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

July 26, 2017

EA-17-050

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 05000483/2017002

Dear Mr. Diya,

On June 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Callaway Plant. On July 5, 2017, the NRC inspectors discussed the results of this inspection with Ms. Stephanie Banker, Senior Director, Engineering, and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. Additionally, NRC inspectors documented one Severity Level IV violation with no associated finding. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, 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 Callaway Plant.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement 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 Callaway Plant.

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

Sincerely,

/RA/

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

Docket No. 05000483
License No. NPF-30

Enclosure: Inspection Report 05000483/2017002
w/ Attachment: Supplemental Information

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CALLAWAY PLANT - NRC INTEGRATED INSPECTION REPORT 05000483/2017002, - DATED JULY 26, 2017

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000483
License:	NPF-30
Report:	05000483/2017002
Licensee:	Union Electric Company
Facility:	Callaway Plant
Location:	8315 County Road 459 Steedman, MO 65077
Dates:	April 1 through June 30, 2017
Inspectors:	D. Bradley, Senior Resident Inspector B. Bartlett, Acting Senior Resident Inspector R. Kumana, Acting Senior Resident Inspector M. Langelier, Resident Inspector B. Baca, Health Physicist P. Elkmann, Senior Emergency Preparedness Inspector S. Hedger, Emergency Preparedness Inspector J. Melfi, Project Engineer D. Proulx, Senior Project Engineer
Approved By:	Nicholas H. Taylor Chief, Project Branch B Division of Reactor Projects

SUMMARY

IR 05000483/2017002; 04/01/2017 - 06/30/2017; Callaway Plant; Post-Maintenance Testing; Emergency Action Level and Emergency Plan Changes.

The inspection activities described in this report were performed between April 1 and June 30, 2017, 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. Additionally, one Severity Level IV violation with no associated finding is documented in this report. The significance of inspection findings is indicated by their color (i.e., Green, greater than Green, White, Yellow, or Red), determined using Inspection Manual Chapter 0609, "Significance Determination Process," dated April 29, 2015. Their cross-cutting aspects are determined using 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 reviewed a self-revealed, non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to follow Procedure MPE-ZZ-QS001, "Cleaning and Inspection of Motor Control Centers," Revision 34. On May 2, 2017, the licensee failed to ensure contactors operated freely per step 7.6.8 during reassembly of motor control center NG08F for the essential service water cooling tower bypass valve EFHV0066. As a result, one train of the essential service water system was rendered inoperable for a total of 57 hours, of which 17 hours was unplanned, and the issue was only discovered when valve EFHV0066 failed to operate during a periodic surveillance test on May 3, 2017. As immediate corrective actions, the licensee replaced the starter assembly under Job 17001973, completed testing including electrically cycling valve EFHV0066, and restored the system to operable status on May 4, 2017. The licensee entered this issue into the corrective action program under Condition Report 201702418.

  The failure to follow Procedure MPE-ZZ-QS001 was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it adversely affected the configuration control attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, one train of the essential service water system was rendered inoperable for a total of 57 hours, of which 17 hours was unplanned, and the issue was only discovered when valve EFHV0066 failed to operate during a periodic surveillance test on May 3, 2017. Using Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the inspectors determined the finding was of very low safety significance (Green) because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does 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. Specifically, the total duration of

inoperability was approximately 57 hours which is less than the allowed completion time of 72 hours for this system. The finding had a cross-cutting aspect in the area of human performance associated with challenge the unknown because the licensee failed to stop when faced with uncertain conditions. Specifically, the maintenance technician encountered resistance when manually operating the contactors, signed off the step as complete, and later rationalized the decision with the supervisor after completing the work [H.11]. (Section 1R19)

Cornerstone: Emergency Preparedness

- Severity Level IV. The inspectors identified a Severity Level IV non-cited violation for the licensee's failure to perform an analysis of a change to processes supporting the emergency preparedness program that demonstrated the change did not reduce the effectiveness of the emergency plan in accordance with the requirements of 10 CFR 50.54(q)(3). There were no immediate safety concerns associated with this violation because less than 10 percent of the public address speakers were determined to be degraded or non-functional. This issue has been placed in the licensee's corrective action system as Condition Report 201702343.

  The failure to perform an analysis of the effect of changes in processes supporting emergency preparedness is a performance deficiency within the licensee's ability to foresee and correct. The finding was more than minor because the finding was associated with the Facilities and Equipment Cornerstone attribute and adversely affected the Emergency Preparedness Cornerstone objective. The finding was assessed using traditional enforcement because the licensee's failure to perform a required analysis impacted the regulatory process. The finding was evaluated using the NRC's Enforcement Policy, dated November 1, 2016, Section 6.6(d), and was determined to be a Severity Level IV violation because the violation did not affect radiological assessment or offsite notification. Traditional enforcement violations are not assessed for cross-cutting aspects. (Section 1EP4)

PLANT STATUS

Callaway began the inspection period at 100 percent power. On June 5, 2017, the licensee reduced power to approximately 60 percent power for planned work on the condensate and feedwater systems. The licensee returned to 100 percent power on June 11, 2017. The licensee remained at approximately 100 percent power for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Summer Readiness for Offsite and Alternate AC Power Systems

a. Inspection Scope

On May 23, 2017, the inspectors completed an inspection of the station's off-site and alternate-ac power systems. The inspectors inspected the material condition of these systems, including transformers and other switchyard equipment to verify that plant features and procedures were appropriate for operation and continued availability of off-site and alternate-ac power systems. The inspectors reviewed outstanding work orders and open condition reports for these systems. The inspectors walked down the switchyard to observe the material condition of equipment providing off-site power sources.

These activities constituted one sample of summer readiness of off-site and alternate-ac power systems, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

Partial Walk-Down

a. Inspection Scope

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

- April 11, 2017, train A residual heat removal system
- April 13, 2017, train A centrifugal charging pump
- April 19, 2017, train B residual heat removal system
- June 14, 2017, train B motor-driven auxiliary feedwater 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 or trains were correctly aligned for the existing plant configuration.

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

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

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

- May 14, 2017, train A emergency core cooling system pump rooms, areas A-2A and A-2B
- May 14, 2017, train B emergency core cooling system pump rooms, areas A-4A and A-4B
- May 16, 2017, train A and B auxiliary shutdown panel rooms, areas A-28 and A-33
- May 18, 2017, circulating and service water system pump house, areas S-2A and S-2B
- June 22, 2017, vital switchgear rooms, areas C-9, C-10, C-11, C-12 and C-37

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

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 May 22, 2017, the inspectors observed simulator training for an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed and the modeling and performance of the simulator during the simulator training.

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

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. The inspectors observed the operators' performance of the following activities:

- May 18, 2017, chemical and volume control system leak surveillance, N42 nuclear instrument calibration, and radwaste building exhaust radiation detector testing
- June 2, 2017, operation of the train A feedwater regulating valve in manual due to a non-safety valve positioner failure

In addition, the inspectors assessed the operators' adherence to plant procedures, including Procedure ODP-ZZ-00001, "Operations Department – Code of Conduct," Revision 101, 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)

Routine Maintenance Effectiveness

a. Inspection Scope

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

- April 10, 2017, residual heat removal system
- June 16, 2017, instrument air system

The inspectors reviewed the extent of condition of possible common cause structure, system, and 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 three 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:

- April 18, 2017, train A residual heat removal technical specification outage and train A component cooling water room cooler technical specification outage
- May 2, 2017, train B diesel generator and essential service water technical specification outage
- May 12, 2017, train A instrument air compressor outage

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.

Additionally, on May 4, 2017, the inspectors observed portions of train B essential service water cooling tower bypass valve failure during surveillance that had the potential to affect the functional capability of mitigating systems.

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 four 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 and functionality assessments that the licensee performed for degraded or nonconforming structures, systems, or components:

- April 12, 2017, operability determination of train A residual heat removal hot leg recirculation valve following a missed post-maintenance test
- May 16, 2017, functionality assessment of gaseous radwaste system with carbon steel pipe corrosion
- May 19, 2017, functionality assessment of train A service air compressor with an air leak
- May 31, 2017, operability determination of the control room emergency ventilation system with one door unable to latch shut
- June 14, 2017, operability determination of the turbine-driven auxiliary feedwater valve with a packing leak
- June 23, 2017, operability determination of the impact of a tornado generated missile on the non-safety-related diesel generator fuel oil removal lines

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 or functional, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability or functionality. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability or functionality 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.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed seven post-maintenance testing activities that affected risk-significant structures, systems, or components:

- March 25, 2017, train A emergency diesel generator technical specification outage
- April 12, 2017, train A residual heat removal hot leg recirculation isolation valve packing adjustment
- April 19, 2017, train A residual heat removal technical specification outage
- May 4, 2017, train B ultimate heat sink cooler bypass valve starter replacement
- May 24, 2017, train B residual heat removal heat exchanger bypass valve following positioner replacement
- May 30, 2017, train B emergency diesel generator technical specification outage
- June 20, 2017, train B essential service water snubber removal and stroke test

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

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

b. Findings

Introduction. The inspectors reviewed a Green, self-revealed, non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to follow Procedure MPE-ZZ-QS001, "Cleaning and Inspection of Motor Control Centers," Revision 34. On May 2, 2017, the licensee failed to ensure contactors operated freely per step 7.6.8 during reassembly of motor control center NG08F for the essential service water cooling tower bypass valve EFHV0066. As a result, one train of the essential service water system was rendered inoperable for a total of 57 hours, of which 17 hours was unplanned, and the issue was only discovered when valve EFHV0066 failed to operate during a periodic surveillance test on May 3, 2017.

Description. On May 2, 2017, the licensee performed a planned maintenance activity under Job 12511491 to clean and inspect 480 Vac motor control centers associated with

train B of the essential service water system. As part of this job, the licensee declared train B of the essential service water system inoperable. The maintenance technician then used Procedure MPE-ZZ-QS001 to complete the work on motor control center NG08F for the essential service water cooling tower bypass valve EFHV0066. Step 7.6.8 of this procedure states, "Operate contactors manually to ensure they operate freely." When the maintenance technician reached this step, the individual encountered some mechanical resistance and re-performed the step three times with the same results. The individual believed that it was an acceptable amount of resistance and completed the procedure. Upon returning to the maintenance shop, the technician discussed what occurred with his supervisor. Both the maintenance technician and the supervisor then reached the conclusion that some resistance was acceptable. The job was marked as completed and the control room declared train B of the essential service water system as operable that evening.

On May 3, 2017, the licensee was performing a periodic surveillance test using Procedure ISF-EF-00T68, "ESW Cooling Tower Fan and Bypass Valve Test Train B," Revision 1. The test failed, however, when valve EFHV0066 did not change state. The licensee declared train B of the essential service water system inoperable and began troubleshooting. Inspection of the motor control center revealed that the mechanical interlock associated with the close coil was bound, and, as a result, the starter coil overheated to failure.

The inspectors concluded that the licensee failed to follow Procedure MPE-ZZ-QS001, "Cleaning and Inspection of Motor Control Centers," Revision 34. Specifically, the licensee did not complete step 7.6.8 since the contactors had resistance and did not "operate freely." The inspectors determined train B of the essential service water system remained inoperable from the start of the maintenance window and was inoperable for a total duration of approximately 57 hours. The introduction of the latent issue contributed 17 hours of unplanned inoperability to that total. The inspectors noted that Technical Specification 3.7.8.A, one essential service water train inoperable, has a completion time limit of 72 hours.

As immediate corrective actions, the licensee replaced the starter assembly under Job 17001973, completed testing including electrically cycling valve EFHV0066, and restored the system to operable status on May 4, 2017. The licensee entered this issue into the corrective action program under Condition Report 201702418.

Analysis. The failure to follow Procedure MPE-ZZ-QS001 was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it adversely affected the configuration control attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, one train of the essential service water system was rendered inoperable for a total of 57 hours, of which 17 hours was unplanned, and the issue was only discovered when valve EFHV0066 failed to operate during a periodic surveillance test on May 3, 2017. Using Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, the inspectors determined the finding was of very low safety significance (Green) because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function;

(3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does 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. Specifically, the total duration of inoperability was approximately 57 hours which is less than the allowed completion time of 72 hours for this system. The finding had a cross-cutting aspect in the area of human performance associated with challenge the unknown because the licensee failed to stop when faced with uncertain conditions. Specifically, the maintenance technician encountered resistance when manually operating the contactors, signed off the step as complete, and later rationalized the decision with the supervisor after completing the work [H.11].

Enforcement. Technical Specification 5.4.1.a 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, Revision 2, requires procedures for performing maintenance on safety-related equipment. The licensee established Procedure MPE-ZZ-QS001, "Cleaning and Inspection of Motor Control Centers," Revision 34, to meet the Regulatory Guide 1.33 requirement. Step 7.6.8 of Procedure MPE-ZZ-QS001 directs operation of contactors manually to ensure they operate freely. Contrary to the above, on May 2, 2017, the licensee failed to operate a contactor manually to ensure it operated freely. Specifically, the licensee failed to ensure the contactors operated freely per step 7.6.8 during reassembly of motor control center NG08F for the essential service water cooling tower bypass valve EFHV0066. As a result, one train of the essential service water system was rendered inoperable for a total of 57 hours, of which 17 hours was unplanned, and the issue was only discovered when valve EFHV0066 failed to operate during a periodic surveillance test on May 3, 2017. As immediate corrective actions, the licensee replaced the starter assembly under Job 17001973, completed testing including electrically cycling valve EFHV0066, and restored the system to operable status on May 4, 2017. The licensee entered this issue into the corrective action program under Condition Report 201702418. Because this finding is of very low safety significance (Green) and was entered into the licensee's corrective action program, this violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy:
NCV 05000483/2017002-01, "Failure to Follow Motor Control Center Procedure."

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed three 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:

- May 24, 2017, train B residual heat removal pump in-service testing

Other surveillance tests:

- April 22, 2017, trains A and B reactor coolant pump under-voltage and under-frequency relay response time testing
- June 13, 2017, train B auxiliary feedwater actuation system relay testing

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 three surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation (71114.01)

a. Inspection Scope

The inspectors observed the April 25, 2017, biennial emergency preparedness exercise to verify the exercise acceptably tested the major elements of the emergency plan, and provided opportunities for the emergency response organization to demonstrate key skills and functions. The exercise demonstrated the licensee's capability to implement its emergency plan by simulating:

- an operating basis earthquake followed by after-shocks
- offsite damage to a local dam and electrical transmission towers
- damage to an emergency diesel generator
- a trip and lock out on a vital electrical bus
- failure of a safety injection pump
- a steam generator primary to secondary tube leak that escalates to a tube rupture
- an unfiltered and unmonitored radiological release to the environment through a stuck open steam generator safety valve

During the exercise the inspectors observed activities in the control room simulator and the following dedicated emergency response facilities:

- technical support center
- operations support center
- emergency operations facility

The inspectors focused their evaluation of the licensee's performance on the risk-significant activities of event classification, offsite notification, recognition of offsite dose consequences, and development of protective action recommendations.

The inspectors also assessed recognition of, and response to, abnormal and emergency plant conditions, the transfer of decision-making authority and emergency function responsibilities between facilities, on-site and offsite communications, protection of emergency workers, emergency repair evaluation and capability, and the overall implementation of the emergency plan to protect public health and safety and the environment. The inspectors reviewed the current revision of the facility emergency plan, emergency plan implementing procedures associated with operation of the licensee's emergency response facilities, procedures for the performance of associated emergency functions, and other documents as listed in the attachment to this report.

The inspectors attended the post-exercise critiques in each emergency response facility to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended a subsequent formal presentation of critique items to plant management.

The inspectors reviewed the scenarios of previous biennial exercises and licensee drills conducted between June 2015 and March 2017 to determine whether the April 25, 2017, exercise was independent and avoided participant preconditioning, in accordance with the requirements of 10 CFR Part 50, Appendix E, IV.F(2)(g). The inspectors also compared observed exercise performance with corrective action program entries and after-action reports for drills and exercises conducted between June 2015 and March 2017 to determine whether identified weaknesses had been corrected in accordance with the requirements of 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E, IV.F.

The inspectors discussed the integrated exercise with staff at the Federal Emergency Management Agency (FEMA), Region VII, to determine whether the exercise scenario supported the FEMA exercise evaluation objectives and the results continued to support that participants could adequately protect the health and safety of the public.

These activities constituted one exercise evaluation sample as defined in Inspection Procedure 71114.01.

b. Findings

No findings were identified.

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

.1 Failure to Analyze a Change Affecting Emergency Preparedness

a. Inspection Scope

During an exercise conducted April 25, 2017, the inspectors observed that there were areas within the protected area in which the public address system could not be heard. The inspectors discussed the material condition of the public address system with the system engineer assigned to the Gaitronics public address system and an engineering supervisor. The inspectors also reviewed site procedures and work orders associated with the testing and maintenance of the public address system.

b. Findings

Introduction. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.54(q)(3) for the failure to perform an analysis of a change to processes supporting the site emergency preparedness program that demonstrated the change did not reduce the effectiveness of the emergency plan. Specifically, the licensee cancelled a repetitive maintenance task on April 5, 2013, that evaluated the functionality of protected area Gaitronics public address speakers and did not analyze whether cancelling the surveillance affected the emergency preparedness program.

Description. During an exercise conducted April 25, 2017, the inspectors observed that there were areas within the protected area in which the public address system could not be heard, and subsequently discussed the material condition of the public address system with the system engineer for the Gaitronics public address system and an engineering supervisor. The inspectors also reviewed site procedures and work orders associated with the testing and maintenance of the public address system.

The Callaway Plant Radiological Emergency Response Plan, Revision 48, Section 7.2.1, states, “The PA system is used for communication between the emergency teams, Control Room, TSC, and EOF, as required. The public address system specifics are explained in the Plant FSAR.” The public address system is described in the Callaway Plant Final Safety Analysis Report, Revision OL-22, Section 9.5.2.2.1(a).

The inspectors determined that the licensee performs monthly tests of the plant alarm system and periodically tests the Gaitronics public address speakers in the vicinity of the containment emergency access hatch. The plant alarm system test specifically tests the high noise area warning lights and the on-site emergency sirens and uses the plant public address system to transmit the alarms. However, the test does not evaluate whether the alarms are heard throughout the plant in a systematic manner; it relies upon plant workers identifying degraded speakers after realizing they failed to hear a routinely scheduled test.

The inspectors determined that repetitive maintenance task PM-0813164 evaluated the functionality of Gaitronics speakers in a systematic manner and the surveillance had been performed with an 18-month frequency. This task was last performed on October 9, 2011, and had been scheduled to be performed in 2013. However, the licensee canceled repetitive maintenance task PM-0813164 on April 5, 2013, and also canceled the scheduled surveillance.

The inspectors discussed the cancellation of repetitive maintenance task PM-0813164 with the system engineer for the Gaitronics system and with site emergency preparedness staff and determined that emergency preparedness staff were not informed that the maintenance task was canceled. Therefore, emergency preparedness staff did not evaluate whether the cancellation affected site emergency preparedness or reduced the effectiveness of the site emergency plan. The inspectors determined that changes to the manner in which the public address system was maintained and tested could affect its ability to perform its emergency preparedness functions and, therefore, an evaluation of those changes was required.

Analysis. The failure to perform an analysis of the effect on emergency preparedness from changes made to processes supporting emergency preparedness functions is a performance deficiency within the licensee's ability to foresee and correct. The finding was more than minor because the finding was associated with the Facilities and Equipment Cornerstone attribute and adversely affected the Emergency Preparedness Cornerstone objective. The finding was assessed using traditional enforcement because the licensee's failure to perform a required analysis impacted the regulatory process because a licensee evaluates changes affecting emergency preparedness to determine whether those changes require NRC approval before being implemented. The finding was evaluated using the NRC's Enforcement Policy, dated November 1, 2016, Section 6.6(d). The finding was determined to be a Severity Level IV violation of NRC requirements because the licensee's ability to implement regulatory requirements related to radiological assessment and offsite notification were not affected by the violation. Traditional enforcement violations are not assessed for cross-cutting aspects.

Enforcement. Title 10 CFR 50.54(q)(3), states, in part, that a licensee may make changes to its emergency plan without prior NRC approval only if the licensee performs and retains an analysis which demonstrates that the change does not reduce the effectiveness of the emergency plan. Contrary to the above, between April 5, 2013, and May 2, 2017, the licensee did not perform and retain an analysis which demonstrated that changes made to the emergency plan did not reduce the effectiveness of the emergency plan. Specifically, the licensee failed to analyze the effect on emergency preparedness of cancelling repetitive maintenance task PM-0813164, which had evaluated the operability of Gaitronics public address speakers. There were no actual safety consequences associated with this violation because a review of alarm test surveillances and public address system work orders demonstrated that less than 10 percent of public address speakers were currently out of service or degraded. This issue is documented in the licensee's corrective action program as Condition Report 201702343. This violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000483/2017002-02, "Failure to Analyze the Effect of Changes to Maintaining the Gaitronics System."

.2 Review of Changes to the Emergency Plan and Emergency Action Levels

a. Inspection Scope

The inspectors performed an in-office review of the Callaway Plant Radiological Emergency Response Plan, Revision 48, and EIP-ZZ-00101, Addendum 2, "Emergency Action Level Technical Basis Document," Revision 12, both implemented March 23, 2017. These revisions:

- Provided additional guidance for evaluating time-based emergency action levels
- Provided additional guidance about using Table R1 for classification when dose assessment is available
- Designated the Unified RASCAL Interface as the method used to calculate offsite dose for purposes of evaluating emergency action levels
- Defined when a dry fuel storage cask is sealed
- Defined the cask overpack and confinement boundary for dry fuel storage casks
- Defined plant areas where local actions to safely shut down the plant may be taken by plant operators
- Provided additional information about when operators can take credit for aligning the alternate emergency power supply in evaluating emergency action levels
- Defined the offsite emergency response organizations to whom communications must be available
- Provided guidance for treating cellular phones and satellite phones in evaluating communications system availability
- Provided guidance for evaluating certain routine uses of hazardous chemicals in the plant for the emergency action levels
- Provided additional guidance for evaluating conditions generating smoke and conditions warranting classification as a fire
- Provided additional guidance for determining when a reactor trip is successful
- Corrected titles and minor technical and typographical errors

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 revision adequately implemented the requirements of 10 CFR 50.54(q)(3) and 50.54(q)(4). The inspectors verified that the revisions did not reduce the effectiveness of the emergency plan. This review was 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 constitute completion of two emergency action level and emergency plan change samples as defined in Inspection Procedure 71114.04.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors observed an emergency preparedness drill on March 7, 2017, to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenario, observed the drill from the Technical Support Center, Operations Support Center, and simulator, and attended the post-drill critique. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the licensee in the post-drill critique and entered into the corrective action program for resolution.

Additionally, the inspectors observed an emergency preparedness drill on June 29, 2017, to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenario, observed the drill from the Technical Support Center, simulator, and Emergency Operations Facility and attended the post-drill critiques. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the licensee in the post-drill critique and entered into the corrective action program for resolution.

These activities constituted completion of two emergency preparedness drill observation samples, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

1EP8 Exercise Evaluation – Scenario Review (71114.08)

a. Inspection Scope

The licensee submitted the preliminary exercise scenario for the April 25, 2017, biennial exercise to the NRC on February 21, 2017, in accordance with the requirements of 10 CFR Part 50, Appendix E, IV.F(2)(b), and submitted an addendum to the scenario on February 23, 2017. The inspectors performed an in-office review of the proposed scenario to determine whether it would acceptably test the major elements of the licensee's emergency plan, and provide opportunities for the emergency response organization to demonstrate key skills and functions. The inspectors discussed the preliminary scenario with staff at FEMA Region VII to determine whether the preliminary scenario supported the FEMA exercise evaluation objectives.

These activities constituted completion of one exercise scenario evaluation sample as defined in Inspection Procedure 71114.08.

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 Safety System Functional Failures (MS05)

a. Inspection Scope

For the period of second quarter 2016 through first quarter 2017, the inspectors reviewed licensee event reports, maintenance rule evaluations, and other records that could indicate whether safety system functional failures had occurred. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, and NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," Revision 3, to determine the accuracy of the data reported.

These activities constituted verification of the safety system functional failures performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index: Heat Removal Systems (MS08)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of second quarter 2016 through first quarter 2017 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 heat removal systems as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Reactor Coolant System Identified Leakage (BI02)

a. Inspection Scope

The inspectors reviewed the licensee's records of reactor coolant system identified leakage for the period of second quarter 2016 through first quarter 2017 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 reactor coolant system leakage performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors reviewed the licensee's evaluated exercises, emergency plan implementations, and selected drill and training evolutions that occurred between October 2016 and March 2017 to verify the accuracy of the licensee's data for classification, notification, and protective action recommendation opportunities. The inspectors reviewed a sample of the licensee's completed classifications, notifications, and protective action recommendations to verify their timeliness and accuracy. The inspectors used 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 drill/exercise performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.5 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors reviewed the licensee's records for participation in drill and training evolutions between October 2016 and March 2017 to verify the accuracy of the licensee's data for drill participation opportunities. The inspectors verified that all members of the licensee's emergency response organization in the identified key positions had been counted in the reported performance indicator data. The inspectors reviewed the licensee's basis for reporting the percentage of emergency response organization members who participated in a drill. The inspectors reviewed drill attendance records and verified a sample of those reported as participating. The inspectors used 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 emergency response organization drill participation performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.6 Alert and Notification System Reliability (EP03)

a. Inspection Scope

The inspectors reviewed the licensee's records of alert and notification system tests conducted between October 2016 and March 2017 to verify the accuracy of the licensee's data for siren system testing opportunities. The inspectors reviewed procedural guidance on assessing alert and notification system opportunities and the results of periodic alert and notification system operability tests. The inspectors used 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 alert and notification system reliability 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 Semiannual Trend Review

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program, performance indicators, system health reports, and other documentation to identify trends that might indicate the existence of a more significant safety issue. The inspectors verified that the licensee was taking corrective actions to address an identified adverse trend in not using post maintenance tests to ensure equipment was functional following maintenance under Condition Report 201702079.

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

b. Observations and Assessments

During the period of November 2016 through May 2017, the licensee had five condition reports related to missed or incorrect post-maintenance tests identified in their corrective action program. The licensee considered this a potential adverse trend, verified the corrective actions for each issue were appropriate, and initiated Condition Report 201702079 to evaluate the trend. The inspectors evaluated the licensee's response to the negative trend and determined the immediate actions taken were appropriate.

c. Findings

No findings were identified.

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

Enforcement Action EA-17-050, Enforcement Discretion for Tornado-Generated Missile Protection Noncompliances

Based on additional analysis, the licensee retracted Event Notification 52607 on April 18, 2017. Event Notification 52607 had been issued by the licensee on March 13, 2017 and regarded the identification of non-conforming conditions in the plant design. Specifically, the licensee had determined that certain portions of safety-related equipment could be subject to excessive forces during postulated design basis tornado events. The specific plant component was the fuel oil fill line that would enable a tanker truck to remove or add fuel to safety-related fuel oil tanks. While the connection point itself was non-safety-related, it was connected to a safety-related portion of fuel oil piping and that portion of the piping could have been damaged. The licensee performed additional analysis and calculations to more accurately determine the effect of the postulated tornado missile. During the time that the additional analysis was being performed, the licensee implemented compensatory measures such as verifying this portion of the line was manually isolated and placing large concrete barriers in front of the piping.

The licensee's completed analysis demonstrated that the piping in question would have been damaged and been plastically deformed but would have maintained its integrity. Based on this reanalysis, the licensee determined that a reportable condition did not exist and retracted Event Notification 52607.

This issue was previously documented in Section 1R15 of NRC Integrated Inspection Report 05000483/2017001 (Adams Accession ML17116A638) and is associated with Enforcement Action EA-17-050, "Enforcement Discretion for Tornado-Generated Missile Protection Noncompliances." Based upon the licensee's retraction of the event notification, the inspectors verified restoration of compliance and assessed the underlying circumstances.

On June 23, 2017, the inspectors reviewed the licensee's original event notification, the retraction notification, drawings, analysis, and performed field walkdowns. In addition, interviews were performed with licensee personnel. The inspectors did not identify any performance deficiencies.

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

4OA6 Meetings, Including Exit

Exit Meeting Summary

On March 20, 2017, regional inspectors discussed the in-office review of the preliminary scenario for the April 25, 2017, biennial exercise, submitted February 21 and February 23, 2017, with Mr. G. Rauch, Manager, Emergency Preparedness, and other members of the licensee staff. The licensee acknowledged the issues presented.

On May 2, 2017, regional inspectors presented the results of the on-site inspection of the biennial emergency preparedness exercise conducted April 25, 2017, to Mr. T. 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.

On July 5, 2017, the resident inspectors presented the inspection results to Ms. S. Banker, Senior Director, Engineering, 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

S. Banker, Senior Director, Engineering
F. Bianco, Director, Nuclear Operations
J. Cortez, Director, Training
B. Cox, Senior Director, Nuclear Operations
J. Dowling, Equipment Reliability Manager
T. Elwood, Supervising Engineer, Regulatory Affairs
T. Herrmann, Site Vice President
A. Hunt, Licensing Engineer
J. Imhoff, Principal Engineer
L. Kanuckel, Director, Nuclear Oversight
J. Kovar, Licensing Engineer
M. McLachlan, Senior Director, Plant Support
R. Pohlman, Licensing Engineer
G. Rauch, Manager, Emergency Preparedness
J. Small, Manager, Chemistry
D. Turley, Supervisor, Engineering
E. Wildgen, System Engineer
R. Wink, Manager, Regulatory Affairs

Other Contacts

C. Gregg, Branch Chief, Technological Hazards Branch, FEMA Region VII
N. Valentine, Senior Site Specialist, FEMA Region VII

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000483/2017002-01	NCV	Failure to Follow Motor Control Center Procedure (Section 1R19)
05000483/2017002-02	NCV	Failure to Analyze the Effect of Changes to Maintaining the Gaitronics System (Section 1EP4)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

Number	Title	Revision
OTN-AL-00001	Auxiliary Feedwater System	34
OTN-MD-00001	Switchyard Breakers and Disconnects	28

Section 1R04: Equipment Alignment

Drawings

Number	Title	Revision
M-22AL01(Q)	Piping and Instrumentation Diagram Auxiliary Feedwater System	47
M-22BG03(Q)	Piping and Instrumentation Diagram – Chemical and Volume Control System – FSAR Figure 9.3-8 Sheet 3	56
M-22EJ01(Q)	Piping and Instrumentation Diagram – Residual Heat Removal System – FSAR Figure 5.4-7	62
8374D40	Motor Op Gate Valve MOD 10000GM84FEB ODO 10-316 ASME Cl.1 GPO ASSY	4

Condition Reports

201701944 201702116

Miscellaneous

Number	Title	Revision
10466-E-025(Q)	Technical Specification for Valve Electric Motor Actuators for the Standardized Nuclear Unit Power Plant System (SNUPPS)	4
RFR 200910490	Replacement Item Equivalency for Limitorque Motor Stock 7650164	0
ZZ-214	MOV Voltage Drop Calculation	10

Section 1R05: Fire Protection

Procedures

Number	Title	Revision
	Fire Preplan Manual	39
EDP-ZZ-01128, Appendix 4	KC - Fire Protection System	17

Drawings

Number	Title	Revision
E-2F1101	Fire Detection/Protection System Auxiliary & Reactor Buildings EL. 1974’0”	5

Condition Reports

201605777	201606893	201606854	201607423	201700231
201700439	201700785	201700990	201701314	201701328
201701866				

Miscellaneous

Number	Title	Revision/Date
	Combustible Loading Information Program	54
KC-82	Fire Safety Analysis Calculation for Fire Area A-2	1
KC-84	Fire Safety Analysis Calculation for Fire Area A-4	1
KC-108	Fire Safety Analysis Calculation for Fire Area A-28	1
KC-111	Fire Safety Analysis Calculation for Fire Area A-33	1
KC-120	Fire Safety Analysis for Fire Area C-9, ESF Switchgear Room A	1
KC-121	Fire Safety Analysis for Fire Area C-10, ESF Switchgear Room B	1
KC-122	Fire Safety Analysis for Fire Area C-11, Control Building Cable Chase B, Control Building, El.2000	1
KC-123	Fire Safety Analysis for Fire Area C-12, Control Building Cable Chase A, Control Building, El. 2000	1
KC-147	Fire Safety Analysis for Fire Area C-36, Control Building Cable Chase B at column C-6, Control Building, El. 2000	1
KC-148	Fire Safety Analysis for Fire Area C-37, Control Building Cable Chase A at column C-3, Control Building, El. 2000	1
	Maintenance Rule Unavailability Hours Summary - KC System	November 2014 - April 2016
	Maintenance Rule Unavailability Hours Summary - KC System	May 2016 - October 2017

Section 1R11: Licensed Operator Requalification Program

Procedures

Number	Title	Revision
ISF-GH-0R10B	RW Bldg Exh Disch Rad Det	31
ISL-SE-00N42	Loop-Nuc; Nuc Instrm Pwr Rng N42	46
ODP-ZZ-00017	Annunciator Status and Tracking	32
ODP-ZZ-00017, Appendix 1	Off-Normal and Emergency Operation Procedure Related Annunciators	6
ODP-ZZ-00017, Appendix 2	Technical Specification Related Annunciators	4
OSP-BG-00004	Chemical and Volume Control System Leak Surveillance	13
OTO-AE-00001	Feedwater System Malfunction	35

Condition Reports

201702962

Jobs

17002349

Section 1R12: Maintenance Effectiveness

Procedures

Number	Title	Revision
APA-ZZ-00322, Appendix E	Post-Maintenance Test Program	11
EDP-ZZ-01128, Appendix 2	Summary of SSC Performance Criteria	32
EDP-ZZ-01128, Appendix 4	Maintenance Rule System Functions	17
MDP-ZZ-P0001	Non-Live Load Packing	21

Condition Reports

200800298	201406325	201507289	201508596	201608468
201608834	201701959	201702567	201702748	

Jobs

13502829	14000435	14004340	14005956	14006424
14512021	14512084	15001886	15002079	15004814
16001888	16001996	16003763		

Miscellaneous

Number	Title	Date
HI 2012003	Health Issue: Callaway does not have the ability to adequately drain and fill the RHR suction piping online.	February 29, 2012
HI 2015006	Health Issue: Recurring concern with intermittent B train RHR low flow alarms during reduced inventory operations	February 25, 2015
	Maintenance Rule Reliability 18 Month Rolling Average Last Updated from the April 26, 2011 EPM	

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

Procedures

Number	Title	Revision
APA-ZZ-00365	Callaway Lifting and Rigging Program	26
OTN-EF-00001	Essential Service Water System	73

Drawings

Number	Title	Revision
M-U2EF01(Q)	Piping & Instrumentation Diagram Essential Service Water System	67

Condition Reports

201701336 201702418

Jobs

16006502 16500071

Miscellaneous

Number	Title	Revision
GL-19	Auxiliary Building 2026' Cooler Failure GOTHIC Analysis	0A

Section 1R15: Operability Evaluations

Procedures

Number	Title	Revision
APA-ZZ-00500	Corrective Action Program	66
APA-ZZ-00500, Appendix 1	Operability and Functionality Determinations	28
OSP-GK-0002A	Train A Control Room Ventilation and Pressure Test	17

Condition Reports

201701264	201701959	201702687	201702689	201702872
201702831	201702960			

Jobs

17002278

Miscellaneous

Number	Title	Date
Event Notification	Retraction of discovery of nonconforming conditions during tornado hazards analysis	April 18, 2017

Section 1R19: Post-Maintenance Testing

Procedures

Number	Title	Revision
APA-ZZ-00322, Appendix E	Post-Maintenance Test Program	11
APA-ZZ-00356	Pump and Valve Inservice Test Program	24
MDP-ZZ-P0001	Non-Live Load Packing	21
MPE-ZZ-QS005	General Electric 4.16kV Breaker PM	36
OSP-EJ-V001A	Train A RHR Valve Inservice Test	19
OSP-EJ-P001A	RHR Train A Inservice Test – Group A	62
OTN-EJ-00001, Addendum 5	A RHR Train Securing, Cooldown, and SI Standby Lineup	12
OSP-EF-V001B	ESW Train B Valve Operability	53
OSP-NE-0001B	Standby Diesel Generator B Periodic Tests	65

Drawings

Number	Title	Revision
E-23NE10(Q)	Schematic Diagram 4.16 kV DG NE01 Feeder Breaker 152NB0111	13

Condition Reports

201701959	201702829	201702909	201703270	

Jobs

11504613	12500203	14503007	14503056	14512084
15004814	15511740	16509939	17500873	17500877
17001973	14503644	17504721	15510788	17505360
17001767				

Miscellaneous

Number	Title	Revision Date
	Valve Retest Manual	53
	Journeyman Worksheet – I for EJHV8716A	August 18, 2009
	Inservice Testing Program	32
	Inservice Testing Owners' Group Position Paper on Position on IST Component Preconditioning	February 28, 2011
	PORC Meeting 2606 Minutes	
	Snubber test data sheet TS2020MT	June 20, 2017

Section 1R22: Surveillance Testing

Procedures

Number	Title	Revision
APA-ZZ-00391	Beyond Design Basis (BDB) Program Document	3
MSE-PA-QY006	Rx Clnt Pmp A UV Loop and Relay Response Time Testing	16
MSE-PA-QY007	Rx Clnt Pmp B UV Loop and Relay Response Time Testing	17
MSE-PA-QY014	Rx Clnt Pmp A UF Loop and Relay Response Time Testing	14
MSE-PA-QY015	Rx Clnt Pmp B UF Loop and Relay Response Time Testing	15

Procedures

Number	Title	Revision
ODP-ZZ-00002	Equipment Status Control	88
OSP-EJ-P001B	RHR Train B Inservice Test – Group A	64
OSP-SA-0007A	Train A AFAS Slave Relay Test	36

Condition Reports

201703278

Jobs

17500657	17502238	16514214	16508449

Miscellaneous

Number	Title	Revision
E190.0074	Inservice Testing Program	32

Section 1EP1: Exercise Evaluation (71114.01)

Procedures and Documents

Number	Title	Revision Date
	Callaway Plant Radiological Emergency Response Plan, Revision 48	March 2017
EIP-ZZ-A0001	Emergency Response Organization	18
EIP-ZZ-C0010	Emergency Operations Facility Operations	40
EIP-ZZ-A0020	Maintaining Emergency Preparedness	30
EIP-ZZ-A0066	RERP Training Program	24
EIP-ZZ-00101	Classification of Emergencies	53
EIP-ZZ-00101	Addendum 1, Emergency Action Level Classification Matrix	6
EIP-ZZ-00101	Addendum 2, Emergency Action Level Technical Bases Document	12
EIP-ZZ-00102	Emergency Implementing Actions	62
EIP-ZZ-00200	Augmentation of the Emergency Response Organization	21
EIP-ZZ-00201	Notifications	51

Procedures and Documents

Number	Title	Revision Date
EIP-ZZ-00201	Addendum A, Control Room Notification Flowchart	27
EIP-ZZ-00201	Addendum C, EOF Notification Package	28
EIP-ZZ-00212	Protective Action Recommendations	28
EIP-ZZ-00219	Emergency Dispatching of Operations Personnel	0
EIP-ZZ-00220	Emergency Team Formation	25
EIP-ZZ-00240	Technical Support Center Operations	42
EIP-ZZ-00240	Addendum E, Health Physics Coordinator (HPC) Checklist	20
EIP-ZZ-C0010	Emergency Operations Facility Operations	40
KDP-ZZ-00013	Emergency Response Facility and Equipment Evaluation	15
KDP-ZZ-00013	Appendix 1, Equipment Important to Emergency Response Matrix	4
KDP-ZZ-00200	Activation of the Callaway Plant Emergency Callout System, R17	November 4, 2014
KDP-ZZ-02001	Drill and Exercise Program	22
KDP-ZZ-04000	Completing the Offsite Notification Form, R1	November 18, 2014
KOA-ZZ-A0002	Command and Control Guidelines	August 16, 2016
OTA-RK-00022	Addendum 76D, Spent Fuel Pool Level High/Low	3
ULNRC-06362	Docket Number 50-483, Callaway Plant Unit 1, Union Electric Co., Renewed Facility Operating License NPF-30, Special Report 2017-01 (PAM Report): Inoperability of a Post-Accident Monitoring (PAM) Instrument	April 4, 2017

Condition Reports

201600368	2016001406	201601669	201605528	201605531	201605699
201606448	201606717	201606850	201607443	201608160	201608685
201609158	201700110	201700442	201700777	201701358	201702220
201702223	201702224	201702225	201702256	201702272	201702274
201702285	201702286	201702287	201702288	201702289	201702293
201702296	201702299	201702300	201702327	201702328	201702329

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

Procedures and Documents

Number	Title	Revision Date
	Final Safety Analysis Report, Section 9.5.2, Communications Systems, Revision OL-22	November 2016
ETQ-QF-03000	Plant Public Address System Test	21
Work Order 10500551/500	Perform Plant Public Address System Test	January 16, 2010
Work Order 11511268/500	Perform Plant Public Address System Test	October 9, 2011
Work Order 12510701/500	Functionally Test Gaitronics Amplifier and Speaker	October 5, 2012
Work Order 14510388/500	Functionally Test Gaitronics Amplifier and Speaker	October 4, 2014
Work Order 16512775	Monthly Test of Plant Alarms	October 29, 2016
Work Order 16513762	Monthly Test of Plant Alarms	November 26, 2016
Work Order 16514954	Monthly Test of Plant Alarms	December 31, 2016

Section 1EP6: Drill Evaluation

Miscellaneous

Number	Title	Revision Date
	Callaway Energy Center Ingestion Pathway Exercise Dress Rehearsal March 7, 2017 report	May 10, 2017

1EP8 Exercise Evaluation – Scenario Review (71114.08)

No additional documents were reviewed.

Section 4OA1: Performance Indicator Verification

Procedures

Number	Title	Revision Date
KDP-ZZ-02000	NRC Performance Indicator Data Collection	18

Procedures

Number	Title	Revision Date
KDP-ZZ-04000	Completing the Offsite Notification Form, R1	November 18, 2014
KSP-ZZ-00110	Siren Alerting System Testing	14

Drawings

Number	Title	Revision
M-22AB02(Q)	Piping and Instrumentation Diagram Main Steam System	18

Condition Reports

201604537	201608361	201700320	201700538	201700758
201702646				

Jobs

16002592

Miscellaneous

Number	Title	Revision Date
	Callaway Plant Alert and Notification System Design Report	January 2017
	Holdoff WPA 97693 for TDAFP	
	MSPI Derivation Report, MSPI Heat Removal System, Unreliability Index (URI)	June 2016
	MSPI Derivation Report, MSPI Heat Removal System, Unavailiability Index (UAI)	June 2016
	MSPI Derivation Report, MSPI Heat Removal System, Unreliability Index (URI)	September 2016
	MSPI Derivation Report, MSPI Heat Removal System, Unavailiability Index (UAI)	September 2016
	MSPI Derivation Report, MSPI Heat Removal System, Unreliability Index (URI)	December 2016
	MSPI Derivation Report, MSPI Heat Removal System, Unavailiability Index (UAI)	December 2016
	MSPI Derivation Report, MSPI Heat Removal System, Unreliability Index (URI)	March 2016

Miscellaneous

Number	Title	Revision Date
	MSPI Derivation Report, MSPI Heat Removal System, Unavailiability Index (UAI)	March 2016
	NRC Performance Indicator Transmittal Report, Second Quarter 2016, Mitigating Systems Cornerstone	July 11, 2016
	NRC Performance Indicator Transmittal Report, Third Quarter 2016, Mitigating Systems Cornerstone	October 10, 2016
	NRC Performance Indicator Transmittal Report, Fourth Quarter 2016, Mitigating Systems Cornerstone	January 10, 2017
	NRC Performance Indicator Transmittal Report, First Quarter 2017, Mitigating Systems Cornerstone	April 7, 2017
	Reactor Coolant System Identified Leakage Data	April 1, 2016 through March 30, 2017
EOSL 21057	PAL02 TSO for boot seal replacement on drain line	
K163.0001	Letter from Mr. Charles Gregg, DHS-FEMA Region VII to Mr. John Bassford, Emergency Response Coordinator, Callaway Energy Center. RE: Approval of Callaway Plant Alert and Notification System Design Report, dated January 2017.	April 13, 2017
LER 2015-001-01	Licensee Event Report - Completion of Shutdown Required by the Technical Specifications – TS 3.4.13	1
LER 2015-002-01	Licensee Event Report - Manual Auxiliary Feedwater System Actuation	1
LER 2015-003-01	Licensee Event Report – Reactor Trip Caused by Transmission Line Fault	1
LER 2016-001-01	Licensee Event Report – Control Room Air Conditioning Inoperability Due to Essential Service Water Pressure Transient	1

Section 4OA2: Identification and Resolution of Problems

Condition Reports

201702079	201702640	201702715	201700265

Section 4OA3: Event Follow-Up

Procedures

Number	Title	Revision
APA-ZZ-00500	Corrective Action Program	66
APA-ZZ-00500, Appendix 1	Operability and Functionality Determinations	28

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201701264

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Number	Title	Date
Event Notification	Retraction of discovery of nonconforming conditions during tornado hazards analysis	April 18, 2017