UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

May 4, 2011

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

Subject: CALLAWAY PLANT - NRC INTEGRATED INSPECTION REPORT
NUMBER 05000483/2011002

Dear Mr. Heflin:

On March 24, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Callaway Plant. The enclosed integrated inspection report documents the inspection findings, which were discussed on March 24, 2011, with Mr. F. Diya, Vice President Nuclear Operations, and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents three NRC-identified findings of very low safety significance (Green) and one Severity Level IV noncited violation. All of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as a noncited violations, consistent with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Callaway Plant. In addition, if you disagree with the crosscutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at the Callaway Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available

electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the public without redaction.

Sincerely,

/RA/

Geoffrey B. Miller, Chief
Project Branch B
Division of Reactor Projects

Docket: 50-483
License: NPF-30

Enclosure:
NRC Inspection Report 05000483/2011002
w/Attachment: Supplemental Information

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SUNSI Rev Compl.	☑ Yes ☐ No	ADAMS	☑ Yes ☐ No	Reviewer Initials	RWD
Publicly Avail	☑ Yes ☐ No	Sensitive	☐ Yes ☑ No	Sens. Type Initials	RWD

SRI:DRP/B	RI:DRP/B	SPE:DRP/B	C:DRS/EB1	C:DRS/EB2
DDumbacher	JGroom	RDeese	TRFarnholtz	NFO'Keefe
/via E-Mail RWD/	**/via E-Mail RWD/**	***/RA/***	***/RA/***	***/DPowers for/***
4/28/11	5/2/11	4/28/11	4/11/11	4/12/11
C:DRS/OB	C:DRS/PSB1	C:DRS/PSB2	C:DRS/TSB	C:DRP/B
MSHaire	MPShannon	GEWerner	MCHay	GMiller
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000483
License:	NPF-30
Report:	05000483/2011002
Licensee:	Union Electric Company
Facility:	Callaway Plant
Location:	Junction Highway CC and Highway O Fulton, MO
Dates:	January 1 through March 24, 2011
Inspectors:	D. Dumbacher, Senior Resident Inspector J. Groom, Resident Inspector P. Elkmann, Senior Emergency Preparedness Inspector
Approved By:	Geoffrey B. Miller, Chief, Project Branch B Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000483/2011002; 01/01/2011 - 03/24/2011; Callaway Plant, Integrated Resident and Regional Report, Operability Evaluations and Identification and Resolution of Problems.

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspection by a region-based inspector. Three Green noncited violations of significance and one Severity Level IV violation were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The crosscutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” for failure to adequately evaluate past operability associated with the Class 1E electrical equipment air conditioning unit. The inspectors identified that Revision 1 and 2 to Callaway Action Request 200800615 incorrectly concluded that the equipment supported by the Class 1E electrical equipment air conditioning unit train B was operable with the unit’s cooling water flow control valve in manual. This issue was entered into the licensee’s corrective action program as Callaway Action Request 201102565.

  This finding was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of human performance and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened to a Phase 2 significance determination because it involved the loss of one train of safety related equipment for longer than the technical specification allowed outage time. A Region IV senior reactor analyst performed a bounding Phase 3 significance determination and determined that the finding was of very low safety significance (Green). The very short exposure period coupled with the availability of train A equipment helped to mitigate the significance. The dominant core damage sequences included a loss of main feedwater initiating event; the loss of train B electrical power; and various failures of auxiliary feedwater. This finding has a crosscutting aspect in the area of human performance associated with the decision making component because the licensee failed to use conservative assumptions including verifying the validity of the underlying assumptions when performing operability/reportability evaluations [H.1(b)] (Section 1R15).

- Severity Level IV. The inspectors identified a IV noncited violation of 10 CFR 50.73(a)(2)(v), "Licensee Event Report System," for failure to report inoperability of Class 1E electrical equipment for a period greater than allowed by the plant's technical specifications. The licensee determined there were no prior instances where the Class 1E electrical equipment air conditioning units were inoperable greater than the technical specification allowed completion time of the supported equipment. The inspectors reviewed the licensee's reportability evaluation and identified that the event described in Callaway Action Request 200800615 resulted in a period where the Class 1E electrical equipment air conditioning unit train B was inoperable for approximately 37 hours which exceeded the technical specification allowed completion time of the equipment supported by the Class 1E electrical equipment and constituted a condition which was prohibited by the plant's technical specifications and should have been reported in a licensee event report. This issue was entered into the licensee's corrective action program as Callaway Action Request 201011132.

  This finding affects the Mitigating Systems Cornerstone and is greater than minor because in order to perform its regulatory function, the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations. Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. Consistent with the guidance in Section 6.9, Paragraph d.9, of the NRC Enforcement Policy, this finding was determined to be a Severity Level IV noncited violation. This finding has no crosscutting aspect as it was strictly associated with a traditional enforcement violation (Section 1R15).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for failure to provide adequate procedural guidance for testing of containment spray pumps. The inspectors reviewed a licensee evaluation of the acceptability of their existing containment spray pump testing procedure and found that it failed to adequately address the underlying technical issues because it relied on operators recognizing the diversion flow path and focused on the operability of the containment spray system and not the ability to maintain the long term cooling function of the emergency core cooling system. Additionally, the inspectors identified that the procedure would have provided a diversion flow path of post-accident sump fluids back to the refueling water storage tank exceeding those currently analyzed in the Callaway licensing bases. This issue was entered into the licensee's corrective action program as Callaway Action Request 201011233 and the licensee implemented procedure changes to address the potential for post-loss of coolant accident containment sump fluids being injected back to the refueling water storage tank.

  This finding was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of procedure quality and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The finding screened to a Phase 2 significance determination because it involved a potential loss of safety function. A Region IV senior reactor analyst performed a bounding Phase 3 significance determination and determined that the finding was of very low safety significance (Green). The very short exposure period coupled with the availability of equipment needed for other initiating events (other than small and medium loss of coolant accidents) helped to mitigate the significance. The dominant core damage sequences included small and medium break loss of coolant accidents, and the failure of emergency core cooling pumps in the recirculation mode. This finding was determined not to have a crosscutting aspect since the performance deficiency is not reflective of current performance (Section 1R15).

- Green The inspectors identified a noncited violation of Technical Specification 5.4.1.a for failure to properly implement Procedure MDP-ZZ-S0001, "Scaffolding Installation and Evaluation," Revision 26, when scaffolding was erected near or in contact with equipment in safety-related structures. On February 8 and March 16, 2011, the inspectors identified two locations where scaffold poles and a scaffold pin were less than the procedure required 1 inch from the auxiliary building vent line, the Train B emergency diesel lube oil drain line, and also essential service water system piping in the Train B diesel room. This issue was entered into the licensee's corrective action program as Callaway Action Request 201102091.

  The deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. The finding was associated with the Mitigating Systems Cornerstone. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the issue is determined to have very low safety significance because the finding is not a design or qualification issue confirmed to result in a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of nontechnical specification equipment; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that the cause of the finding has a crosscutting aspect in the area of problem identification and resolution associated with the component of corrective action program because the licensee did not have a low threshold for identifying scaffold issues [P.1(a)]. (Section 4OA2).

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

The Callaway Plant began the inspection period at near 100 percent power. On January 23, 2011, the licensee performed a power reduction to approximately 75 percent power to facilitate maintenance on the heater drain pump train B. The plant was returned to near 100 percent on January 29. Callaway operated at near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On January 31, 2011, a winter-weather advisory and blizzard warning was issued for expected snow squalls and potential icing. The inspectors observed the preparations and planning for the significant winter weather potential. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. The inspectors conducted a site inspection, including various plant structures and systems, to check for maintenance or other apparent deficiencies that could affect system operations during the predicted significant weather. The inspectors also reviewed corrective action program items to verify that plant personnel were identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one readiness for impending adverse weather condition sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignments (71111.04)

Partial Walkdown

a. Inspection Scope

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

- January 7, 2011, Engineered safety features Class 1E 4.16 kV switchgear
- March 16, 2011, Turbine-driven auxiliary feedwater system

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Final Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- January 10, 2011, Fire Area C-22, Room 3801, Upper cable spreading room
- January 18, 2011, Fire Area A-10, Room 1310, Residual heat removal heat exchanger room train A
- February 6, 2011, Fire Area A-18, Room 1410, North electrical penetration room
- February 11, 2011, Fire Areas F-1, F-2, and F-3, Rooms 6102, 6104, 6105, Fuel building 2000' elevation
- February 25, 2011, Fire Area D-1, Room 5203, Emergency diesel generator room (east)

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On January 24, 2011, the inspectors observed a fire brigade drill activation due to a fire in the lower cable spreading room. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were (1) proper wearing of

turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives.

These activities constitute completion of one annual fire-protection inspection sample as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- February 17, 2011, Visual inspection of essential service water cable vault manhole MH-1S

These activities constitute completion of one bunker/manhole sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On February 24, 2011, the inspectors observed a crew of licensed operators in the plant's simulator respond to a main feedwater line break and loss of the secondary heat sink. The inspectors verified that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being

conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to preestablished operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- February 16, 2011, Callaway Action Request 201100071, abnormal noise heard from auxiliary feedwater system valve ALHV0009
- March 14, 2011, Callaway Action Request 201011628, discovery of degraded capacitors in vital instrument bus inverter NN12

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and

independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- January 31, 2011, Risk associated with impeding adverse weather and the potential for icing to impact offsite power

- February 4, 2011, Elevated risk associated with planned out-of-service for residual heat removal train A for surveillance testing

- February 8, 2011, Elevated risk associated with planned out-of-service for turbine-driven auxiliary feedwater pump maintenance

- March 17, 2011, Elevated risk associated with planned out-of-service for the nitrogen supply to turbine-driven auxiliary feedwater pump flow control valves

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- January 25, 2011, Callaway Action Request 201100511, Operability of safety injection system when using non-seismic safety injection accumulator fill lines

- February 6, 2011, Callaway Action Request 201100850, Void discovered in safety injection system

- February 15, 2011, Callaway Action Request 200800615, Revision 1 and 2, Operability determination for Class 1E air conditioning unit discovered in manual

- February 16, 2011, Callaway Action Request 201011233, Operability of containment recirculation sumps during containment spray pump surveillance

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Final Safety Analysis Report to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

1. Introduction. The inspectors identified a green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for failure to adequately evaluate past operability associated with the Class 1E electrical equipment air conditioning units.

Discussion. On January 27, 2008, the licensee's secondary operations technician discovered that Class 1E electrical equipment air conditioning unit SGK05B was not cooling and was developing a high compressor discharge pressure of 350 psig. While observing the unit, the compressor tripped on high discharge head, reset, and restarted twice. During troubleshooting activities the licensee discovered that the essential service water flow control valve was only open about 8 percent and the processor controller for that valve was in manual. Based on these indications, the licensee declared SGK05B inoperable. Following troubleshooting, the licensee reset the processor controller to automatic and restarted SGK05B. The air conditioning unit regained normal cooling and was subsequently declared operable. A follow-up investigation and past operability determination (Callaway Action Request 200800615) found that the controller for SGK05B was mispositioned to manual following completion of Procedure OSP-SA-0017B, "Train B SIS-CSAS Slave Relay Test," on January 25, 2008. The licensee concluded that the unit was inoperable for a total of 37 hours which was less than the allowed completion time specified in Callaway Final Safety Analysis Report, Section 16.7.13.

On September 21, 2010, the licensee's Nuclear Oversight department initiated Callaway Action Request 201009024 to document that the licensee's interpretation of the Callaway Final Safety Analysis Report, Section 16.7.13, for the Class 1E electrical equipment air conditioning units was not consistent with NRC approved practices or licensee Procedure ODP-ZZ-00002, "Equipment Status Control." Specifically, Callaway Final Safety Analysis Report, Section 16.7.13, allows for one train of Class 1E electrical equipment air conditioning units to be removed from service for up to seven days before declaring the affected electrical equipment inoperable. This practice is contrary to the technical specification definition of operable which requires that to be operable a system must be capable of performing its specified safety functions and all necessary support function must also be capable of performing their related support functions. The supported equipment consists of the Class 1E AC Electrical Power Distribution System (Technical Specification 3.8.1), the station DC electrical power system (Technical Specification 3.8.4), the AC vital bus inverters (Technical Specification 3.8.7) and the onsite Class 1E AC and DC vital bus electrical power distribution (Technical Specification 3.8.9). A past operability evaluation action was assigned to the Callaway action request which determined that neither Class 1E air conditioning units were inoperable for a period greater than the most limiting technical specification allowed completion time of the supported equipment.

On November 29, 2010, the inspectors identified that the licensee past operability determination was incorrect in that it failed to consider 37 hours of SGK05B inoperability documented in Callaway Action Request 200800615. On January 26, 2011, the licensee performed Revision 1 to Callaway Action Request 200800615 and found that the Class 1E electrical equipment was never inoperable because for most accidents, the Class 1E air conditioning units would be load shed and reset in automatic following a safety related load sequence. For events that do not generate a load shed, the licensee made the assumption that the longest required mission time of the equipment supported by the SGK05B was 5900 seconds. An analysis of room temperatures determined that the environmental qualification of the equipment supported by SGK05B would be exceeded after approximately 18 hours without room cooling. The inspectors reviewed Revision 1 of the past operability determination associated with Callaway Action Request 200800615 and found that the licensee mischaracterized the supported equipment mission times by failing to consider the ability to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated design basis accident as specified in the technical specification bases. The time required to maintain safe shutdown conditions is defined as thirty days in Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants," Revision 2. This time greatly exceeds the assumed mission time of 5900 seconds and the 18 hours used in the licensee's analysis.

On March 4, 2011, the licensee provided Revision 2 to Callaway Action Request 200800615 which concluded that the Class 1E electrical equipment was never inoperable because the plant operators would detect that the temperature control valve was in manual and take actions to correct the condition. The inspectors reviewed the licensee’s latest evaluation and found that it was inadequate because it inappropriately credited manual operator recovery by relying on a non-safety related temperature

indicator and because the time required to take such actions were undefined during the 37 hours where SGK05B was inoperable.

Analysis. The performance deficiency associated with this finding involved the licensee's failure to adequately evaluate past operability of the temperature control valve for the Class 1E electrical equipment air conditioning unit being discovered in manual. This finding was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of human performance and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The resident inspector performed the initial significance determination for the finding. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," this finding screened to a Phase 2 significance determination because it involved the loss of one train of safety related equipment for longer than the technical specification allowed outage time. A Region IV senior reactor analyst performed a Phase 2 significance determination and attempted to use the presolved worksheet from the "Risk Informed Inspection Notebook for the Callaway Station," Revision 2.01a. However, the presolved worksheet did not include the simultaneous failure of multiple pieces of safety related equipment. Therefore, the analyst performed a bounding Phase 3 significance determination. The analyst used the Callaway SPAR model, Revision 8.15, dated August 26, 2010, to calculate the bounding change to the core damage frequency (delta-CDF) for this finding. The analyst used a truncation limit of $1E^{-11}$. The analyst made the following influential assumptions.

- The licensee had reduced the essential cooling water flow to the train B 4 kV switchgear room, the inverter and the batteries. The duration of the maintenance was 37 hours. However, the licensee had performed a calculation that demonstrated that the room temperatures would not exceed the equipment qualification temperature limits for at least 18 hours. The PRA mission time was 24 hours. Therefore, the analyst used an exposure period of 24 – 18 = 6 hours.

- The resident inspectors noted that the essential cooling water system valve would automatically reposition to the safety position in response to a loss of offsite power or a safety injection actuation signal. Therefore, the analyst did not consider sequences that included the applicable events. All other sequences were solved.

- The analyst noted that operators could easily recover the essential cooling water valve by either repositioning the valve or manually initiating a safety injection actuation signal. Accordingly, the analyst used a nominal nonrecovery value of $1.1E^{-2}$ for this action. The nonrecovery value was consistent with the NRC's SPAR-H methodology which is documented in NUREG/CR-6883, "The SPAR-H Human Reliability Analysis Method," dated August 2005. This was very conservative because operators actually had expansive time to perform the relatively simple operation.

- Since the SPAR model did not directly model cooling to the noted equipment areas, the analyst modified the components that would be affected by the loss of room cooling. The analyst set the basic events for the train B safety related 4 kV bus NB02, and the safety related batteries NK12 and NK14 to fail (basic events set to 1.0). This was very conservative because the effect was the same as rendering all train B safety related equipment inoperable. In reality, the equipment may have worked during elevated temperature conditions.

- Since the licensee was in a train B workweek, and train A equipment should be unaffected by maintenance, the analyst removed minimal cutsets that included train A maintenance basic events.

- The analyst noted that the current version of the NRC SPAR model was very conservative, in that it did not credit recent Callaway modifications (temporary diesels and motor-driven auxiliary feedwater pump) which were intended to decrease the plant's risk profile. The analyst did not modify the model to include the recent modifications.

Based on the above, the conditional core damage probability (CCDP) for a one year exposure period (without yet considering recovery and exposure period) was $2.7E^{-3}$. The base case CCDP for the same set of initiating events was $7.7E^{-6}$. Therefore, the incremental CCDP was $2.7E^{-3}$. The delta-CDF was:

Delta-CDF = $2.7E^{-3}$ * (6 hours/8760 hours/year) *$1.1E^{-2}$ (nonrecovery factor) = $2E^{-8}$/year

The dominant core damage sequences included a loss of main feedwater initiating event; the loss of train B AC and DC power; and various failures of auxiliary feedwater. The very short exposure period coupled with the availability of train A equipment helped to mitigate the significance.

External Events Analysis: The analyst reviewed the Callaway, "Individual Plant Examination of External Events," dated June 30, 1995 to determine the contribution of external events to delta-CDF. The analyst noted that high winds (including tornados), floods and transportation accidents were screened from the analysis, as the licensee met the 1975 Standard Review Plan screening criteria. The analyst did not consider these areas further. The analyst also noted that seismic and fire initiators were not significant contributors to the sequences considered in this analysis. Therefore, external events were not significant contributors to the risk associated with this finding.

Large Early Release Frequency: To evaluate the change to the large early release frequency (LERF), the analyst used Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process." Since the bounding contribution to the core damage frequency was less that $1E^{-7}$, the analyst determined that the finding was not a significant contributor to the large early release frequency.

Because the delta-CDF was less than $1E^{-6}$ and the finding was not a significant contributor to the large early release frequency, the finding was of very low safety significance (Green).

This finding has a crosscutting aspect in the area of human performance associated with the decision making component because the licensee failed to use conservative assumptions including verifying the validity of the underlying assumptions when performing operability/reportability evaluations [H.1(b)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Licensee Procedure APA-ZZ-00500, Appendix 1, "Operability and Function Determinations," Revision 12, Step 5.2.5, requires, in part, that the licensee document the full scope of the current licensing bases including the technical specification bases be met for determining operability. Contrary to the above, on January 26, 2011, when evaluating Callaway Action Request 200800615, Revision 1, Ameren Missouri failed to adequately include the technical specification bases for Limiting Condition for Operation 3.8.7, "AC Vital Bus Inverters," and 3.8.9, "AC Vital Bus Electrical Power Distribution," which requires the ability to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated design basis accident. As such, the licensee failed to recognize that the condition described in Callaway Action Request 200800615 represented a condition prohibited by the plant's technical specifications. Because of the very low safety significance and Ameren Missouri's action to place this issue in their corrective action program as Callaway Action Request 201102565, this violation is being treated as a noncited violation in accordance with Section 2.3.2.a of the Enforcement Policy:
NCV 05000483/2011002-01, "Failure to Document Reasonable Expectation of Operability for Equipment Supported by the Class 1E Air Conditioning Units."

2. Introduction. The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.73(a)(2)(1), "Licensee Event Report System," for failure to report inoperability of Class 1E electrical equipment for a period greater than allowed by the plant's technical specifications.

Discussion. On September 21, 2010, the licensee's Nuclear Oversight department initiated Callaway Action Request 201009024 to document that the licensee's interpretation of the Callaway Final Safety Analysis Report, Section 16.7.13, for the Class 1E electrical equipment air conditioning units was not consistent with Technical Specification definition of operable. Specifically, Callaway Final Safety Analysis Report, Section 16.7.13, allows for one train of Class 1E electrical equipment air conditioning units to be removed from service for up to seven days before declaring the affected electrical equipment inoperable. Technical Specification Limiting Condition for Operation 3.0.6 does allow an exception to the cascading of technical specifications when a supported system limiting condition for operation is not met solely due to a support system limiting condition for operation not being met. However, this exception would not apply to the equipment supported by the Class 1E electrical equipment air

conditioning units since that equipment does not have an associated technical specification limiting condition for operation.

The licensee evaluated Callaway Action Request 201009024 and concluded that the equipment supported by the Class 1E electrical equipment air conditioning units must be declared inoperable anytime those units are inoperable. The supported equipment consists of the Class 1E AC Electrical Power Distribution System (Technical Specification 3.8.1), the station DC electrical power system (Technical Specification 3.8.4), the AC vital bus inverters (Technical Specification 3.8.7) and the onsite Class 1E AC and DC vital bus electrical power distribution (Technical Specification 3.8.9). As part of their corrective action process, the licensee searched the work history and the equipment out-of-service log for the previous three years to determine if the Class 1E electrical equipment air conditioning units had been inoperable greater than the technical specification allowed completion time of the supported equipment resulting in a condition prohibited by technical specifications and therefore reportable to the NRC per 10 CFR 50.73. The licensee concluded that there were no instances where the Class 1E electrical equipment air conditioning units were inoperable greater than the technical specification allowed completion time of the supported equipment.

On November 29, 2010, the inspectors reviewed the licensee's past operability evaluation and determined that the licensee failed to adequately evaluate the SGK05B inoperability documented in Callaway Action Request 200800615. Since the Class 1E electrical equipment air conditioning units support the AC vital bus inverters (Technical Specification 3.8.7) and an associated action is not provided for simultaneous inoperability of multiple inverters, the provisions of Limiting Condition for Operation 3.0.3 would apply. With SGK05B inoperable, action should have been initiated within 1 hour to place the unit in Mode 3 within 7 hours. Since the event documented in Callaway Action Request 200800615 resulted in the equipment supported by SGK05B being inoperable for greater than the Limiting Condition for Operation 3.0.3 requirement, the inspectors determined that the event constituted a condition prohibited by the plant's technical specifications. Since 60 days had elapsed since the original discovery of the technical specification interpretation issue, the inspectors determined that the licensee failed to make the required licensee event report per the requirements of 10 CFR 50.73(a)(2)(i)(B), "Any Operation or Condition Which was Prohibited by the Plant's Technical Specifications."

Following the inspector's identification that the event in Callaway Action Request 200800615 represented a condition which was prohibited by the plant's technical specifications, the licensee initiated Callaway Action Request 201011132 on December 1, 2010. On January 26, 2011 and again on March 4, 2011, the licensee completed Revisions 1 and 2 of the past operability determination associated with Callaway Action Request 200800615. That past operability determination found that the Class 1E electrical equipment was never inoperable for a period greater than that allowed by the plant's technical specifications. The inspectors reviewed the licensee’s past operability determinations and found that the licensee failed to consider all of the required safety functions required of the equipment supported by the Class 1E air

conditioning units. In addition, the inadequate past operability determination (described in Section 1R15 as NCV 05000483/2011002-01) was not completed within 60 days of discovery of the event, resulting in the licensee failing to make the required licensee event report per the requirements of 10 CFR 50.73(a)(2)(i)(B), "Any Operation or Condition Which was Prohibited by the Plant's Technical Specifications."

Analysis. The performance deficiency associated with this finding involved the licensee's failure to correctly report a required licensee event report within 60 days after discovery of an event requiring a report to the NRC. This finding affects the Mitigating Systems Cornerstone and is greater than minor because in order to perform its regulatory function, the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations. Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. Consistent with the guidance in Section 6.9, Paragraph d.9, of the NRC Enforcement Policy, this finding was determined to be a Severity Level IV noncited violation. This finding has no crosscutting aspect as it was strictly associated with a traditional enforcement violation.

Enforcement. Title 10 CFR 50.73(a)(1) requires, in part, that licensees submit licensee event reports for any event of the type described in this paragraph within 60 days after the discovery of the event requiring the report. Title 10 CFR 50.73(a)(2)(i)(B) requires, in part, that the licensee report any operation or condition which was prohibited by the plant's technical specifications. Contrary to the above, on January 30, 2011, sixty days after the date of discovery that its interpretation of the Callaway Final Safety Analysis Report, Section 16.7.13 was incorrect, Ameren Missouri failed to correctly report the condition described in Callaway Action Request 200800615 as a condition which was prohibited by the plant's technical specifications. Because of the very low safety significance and Ameren Missouri's action to place this issue into their corrective action program as Callaway Action Request 201011132, this violation is being treated as a noncited violation in accordance with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000483/2010002-02, "Failure to Report Inoperability of Class 1E Electrical Equipment for a Period Greater than Allowed by the Plant's Technical Specifications."

3. Introduction. The NRC identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for failure to provide adequate procedural guidance for testing of containment spray pumps.

Description. On December 6, 2010, the licensee initiated Callaway Action Request 201011233 to document the potential to divert post-accident sump fluids to the refueling water storage tank during Procedures OSP-EN-P001A/B, "Train A/B Containment Spray Pump Inservice Test." The corrective action document hypothesized that following establishment of cold leg recirculation, the suction source for the containment spray pumps would transfer to the containment sumps. Since the surveillance procedures use a normally isolated test return line by opening manual valve ENV0024 or ENV0025, a diversion flow path would be created for the post-loss of coolant accident sump fluids back to the refueling water storage tank. On December 13, 2010, the licensee evaluated Callaway Action Request 201011233 and determined that

the existing procedure was adequate. The licensee also determined that there was no question of operability because the train of containment spray under surveillance was declared inoperable for the duration of the activity. The licensee concluded that the inoperable train of containment spray would be returned to an operable condition within the action statement's allowed outage time.

On December 15, 2010, the licensee closed an operations department night order that prevented performance of the containment spray pump surveillance due to the concern documented in Callaway Action Request 201011233. On December 16, 2010, the inspectors reviewed the licensee's evaluation and found that it failed to adequately address the underlying technical issues of Callaway Action Request 201011233. Specifically, the inspectors noted that the licensee's evaluation focused on the operability of the containment spray system and not the ability to maintain the long term cooling function of the emergency core cooling system. Following the injection phase of a design basis loss of coolant accident, the licensee would transition to Procedure ES-1.3, "Transfer to Cold Leg Recirculation." At step six of ES-1.3, the licensee would align the containment spray system for recirculation. To accomplish this, the licensee would open containment recirculation sump supply valves to containment spray pumps. Performing this action would provide a diversion flow path of post accident sump fluids back to the refueling water storage tank. This diversion path would jeopardize the ability to maintain long term core cooling by reducing the net positive suction head available to the residual heat removal and containment spray pumps. Additionally, the diversion path could create a release pathway leakage exceeding that currently analyzed in the Callaway licensing bases. Callaway Final Safety Analysis Report Section 15.6.5.4.1.2, assumes a maximum leakage of two gallons per minute from the emergency core cooling system and containment spray recirculation lines for the duration of a loss of coolant accident. The potential pathway leakage created during performance of Procedures OSP-EN-P0001A/B would exceed those currently analyzed in the Callaway licensing bases.

During follow-up discussions on the adequacy of Procedure OSP-EN-P0001A/B, the licensee stated that the lineup established by OSP-EN-P0001A/B would not result in diversion path for post-loss of coolant accident sump fluids because operators would recognize the procedure conflict between ES-1.3 and OSP-EN-P0001A/B. Guidance for potential procedure conflict is provided in ODP-ZZ-00025, "EOP/OTO User's Guide," Revision 15. The licensee believed that based on this guidance, operators would not perform step 6 of ES-1.3 in its entirety but would instead recognize that the train of containment spray being tested would create the potential diversion pathway and would only align the operable containment spray system for recirculation. The inspectors reviewed ODP-ZZ-00025 and found that while provisions are provided for procedure conflict, the guidance would only be effective if operators correctly diagnose the conflict. Based on the indications available in the control room, the licensed operators would not have the ability to determine if the diversion path existed. The inspectors also determined that the containment spray pump surveillance Procedures OSP-EN-P0001A/B were inadequate since they did not contain precautions or guidance to maintain the long term cooling function of the emergency core cooling system during a design basis accident and could not prevent a potential diversion path.

By January 10, 2011, the licensee did implement procedure changes to add precautions to all procedures that use the containment spray recirculation line back to the refueling water storage tank. The precaution warned of the potential for post-loss of coolant accident containment sump fluids being injected back to the refueling water storage tank if containment spray is aligned for cold leg recirculation prior to closing ENV0024 or ENV0025.

Analysis. The performance deficiency associated with this finding involved the licensee's failure to follow procedures associated with operability and functionality determinations. This finding was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of procedure quality and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The resident inspectors performed the initial significance determination for the containment spray recirculation issue. The inspectors used Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The finding screened to a Phase 2 significance determination because it involved a potential loss of safety function. A Region IV senior reactor analyst performed a Phase 2 significance determination and attempted to use the presolved worksheet from the "Risk Informed Inspection Notebook for the Callaway Station," Revision 2.01a. However, the presolved worksheet did not include the simultaneous failure of all pumps that take suction from the containment sump. Therefore, the analyst performed a bounding Phase 3 significance determination.

The analyst used the Callaway SPAR model, Revision 8.15, dated August 26, 2010, to calculate the bounding delta-CDF for this finding. The analyst used a truncation limit of $1E^{-11}$. The exposure period was 4 hours. The analyst noted that the current version of the model was very conservative, in that it did not credit recent Callaway modifications (temporary diesels and motor-driven auxiliary feedwater pump) which were intended to decrease the plant's risk profile. The analyst assumed that operators, in response to a loss of coolant accident, would fail to correct the containment spray valve lineup prior to entering the recirculation phase of operations. As a surrogate for sump failure, the analyst adjusted the safety injection and residual heat removal containment sump motor operated valves to the fail to open state (fail to open = 1.0). Containment spray was not included in the internal events SPAR model because it was designed to help maintain containment integrity, versus to preclude core damage. The analyst calculated the CCDP for one full year of exposure. The CCDP was $1.1E^{-3}$. However, the analyst noted that the failure of operators to manually refill the reactor water storage tank was a significant contributor to many of the minimal cutsets. Since coolant would be diverted to the reactor water storage tank from the sump, this basic event was not applicable. To compensate, the analyst subtracted this contribution from the CCDP. The resultant CCDP was $1.1E^{-3} – 4.6E^{-4} = 6.4E^{-4}$. The delta-CDF for the 4 hour exposure period was approximately:

$$\text{Delta-CDF} = 4.6E^{-4} * 4/8760 = 2.1E^{-7}/\text{year}$$

This analysis was very conservative because it neglected potential recovery actions to: 1) correct the containment spray valve lineup; 2) recover coolant from the reactor water storage tank; and 3) recover the failed pumps.

The dominant core damage sequences included small and medium break loss of coolant accidents, and the failure of emergency core cooling pumps in the recirculation mode. The very short exposure period coupled with the availability of equipment needed for other initiating events (not small and medium loss of coolant accidents) helped to mitigate the significance.

External Events Analysis: The analyst reviewed the Callaway, "Individual Plant Examination of External Events," dated June 30, 1995, to determine the contribution of external events to delta-CDF. The analyst noted that high winds (including tornados), floods and transportation accidents were screened from the analysis, as the licensee met the 1975 Standard Review Plan screening criteria. Accordingly, the analyst did not consider these areas further. The analyst also noted that seismic and fire initiators were not significant drivers of small and medium loss of coolant accidents. Therefore, external events were not significant contributors to this risk associated with this finding.

Large Early Release Frequency: To evaluate the change to the LERF, the analyst used Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process." Callaway has a large dry containment. The finding screened as having very low safety significance for LERF because it did not affect the intersystem loss of coolant accident or steam generator tube rupture categories.

Because the delta-CDF was less than $1E^{-6}$ and the finding was not a significant contributor to the large early release frequency, the finding was of very low safety significance (Green).

This finding was determined not to have a crosscutting aspect since the performance deficiency is not reflective of current performance.

Enforcement. Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," specifies that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, prior to January 10, 2011, Callaway Procedure OSP-EN-P001A, "Train A Containment Spray Pump Inservice Test," and Procedure OSP-EN-P001B, "Train B Containment Spray Pump Inservice Test," were inadequate to ensure the operability of the containment recirculation sumps in the event of a design basis accident. Additionally, Procedures OSP-EN-P001A and OSP-EN-P001B were inadequate because it could potentially result in a release pathway exceeding those currently analyzed in the Callaway licensing bases. Because of the very low safety significance and Ameren Missouri's action to place this issue in their corrective action program as Callaway Action Request 201011233, this violation is being treated as a noncited violation in accordance with Section 2.3.2.a of the Enforcement Policy: NCV 05000483/2011002-03, "Containment Spray Test Procedure Potentially Creates an Unanalyzed Condition."

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- January 3, 2011, Postmaintenance test of auxiliary feedwater system valve ALHV0009
- January 18, 2011, Postmaintenance test of feeder breaker to ultimate heat sink train B electrical room heater NG08FDF5
- February 7, 2011, Postmaintenance test of steam generator atmospheric steam dump valve ABPV0001 following modification to the valve actuator

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following:

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Final Safety Analysis Report procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- January 11, 2011, Job 10515389, Inservice test of centrifugal charging pump train B
- February 4, 2011, Job 08507458, Response time test of residual heat removal pump train A
- February 25, 2011, Procedure OSP-BB-00009, reactor coolant system leak rate calculation
- March 8, 2011, Job 10517433, Inservice test of residual heat removal pump B

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

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 the Callaway Plant Radiological Emergency Response Plan, Revision 38. This revision:

- Revised Emergency Operations Facility (EOF) staffing:

  Split the duties of the Offsite Liaison and assigned some duties to newly-created EOF Communicator position

  Replaced the Offsite Liaison position previously required to activate the Emergency Operations Facility with the EOF Communicator

  Replaced two Dose Assessment Coordinators with one Dose Assessment Coordinator (team leader) and one Assistant Dose Assessment Coordinator

- Removed Instrument and Control maintenance technicians from the on-shift emergency response organization:

  Assigned emergency response communicator duties previously performed by instrument and control technicians to operations personnel added to required on-shift staffing

  Assigned emergency repair duties previously performed by instrument and control technicians to operations personnel added to required on-shift staffing

- Clarified that the independent audit of the emergency preparedness program is performed every twelve months

- Updated titles and made other editorial changes

This revision was compared to its previous revision, 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, 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). This review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on January 19, 2011, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Technical Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

1EP7 Exercise Evaluation (71114.07)

a. Inspection Scope

The inspectors observed licensee performance during exercise evaluation in the control room simulator. This drill was documented in NRC Inspection Report 05000483/2011201. The inspectors observed communications and event classification and notification activities by the simulated control room staff. The inspectors reviewed the emergency preparedness-related corrective actions from the previous inspection conducted by the NRC's Office of Nuclear Security and Incident

Response to determine whether they had been completed and adequately addressed the cause of the previously-identified weakness. The inspectors also observed portions of the drill critique to determine if NRC observations were also identified by the licensee's evaluators. The inspectors verified that minor issues identified during this inspection were entered into the licensee's corrective action program.

These activities constitute completion of one sample as defined by Inspection Procedure 71114.07-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the fourth quarter 2010 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - Emergency ac Power System (MS06)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - emergency ac power system performance indicator for the period from the first quarter 2010 through the fourth quarter 2010. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, mitigating systems performance index derivation reports, issue reports, event reports, and NRC integrated inspection reports for the period of January 2010 through December 2010, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous

inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index emergency ac power system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - cooling water systems performance indicator for the period from the first quarter 2010 through the fourth quarter 2010. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of January 2010 through December 2010, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index cooling water system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator for the period from the first quarter 2010 through the fourth quarter 2010. To determine the accuracy of the performance indicator data reported

during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, issue reports, event reports, and NRC integrated inspection reports for the period of January 2010 through December 2010, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one reactor coolant system specific activity sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting:

- Documented reactor coolant system in-leakage into the train A safety injection accumulator, Callaway Action Request 201007394

- Inoperability of the containment high range radiation monitor recorder, Callaway Action Request 201102251 and Job 11000109

- Licensee control of scaffolding, Callaway Action Requests 201101040 and 201102091

These activities constitute completion of three in-depth problem identification and resolution samples as defined in Inspection Procedure 71152-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of Technical Specification 5.4.1.a for failure to properly implement Procedure MDP-ZZ-S0001, "Scaffolding Installation and Evaluation," Revision 26, when scaffolding was erected near operable safety-related equipment. The inspectors identified two instances where the minimum separation distance between scaffolding and safety-related components was less than the minimum allowed by procedure.

Description. On February 8 and March 16, 2011, during plant walkdowns of the auxiliary building vent lines and emergency diesel train B room, the inspectors identified scaffolding erected less than 1 inch from equipment in safety-related and seismically qualified structures. The inspectors reviewed Procedure MDP-ZZ-S0001, which included installation and use guidelines for seismically qualified scaffolding, and observed that the criteria included a 1 inch minimum clearance requirement between scaffolding and equipment in safety-related or seismically structures. The inspectors concluded that the scaffolding observed on February 8 and March 16, 2011, did not meet the clearance criteria. The maintenance support group initiated Callaway Action Requests 201101040 and 201102091 to document the inspectors' observations. The scaffolding was modified to meet the requirements of Procedure MDP-ZZ-S0001. The licensee's extent of condition review concluded that movement of the scaffolding pieces had likely occurred due to vibration or use and that the condition could exist on other plant scaffolding. Consequently, on March 16, 2011, the licensee performed a walkdown of all scaffolding erected around safety-related equipment to ensure that flex or play in scaffold did not result in noncompliance with Procedure MDP-ZZ-S0001.

Analysis. The inspectors determined that the failure to properly install and inspect scaffolding in safety-related areas was a performance deficiency. The deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. The finding was associated with the Mitigating Systems Cornerstone. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the issue is determined to have very low safety significance because the finding is not a design or qualification issue confirmed to result in a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of nontechnical specification equipment; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that the cause of the finding has a crosscutting aspect in the area of problem identification and resolution associated with the component of corrective action program because the licensee did not have a low threshold for identifying scaffold issues [P.1(a)].

Enforcement. Technical Specification 5.4.1.a requires that procedures be established, implemented and maintained as recommended in Regulatory Guide 1.33, Appendix A. Section 9.a, requires, in part, that maintenance affecting safety-related equipment be accomplished in accordance with procedures. Procedure MDP-ZZ-S0001, "Scaffolding Installation and Evaluation," Step 4.3.4.b, required a 1 inch minimum clearance between scaffolding in safety related areas. Contrary to the above, on February 8, and March 16, 2011, the inspectors identified two examples where the separation distance between scaffolding in safety related areas was less than the one inch. Specifically, the inspectors identified two locations where scaffold poles and a scaffold pin were less than 1 inch from the auxiliary building vent line, the emergency diesel lube oil drain line, and also essential service water system piping in the diesel room. Because the finding is of very low safety significance and has been entered into the corrective action program as Callaway Action Request 201102091, this violation is being treated as a noncited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy:
NCV 05000483/2011002-04, "Scaffolding Installation Inadequacy."

4OA3 Event Follow-up (71153)

.1 (Closed) Licensee Event Report 2010-005-01, Emergency Diesel Generator A Shutdown During 24-hour Surveillance

On March 30, 2010, the train A emergency diesel generator tripped during a planned 24-hour surveillance run. Troubleshooting by the licensee revealed that a stripped splined shaft caused the diesel engine's governor drive to fail. Disassembly of the failed drive revealed the governor overspeed base to drive assembly gasket did not have the required oil port hole to allow proper lubrication of the drive assembly. The gasket found during disassembly was not an original equipment manufacturer part and had been field cut and installed on October 11, 1999, under Work Request W646151. Because of the time required to repair and retest the failed governor drive assembly, on April 2, 2010, the licensee requested that the NRC exercise discretion to not enforce compliance with the specified completion time for Technical Specification 3.8.1 "AC Sources – Operating," Required Action B.4, which was later granted and allowed the licensee an additional 48 hours to repair the governor drive assembly. The event was determined to be reportable as a condition prohibited by the plant's technical specifications and as a condition that could have prevented fulfillment of a safety function since the period of inoperability overlapped a period of inoperability of the train B emergency diesel generator. The licensee submitted the original licensee event report on May 28, 2010. Revision 1 was submitted on December 21, 2010, to revise the causes and corrective actions for the performance deficiency. The inspectors reviewed the licensee's most recent submittal and determined that the report adequately documented the summary of the event including the potential safety consequences and necessary corrective actions. The inspectors had previously identified a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." The enforcement aspects of the violation are discussed in Section 4OA3 of Inspection Report 05000483/2010003. No additional violations were identified during the inspectors' review. This licensee event report is closed.

.2 (Closed) Licensee Event Report 2010-008-00 and 2010-008-01, Inadequate Analysis Results in a Component Cooling Water Train Declared Inoperable

On September 23, 2010, several non-conservative assumptions were identified in the licensee calculation that analyzed a postulated pipe break in the non-seismic portions of the component cooling water service loop to the radwaste building. This resulted in the affected train of component cooling water being declared inoperable on September 23, 2010. To restore the train to an operable status the licensee isolated the flowpath. Since the condition had occurred multiple times the licensee submitted Licensee Event Report 2010-008-00, “Inadequate Analysis Results in a Component Cooling Train Declared Inoperable” on November 11, 2010. The Licensee Event Report described the condition where a postulated double-ended shear of the affected non-seismic piping could result in void fractions exceeding what is allowed to prevent pump damage. The Licensee Event Report reported the issue as both a condition prohibited by Technical Specifications and as a safety system functional failure. Revision 1 was submitted on February 28, 2011, to state the long-term corrective actions for the performance deficiency. The inspectors reviewed the licensee's most recent submittal and

determined that the report adequately documented the summary of the event including the potential safety consequences and necessary corrective actions. The inspectors had previously identified a violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” for failure to follow Procedure APA-ZZ-00500, Appendix 1, “Operability and Functionality Determinations.” The enforcement aspects of the violation are discussed in Section 1R15 of Inspection Report 05000483/2010005. No additional violations were identified during the inspectors' review. This licensee event report is closed.

4OA6 Meetings

Exit Meeting Summary

On February 17, 2011, the inspector discussed the results of in-office inspection of licensee changes to their emergency plan with Mr. S. Hogan, Assistant Manager, Protective Services EP, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified

On March 24, 2011, the inspectors presented the inspection results to Mr. F. Diya, Vice President Nuclear Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

F Bianco, Assistant Manager, Operations
K. Bruckerhoff, Assistant Manager, Protective Services Security
M. Covey, Assistant Manager, Operations
T. Elwood, Supervising Engineer, Regulatory Affairs/Licensing
S. Hogan, Assistant Manager, Protective Services EP
G. Juricic, Emergency Response Coordinator
L. Kanuckel, Manager, Plant Engineering
G. Kremer, Assistant Manager, Design Engineering
S. Maglio, Manager, Regulatory Affairs
S. Petzel, Engineer, Regulatory Affairs
A. Schnitz, Nuclear Licensing Engineer
N. Turner, Emergency Response Coordinator

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000483-2011002-01	NCV	Failure to Document Reasonable Expectation of Operability for Equipment Supported by the Class 1E Air Conditioning Units (Section 1R15)
05000483-2011002-02	NCV	Failure to Report Inoperability of Class 1E Electrical Equipment for a Period Greater than Allowed by the Plant's Technical Specifications (Section 1R15)
05000483-2011002-03	NCV	Containment Spray Test Procedure Potentially Creates an Unanalyzed Condition (Section 1R15)
05000483-2011002-04	NCV	Scaffolding Installation Inadequacy (Section 4OA2)

Closed

05000483-2010-005-01	LER	Emergency Diesel Generator A Shutdown During 24-hour Surveillance (Section 4OA3)
05000483-2010-008-00 05000483-2010-008-01	LER	Inadequate Analysis Results in a Component Cooling Water Train Declared Inoperable (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1RO1: Adverse Weather Protection

PROCEDURES

NUMBER	TITLE	REVISION
OTO-ZZ-00012	Severe Weather	19

CALLAWAY ACTION REQUESTS

201100860 201100871 201100885

Section 1RO4: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
ECA-0.0	Loss of All AC Power	12
OTO-NB-00001	Loss of Power to NB01	21
OSP-NB-00001	Class 1E Electrical Source Verification	35

DRAWINGS

NUMBER	TITLE	REVISION
E-009-00007	PCB Elevating Mech Circuit Internal Device Diagram	9
E-23NE11(Q)	Schematic Diagram 4.16KV DG NE02 Feeder Breaker 152NB0211	10
M-22AL01(Q)	Piping and Instrumentation Diagram Auxiliary Feedwater System	36
M-22FC02(Q)	Piping and Instrumentation Diagram Auxiliary Turbines Auxiliary Feedwater Pump Turbines	22

CALLAWAY ACTION REQUESTS

200500961	201009511	201100265	201101288	201101997

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
ANSI/ANS-3.5-1998	Nuclear Power Plant Simulators for Use in Operator Training and Examination	
NUREG/CR-5763	Auxiliary Feedwater System Risk-Based Inspection Guide for the Callaway Nuclear Power Plant	

Section 1RO5: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00703	Fire Protection Operability Criteria and Surveillance Requirements	19
APA-ZZ-00741	Control of Combustible Materials	19
FPP-ZZ-00001	Auxiliary Building Prefire Strategies	22
FPP-ZZ-00004	Control Building and Communications Corridor Prefire Strategies	15
FPP-ZZ-00007	Miscellaneous Buildings Inside the Protected Area Prefire Strategies	12

Section 1R06: Flood Protection Measures

DRAWINGS

NUMBER	TITLE	REVISION
C-U203(Q)	ESWS, Units 1 & 2 Electrical Manholes Plans, Sections and Details	6
E-UR0221(Q)	Raceway Plot Plan Essential Service Water System Plan and Sections	9

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

NUMBER	TITLE	REVISION
CSF-1	Critical Safety Function Status Trees (CSFST)	9
E-0	Reactor Trip or Safety Injection	
EIP-ZZ-00101 Addendum 1	Emergency Action Level Classification Matrix	0
EOP Addendum 19	Aligning ESW to AFW Suction	
FR-H.1	Response to Loss of Secondary Heat Sink	
OTO-AE-00001	Feedwater System Malfunction	18
OTO-MA-00008	Rapid Load Reduction	20

DRAWINGS

NUMBER	TITLE	REVISION
M-22AL01(Q)	Piping and Instrumentation Diagram Auxiliary Feedwater System	36

M-22EF01(Q)	Piping and Instrumentation Diagram Essential Service Water System	74
M-22EF02(Q)	Piping and Instrumentation Diagram Essential Service Water System	73

CALLAWAY ACTION REQUESTS

201101537

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION
EDP-ZZ-01128	Maintenance Rule Program	13
OSP-NB-00001	Class 1E Electrical Source Verification	35
OTN-NN-00001, ADD 01	NN11 Inverter In Service Verification	0

DRAWINGS

NUMBER	TITLE	REVISION
M-22AL01(Q)	Piping and Instrumentation Diagram Auxiliary Feedwater System	36

CALLAWAY ACTION REQUESTS

200601835 201011628 201100071

JOBS

07505105 10008615 10009264 11000014 11000050

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
NUMARC 93-01	Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	3
RFR 20508	Acceptance Criteria for OSP-NB-00001	A
RFR 20508	Acceptance Criteria for OSP-NB-00001	B

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
EDP-ZZ-01129	Callaway Plant Risk Assessment	26
EDP-ZZ-01129, Appendix 2	Risk Management Actions for Planned Risk-Significant Activities	18

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
NUMARC 93-01	Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	3

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00500, Appendix 1	Operability and Functionality Determinations	12
ES-1.3	Transfer to Cold Leg Recirculation	10

ODP-ZZ-00002	Equipment Status Control	59
ODP-ZZ-00004	Locked Component Control	37
ODP-ZZ-00025	EOP/OTO User's Guide	15
ODP-ZZ-00035	Plant Status Control	11
OSP-EN-P001A	Train A Containment Spray Pump Inservice Test	33, 34
OTN-EP-00001	Accumulator Safety Injection System	25
OSP-SA-0017B	Train B SIS-CSAS Slave Relay Test	28
OSP-SA-2413B	Train A Diesel Generator and Sequencer Testing	14

DRAWINGS

NUMBER	TITLE	REVISION
E-21005(Q)	List of Loads Supplied by Emergency Diesel Generator	33
E-23GK13A(Q)	Schematic Diagram Class 1E Electrical Equipment A/C Unit	8
J-104-00169	Sequencer Relay Outputs	17
J-104-00416	Wiring Diagram LSELS 1E Relay Allocation	7
M-622.1-00039	Condensing Unit	19
M-622.1-00186	Pressure Controller Setup Constants	0

CALLAWAY ACTION REQUESTS

200605279	200800615	200801683	201009024	201010145
201010785	201011132	201011233	201011371	201100511

JOBS

08512051 10516710

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
IEEE Std 323-2003	IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations	
Information Notice 97-60	Incorrect Unreviewed Safety Question Determination Related to Emergency Core Cooling System Swapover from the Injection Mode to the Recirculation Mode	August 1, 1997
Information Notice 97-78	Crediting of Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Times	October 23, 1997
Regulatory Guide 1.47	Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems	2

Section 1R19: Postmaintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION
EDP-ZZ-01114	Motor Operated Valve Program Guide	18
OSP-AB-V002A	SG Atmospheric Steam Dump (ASD) Valves Inservice Test	34
OSP-AL-V001A	Train A Auxiliary Feedwater Valve Inservice Test	40

CALLAWAY ACTION REQUESTS

200711064 201100423 201100742 201100787 201100992

JOBS

06526250.500 06526250.900 06526250.910 11000434/900 11000584/200

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
OSP-BB-00009	RCS Inventory Balance	27
OSP-BG-P005B	Centrifugal Charging Pump B Inservice Test – Group B	46
OSP-EJ-P001A	RHR Train A Inservice Test – Group A	48
OSP-EJ-P001B	RHR Train B Inservice Test – Group A	48

JOBS

08507458 10516116 11501788

Section 1EP7: Force-on-Force Exercise Evaluation

PROCEDURES

NUMBER	TITLE	REVISION
E-0	Reactor Trip or Safety Injection	13
EIP-ZZ-00101 Addendum 1	Emergency Action Level Classification Matrix	2
OTO-SK-00001	Plant Security Event – Hostile Intrusion	22

4OA1: Performance Indicator Verification

PROCEDURES

NUMBER	TITLE	REVISION
OSP-BG-V001B	Chemical and Volume Control Train B Valve Inservice Test	36
OSP-BG-V001B	Chemical and Volume Control Train B Valve Inservice Test	38
OSP-NE-0001B	Standby Diesel B Periodic Test	40
OSP-NE-0001A	Standby Diesel A Periodic Test	42

CALLAWAY ACTION REQUESTS

201000072	201000076	201001421	201002281	201002675
201004284	201004390	2010008779	201010530	

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	6
	Callaway Plant Mitigating System Performance Index (MSPI) Basis Document	4

Section 4OA2: Identification and Resolution of Problems

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00500	Corrective Action Program	51
APA-ZZ-00500, Appendix 17	Screening Process Guidelines	11

MDP-ZZ-S0001	Scaffolding Installation and Evaluation	26
MTT-ZZ-I004	General Guidelines for Cable Terminations	6

CALLAWAY ACTION REQUESTS

201007394	201007628	201009194	201010846	201011264
201011434	201100945	201101201	201101548	201101726
201101732	201101750	201101754		

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
Job 04503955/500		
	Conversion to Improved Technical Specifications for Callaway Plant, Unit 1 - Amendment Number 133 to Facility Operating License Number NPF-30 (TAC NO M98803)	May 28, 1999
ULNRC-03979	Docket Number 50-483 Callaway Plant Union Electric Company Follow-up Items Related to the Proposed Conversion to the Improved Technical Specifications Sections 3.3, 3.4, 3.6, 3.7, 3.8, 3.9, and 5.0	March 9, 1999
ULNRC-3578	Docket Number 50-483 Callaway Plant Technical Specification Conversion Application	May 15, 1997

Section 4OA3: Event Follow-up

PROCEDURES

NUMBER	TITLE	REVISION
OTO-BB-00003	RCS Excessive Leakage	19

CALLAWAY ACTION REQUESTS

201002675	201009798	201011161	201100586