specifications. The response detailed that the licensee must determine if the technical specification system is capable of performing its specified safety functions, determine what, if any, related support functions are performed by the HVK system, and then determine if the HVK system is capable of performing its related support functions. The inspectors determined that the licensee failed to enter all of the applicable technical specification action statements as required for plant configurations when one division of HVK chillers was out of service.

Analysis. The failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours was a performance deficiency. Specifically, on multiple occasions between January 1, 2014, and January 1, 2015, electrical power systems required by the above LCOs were inoperable due to the associated division of the HVK system chillers being out of service and therefore unavailable to provide the technical specification support function of attendant cooling that is needed for the associated electrical systems to perform their specified safety functions. This performance deficiency was more than minor, and therefore a finding, because it was associated with the configuration control attribute of the Mitigating Systems Cornerstone, and adversely affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. As a result of this deficiency, the station reduced the reliability and availability of systems cooled by HVK system chillers by allowing configurations that did not conform to the single failure criterion.

The inspectors performed an initial screening of the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to require a detailed risk evaluation because it represented a loss of system and/or function. A senior reactor analyst performed a detailed risk evaluation for a previously identified performance deficiency associated with the licensee's failure to account for a loss of all HVK cooling scenario, either quantitatively or qualitatively, which resulted in uncompensated impairment to all systems associated with the main control

room (ADAMS Accession No. ML16132A144). This previously performed detailed risk evaluation bounds the risk associated with the finding dispositioned in this inspection report: the failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours. Therefore, the finding was determined to be of very low safety significance (Green). No cross-cutting aspect was assigned as the performance deficiency is not indicative of current licensee performance.

Enforcement. Technical Specification 3.8.4, "DC Sources - Operating," LCO 3.8.4 requires, in part, that Division I and Division II power subsystems shall be operable in Modes 1, 2, or 3. Technical Specification 3.8.4 Required Action B.1 requires that, if one Division I or II electrical power subsystem is inoperable for reasons other than Condition A, action must be taken to restore the electrical power subsystem to operable status within 2 hours or be in Mode 3 in 12 hours and be in Mode 4 in 36 hours.

Technical Specification 3.8.7, "Inverters – Operating," LCO 3.8.7 requires, in part, that Division I and Division II inverters shall be operable in Modes 1, 2, and 3. Technical Specification 3.8.7 Required Action A.1 states that, if Division I or II inverter is inoperable, action must be taken to restore Division I and II inverters to operable status within 24 hours or be in Mode 3 in 12 hours and be in Mode 4 in 36 hours.

Technical Specification 3.8.9, "Distribution Systems – Operating," LCO 3.8.9 requires, in part, that Division I and Division II AC and DC vital bus electrical power distribution subsystems shall be operable in Modes 1, 2, or 3. Technical Specification 3.8.9 Required Action C.1 states that, if one or more Division I or II DC electrical power distribution subsystems are inoperable, action must be taken to restore Division I and II DC electrical power distribution systems to operable status within 2 hours or be in Mode 3 in 12 hours and be in Mode 4 in 36 hours.

Contrary to the above, on multiple occasions between January 1, 2014, and January 1, 2015, while operating in Modes 1, 2, or 3 with LCOs 3.8.4, 3.8.7, and 3.8.9 not met, the licensee failed to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours. Specifically, on each occasion, electrical power systems required by the above LCOs were inoperable due to the associated division of the HVK system chillers being out of service and therefore unavailable to provide the technical specification support function of attendant cooling that is needed for the associated electrical systems to perform their specified safety functions.

The licensee entered this condition into their corrective action program as Condition Report CR-RBS-2015-02525. The licensee restored compliance by entering the appropriate LCOs for affected safety-related systems when the non-safety related support systems are non-functional. The licensee also contracted an engineering analysis to credit alternate cooling methods, cross-connecting service water and the HVK chiller systems, in order to cool vital electrical components and mitigate a loss of HVK event. Because this violation was of very low safety significance and the licensee entered the issue into their corrective action program, it is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000458/2017001-03, "Failure to Enter Applicable Technical Specification Action

Statements When Control Building Chillers Were Out of Service."
URI 0500458/2015010-01, "Technical Specification Allowed Outage Time During Loss of Non-Technical Specification Supported Systems," is closed.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On February 10, 2017, the inspectors presented the radiation safety inspection results to Mr. S. Vercelli, 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 February 10, 2017, the inspectors presented the final Temporary Instruction 2515/192 inspection results to Mr. S. Vercelli, General Manager, Plant Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On February 10, 2017, the inspectors presented the inservice inspection activities results to Mr. S. Vercelli, 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 April 6, 2017, the inspectors presented the integrated inspection results to Mr. W. Maguire, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Burnett, Director, Emergency Planning, Entergy South
M. Chambers, Supervisor, Radiation Protection
M. Chase, Director, Regulatory & Performance Improvement
A. Coates, Senior Licensing Engineer
B. Cole, Corporate Radiation Protection
R. Conner, Manager, Nuclear Oversight
R. Cook, Manager, Security
K. Crissman, Senior Manager, Maintenance
D. Durocher, Supervisor, Code Program
D. Fletcher, Manager, Supply Chain
B. Ford, Senior Manager, Fleet Regulatory Assurance
D. Hebert, Inservice Inspection
J. Henderson, Manager, Systems & Components Engineering
R. Hite, Supervisor, Radiation Protection
K. Huffstatler, Senior Licensing Specialist, Regulatory Assurance
J. Hurst, Manager, Emergency Preparedness
R. Jackson, Engineer, Site Welding Program
B. Kienlen, Inservice Inspection
C. King, Superintendent, Maintenance Support
R. Leasure, Superintendent, Radiation Protection
P. Lucky, Manager, Performance Improvement
W. Maguire, Site Vice President
L. Meyer, Health Physicist/Chemistry Specialist
J. O'Connor, Senior Manager, Production
S. Peterkin, Manager, Radiation Protection
J. Reynolds, Manager, Operations
M. Riley, Inservice Inspection
J. Riley, Inservice Inspection
W. Runion, Senior Manager, Site Projects and Maintenance Services
D. Sandlin, Manager, Design & Program Engineering
T. Schenk, Manager, Regulatory Assurance
K. Stupak, Manager, Training
S. Vazquez, Director, Engineering
T. Venable, Assistant Manager, Operations
S. Vercelli, General Manager, Plant Operations
J. Vukovics, Supervisor, Reactor Engineering
J. Wilson, Manager, Chemistry

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000458/2017001-01	NCV	Failure to Follow Station Guidance on Control of Scaffolding (Section 1R04)
05000458/2017001-02	NCV	Failure to Properly Pre-Plan and Perform Maintenance on the Control Building Chilled Water System (Section 4OA3.1)
05000458/2017001-03	NCV	Failure to Enter Applicable Technical Specification Action Statements When Control Building Chillers Were Out of Service (Section 4OA5.2)

Closed

05000458/2015-007-00	LER	Potential Loss of Safety Function of High Pressure Core Spray Due to Failure of Main Control Building Ventilation Chiller (Section 4OA3.1)
05000458/2015-008-00	LER	Potential Loss of Safety Function of High Pressure Core Spray Due to Failure of Main Control Building Ventilation Chiller (Section 4OA3.2)
05000458/2015010-01	URI	Technical Specification Allowed Outage Time During Loss of Non-Technical Specification Supported Systems (Section 4OA5.2)
2515/192	TI	Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems (Section 4OA5.1)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Calculation

Number	Title	Revision
PN-317	Max Flood Elevations for Moderate Energy Line Cracks in Cat I Structures	01

Condition Reports (CRs)

CR-RBS-2013-05612	CR-RBS-2016-06722	CR-RBS-2016-07134	CR-RBS-2016-07648
CR-RBS-2016-07963	CR-RBS-2016-07965	CR-RBS-2017-00369	CR-RBS-2017-00897
CR-RBS-2017-00960			

Drawings

Number	Title	Revision
PID-03-01A	Main Steam	18
PID-22-01A	HVAC Containment Building	9

Procedures

Number	Title	Revision
EN-MA-133	Control of Scaffolding	13
SOP-0011	Main Steam System (SYS #109)	034
SOP-0031	Residual Heat Removal System	336
SOP-0052	HPCS Diesel Generator (SYS #309)	55
SOP-0059	Containment HVAC System (SYS #403)	36

Work Orders (WOs)

WO 52709803 WO 52733681 WO 56291809

Section 1R05: Fire Protection

Procedures

Number	Title	Revision
AB-070-502	RHR Pump A Room Fire Area AB-5	4
AB-070-504	RHR Pump C Room Fire Area AB-4/Z-1 and Z-2	4
AB-070-505	RHR Pump B Room Fire Area AB-3	3
DG-098-052	Diesel Generator C Room Fire Area DG-5/Z-1	4
RB-162-011	Containment Unit Cooler Area, Fire Area RC-4/Z-5	3

Section 1R06: Flood Protection Measures

Calculation

Number	Title	Revision
PN-317	Max Flood Elevations for Moderate Energy Line Cracks in Cat I Structures	01

Condition Reports (CRs)

CR-RBS-2016-07648 CR-RBS-2017-00046 CR-RBS-2017-00052 CR-RBS-2017-00369

Work Orders (WOs)

WO 52733681 WO 52735527 WO 52735529

Section 1R08: Inservice Inspection Activities

Condition Reports (CRs)

CR-RBS-2013-03988	CR-RBS-2015-01205	CR-RBS-2015-01206	CR-RBS-2015-01252
CR-RBS-2015-01253	CR-RBS-2015-01267	CR-RBS-2015-01270	CR-RBS-2015-01295
CR-RBS-2015-01307	CR-RBS-2015-01390	CR-RBS-2015-01394	CR-RBS-2015-01420
CR-RBS-2015-01460	CR-RBS-2015-01488	CR-RBS-2015-01561	CR-RBS-2015-01610
CR-RBS-2015-01628	CR-RBS-2015-01646	CR-RBS-2015-01674	CR-RBS-2015-01699
CR-RBS-2015-01773	CR-RBS-2015-01774	CR-RBS-2015-01778	CR-RBS-2015-01785
CR-RBS-2015-01872	CR-RBS-2015-01976	CR-RBS-2015-02951	CR-RBS-2015-03692
CR-RBS-2015-04530	CR-RBS-2016-00345	CR-RBS-2016-06836	CR-RBS-2016-08100
CR-RBS-2016-08585	CR-RBS-2017-01066		

Procedures

Number	Title	Revision
CEP-NDE-0400	Ultrasonic Examination	6
CEP-NDE-0404	Manual Ultrasonic Examination of Ferritic Piping Welds (ASME XI)	5
CEP-NDE-0407	Straight Beam Ultrasonic Examination of Bolts and Studs {ASME XI)	4
CEP-NDE-0428	Manual Ultrasonic Through Wall Sizing In Piping Welds (ASME XI)	4
CEP-NDE-0641	Liquid Penetrant Examination (PT) for ASME Section XI	7
CEP-NDE-0731	Magnetic Particle Examination (MT) for ASME Section XI	5
CEP-NDE-0901	VT-1 Examination	4
CEP-NDE-0903	VT-3 Examination	5
CEP-WP-002	Welding Procedure Specification	0
CEP-WP-GWS-1	General Welding Standard	2
EN-DC-127	Control of Hot Work and Ignition Sources	16
GE-ADM-1005	Procedure for Zero Reference and Data Recording for Nondestructive Examinations	0
GEH-ADM-1001	Procedure for Performing Linearity Checks on Ultrasonic Instruments	7
GEH-ADM-1002	Procedure for Nondestructive Examination Data Review and Analysis of Recorded Indications	5

Procedures

Number	Title	Revision
GEH-ADM-1025	Procedure for Training and Qualification of Personnel for GE Hitachi Nuclear Energy Specialized NDE Applications	14
GEH-ADM-1046	Process for the Analysis of Ultrasonic Data for BWR Core Shroud Assembly Welds	2
GEH-ADM-1062	Procedure for Determining and Documenting Examination Requirements for Risk-Informed Inservice Inspections	2
GEH-UT-247	Procedure for Phased Array Ultrasonic Examination of Dissimilar Metal Welds	3
GEH-UT-300	Procedure for Manual Examination of Reactor Vessel Assembly Welds In Accordance With PDI	12
GEH-UT-304	Procedure for Manual Ultrasonic Planar Flaw Sizing In Vessel Materials	10
GEH-UT-308	Procedure for the Manual Examination of the Threads In The RPV Flange	6.1
GEH-UT-309	Procedure for Manual Ultrasonic Planar Flaw Sizing of Nozzle Inner Radius and Bore Regions	13
GEH-UT-311	Procedure for Manual Ultrasonic Examination of Nozzle Inner Radius, Bore and Selected Nozzle To Vessel Regions	19
GEH-UT-503	Procedure for Automated Ultrasonic Examination of the Shroud Assembly Welds	15
GEH-UT-555	Procedure for Phased Array Ultrasonic Examination of BWR6 Shroud H3 Ring-To-Plate Welds and Horizontal/Vertical Plate-To-Plate Welds	1

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

Condition Reports (CRs)

CR-RBS-2017-00497 CR-RBS-2017-00531 CR-RBS-2017-00546 CR-RBS-2017-02767

Procedure

Number	Title	Revision
RSTG-LOR-JIT124	Simulator Instructor Guide for RF-19 Plant Shutdown JITT	00

Section 1R12: Maintenance Effectiveness

Condition Reports (CRs)

CR-RBS-2015-05511	CR-RBS-2015-06858	CR-RBS-2015-07536	CR-RBS-2016-02212
CR-RBS-2016-02213	CR-RBS-2016-03900	CR-RBS-2016-04428	CR-RBS-2016-05700
CR-RBS-2016-05740	CR-RBS-2016-05754	CR-RBS-2016-05755	CR-RBS-2016-05813
CR-RBS-2016-05827	CR-RBS-2016-05844	CR-RBS-2016-05846	CR-RBS-2016-05899
CR-RBS-2016-06147	CR-RBS-2016-06257	CR-RBS-2016-08578	CR-RBS-2017-00406
CR-RBS-2017-01687	CR-RBS-2017-02033	CR-RBS-2017-02436	

Procedures

Number	Title	Revision
EN-DC-203	Maintenance Rule Program	3
EN-DC-204	Maintenance Rule Scope and Basis	4
EN-DC-205	Maintenance Rule Monitoring	5 & 6
EN-DC-206	Maintenance Rule (A)(1) Process	3

Work Order (WO)

WO 00453195

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

Number	Title	Revision
ADM-0096	Risk Management Program Implementation and On-line Maintenance Risk Assessment	325
EN-WM-104	On Line Risk Assessment	015
OSP-0037	Shutdown Operations Protection Plan (SOPP)	036
STP-256-6311	Division I Service Water Recirculation Pump and Valve Operability Test	026
STP-410-6311	Division I Control Building Chilled Water System Pump and Valve Operability Test	019

Work Orders (WOs)

WO 00425822	WO 00470284	WO 52730933	WO 52730938

Section 1R15: Operability Determinations and Functionality Assessments

Condition Reports (CRs)

CR-RBS-2015-02793	CR-RBS-2016-06393	CR-RBS-2016-07868	CR-RBS-2016-07890
CR-RBS-2016-08487	CR-RBS-2017-00110	CR-RBS-2017-00283	CR-RBS-2017-00293
CR-RBS-2017-00330			

Miscellaneous

Number	Title	Revision
0222.111-000-032	Recirc Pump Data Sheet	A
0222.160-000-005A	Recirc Pump, Standard Requirement – Purchase Specifications	A

Procedures

Number	Title	Revision
CEP-IST-1	Inservice Testing Basis Document	316
EN-OP-104	Operability Determination Process	11
SOP-0035	Reactor Core Isolation Cooling System (SYS #209)	053
SOP-0060	Drywell Cooling (SYS #404)	011
STP-207-5255	RCIC/RHR Isolation – RHR Equipment Room Ambient Temperature High Channel Calibration and Logic System Functional Test (E31-N608B)	302
STP-256-6301	Division I Standby Service Water Quarterly Valve Operability Test	20
STP-256-6302	Division II Standby Service Water Quarterly Valve Operability Test	25

Work Orders (WOs)

WO 00261506	WO 00410886

Section 1R18: Plant Modifications

Condition Report (CR)

CR-RBS-2017-02115

Drawings

Number	Title	Revision
ESK-07HVC07	Elementary Diagram 120V Control Circuit Control Building Air Conditioning Dampers	18
ESK-07HVC10	Elementary Diagram 120V Control Circuit Control Building Air Conditioning Dampers	13
ESK-07HVC18	Elementary Diagram 480V SWGR Control Room Air Handling Unit ACU1B	15
ESK-07HVC19	Elementary Diagram 480V SWGR Control Room Air Handling Unit ACU2B	15

Procedure

Number	Title	Revision
SOP-0066	Control Building HVAC Chilled Water System (SYS #410)	335

Work Order (WO)

WO 00468265

Section 1R19: Post-Maintenance Testing

Condition Reports (CRs)

CR-RBS-2017-00669 CR-RBS-2017-00825 CR-RBS-2017-01696 CR-RBS-2017-02115 CR-RBS-2017-02126

Drawings

Number	Title	Revision
ESK-06HVC01	Elementary Diagram 480V SWGR Control Room Air Handling Unit ACU1A	22
ESK-06HVC02	Elementary Diagram 480V SWGR Control Room Air Handling Unit ACU2A	29
ESK-06HVP01	Elementary Diagram Diesel Room Standby Exhaust Fan 2A	22
ESK-07HVC01	Elementary Diagram 120V Control Circuit Control Building Air Conditioning Dampers	17
ESK-07HVC04	Elementary Diagram 120V Control Circuit Control Building Air Conditioning Dampers	14
ESK-07HVC07	Elementary Diagram 120V Control Circuit Control Building Air Conditioning Dampers	18

Drawings

Number	Title	Revision
ESK-07HVC10	Elementary Diagram 120V Control Circuit Control Building Air Conditioning Dampers	13
ESK-07HVC18	Elementary Diagram 480V SWGR Control Room Air Handling Unit ACU1B	15
ESK-07HVC19	Elementary Diagram 480V SWGR Control Room Air Handling Unit ACU2B	15
PID-03-01B	Engineering P&I Diagram System 109 Main Steam	25
PID-03-01D	Engineering P&I Diagram System 202 SVV Compressor/Dryers	5

Engineering Documents

Number	Title	Revision
EC-41429	Set Point Change for Control Valve SWP-PVY32A	0
EC-58699	Provide Information to Operations from EC-58444	0

Miscellaneous

Number	Title	Revision
Standing Order #304	Guidance on Divisional Inoperability of Control Building Chilled Water System	10

Procedures

Number	Title	Revision
EN-MA-118	Foreign Material Exclusion	10
EN-MA-119	Material Handling Program	28
EN-MA-125	Troubleshooting Control of Maintenance Activities	020
SOP-0066	Control Building HVAC Chilled Water System (SYS #410)	335
STP-057-3800	Local Leak Rate Test – Outage Summation	14
STP-202-3811	ADS Air System Penetration KJB-Z103 Valve Leak Rate Test	14
STP-256-6301	Division I Standby Service Water Quarterly Valve Operability Test	21
STP-309-0601	Division I ECCS Test	051

Procedures

Number	Title	Revision
STP-403-0303	Containment Unit Cooler HVR-UC1B Flow Rate Verification	305

Work Orders (WOs)

WO 00392102	WO 00443688	WO 00450877	WO 00461585
WO 00466455	WO 00466730	WO 00468264	WO 00468265

Section 1R20: Refueling and Other Outage Activities

Calculations

Number	Title	Revision
G13.18.2.6-190	Flow Rate and Drain Down Time of Containment Pools through the CRD Mechanism Flange in the Event of Control Blade Removal (EC-69207)	0
G13.18.2.6-190	Flow Rate and Drain Down Time of Containment Pools through the CRD Mechanism Flange in the Event of Control Blade Removal (EC-69800)	1
G13.18.2.6-190	Flow Rate and Drain Down Time of Containment Pools through the CRD Mechanism Flange in the Event of Control Blade Removal (EC-69874)	2

Condition Reports (CRs)

CR-RBS-2017-00217	CR-RBS-2017-00218	CR-RBS-2017-00432	CR-RBS-2017-00433
CR-RBS-2017-00528	CR-RBS-2017-00529	CR-RBS-2017-00530	CR-RBS-2017-00531
CR-RBS-2017-00532	CR-RBS-2017-00533	CR-RBS-2017-00561	CR-RBS-2017-00595
CR-RBS-2017-00618	CR-RBS-2017-00621	CR-RBS-2017-00629	CR-RBS-2017-00639
CR-RBS-2017-00640	CR-RBS-2017-00645	CR-RBS-2017-00653	CR-RBS-2017-00656
CR-RBS-2017-00658	CR-RBS-2017-00669	CR-RBS-2017-00674	CR-RBS-2017-00805
CR-RBS-2017-00828	CR-RBS-2017-00836	CR-RBS-2017-00918	CR-RBS-2017-00936
CR-RBS-2017-00942	CR-RBS-2017-00985	CR-RBS-2017-01004	CR-RBS-2017-01011
CR-RBS-2017-01030	CR-RBS-2017-01093	CR-RBS-2017-01116	CR-RBS-2017-01164
CR-RBS-2017-01230	CR-RBS-2017-01280	CR-RBS-2017-01281	CR-RBS-2017-01282
CR-RBS-2017-01388	CR-RBS-2017-01393	CR-RBS-2017-01395	CR-RBS-2017-01421
CR-RBS-2017-01484	CR-RBS-2017-01501	CR-RBS-2017-01510	CR-RBS-2017-01513
CR-RBS-2017-01517	CR-RBS-2017-01563	CR-RBS-2017-01565	CR-RBS-2017-01576
CR-RBS-2017-01609	CR-RBS-2017-01618	CR-RBS-2017-01640	CR-RBS-2017-01641
CR-RBS-2017-01674	CR-RBS-2017-01711	CR-RBS-2017-01715	CR-RBS-2017-01716
CR-RBS-2017-01733	CR-RBS-2017-01750	CR-RBS-2017-01751	CR-RBS-2017-01757
CR-RBS-2017-01760	CR-RBS-2017-01774	CR-RBS-2017-01783	CR-RBS-2017-02104
CR-RBS-2017-02107	CR-RBS-2017-02146	CR-RBS-2017-02172	CR-RBS-2017-02189
CR-RBS-2017-02211	CR-RBS-2017-02227	CR-RBS-2017-02228	CR-RBS-2017-02277
CR-RBS-2017-02303	CR-RBS-2017-02307	CR-RBS-2017-02330	CR-RBS-2017-02343

Miscellaneous

Number	Title	Revision
EGM 11-003	NRC Enforcement Guidance Memorandum 11-003, Revision 3, Dispositioning Boiling Water Reactor Licensee Noncompliance with Technical Specification Containment Requirements During Operations with a Potential for Draining the Reactor Vessel	3
Standing Order #332	Guidance to Perform Some OPDRVS with Primary Containment Open	1

Procedures

Number	Title	Revision
AOP-0042	Loss of Instrument Bus	042
EN-TQ-114	Licensed Operator Requalification Training Program Description	10
OSP-0034	Control of Obstructions for Primary Containment/Fuel Building Operability	14
OSP-0037	Shutdown Operations Protection Plan (SOPP)	035 & 036
SOP-0048	120 VAC System (SYS #304)	327
STP-057-3800	Local Leak Rate Test – Outage Summation	013 & 014

Work Orders (WOs):

WO 00461585 WO 00466455

Section 1R22: Surveillance Testing

Condition Reports (CRs)

CR-RBS-2016-05492	CR-RBS-2016-05493	CR-RBS-2016-06922	CR-RBS-2017-00369
CR-RBS-2017-00553	CR-RBS-2017-00803	CR-RBS-2017-01381	CR-RBS-2017-01585
CR-RBS-2017-02166	CR-RBS-2017-02167		

Drawings

Number	Title	Revision
PID-09-10C	Engineering P & I Diagram System 118 Service Water Normal	26
PID-32-05B	Engineering P & I Diagram System 609 Drains – Floor & Equipment	18

Drawings

Number	Title	Revision
PID-32-092N	Engineering P & I Diagram System 609 Drains – Floor & Equipment	11
PID-34-04A	Refueling Equipment Platform and Hoists	9

Engineering Document

Number	Title	Revision
EC-21835	Evaluation of RBS Load Sharing During Testing of Diesel While in Parallel With the Offsite Power Supply	000

Procedures

Number	Title	Revision
SEP-RBS-IST-1	RBS IST Bases Document	6
STP-050-0702	Refueling Outage Reactor Pressure Vessel Inservice Leakage Test	020
STP-055-6301	Refuel Equipment Quarterly Valve Operability Test	001
STP-205-6301	LPCS Pump and Valve Operability Test	24
STP-205-6304	Division II RHR Quarterly Valve Operability Test	24
STP-208-3605	Main Steam Line Penetration KJB-Z2 Valve Leak Rate Test	9
STP-256-6607	Division I Standby Service Water 2 Year Position Indication Verification Test	04
STP-403-0301	Containment Unit Cooler HVR-UC1A Flow Rate Verification	014

Work Orders (WOs)

WO 00421577	WO 00436645	WO 00453905	WO 52465139
WO 52606851	WO 52671137	WO 52705556	WO 52721823
WO 52721825	WO 52728678		

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Air Sample Surveys

Number	Title	Date
RBS-AS-2017-0004	TB 95' WRUD	January 3, 2017
RBS-AS-2017-0005	TB 95' SRUD	January 3, 2017

Air Sample Surveys

Number	Title	Date
RBS-AS-2017-0006	TB 67' O/S URC Room	January 3, 2017
RBS-AS-2017-0009	FB 113 Cartridge	January 4, 2017

Audits and Self-Assessments

Number	Title	Date
LO-RLO-2016-0145	Pre-NRC Radiological Hazard Assessment and Exposure Controls & Performance Indicator Verification	January 17, 2017

Condition Reports (CRs)

CR-RBS-2015-01746	CR-RBS-2015-02056	CR-RBS-2016-04338	CR-RBS-2016-04953
CR-RBS-2016-05032	CR-RBS-2016-05315	CR-RBS-2016-05756	CR-RBS-2016-06320
CR-RBS-2016-06460	CR-RBS-2016-06745	CR-RBS-2017-00868	CR-RBS-2017-00899
CR-RBS-2017-00919	CR-RBS-2017-01021	CR-RBS-2017-01107	CR-RBS-2017-01109
CR-RBS-2017-01167			

Miscellaneous

Number	Title	Date
	Pool Material Inventory Report Post FO-16-01	May 31, 2016
	2017 Confirmation of Annual Inventory Reconciliation	January 30, 2017
EN-RP-101, Att. 9.6	LHRA/VHRA Key Log	February 7 through February 9, 2017
EN-RP-143, Att. 9.5	Radioactive Source Inventory Leak Test	April 2016
EN-RP-143, Att. 9.5	Radioactive Source Inventory Leak Test	October 2016

Procedures

Number	Title	Revision
ADM-0103	Radiation Protection Standards and Expectations	6
EN-RP-100	Radiation Worker Expectations	11
EN-RP-101	Access Control for Radiologically Controlled Areas	12
EN-RP-102	Radiological Control	5
EN-RP-108	Radiation Protection Posting	18
EN-RP-131	Air Sampling	15
EN-RP-143	Source Control	12

Procedures

Number	Title	Revision
EN-RP-152	Conduct of Radiation Protection	1
EN-RP-308	Operation and Calibration of Gamma Scintillation Tool Monitors	8

Radiation Surveys

Number	Title	Date
RBS-1612-0237	7300 Reactor Building 141’	December 8, 2016
RBS-1702-0177	9100 Drywell 95’	February 3, 2017
RBS-1702-0411	7500 Reactor Building 186’	February 6, 2017
RBS-1702-0477	9000 Drywell 82’	February 7, 2017

Radiation Work Permits

Number	Title	Revision
2017-1214	Emergent Work including all Support Activities	0
2017-1233	Work in Alpha Level 3 Activity Area	0
2017-1267	High Risk Radiography Activities	0
2017-1280	High Risk Activities, work which could result in a direct, unmonitored release of radioactive material to the environment	0
2017-1299	High Risk Entry into Inclined Fuel Transfer System (IFTS) Areas	0
2017-1401	Low Risk Radiation Protection Activities, except Drywell	0
2017-1406	Low Risk Radwaste and Radioactive Material Activities	0
2017-1901	Low Risk Drywell Radiation Protection Activities	0

Section 2RS2: Occupational ALARA Planning and Controls

ALARA Planning, In-Progress Reviews, and Post-Job ALARA Reviews

Number	Title	Revision/Date
RWP 2016-1310	Post –Job ALARA Review	January 12, 2017
RWP 2016-1314	Post –Job ALARA Review	January 9, 2017
RWP 2016-1320	Post –Job ALARA Review	January 12, 2017

ALARA Planning, In-Progress Reviews, and Post-Job ALARA Reviews

Number	Title	Revision/Date
RWP 2016-1330	Post –Job ALARA Review	January 12, 2017
RWP 2017-1753	ALARA Planning and Controls	September 1, 2016
RWP 2017-1753	In-Progress Review (40%)	0
RWP 2017-1800	ALARA Planning and Controls	November 10, 2016
RWP 2017-1917	ALARA Planning and Controls	November 10, 2016

Audits and Self-Assessments

Number	Title	Date
LO-RLO-2016-0145	Pre-NRC Radiological Hazard Assessment and Exposure Controls & Performance Indicator Verification	January 17, 2017

Condition Reports (CRs)

CR-RBS-2016-01423	CR-RBS-2016-02084	CR-RBS-2016-02211	CR-RBS-2016-02819
CR-RBS-2016-02900	CR-RBS-2016-03338	CR-RBS-2016-03813	CR-RBS-2016-03986
CR-RBS-2016-05265	CR-RBS-2016-06150	CR-RBS-2016-07155	CR-RBS-2016-07548
CR-RBS-2016-07886	CR-RBS-2016-08129	CR-RBS-2016-08278	

Miscellaneous

Number	Title	Date
2016 - 2020	5-Year Exposure Reduction Plan	
AMC-16-01	ALARA Managers Committee	January 11, 2016
AMC-16-09	ALARA Managers Committee	March 8, 2016
AMC-16-15	ALARA Managers Committee	August 10, 2016
AMC-16-20	ALARA Managers Committee	October 17, 2016

Procedures

Number	Title	Revision
ADM-0046	Temporary Shielding Control Program	12
ADM-0097	Hot Spot/Line Flushing Program	2
ADM-0098	Radiation Protection Administrative Procedure	11
ADM-0103	Radiation Protection Standards and Expectations	6
EN-DC-341	Cobalt Reduction	6

Procedures

Number	Title	Revision
EN-RP-105	Radiological Work Permits	16
EN-RP-110	ALARA Program	14
EN-RP-110-03	Collective Radiation Exposure (CRE) Reduction Guidelines	4
EN-RP-110-06	Outage Dose Estimating and Tracking	1
RBNP-024	Radiation Protection Plan	302
RP-100	Radiation Worker Expectations	11

Radiation Work Permits

Number	Title	Revision
2017-1753	RWCU HX Room FAC Piping Replacement	0
2017-1917	DW Under Vessel Activities	0
2017-1953	RF-19 Bio-Shield Activities	0
2107-1800	RF-19 Refuel Floor Outage Activities	0

Shielding Engineering Evaluations

Number	Title	Revision
EC 67341	RWCU Non-Regenerative Heat Exchangers Permanent Shielding	0
EC 67338	RWCU Heat Exchanger Piping Temporary Shielding	
EC 67339	RWCU Regenerative Heat Exchanger Permanent Shielding	0

Temporary Shielding Request (TSR) Documents

Number	System Component or Location	Date
DW-002	“B” Recirculation and RHR Vertical Piping	July 27, 2016
DW-005	“B” Recirculation Header Horizontal Piping and Risers	July 27, 2016
DW-021	“A” Recirculation Pump Replacement	March 8, 2016
RB-001	RWCU Heat Exchanger Room Piping	July 27, 2016
RB-002	Drywell Head Shadow Shielding	July 27, 2016

Temporary Shielding Request (TSR) Documents

Number	System Component or Location	Date
RB-009B	Refuel Bridges in Reactor Building and Fuel Building	July 27, 2016

Section 4OA1: Performance Indicator Verification

Procedures

Number	Title	Revision
EN-LI-114	Performance Indicator Process	7
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7

Section 4OA2: Problem Identification and Resolution

Condition Reports (CRs)

CR-RBS-2015-03581 CR-RBS-2015-03622 CR-RBS-2017-00116 CR-RBS-2017-01424 CR-RBS-2017-01430

Procedures

Number	Title	Revision
EN-LI-102	Corrective Action Program	24
EN-LI-118	Cause Evaluation Process	21
STP-000-0201	Monthly Operating Logs	310 & 311

Work Orders (WOs)

WO 00287971 WO 00424249 WO 00455909

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Condition Reports (CRs)

CR-RBS-2015-08286 CR-RBS-2016-03873 CR-RBS-2015-08365 CR-RBS-2015-08316

Miscellaneous

Number	Title	Revision
3247.933-000-006A	Bolting Torques For Valve Bolts	09/08/1998
PM Evaluation Report	SWP-PVY32C Valve	06/16/2015

Drawings

Number	Title	Revision
0247.933-000-001	Valve BOM and Flow Properties	300

Section 4OA5: Other Activities

Condition Reports (CRs)

CR-RBS-2012-01000 CR-RBS-2015-02302

Miscellaneous

Number	Title	Revision/Date
EC 47357	Detect Open Phase Condition on Primary Side of RTX-XSR1C and RTX-XSR1D	0
RBG-47299	90-Day Response to Bulletin 2012-01, “Design Vulnerability in Electric Power System,” River Bend Station - Unit 1	October 24, 2012
RBG-47430	Response to Request for Additional Information Regarding Response to Bulletin 2012-01, “Design Vulnerability In Electric Power System,” River Bend Station - Unit 1	January 31, 2014
RBG-47520	Notice of Schedule Deviation River Bend Station - Unit 1	December 5, 2014
RLP-OPS-0508	Industry Events I Operating Experience I Plant Modifications - Cycle 8, 2012	8
RSMS-OPS-412	Loss of Normal 4160 KV Feed	1
R-STM-0300	AC Distribution	24
Standing Order # 257	Guidelines for Single Failed Phase Event	0 & 1
WO 00365543	Install PCS2000 Relay on RTX-XSR1D for Open Phase Detection	1

Procedures

Number	Title	Revision
AOP-0064	Degraded Grid	9
ARP-680-09	PFD STA SVCE RTX-XSR1D TROUBLE (Annunciator Response)	27

Procedures

Number	Title	Revision
OSP-0028	Log Report - Normal Switchgear, Control, and Diesel Generator Buildings	71
OSP-0031	Log Report - Outside Area	56
OSP-0032	Radwaste/Auxiliary Control Building Rounds	327
SOP-0055	Main and Station Transformers (SYS #311)	031

The following items are requested for the
Occupational Radiation Safety Inspection
River Bend Station
February 6–10, 2017
Integrated Report 2017001

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **January 27, 2017**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.0**1** should be in a file/folder titled "**1**- A," applicable organization charts in file/folder "**1**- B," etc.

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

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

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

If you have any questions or comments, please contact John O'Donnell at (817) 200-1441 or John.Odonnell@nrc.gov.

PAPERWORK REDUCTION ACT STATEMENT

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

1. Radiological Hazard Assessment and Exposure Controls (71124.01) and Performance Indicator Verification (71151)
Date of Last Inspection: **June 13, 2016**

A. List of contacts and telephone numbers for the Radiation Protection Organization Staff and Technicians

B. Applicable organization charts

C. Audits, self-assessments, and LERs written since date of last inspection, related to this inspection area

D. Procedure indexes for the radiation protection procedures

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

1. Radiation Protection Program Description
2. Radiation Protection Conduct of Operations
3. Personnel Dosimetry Program
4. Posting of Radiological Areas
5. High Radiation Area Controls
6. RCA Access Controls and Radiation Worker Instructions
7. Conduct of Radiological Surveys
8. Radioactive Source Inventory and Control
9. Declared Pregnant Worker Program

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

a. Initiated by the radiation protection organization
b. Assigned to the radiation protection organization

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.

If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with IP 71151)

G. List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)

H. List of active radiation work permits

I. Radioactive source inventory list

   a. All radioactive sources that are required to be leak tested

   b. All radioactive sources that meet the 10 CFR Part 20, Appendix E, Category 2, and above threshold. Please indicate the radioisotope, initial and current activity (w/assay date), and storage location for each applicable source.

J. The last two leak test results for the radioactive sources inventoried and required to be leak tested. If applicable, specifically provide a list of all radioactive source(s) that have failed its leak test within the last two years

K. A current listing of any non-fuel items stored within your pools, and if available, their appropriate dose rates (Contact / @ 30cm)

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

2. Occupational ALARA Planning and Controls (71124.02)
Date of Last Inspection: **January 18, 2016**

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

B. Applicable organization charts

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

D. Procedure index for ALARA Program

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

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

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

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.

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

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

I. Outline of source term reduction strategy

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

K. Please provide your most recent Annual ALARA Report.

December 5, 2016

Our inspection dates are subject to change based on your updated schedule of outage activities. If there are any questions about this inspection or the material requested, please contact James Drake at 817-200-1558 or e-mail James.Drake@nrc.gov.

This e-mail does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, Control Number 31500011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

INSERVICE INSPECTION DOCUMENT REQUEST

Inspection Dates: February 6 through February 10, 2017

Inspection Procedures: IP 71111.08 “Inservice Inspection (ISI)”
Activities” Inspectors: James Drake

A. Information Requested for the In-Office Preparation Week

The following information should be sent to the Region IV office in hard copy or electronic format (ims.certrec.com preferred), in care of James Drake, by January 15, 2017, to facilitate the selection of specific items that will be reviewed during the on-site inspection week. The inspector will select specific items from the information requested below and then request from your staff additional documents needed during the on-site inspection week (Section B of this enclosure). We ask that the specific items selected from the lists be available and ready for review on the first day of inspection. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the inspector(s), and provide subject documentation during the first day of the on-site inspection. If you have any questions regarding this information request, please call the inspector as soon as possible.

Office phone: 817-200-1558, E-mail: James.Drake@nrc.gov

A.1 ISI/Welding Programs and Schedule Information

a) A detailed schedule (including preliminary dates) of:

i) Nondestructive examinations planned for ASME Code class systems and containment, performed as part of your ASME Section XI risk-informed (if applicable) and augmented inservice inspection programs during the upcoming outage.

Provide a status summary of the nondestructive examination inspection activities vs. the required inspection period percentages for this Interval by category per ASME Section XI IWX-2400 (do not provide separately if other documentation requested contains this information).

ii) Welding activities that are scheduled to be completed during the upcoming outage (ASME Code class structures, systems, or components).

iii) Examinations associated with the boiling water reactor vessel and internals project program (i.e., In-Vessel Visual Inspections).

b) A copy of ASME Section XI Code Relief Requests and associated NRC safety evaluations applicable to the examinations identified above.

c) A list of nondestructive examination reports (ultrasonic, radiography, magnetic particle, dye penetrate, Visual VT-1, VT-2, and VT-3), which have identified relevant conditions on ASME Code Class systems since the beginning of the last refueling outage. This should include the previous Section XI pressure test(s) conducted during start up and any evaluations associated with the results of the pressure tests. The list of nondestructive examination reports should include a brief description of the structures, systems, and components where the relevant condition was identified.

d) A list with a brief description (e.g., system, material, pipe size, weld number, and nondestructive examination performed) of the welds in ASME Code Class systems which have been fabricated due to component repair/replacement activities since the beginning of the last refueling outage, or are planned to be fabricated this refueling outage.

e) If reactor vessel weld examinations required by the ASME Code are scheduled to occur during the upcoming outage, provide a detailed description of the welds to be examined and the extent of the planned examination. Please also provide reference numbers for applicable procedures that will be used to conduct these examinations.

f) A copy of any 10 CFR Part 21 reports applicable to your structures, systems, and components within the scope of Section XI of the ASME Code that have been identified since the beginning of the last refueling outage.

g) A list of any temporary non-code repairs in service (e.g., pinhole leaks).

h) Copies of the most recent self-assessments for the inservice inspection, welding, and Alloy 600 programs.

i) Copies of nondestructive examination (including calibration and flaw characterization/sizing procedures) and welding procedures that will be used during the refueling outage.

A.2 Additional Information Related to All Inservice Inspection Activities

a) A list with a brief description of inservice inspection-related issues (e.g., condition reports) entered into your corrective action program since the beginning of the last refueling outage (for the applicable unit). For example, a list based upon data base searches using key words related to piping, such as inservice inspection, ASME Code, Section XI, nondestructive examination, cracks, wear, thinning, leakage, rust, corrosion, or errors in piping/nondestructive examinations.

b) Provide names and phone numbers for the following program leads:

Inservice inspection contacts (examination, planning)
Containment exams
Snubbers and supports

Repair and replacement program manager
Licensing contact
Site welding engineer

B. Information to be provided On-site to the Inspector(s) at the entrance meeting:

B.1 Inservice Inspection / Welding Programs and Schedule Information

a) Updated schedules for inservice inspection/nondestructive examination activities, planned welding activities, and schedule showing contingency repair plans, if available.

b) For ASME Code Class welds selected by the inspector from the lists provided from section A of this enclosure, please provide copies of the following documentation for each subject weld:

i) Weld data sheet (traveler)

ii) Weld configuration and system location

iii) Applicable Code Edition and Addenda for weldment

iv) Applicable Code Edition and Addenda for welding procedures

v) Applicable welding procedure specifications used to fabricate the welds

vi) Copies of procedure qualification records supporting the welding procedure specifications from B.1.b.v.

vii) Copies of mechanical test reports identified in the procedure qualification records above

viii) Copies of the nonconformance reports for the selected welds (if applicable)

ix) Radiographs of the selected welds and access to equipment to allow viewing radiographs (if radiographic was performed)

x) Copies of the preservice examination records for the selected welds

xi) Copies of welder performance qualifications records applicable to the selected welds, including documentation that welder maintained proficiency in the applicable welding processes specified in the welding procedure specifications (at least six months prior to the date of subject work).

xii) Copies of nondestructive examination personnel qualifications (visual test, penetrant test, ultrasonic test, and radiographic test), as applicable

c) For the inservice inspection-related corrective action issues selected by the inspector(s) from Section A of this enclosure, provide a copy of the corrective actions and supporting documentation.

d) For the nondestructive examination reports with relevant conditions on ASME Code class systems selected by the inspector from Section A above, provide a copy of the examination records, examiner qualification records, and associated corrective action documents.

e) A copy of (or ready access to) most current revision of the inservice inspection program manual and plan for the current interval.

f) For the nondestructive examinations selected by the inspector from Section A of this enclosure, provide copy of documentation supporting the procedure qualification (e.g., the Electric Power Research Institute performance demonstration qualification summary sheets). Also, include qualification documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers) and nondestructive examination personnel qualification records.

g) If site-specific training for fall protection and/or confined space entry is required, please make arrangements for the inspector to attend the training upon arrival at the site to support the nondestructive examination/welding work schedules.

B.2 Codes and Standards

a) Ready access to (i.e., copies provided to the inspector(s) for use during the inspection at the on-site inspection location, or room number and location where available):

i) Applicable editions of the ASME Code (Sections V, IX, and XI) for the inservice inspection program and the repair/replacement program.

ii) Any other applicable Electric Power Research Institute and industry standards referenced in the plant procedures for welding and nondestructive examination activities.