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

May 9, 2016

Mr. Fadi Diya, Senior Vice President
and Chief Nuclear Officer
Union Electric Company
P.O. Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT – NRC INTEGRATED INSPECTION REPORT 05000483/2016001

Dear Mr. Diya,

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Callaway Plant. On April 6, 2016, the NRC inspectors discussed the results of this inspection with Mr. Tim E. Herrmann, Site Vice President, and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violation or significance of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the Callaway Plant.

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

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 available electronically for public inspection in the NRC’s Public Document Room or from the Publicly Available Records (PARS) component of the NRC's

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Sincerely,

/RA/

Nicholas H. Taylor, Chief
Project Branch B
Division of Reactor Projects

Docket No. 50-483
License No. NPF-30

Enclosure:
Inspection Report 05000483/2016001
w/ Attachment: Supplemental Information

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Letter to Fadi Diya from Nicholas H. Taylor dated May 9, 2016

SUBJECT: CALLAWAY PLANT - NRC INTEGRATED INSPECTION REPORT 05000483/2016001

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000483
License:	NPF-30
Report:	05000483/2016001
Licensee:	Union Electric Company
Facility:	Callaway Plant
Location:	Junction Highway CC and Highway O Steedman, MO
Dates:	January 1 through March 31, 2016
Inspectors:	T. Hartman, Senior Resident Inspector M. Langelier, P.E., Resident Inspector S. Alferink, Reactor Inspector D. Bradley, Resident Inspector, Columbia Generating Station P. Elkmann, Senior Emergency Preparedness Inspector S. Janicki, Project Engineer J. Melfi, Project Engineer D. Proulx, Senior Project Engineer W. Sifre, Senior Reactor Inspector
Approved By:	Nicholas H. Taylor Chief, Project Branch B Division of Reactor Projects

SUMMARY

IR 05000483/2016001; 01/01/2016 - 03/31/2016; Callaway Plant, Flood Protection Measures

The inspection activities described in this report were performed between January 1 and March 31, 2016, by the resident inspectors at the Callaway Plant and inspectors from the NRC's Region IV office. One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas." 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."

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to perform an adequate operability determination for safety related components located in the 1988 foot auxiliary building train B piping penetration room (room 1203) based on degraded internal flooding drain capability. Specifically, the immediate operability determination included incorrect assumptions that were not verified to support the operability determination as required by Procedure ODP-ZZ-00001, Addendum 15, "Operability and Functionality Determinations," Revision 8. The immediate corrective action was to implement a compensatory measure to support operability of the equipment in room 1203. The issue was placed in the corrective action program as Callaway Action Request 201601412.

  The licensee's failure to verify assumptions used in the immediate operability determination and ensure a sound basis for operability exists per plant procedures was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is similar to examples 3.j and 3.k in Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," and if left uncorrected, it has the potential to lead to a more significant safety concern. Specifically, failure to perform adequate operability evaluations by verifying assumptions and ensuring a sound basis for operability exists may result in the failure to enter the appropriate limiting conditions of operation for technical specification equipment. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding involved the degradation of equipment specifically designed to mitigate a flooding initiating event, therefore, Exhibit 4, "External Events Screening Questions," was used to complete the screening. The finding was determined to need a detailed risk evaluation because if the equipment (i.e., floor drain lines) is assumed to be completely failed or unavailable, it would degrade one or more trains of a system that supports a risk significant system or function. In consultation with the Senior Reactor Analyst, the finding was determined to be of very low safety significance because, based on the actual condition of the drains and the extent of the clogging in room 1203, an evaluation by the licensee showed that the maximum internal flooding water level in the room would not challenge the operability of any equipment needed for safe shutdown or to mitigate an accident. This finding has a team work cross-cutting aspect in the human performance cross-cutting area because individuals and work groups did not

communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, inadequate communication between engineering and operations personnel led to the belief that a passageway existed between rooms 1203 and 1204 when it did not [H.4]. (Section 1R06)

PLANT STATUS

Callaway began the inspection period at 100 percent power. On March 8, 2016, the licensee began coasting down at the end of the operating cycle. Callaway completed the inspection period at 86 percent power.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial Walk-Down

a. Inspection Scope

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

- February 26, 2016, train B component cooling water system
- March 14, 2016, train B spent fuel pool cooling and cleanup 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 trains were correctly aligned for the existing plant configuration.

These activities constituted two partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

.2 Complete Walk-Down

a. Inspection Scope

The inspectors performed complete system walk-downs of the following risk-significant systems:

- February 4, 2016, control room emergency ventilation system
- February 6, 2016, turbine-driven auxiliary feedwater pump system

The inspectors reviewed the licensee's procedures and system design information to determine the correct system lineup for the existing plant configuration. The inspectors also reviewed outstanding work orders, open condition reports, 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 constituted two complete system walk-down samples, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 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 6, 2016, train A spent fuel pool heat exchanger room (room 6105) and electrical equipment room (room 6202) in fuel building fire area (FB-1)
- January 27, 2016, train B essential service water pump room (USPH)
- January 27, 2016, upper cable spreading room (C-22)
- January 27, 2016, lower cable spreading room (C-21)
- March 22, 2016, train B class 1E air conditioning equipment room (C-13)

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 constituted five quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

Introduction. The inspectors identified an unresolved item associated with the National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light-Water Reactor Electric Generating Plants," non-power operations assessment. Specifically, the inspectors developed an issue of concern in that the licensee screened the potential loss of spent fuel pool cooling from further consideration for any fire event based on adequate procedural guidance and time when the procedures would not maintain the fuel in a safe and stable condition.

Description. On January 13, 2014, the licensee transitioned their fire protection program to a risk-informed, performance-based program based on NFPA Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants."

Paragraph 1.3.1 of NFPA Standard 805 requires licensees to provide reasonable assurance that a fire during any operational mode and plant configuration will not prevent the plant from achieving and maintaining the fuel in a safe and stable condition.

Paragraph 1.5.1 of NFPA Standard 805 lists five nuclear safety performance criteria. These criteria provide requirements to demonstrate that fire protection features are capable of providing reasonable assurance that the plant is not placed in an unrecoverable condition in the event of a fire. For the decay heat removal nuclear safety performance criterion, the standard requires that decay heat removal shall be capable of removing sufficient heat from the reactor core or spent fuel such that fuel is maintained in a safe and stable condition.

Paragraph 1.6.56 of NFPA Standard 805 defines safe and stable conditions:

> For fuel in the reactor vessel, head on and tensioned, safe and stable conditions are defined as the ability to maintain K_{eff} <0.99, with a reactor coolant temperature at or below the requirements for hot shutdown for a boiling water reactor and hot standby for a pressurized water reactor. For all other configurations, safe and stable conditions are defined as maintaining K_{eff} <0.99 and fuel coolant temperature below boiling.

The licensee described how they satisfied the nuclear safety performance criteria in Calculation KC-26, "Nuclear Safety Capability Assessment," Revision 1. The Nuclear Safety Capability Assessment applied to both power and non-power operations.

For non-power operations, the licensee evaluated the spent fuel pool decay heat removal key safety function and determined that the spent fuel pool decay heat removal key safety function did not require a detailed review since adequate time was available, and procedural guidance was provided, for operators to respond to and mitigate a loss of spent fuel pool decay heat removal, even under full hot core offload conditions.

The licensee stated that the shortest time to boil, under worst case conditions for a normal plant shutdown, was two hours. In addition, the licensee stated that all of the analyses to address a loss of spent fuel pool decay heat removal utilized a success criterion of no boiling.

The licensee implemented the process outlined in Frequently Asked Question (FAQ) 07-0040, "Non-Power Operations Clarifications," Revision 4, for the non-power operations assessment. This FAQ stated that licensees should conservatively assume the entire contents of a fire area are lost and document the loss of success paths. This FAQ also stated that licensees should specifically identify those areas (pinch points) that cause the loss of all success paths for a key safety function.

The inspectors noted that the licensee did not perform these actions for the spent fuel pool decay heat removal key safety function because this key safety function was screened out from further consideration. If the licensee had evaluated the spent fuel pool decay heat removal key safety function using the process outlined in this FAQ, then the licensee would have assumed that both trains of spent fuel pool cooling are lost during a fire in the fuel handling building because both trains are located within the same fire area and were unprotected.

This FAQ also stated that fire modeling may be used to determine if postulated fires in a fire area are expected to damage equipment (and cabling), thereby eliminating a pinch point. However, the licensee stated that no fire modeling was used to eliminate the identification of pinch point fire areas as part of the non-power operations assessment performed using the process in FAQ 07-0040.

In the event that a fire in the fuel handling building disabled both trains of spent fuel pool cooling, operators were expected to enter Procedure OTO-EC-00002, "Spent Fuel Pool High Temperature," Revision 9, due to the increasing temperature of the spent fuel pool. This procedure provided directions for operators to restore one or both trains of spent fuel pool cooling. Since both trains of spent fuel pool cooling were assumed lost due to the fire, the operators would be unable to restore spent fuel pool cooling using this procedure.

After a period of time, the spent fuel pool would begin boiling and the level would begin lowering. At this time, operators were expected to enter Procedure OTO-EC-00001, "Loss of SPF/Refuel Pool Level," Revision 13. Procedure OTO-EC-00001 directed the operators to open two normally locked essential service water valves to restore and maintain spent fuel pool level.

The licensee's procedures allowed the spent fuel pool to reach boiling conditions prior to restoring and maintaining level. Since NFPA Standard 805 defined safe and stable conditions, in part, as fuel coolant temperature below boiling, the procedures did not maintain the fuel in a safe and stable condition. The inspectors identified an issue of concern in that the licensee screened the potential loss of spent fuel pool cooling from further consideration for any fire event based on adequate procedural guidance and time when the procedures would not maintain the fuel in a safe and stable condition.

The inspectors determined that additional information is required to determine if a performance deficiency exists. Specifically, the inspectors need to determine if this scenario should have been addressed as part of the current FAQ 07-0040 guidance, or if new guidance is needed to address this type of scenario where the full core has been offloaded to the spent fuel pool. On March 31, 2016, additional guidance was requested from the Office of Nuclear Reactor Regulation via a request to review and update FAQ 07-0040. This memorandum is documented in ADAMS as Accession Number ML16091A152.

The licensee entered this issue of concern into the corrective action program as Callaway Action Request 201600726. This issue of concern is being treated as Unresolved Item 05000483/2016001-01, "Possible Incorrect Screening of the Spent Fuel Pool Decay Heat Removal Key Safety Function."

.2 Annual Inspection

a. Inspection Scope

On March 2, 2016, the inspectors completed their annual evaluation of the licensee's fire brigade performance. This evaluation included observation of an announced fire drill for a fire in the laundry decontamination facility.

During this drill, the inspectors evaluated the capability of the fire brigade members, the leadership ability of the brigade leader, the brigade's use of turnout gear and fire-fighting equipment, and the effectiveness of the fire brigade's team operation. The inspectors also reviewed whether the licensee's fire brigade met NRC requirements for training, dedicated size and membership, and equipment.

These activities constituted one annual inspection sample, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On February 18, 2016, 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 the auxiliary building 1988 foot elevation containing risk-significant structures, systems, and components that were susceptible to flooding.

The inspectors reviewed plant design features and licensee procedures for coping with internal flooding. The inspectors walked down the selected areas 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.

These activities constituted completion of one flood protection measures sample, as defined in Inspection Procedure 71111.06.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to perform an adequate operability determination for safety related components located in the 1988 foot auxiliary building train B piping penetration room (room 1203) based on degraded internal flooding drain capability. Specifically, the immediate operability determination (IOD) included incorrect assumptions that were not verified to support the operability determination as required by licensee Procedure ODP-ZZ-00001, Addendum 15, "Operability and Functionality Determinations," Revision 8.

Description. On July 2, 2014, during a planned maintenance inspection of 6 of the 12 floor drain lines in room 1203, one floor drain line was found to be approximately 50 percent clogged. Drain lines in room 1203 are credited in Calculation M-FL-03, "Flooding of Individual Aux Building Rooms," to provide sufficient water removal capability during an internal flooding event. An IOD was completed which credited a 2-foot wide passage between room 1203 and the 1988 foot elevation auxiliary building train A piping penetration room (room 1204). With a passage between the rooms, any water from an internal flooding event in room 1203 would flow to room 1204 where the drain lines in that room would be able to make up for the flow loss from the clogged drain

line in room 1203. On August 21, 2014, four additional floor drains of the remaining six drain lines in room 1203 were discovered to be partially blocked. One of these drains was able to be cleared during the inspection. The three additional clogged drain lines further reduced the ability for water to drain out of room 1203 during an internal flooding event. These clogged drains were documented in two separate Callaway action requests and two new IODs were performed. The IODs determined that the equipment in room 1203 remained operable based on a 2-foot 8-inch opening in the wall connecting rooms 1203 and 1204. With this opening present, the seven drain lines in room 1204 were credited to remove water. On October 12, 2015, one of clogged drains in room 1203 was cleared during maintenance.

Upon review by inspectors on February 18, 2016, a visual inspection showed that the 2-foot 8-inch opening was not actually present in the wall between rooms 1203 and 1204. A fourth IOD was conducted at that time and a compensatory measure was implemented to open the access door to room 1203 to allow a drainage path for water out of the room during an internal flooding event. Subsequent analysis of past operability was conducted and determined that an internal flooding event in room 1203 would not affect the operability of safety related components within or outside the room.

Architectural drawing A-2305, "Auxiliary and Reactor Building Floor Plans, El. 1988'-0" & El. 2013'-6"," shows the 2-foot 8-inch opening between rooms 1203 and 1204. This drawing was referenced in the initial IOD. The initial IOD states that the 2-foot wide passage between rooms 1203 and 1204 was confirmed by operations walk-down. The licensee's causal analysis determined that a walk-down was completed in the rooms, however, operations believed that a 13-inch piping penetration hole between the rooms was the opening that was being referred to. This was due to a communications error between engineering and operations. Drawing C-2C11231, "Auxiliary Building Concrete Neat Lines Plan Floor El. 1988'-0"," shows the 2-foot 8-inch opening as an "optional opening." This drawing is referenced in the subsequent IODs. Walk-downs were not completed during the subsequent IODs based on the statement in the original IOD that this opening was verified at that time.

Procedure ODP-ZZ-00001, Addendum 15, states that "The SM should ENSURE an appropriate level of questioning and challenging of assumptions occurs to ensure that a sound basis for operability exists throughout the OD process." In this case, because the wall opening between rooms 1203 and 1204 was credited in the IODs conducted for the degraded drain capability in room 1203 and did not actually exist, a sound basis for operability did not exist throughout the operability determination process.

Analysis. The licensee's failure to verify assumptions used in the IOD and ensure a sound basis for operability exists per plant procedures was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is similar to examples 3.j and 3.k in Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," and if left uncorrected, it has the potential to lead to a more significant safety concern. Specifically, failure to perform adequate operability evaluations by verifying assumptions and ensuring a sound basis for operability exists may result in the failure to enter the appropriate limiting conditions of operation for technical specification equipment.

Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding involved the degradation of equipment specifically

designed to mitigate a flooding initiating event, therefore, Exhibit 4, "External Events Screening Questions," was used to complete the screening. The finding was determined to need a detailed risk evaluation because if the equipment (i.e., floor drain lines) were assumed to be completely failed or unavailable, it would degrade one or more trains of a system that supports a risk significant system or function. In consultation with the Senior Reactor Analyst, the finding was determined to be of very low safety significance because, based on the actual condition of the drains and the extent of the clogging in room 1203, an evaluation by the licensee showed that the maximum internal flooding water level in the room would not challenge the operability of any equipment needed for safe shutdown or to mitigate an accident. This finding has a teamwork cross-cutting aspect in the human performance cross-cutting area because individuals and work groups did not communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, inadequate communication between engineering and operations personnel led to the belief that a passageway existed between rooms 1203 and 1204 when it did not [H.4].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be accomplished in accordance with instructions, procedures, or drawings of a type appropriate to the circumstances. Callaway Procedure ODP-ZZ-00001, Addendum 15, "Operability and Functionality Determinations," an Appendix B quality related procedure, provides instructions for performing operability determinations. Procedure ODP-ZZ-00001, Addendum 15, step 3.2.2 states, in part, "The SM should ENSURE an appropriate level of questioning and challenging of assumptions occurs to ensure that a sound basis for operability exists throughout the OD process." Contrary to the above, on July 2 and August 21, 2014, the licensee failed to ensure an appropriate level of questioning and challenging of assumptions occurred to ensure that a sound basis for operability existed throughout the operability determination process. Specifically, the licensee credited, in an operability determination, an opening in the wall between rooms 1203 and 1204 that did not exist. The immediate corrective action was to implement a compensatory measure to support operability of the equipment in room 1203. This violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Callaway Action Request 201601412: NCV 05000483/2016001-02, "Inadequate Operability Evaluation for Degraded Flood Mitigation Capability in Piping Penetration Room."

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On January 28, 2016, the inspectors observed simulator training for an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance.

These activities constituted 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

During the period, 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 the activities listed below. The inspectors observed the operators' performance of the following activities:

- February 17, 2016, reactor coolant pump undervoltage and underfrequency relay testing and train B centrifugal charging pump in-service testing
- February 19, 2016, control room turnover

In addition, the inspectors assessed the operators' adherence to plant procedures, including Procedure ODP-ZZ-00001, "Operations Department – Code of Conduct," Revision 97, and other operations department policies.

These activities constituted 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)

a. Inspection Scope

The inspectors reviewed two instances of degraded performance or condition of safety-related structures, systems, and components:

- February 12, 2016, reactor coolant system 10 CFR 50.65(a)(1) evaluation
- February 26, 2016, component cooling water

The inspectors reviewed the extent of condition of possible common cause structure, system, or component 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 structures, systems, or components. 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 constituted completion of two maintenance effectiveness 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 two 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 26, 2016, train A motor-driven auxiliary feedwater pump planned maintenance
- March 3, 2016, train B air compressor and service water pump planned maintenance

The inspectors verified that these risk assessment 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 also observed portions of three emergent work activities that had the potential to cause an initiating event, to affect the functional capability of mitigating systems, or to impact barrier integrity:

- March 2, 2016, train B component cooling water isolation valve to rad waste stroke time test failure and repair
- March 9, 2016, train B emergency diesel generator digital reference unit issue
- March 21, 2016, loop 4 over temperature delta-T spiking low

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 structures, systems, and components.

These activities constituted 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 six operability determinations that the licensee performed for degraded or nonconforming structures, systems, or components:

- January 2, 2016, steam generator blowdown sample isolation valve failure (BMHV0019), Callaway Action Request 201600018
- January 13, 2016, containment pressure transmitter spike high, Callaway Action Request 201600336
- January 27, 2016, operability determination of train A emergency diesel generator with noise and vibration present on engine-driven lube oil pump, Callaway Action Request 201600694
- February 11, 2016, functionality assessment of reactor coolant system loop 4 low T_{AVG} bistable card failure, Callaway Action Request 201601028
- March 2, 2016, operability determination of component cooling water supply isolation valve to rad waste (EGHV0070A), Callaway Action Request 201601852
- March 18, 2016, operability determination of containment air coolers beyond design fouling, Callaway Action Request 201602305

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded structures, systems, or components 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 structures, systems, or components.

These activities constituted completion of six operability and functionality review samples as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

Plant Modifications (71111.18)

Temporary Modifications

a. Inspection Scope

On March 24, 2016, the inspectors reviewed a temporary modification to the safety related SB041 cabinet where the licensee installed a temporary recorder.

The inspectors verified that the licensee had installed this temporary modification in accordance with technically adequate design documents. The inspectors verified that this modification did not adversely impact the operability or availability of affected

structures, systems, or components. The inspectors reviewed design documentation and plant procedures affected by the modification to verify the licensee maintained configuration control.

These activities constituted completion of one sample of temporary modifications, 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 six post-maintenance testing activities that affected risk-significant structures, systems, or components:

- January 27, 2016, train A motor-driven auxiliary feedwater pump planned maintenance, multiple jobs
- January 29, 2016, train A emergency diesel generator engine-driven lube oil pump suction and discharge couplings, Job 16000420
- February 13, 2016, steam generator A blowdown sampling secondary system isolation valve position indication failure, Job 16000006
- February 26, 2016, component cooling water pump A oil change, Job 14506858
- March 3, 2016, train B compressed air system air compressor, multiple jobs
- March 10, 2016, train B emergency diesel generator digital reference unit issue, Job 16001083

The inspectors reviewed licensing- and design-basis documents for the structures, systems, and components 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 structures, systems and components.

These activities constituted completion of six 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

The inspectors reviewed the Callaway outage schedule and staffing plans for Refueling Outage 21, scheduled to commence April 2, 2016, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. In addition, the inspectors reviewed the new fuel receipt process for the upcoming outage.

These inspection efforts constituted elements of a refueling outage sample as defined in Inspection Procedure 71111.20-05, which will be counted at the conclusion of Refueling Outage 21.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed six risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the structures, systems, and components were capable of performing their safety functions:

In-service tests:

- January 5, 2016, train B residual heat removal pump in-service test

Other surveillance tests:

- January 8, 2016, train B solid state protection system functional test
- February 3, 2016, train B centrifugal charging pump in-service test
- February 3, 2016, train B solid state protection system slave relay K624, K626, K604, K711, & K743 test
- February 10, 2016, pressurized reactor coolant system sample
- March 18, 2016, train A emergency diesel generator 24-hour run

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 structures, systems, and components following testing.

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors performed an in-office review of Radiological Emergency Response Plan, Revision 47, Procedure EIP-ZZ-00101, "Classification of Emergencies," Revision 52, and Procedure EIP-ZZ-00101, Addendum 2, "Emergency Action Level Technical Basis Document," Revision 10. These revisions:

- clarify the intent of the Emergency Director judgment emergency action levels HU 7.1 through HG 7.1
- added references to the event close-out procedure for exiting an emergency action level
- implemented the NEI 99-01, Revision 6, emergency action level scheme as approved in NRC License Amendment 212, dated October 7, 2015 (ADAMS Accession Number ML15251A493)
- made other minor corrections and administrative changes in the documents

These revisions were compared to their previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, to Nuclear Energy Institute Report 99-01, "Emergency Action Level Methodology," Revision 6, and to the standards in 10 CFR 50.47(b) to determine if the revisions adequately implemented the requirements of 10 CFR 50.54(q)(3) and 50.54(q)(4). The inspectors also compared the emergency action level basis document to the version submitted for review of August 31, 2015 (ADAMS Accession Number ML15244B274). The inspectors verified that the revisions did not decrease the effectiveness of the emergency plan. These reviews were not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, these revisions are subject to future inspection.

These activities constituted completion of three emergency action level and emergency plan change samples as defined in Inspection Procedure 71114.04.

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 Mitigating Systems Performance Index: Emergency AC Power Systems (MS06) and Cooling Water Support Systems (MS10)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of first quarter 2015 through fourth quarter 2015 to verify the accuracy and completeness of the reported 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 constituted verification of the mitigating system performance index for emergency ac power systems and the mitigating system performance index for cooling water support systems as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors reviewed the licensee's reactor coolant system chemistry sample analyses for the period of first quarter 2015 through fourth quarter 2015 to verify the accuracy and completeness of the reported data. The inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample on February10, 2016. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the reactor coolant system specific activity 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 two issues for an in-depth follow-up:

- On February 3, 2016, the inspectors selected Callaway action requests associated with two fires within the protected area at the hardened condensate storage tank project; and an arc flash event in a non-safety related transformer within the protected area for in-depth follow-up. These issues are documented in Callaway Action Requests 201508995, 201509059, 201509008, and 201600248.

  The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to correct the conditions.

- On March 15, 2016, the inspectors selected Callaway Action Request 201600739 associated with loose bolts found on the train A emergency diesel generator engine-driven lube oil pump suction and discharge couplings for an in-depth follow-up.

  The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to correct the condition.

These activities constituted completion of two annual follow-up samples as defined in Inspection Procedure 71152.

b. Findings

No findings were identified.

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

1. (Closed) Licensee Event Report 2015-003-00 and 2015-003-01, Reactor Trip Caused by Transmission Line Fault

On August 11, 2015, the reactor tripped from 100 percent power due to an incorrect, automatic response to a transmission line fault on the Montgomery-Callaway 8 line by transformer bus differential relaying. This resulted in reactor protection system and auxiliary feedwater system actuations. The plant response was as expected except for problems with auxiliary feedwater system flow control valve (ALHV007) subsequent to the plant trip. The problems with ALHV007 were the subject of a special inspection and were dispositioned in NRC Inspection Report 05000483/2015009 (ADAMS Accession Number ML16013A021).

This event was caused by the inadvertent inclusion of jumpers in the current transformer circuits of the main transformers that were installed as part of a plant modification during Refueling Outage 19. Following the event, the licensee corrected the condition by removing the errantly installed current transformer jumpers and then restarted the plant.

The licensee determined the root cause of the incorrect main transformer current transformer wiring was that a drawing, which originally depicted the installation of the jumpers, was not revised when converted from a vendor drawing to a licensee controlled drawing in 1983. Given that this error occurred prior to the Callaway Plant receiving an operating license, the inspectors determined that a performance deficiency reasonably within the licensee's control to prevent did not exist.

Additional corrective actions included additional design, testing, and job reviews, as well as reviews of similar vendor generated drawings to determine the extent of cause and condition.

No violation of NRC requirements were identified. This licensee event report is closed.

2. (Closed) Licensee Event Report 2015-004-00, Auxiliary Feedwater Flow Control Valve Inoperable due to Faulty Electronic Positioner Card

On August 11, 2015, the licensee determined that a latent problem in the auxiliary feedwater system led to a condition prohibited by technical specifications and could have prevented the fulfillment of a safety function. Specifically, the condition was a flawed card used in the flow control valve for motor-driven auxiliary feedwater pump B combined with planned work outages for redundant trains of auxiliary feedwater. The licensee believed these conditions existed for short durations between November 18 and December 3, 2014. This issue was the subject of a special inspection, and all related findings were dispositioned in NRC Inspection Report 05000483/2015009 (ADAMS Accession Number ML16013A021). This licensee event report is closed.

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

4OA6 Meetings, Including Exit

Exit Meeting Summary

On March 22, 2016, regional inspectors conducted an on-site exit meeting to present the results of the in-office inspection of changes to the licensee's emergency plan and emergency action levels to Mr. G. Rauch, Manager, Emergency Preparedness, and other members of the licensee staff. The licensee acknowledged the issues presented.

On April 6, 2016, the resident inspectors presented the inspection results to Mr. Tim E. Herrmann, 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

F. Bianco, Director, Nuclear Operations
B. Cox, Senior Director, Nuclear Operations
M. Fletcher, Engineer, Fire Protection
M. Hoehn, Supervisor, Engineering Programs
G. Jurisic, Emergency Planner
S. Petzel, Engineer, Regulatory Affairs
G. Rauch, Manager, Emergency Preparedness
K. Tipton, Supervisor, Engineering Systems
T. Witt, Engineer, Regulatory Affairs

NRC Personnel

D. Loveless, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000483-2016001-02	NCV	Inadequate Operability Evaluation for Degraded Flood Mitigation Capability in Piping Penetration Room (Section 1R06)

Opened

05000483/2016001-01	URI	Possible Incorrect Screening of the Spent Fuel Pool Decay Heat Removal Key Safety Function (Section 1R05.1)

Closed

05000483/2015-003-00 05000483/2015-003-01	LER	Reactor Trip Caused by Transmission Line Fault (Section 4OA3.1)
05000483-2015-004-00	LER	Auxiliary Feedwater Flow Control Valve Inoperable due to Faulty Electronic Positioner Card (Section 4OA3.2)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures

Number	Title	Revision
EDP-ZZ-01012	Control Room Envelope Habitability Program	3
OSP-GK-0001B	B Train Control Room Filtration and Pressurization System Monthly Operability Verification	14

Procedures

Number	Title	Revision
OSP-GK-0002A	Train A Control Room Ventilation and Pressure Test	15
OSP-GK-0002B	Train B Control Room Ventilation and Pressure Test	16
OTN-AL-00001	Auxiliary Feedwater System	34
OTN-AL-00001 Checklist 1	Auxiliary Feedwater System Valve Alignment	22
OTN-AL-00001 Checklist 3	TD-AFP Switch Alignment	18
OTN-EC-00001	Fuel Pool Cooling and Cleanup System	41
OTN-EC-00001 Checklist 1	Fuel Pool Cooling and Cleanup System Valve Lineup (Outside Containment)	24
OTN-EC-00001 Checklist 3	Electrical and Control Handswitch Alignment	22
OTN-GK-00001	Control Building HVAC System	48
OTN-GK-00001 Checklist 4	Control Building HVAC System CRVIS Lineup – Train A	13
OTN-GK-00001 Checklist 6	Control Building HVAC System CREVS Flow Balance Damper and Register Lineup – Train A	13

Drawings

Number	Title	Revision
A-2909	Door Schedule	11
C-2021	Power Block Column Grid System	1
C-2C6111(Q)	Fuel Building Concrete Neat Lines Plan Ground Floor El. 2000’0”	2
C-2C7221	Radwaste Building Area 2 Concrete Neat Line Plan El. 2000’0”	1
J-104-00176	Logic Block Diagram ESFAS	13
J-104-00042	ESF Actuation System – Channel 4 Actuation Output/Status Indications	22
J-104-00034	ESF Actuation System – Channel 1 Actuation Output/Status Indications	19
M-22EG01(Q)	Piping and Instrumentation Diagram Component Cooling Water System	10
M-22EG02(Q)	Piping and Instrumentation Diagram Component Cooling Water System	21

Drawings

Number	Title	Revision
M-22EG03(Q)	Piping and Instrumentation Diagram Component Cooling Water System	24
M-22GK01(Q)	Control Building HVAC Piping and Instrumentation Diagram	20
M-22GK02(Q)	Control Building HVAC Piping and Instrumentation Diagram	19
M-22GK03(Q)	Control Building HVAC Piping and Instrumentation Diagram	23
M-22AL01(Q)	Auxiliary Feedwater System Piping and Instrumentation Diagram	44

Callaway Action Requests

200701174	201400767	201401457	201401584	201404353
201405508	201405777	201405778	201405912	201406097
201408127	201408221	201408448	201408449	201408543
201408579	201408580	201408594	201408957	201501866
201503543	201504520	201506284	201507235	201601462

Jobs

15001334

Miscellaneous

Number	Title	Revision/ Date
	Surveillance Tracking Manual	26
M-082-00039	Instruction Manual for Component Cooling Water Pumps	23
NEI 99-03	Control Room Habitability Assessment Guidance	June 2001
Regulatory Guide 1.197	Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors	May 2003

Section 1R05: Fire Protection

Procedures

Number	Title	Revision
OTO-EC-00001	Loss of SFP/Refuel Pool Level	13
OTO-EC-00002	Spent Fuel Pool High Temperature	9
OTO-KC-00001	Fire Response	14

Procedures

Number	Title	Revision
OTO-KC-00001, Addendum FB-01	Fuel Handling Building 2000', 2026', 2047' – All Elevations	0

Callaway Action Requests

201600524 201600726

Miscellaneous

Number	Title	Revision/Date
	Fire Preplan Manual	39
17671-FRE-FB-1	Fire Evaluation of Delta Risk for Fire Area FB-1	0
EC Sup. Guide	Emergency Coordinator Supplemental Guideline	18
KC-26	Nuclear Safety Capability Assessment	1
KC-124	Fire Safety Analysis for Fire Area C-13	1
KC-132	Fire Safety Analysis for Fire Area C-21	1
KC-133	Fire Safety Analysis for Fire Area C-22	1
KC-151	Fire Safety Analysis for Fire Area FB-1	1
KC-160	Fire Safety Analysis for Fire Area USPH	1
1st Quarter 2016	Drill Planning and Authorization	March 2, 2016

Section 1R06: Flood Protection Measures

Procedures

Number	Title	Revision
APA-ZZ-00750	Hazard Barrier Program	37

Drawings

Number	Title	Revision
A-2305	Auxiliary and Reactor Building Floor Plans, El. 1988'-0" & El. 2013'-6"	0
C-2C1231	Auxiliary Building Area 3 Concrete Neat Lines Plan Floor El.1988'-0"	0
M-23KC17	Piping Isometric Fire Protection Auxiliary Building	1
M-22KC02(Q)	Fire Protection System Piping and Instrumentation Diagram	22

Callaway Action Requests

200610048	201201033	201404450	201405518	201405555
201601412	201601881	201600764		

Jobs

12504329	14002927	14003803	14003804

Miscellaneous

Number	Title	Revision
M-FL-01	Flooding of the Aux Building	2
M-FL-03	Flooding of Individual Auxiliary Building Rooms	2
RFR 201201033	Provide Basis for HELB Program	0

Section 1R11: Licensed Operator Requalification Program

Procedures

Number	Title	Revision
ODP-ZZ-00001	Operations Department – Code of Conduct	95
ODP-ZZ-00001, Addendum 1	Annunciator Response	10
ODP-ZZ-00001, Addendum 11	Control Room Decorum	13

Miscellaneous

Number	Title	Date
T61.0810 8	Licensed Operator Continuing Training – BOL Reactor and Plant Startup – Scenario S-4	December 11, 2015

Section 1R12: Maintenance Effectiveness

Procedures

Number	Title	Revision
APA-ZZ-00315	Configuration Risk Management Program	14
APA-ZZ-00500 Appendix 5	Maintenance Rule	19
EDP-ZZ-01128	Maintenance Rule Program	24

Procedures

Number	Title	Revision
EDP-ZZ-01128 Appendix 1	SSCs in the Scope of the Maintenance Rule at Callaway	10
EDP-ZZ-01128 Appendix 2	Summary of SSC Performance Criteria	28
EDP-ZZ-01128 Appendix 3	Maintenance Rule Shutdown Performance Criteria	3
EDP-ZZ-01128 Appendix 4	Maintenance Rule System Functions	15
EDP-ZZ-01129	Callaway Energy Center Risk Assessment	45
OSP-EG-P01AC	CCW Train A Pump and Valve Inservice Test – Group A	32

Drawings

Number	Title	Revision
M-22EG01(Q)	Piping and Instrumentation Diagram Component Cooling Water System	10
M-22EG02(Q)	Piping and Instrumentation Diagram Component Cooling Water System	21
M-22EG03(Q)	Piping and Instrumentation Diagram Component Cooling Water System	24

Callaway Action Requests

201306459	201404550	201505308	201507718	201507752

Jobs

14506858

Miscellaneous

Title

Oil Sample Results CCW motor and Pump

Callaway CCW system Health Report Fourth Quarter 2015

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

Procedures

Number	Title	Revision
APA-ZZ-00315	Configuration Risk Management Program	14
EDP-ZZ-01129	Callaway Energy Center Risk Assessment	44
ODP-ZZ-00002 Appendix 1	Protected Equipment Program	23
ODP-ZZ-00002 Appendix 1, Checklist 3	Placing Train B Protected Equipment Barriers, Mode 1-4	1
ODP-ZZ-00002 Appendix 2	Risk Management Actions for Planned Risk Significant Activities	10

Callaway Action Requests

201601852	201602074	201602324

Jobs

15504506	15512533	16001083	16001268

Section 1R15: Operability Evaluations

Procedures

Number	Title	Revision
APA-ZZ-00500, Appendix 1	Operability and Functionality Determinations	24
ISL-BB-0T441	Loop-Temp; Loop 4 ΔT/T AVG	89
ODP-ZZ-00001, Addendum 15	Operability and Functionality Determinations	9
OSP-EG-V001B	CCW Train B Valve Inservice Test	43
OSP-SA-2413B	Train B Diesel Generator and Sequencer Testing	24
OSP-SA-0017B	Train B SIS-CSAS Slave Relay Test	35
OTA-RK-00024, Addendum 108E	Steam Generator Setpoint High Containment Pressure	2

Drawings

Number	Title	Revision
M-22BM01(Q)	Steam Generator Blowdown System Piping and Instrumentation Drawing	40
M-22KJ03(Q)	Standby Diesel Generator “A” Lube Oil System	20
M-18-00912	Coupling, 5” Nom. Pipe Size	2
M-18-00913	Coupling - 6” Nom. Pipe	4
FSAR Figure 7.2-1 Sheet 5	Primary Coolant System Trip Signals	14
FSAR Figure 7.2-1 Sheet 5A	Primary Coolant System Trip Signals	16
7250D64 S013	Feedwater Control and Isolation Functional Diagram	15
M22-EG03 (Q)	Component Cooling Water Piping and Instrumentation Diagram	24
M-23KC17	Piping Isometric Fire Protection Auxiliary Building	1
M-22KC02 (Q)	Fire Protection System Piping and Instrumentation Diagram	22

Callaway Action Requests

200700759	200904273	201106600	201300359	201309485
201404450	201405518	201405555	201407075	201508633
201600018	201600694	201600336	201600739	201601028
201601852	201602305			

Jobs

10502119	11004514	12504329	15508579	15512533
16000006	16000197	16000420		

Section 1R18: Plant Modifications

Procedures

Number	Title	Revision
APA-ZZ-00605	Temporary System Modifications	33

Drawings

Number	Title	Revision
7250D64 S005	Functional Diagram – Primary Coolant System Trip Signals	6

Drawings

Number	Title	Revision
8756D37 S010	Process Control Block Diagram – Loop 4 $\Delta T/T_{AVG}$ Protection Set IV	11
M-22BB01	Piping and Instrumentation Diagram – Reactor Coolant System	31

Callaway Action Requests

201602324

Jobs

16001268

Miscellaneous

Number	Title	Revision
TM 16-0004	Recorder in SB041 for Monitoring Temperature Loop 4	0

Section 1R19: Post-Maintenance Testing

Procedures

Number	Title	Revision
APA-ZZ-00100	Written Instructions Use and Adherence	33
APA-ZZ-00320	Work Execution	56
APA-ZZ-00322 Appendix E	Post-Maintenance Test Program	11
OSP-AL-P001A	Motor Driven Aux. Feedwater Pump A Inservice Test – Group A	63
OSP-AL-V001A	Train A Auxiliary Feedwater Valve Inservice Test	53
OSP-BM-V0001	Steam Generator Sample Line Isolation Valve Inservice Test	24
OSP-EF-V001B	ESW Train B Valve Operability	49
OSP-EG-P01AC	CCW Train A Pump and Valve Inservice Test – Group A	32
OSP-SA-0007B	Train B AFAS Slave Relay Test	34
OTN-NE-0001A	Standby Diesel Generation System – Train A	48
OTS-NE-ST01B	B Emergency Diesel Generator Governor Tuning Post Maintenance Test Procedure	1

Drawings

Number	Title	Revision
M-22EG01(Q)	Piping and Instrumentation Diagram Component Cooling Water System	10
M-22EG02(Q)	Piping and Instrumentation Diagram Component Cooling Water System	21
M-22EG03(Q)	Piping and Instrumentation Diagram Component Cooling Water System	24

Callaway Action Requests

201602074 201602279

Jobs

08004474	10514753	10514754	10514755	10514760
11507326	13502894	13511612	14504449	14506858
14506866	14506868	14509210	14509217	14509219
14509262	15504506	15511211	15512619	16000006
16000420	16000663	16001083		

Miscellaneous

Number	Title	Revision
M-082-00039	Instruction Manual for Component Cooling Water Pumps	23

Section 1R20: Refueling and Other Outage Activities

Procedures

Number	Title	Revision
ETP-ZZ-00003	Inspection of New Fuel	17
OTS-KE-00003	Unloading and Storage of New Fuel Assemblies and Inserts	32

Callaway Action Requests

201600506 201600608

Miscellaneous

Title	Date
Callaway Refueling Outage 21 – Overview	March 7, 2016

Miscellaneous

Title	Date
Refuel 21 Major Scope Summary	February 8, 2016
Refuel 21, Revision O, Entire Project Start to Finish	March 2, 2016

Section 1R22: Surveillance Testing

Procedures

Number	Title	Revision
APA-ZZ-00356	Pump and Valve Inservice Test Program	23
APA-ZZ-00356, Appendix 2	IST Pumps Design Flow Rates	0
CSP-ZZ-07600	RCS Activity Determinations	40
ISF-SB-00A32	SSPS Train B Functional Test	33
ISF-SB-0A33A	SSPS Train B Slave Relay K624, K626, K604, K711, & K743 Test	36
OSP-BG-P005B	Centrifugal Charging Pump B Inservice Test – Group B	52
OSP-EJ-P001B	RHR Train B Inservice Test – Group A	58
OSP-NE-0024A	Standby Diesel Generator A 24 Hour Run and Hot Restart Test	50

Callaway Action Requests

199701249

Jobs

14510503	15507589	15510482	15511596	15511644

Miscellaneous

Title	Revision
Surveillance Tracking Manual	26
In-service Testing Program	32

Section 4OA1: Performance Indicator Verification

Miscellaneous

Title	Revision/ Date
Reactor Coolant System Dose Equivalent I-131 Activity Data January 1, 2015 to December 31, 2015	
Mitigating Systems Performance Index (MSPI) Basis Document	14
Mitigating Systems Performance Index (MSPI) Basis Document	15
MSPI Derivation Report, MSPI Emergency AC Power System, Unavailability Index (UAI)	March 2015
MSPI Derivation Report, MSPI Emergency AC Power System, Unreliability Index (URI)	March 2015
MSPI Derivation Report, MSPI Emergency AC Power System, Unavailability Index (UAI)	June 2015
MSPI Derivation Report, MSPI Emergency AC Power System, Unreliability Index (URI)	June 2015
MSPI Derivation Report, MSPI Emergency AC Power System, Unavailability Index (UAI)	October 2015
MSPI Derivation Report, MSPI Emergency AC Power System, Unreliability Index (URI)	October 2015
MSPI Derivation Report, MSPI Emergency AC Power System, Unavailability Index (UAI)	December 2015
MSPI Derivation Report, MSPI Emergency AC Power System, Unreliability Index (URI)	December 2015
MSPI Derivation Report, MSPI Cooling Water System, Unavailability Index (UAI)	March 2015
MSPI Derivation Report, MSPI Cooling Water System, Unreliability Index (URI)	March 2015
MSPI Derivation Report, MSPI Cooling Water System, Unavailability Index (UAI)	June 2015
MSPI Derivation Report, MSPI Cooling Water System, Unreliability Index (URI)	June 2015
MSPI Derivation Report, MSPI Cooling Water System, Unavailability Index (UAI)	October 2015
MSPI Derivation Report, MSPI Cooling Water System, Unreliability Index (URI)	October 2015
MSPI Derivation Report, MSPI Cooling Water System, Unavailability Index (UAI)	December 2015
MSPI Derivation Report, MSPI Cooling Water System, Unreliability Index (URI)	December 2015

Miscellaneous

Title	Revision/ Date
NRC Performance Indicator Transmittal Report, First Quarter 2015, Mitigating Systems Cornerstone	April 16, 2015
NRC Performance Indicator Transmittal Report, Second Quarter 2015, Mitigating Systems Cornerstone	July 9, 2015
NRC Performance Indicator Transmittal Report, Third Quarter 2015, Mitigating Systems Cornerstone	October 12, 2015
NRC Performance Indicator Transmittal Report, Fourth Quarter 2015, Mitigating Systems Cornerstone	January 11, 2016

Section 4OA2: Identification and Resolution of Problems

Procedures

Number	Title	Revision
APA-ZZ-00700	Fire Protection Program	21
EIP-ZZ-00226	Fire Response Procedure for Callaway Plant	20
OTO-KC-00001	Fire Response	14

Drawings

Number	Title	Revision
M-018-00912	Coupling, 5” Nom. Pipe Size	2
M-018-00913	Coupling - 6” Nom. Pipe	4

Callaway Action Requests

200709998	200800930	200904273	201106600	201508995
201509008	201509059	201600248	201600694	201600739
201601189				

Jobs

09003636	09003640	11004514	16000420

Section 4OA3: Event Follow-Up

Miscellaneous

Number	Title	Date
LTR-TA-15-110	Preliminary Sensitivity Study Results for Callaway Feedline Break Event with Reduced AFW Capability	September 21, 2015