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

April 19, 2010

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

Subject: CALLAWAY PLANT - NRC INTEGRATED INSPECTION REPORT 05000483/2010002

Dear Mr. Heflin:

On March 24, 2010, 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 22, 2010, with Mr. G. Bradley, Acting Plant Director, 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). All three of these findings were determined to involve violations of NRC requirements. Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 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 facility. In addition, if you disagree with the characterization of 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. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket: 50-483
License: NPF-30

Enclosure:
NRC Inspection Report 05000483/2010002
w/Attachment: Supplemental Information

cc w/Enclosure:

Mr. Luke H. Graessle
Director, Operations Support
AmerenUE
P.O. Box 620
Fulton, MO 65251

Ms. E. Hope Bradley
Manager, Protective Services
AmerenUE
P.O. Box 620
Fulton, MO 65251

Mr. Scott Sandbothe, Manager
Plant Support
AmerenUE
P.O. Box 620
Fulton, MO 65251

Mr. R. E. Farnam
Assistant Manager, Technical
Training
AmerenUE
P.O. Box 620
Fulton, MO 65251

Mr. J. S. Geyer
Radiation Protection Manager
AmerenUE
P.O. Box 620
Fulton, MO 65251

Mr. John O'Neill, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2300 N. Street, N.W.
Washington, DC 20037

Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102-0360

Mr. Dru Buntin
Director of Government Affairs
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Mr. Matthew W. Sunseri, President and
Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

Ms. Kathleen Logan Smith, Executive Director and
Ms. Kay Drey, Representative, Board of Directors
Missouri Coalition for the Environment
6267 Delmar Boulevard, Suite 2E
St. Louis, MO 63130

Mr. Lee Fritz, Presiding Commissioner
Callaway County Courthouse
10 East Fifth Street
Fulton, MO 65251

Director, Missouri State Emergency
Management Agency
P.O. Box 116
Jefferson City, MO 65102-0116

Mr. Scott Clardy, Administrator
Section for Disease Control
Missouri Department of Health and
Senior Services
P.O. Box 570
Jefferson City, MO 65102-0570

Certrec Corporation
4200 South Hulen, Suite 422
Fort Worth, TX 76109

Mr. Keith G. Henke, Planner II
Division of Community and Public Health
Office of Emergency Coordination
Missouri Department of Health and
Senior Services
930 Wildwood Drive
P.O. Box 570
Jefferson City, MO 65102

Chief, Technological Hazards Branch
FEMA Region VII
9221 Ward Parkway, Suite 300
Kansas City, MO 64114-3372

Regional Administrator (Elmo.Collins@nrc.gov)
Deputy Regional Administrator (Chuck.Casto@nrc.gov)
DRP Director (Dwight.Chamberlain@nrc.gov)
DRP Deputy Director (Anton.Vegel@nrc.gov)
DRS Director (Roy.Caniano@nrc.gov)
DRS Deputy Director (Troy.Pruett@nrc.gov)
Senior Resident Inspector (David.Dumbacher@nrc.gov)
Resident Inspector (Jeremy.Groom@nrc.gov)
Branch Chief, DRP/B (Geoffrey.Miller@nrc.gov)
Senior Project Engineer, DRP/B (Rick.Deese@nrc.gov)
CWY Administrative Assistant (Dawn.Yancey@nrc.gov)
Public Affairs Officer (Victor.Dricks@nrc.gov)
Public Affairs Officer (Laura.Uselding@nrc.gov)
Project Manager (Mohan.Thadani@nrc.gov)
Branch Chief, DRS/TSB (Michael.Hay@nrc.gov)
RITS Coordinator (Marisa.Herrera@nrc.gov)
Regional Counsel (Karla.Fuller@nrc.gov)
Congressional Affairs Officer (Jenny.Weil@nrc.gov)
OEMail Resource
ROPreports
DRS/TSB STA (Dale.Powers@nrc.gov)
OEDO RIV Coordinator (Leigh.Trocine@nrc.gov)
Regional State Liaison Officer (Bill.Maier@nrc.gov)
NSIR/DPR/EP (Eric.Schrader@nrc.gov)
R:_Reactors\CW\2010.doc

ADAMS: □ No ☑ Yes	☒ SUNSI Review Complete	Reviewer Initials: GM
	☒ Publicly Available	☒ Non-Sensitive
	□ Non-publicly Available	□ Sensitive

RIV:SRI/DRP/B	C:DRS/OB	C:DRS/PSB1	C:DRS/PSB2
DDumbacher	MHaire	MShannon	GWerner
/E/GMiller	***/RA/***	***/RA/***	***/RA/***
4/16/10	4/14/10	4/10/10	4/13/10
C:DRS/EB1	C:DRS/EB2	RIV:RI/DRP/B	C:/DRS/TSB
TFarnholtz	NO'Keefe	JGroom	MHay
/RA/	**/RA/**	**/E/GMiller**	**/RA/**
4/14/10	4/14/10	4/15/10	4/19/10
C:DRP/B			
GMiller			
/RA/			
4/19/10			

OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000483
License:	NPF-30
Report:	05000483/2010002
Licensee:	Union Electric Company
Facility:	Callaway Plant
Location:	Junction Highway C and Highway O Fulton, MO
Dates:	January 1 through March 24, 2010
Inspectors:	D. Dumbacher, Senior Resident Inspector J. Groom, Resident Inspector P. Elkmann, Senior Emergency Preparedness Inspector G. Replogle, Senior Reactor Analyst
Approved By:	Geoffrey B. Miller, Chief, Project Branch B Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000483/2010002; 01/01/2010 – 03/24/2010, Callaway Plant, Integrated Resident and Regional Report; Operability Evaluations.

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 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." 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 NRC identified a noncited 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 inspectors determined that the licensee failed to provide a reasonable expectation of operability for the degraded condition. Specifically, the licensee failed to account for both auxiliary feedwater as an essential service water system load and fouling resistance in the component cooling water system heat exchanger. Long term corrective actions planned include a modification of the component cooling water heat exchangers divider plate during the upcoming April 2010 refueling outage. The licensee placed this issue in their corrective action program as Callaway Action Request 201001152.

  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. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," this issue screened as very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage time and did not affect seismic, flooding, or severe weather initiating events. 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 when performing operability evaluations [H.1(b)] (Section 1R15).

- Green. The NRC identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," after the licensee failed to adequately select suitable replacement gaskets essential to the operation of the component cooling water system heat exchangers. On October 19, 2008, Callaway engineering personnel identified that the component cooling water heat exchangers, due to corrosion and inadequate gasket sealing, had a small gap between the divider plate and channel head such that it allowed

essential service water flow to bypass the heat exchanger which resulted in a reduced heat transfer capability. Corrective actions to address the identified gap in the component cooling water heat exchanger were scheduled to be implemented during the licensee's next refueling outage. The licensee entered the issue in the corrective action program as Callaway Action Request 201001900.

This finding was greater than minor because it was associated with the Mitigating Systems Cornerstone attribute of design control and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," this issue screened as very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage time and did not affect seismic, flooding, or severe weather initiating events. This finding was determined not to have a crosscutting aspect since it is a performance deficiency not reflective of current licensee performance (Section 1R15).

- Green. The NRC identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," after AmerenUE failed to provide adequate design control measures for verifying the adequacy of the ultimate heat sink thermal performance analysis evaluating the impact of heat rejected during a large break loss of coolant accident. The thermal performance analysis, most recently revised in 2007, did not account for a potential single active failure of each train's motor-operated valve designed to redirect the essential service water return flow up and over the tower fill material. With further analysis the licensee determined that a compensatory measure implementing a more restrictive initial operating range based on pond volume and initial temperature would ensure that the ultimate heat sink pond will not exceed its maximum temperature of 92.3 degrees Fahrenheit during a design basis accident. Corrective actions were being developed using Callaway Action Request 201001813.

  This finding was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of design control and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. A resident inspector performed the initial significance determination for the inoperable essential service water system, under certain conditions, using the NRC Inspection Manual 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The finding screened to a Phase 2 significance determination because it involved the potential inoperability of both trains of essential service water for greater than the technical specification allowed outage time. A Region IV senior reactor analyst performed a Phase 2 significance determination and found that the finding was potentially greater than green. The senior reactor analyst then performed a bounding Phase 3 significance determination and found the finding to be of very low safety significance (Green). The dominant core damage sequences included a medium break loss of coolant accident concurrent with the failure of essential service water system cooling tower bypass valves. The finding was mitigated because the motor operated valves remained functional throughout the year, which minimized the frequencies for the scenarios of interest. This finding was

determined to not have a crosscutting aspect as the calculation of record was not reflective of current licensee performance (Section 1R15).

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and the corrective action tracking number (Callaway action request number) is listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

AmerenUE operated the Callaway Plant near 100 percent power for the entire inspection period.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate-ac Power

a. Inspection Scope

The inspectors performed a review of switchyard conditions that could lead to loss-of-offsite power and conditions that could result from adverse temperatures. The inspectors did not perform the procedure adequacy review because equipment or procedure changes which potentially affect operation or reliability of offsite and alternate ac power systems had not occurred since the last performance of Inspection Procedure 71111.01.

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Final Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant components:

- February 23, 2010, Switchyard breaker MDV43 and MDV45 cracked bushing failures related to extreme weather involving very cold temperatures and snow effects
- February 24, 2010, Switchyard safeguards transformer A failure due to an arc related fault on the transformer 13.8 kV load taps. This occurred after a week of heavy rain/sleet generating storms.

These activities constitute completion of one readiness for adverse weather effects on offsite and alternate-ac power sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

.2 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of the adverse weather procedures for seasonal extremes (e.g., extreme high temperatures or extreme low temperatures). The inspectors verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes, and evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of, and during, the adverse weather conditions.

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Final Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. 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. The inspectors' reviews focused specifically on the following plant systems:

- January 12, 2010, Extreme cold weather at the ultimate heat sink cooling tower resulted in icing due to leakage past valve EFHV0037 (CAR 201000367)

- January 12, 2010, Refueling water storage tank system

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

b. Findings

No findings of significance 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 20, 2010, Movable incore detection system
- January 26, 2010, Component cooling water system
- February 4, 2010, Refueling water storage tank
- February 19 and 23, 2010, Switchyard system (MD)

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 four partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

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 20, 2010, Reactor building
- February 2, 2010, Room 1206/1207, Fire Area A-1

- February 11, 2010, Room 1409, South electrical penetration room, Fire Area A-17
- February 25, 2010, Tendon access gallery
- February 27, 2010, Auxiliary building 2000', General area, Fire Area A-8
- March 16, 2010, Room 6105, Fuel building 2000', Fuel pool cooling heat exchanger (east), Fire Area F-3

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.

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

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Quarterly Review

a. Inspection Scope

On January 14, 2010, the inspectors observed licensed operators response in the plant's simulator to a loss of shutdown cooling with solid plant pressure conditions in Mode 5. This was to verify 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 of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- February 4-8, 2010, Component cooling water system, entire system review for maintenance rule evaluations
- March 5, 2010, Control room pressurization charcoal filtration, Callaway Action Request 201000698

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 of significance 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 5, 2010, Planned elevated risk due to turbine-driven auxiliary feedwater pump work window
- January 6, 2010, Emergent elevated risk due to the trip of the normal charging pump
- February 19, 2010, Emergent elevated risk due to the trip of the switchyard breakers MDV45 and MDV43

- February 22, 2010, Elevated risk due to heavy load lift in the switchyard
- March 8, 2010, Planned elevated risk due to planned lubrication of the turbine-driven auxiliary feedwater pump trip throttle valve
- March 18, 2010, Elevated risk due to emergent work on emergency diesel generator B

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 six maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- January 25, 2010, Callaway Action Request 200910313, High energy line break effects on reactor coolant system wide range temperature instruments and refueling water storage tank pipe ambient temperature
- February 1, 2010, Callaway Action Requests 200400872 and 201000525, Condensate storage tank temperature affects on auxiliary feedwater pump operability
- February 9, 2010, Callaway Action Request 200810719, Component cooling water A heat exchanger inspection findings
- February 11-12, 2010, Callaway Action Request 201001159, Emergency diesel generator vulnerability to hot short impact on the unit parallel relay

- February 23, 2010, Callaway Action Request 201001054, SA036C 15 Vdc power supply failed resulting in an inoperable turbine-driven auxiliary feedwater pump

- March 2, 2010, Callaway Action Request 201001813, Ultimate heat sink operability assumptions in Calculation EF-54, "Ultimate Heat Sink Thermal Performance Analysis"

- March 9, 2009, Callaway Action Request 201001991, Steam leak on turbine-driven auxiliary feedwater pump turbine casing

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 seven operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

1. Introduction. The NRC identified a Green noncited 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."

Description. The inspectors identified that several operability determinations associated with leakage in the component cooling water heat exchangers were inadequate. On October 27, 2008, following a Refueling Outage 16 inspection of both component cooling water heat exchangers A (EEG01A) and B (EEG01B), Callaway Action Request 200810719 documented significant bypass leakage at the interfaces between the channel head/end plate and the flow divider plate. This leakage was recognized as not available to support the heat exchangers' cooling function. A prompt operability determination was initiated as part of the Callaway action request. The Callaway action request noted that a gap existed for each heat exchanger divider plate due to missing gasket material and corrosion of the divider plate mating surface. The heat exchanger A gap was measured at 1/16 inch deep by 24 inches long. The heat exchanger B gap was measured at 1/4 inch deep by 37.5 inches long. The prompt operability determination stated that empirical data had demonstrated that the gap size would not grow to exceed

1/2 inch in width over the next operating cycle. The divider plate is 75 inches in length. The licensee assumed a vendor provided designed 3.5 psid driving head for the divider plate bypass leakage and the heat exchanger tube flow. Each heat exchanger was documented as having sufficient extra flow to project operability of the system until the April 2010 refueling outage. On November 20, 2008, Callaway Action Request 200812008 was initiated to highlight that the essential service water system flow balance procedure would have allowed an insufficient essential service water flow to the component cooling water heat exchangers to support the October 27, 2008, prompt operability determination. This resulted in a revision to the prompt operability determination which limited the gap size growth to 3/8 inch on average over the entire 75 inch length.

The NRC resident inspectors reviewed the prompt operability determinations and noted that the licensee assumptions had not included the auxiliary feedwater system as an essential service water system load during design basis accidents. The licensee declared the component cooling water train B system inoperable per Technical Specification 3.7.7. The licensee developed a compensatory measure relying on colder February temperatures to ensure adequate heat removal by the component cooling water heat exchangers until additional analysis could be performed as the basis for a third revision of the prompt operability determination. The compensatory measure had operators use a table to verify outside air wet bulb temperatures and ultimate heat sink initial temperatures as a means to ensure current operability. Two days later, the inspectors noted that actual heat exchanger differential pressure was likely higher than the clean heat exchanger 3.5 psid assumed. The licensee, using calibrated pressure gages, determined that component cooling water train B heat exchanger differential pressure was greater than the assumed 3.5 psid. The temperature dependent compensatory measure along with a reduction in the assumed gap size to 5/16 inch on average was the basis for the fourth revision of the operability determination that concluded component cooling water train B was still operable.

Following review of the work performed in October 2008 and February 2010, the inspectors determined that the licensee failed to provide a reasonable expectation of operability for the degraded condition identified in Callaway Action Request 200810719 consistent with the guidance of Regulatory Information Summary 2005-020, “Operability Determinations and Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety,” and licensee Procedure APA-ZZ-00500, Appendix 1. Specifically, the licensee failed to account for both auxiliary feedwater as an essential service water system load and failed to account for increasing fouling resistance in the component cooling water system heat exchanger.

On February 26, 2010, the licensee completed a fifth revision of the operability determination using a different approach. This evaluation changed the assumption that component cooling water heat load (duty) was a constant 195 Mbtu/hour to a heat load that decreases over the mission time of the system. The new assumption, along with the estimate that the gap size growth was bounded to a 5/16 inch gap, allowed the ultimate heat sink cooling towers to maintain ultimate heat sink pond temperature low enough to keep the component cooling water heat exchanger outlet below the

131 degrees Fahrenheit required in the technical specification bases document. This time dependent duty for the component cooling water heat exchangers was described in the Final Safety Analysis Report Table 9.2-9 and modeled using the licensee's approved containment analysis method of record, GOTHIC 7.2a.

Long term corrective actions planned include a modification of the component cooling water heat exchangers divider plate during the upcoming April 2010 refueling outage.

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 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. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," this issue screened as very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage time and did not affect seismic, flooding, or severe weather initiating events. 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 when performing operability evaluations [H.1(b)].

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, on October 27, 2008, November 20, 2008, and again on February 10, 2010, Callaway plant operators failed to adequately perform activities affecting quality in accordance with written procedures as specified in Step 4.1 of Procedure APA-ZZ-00500, Appendix 1, "Operability and Functionality Determinations." Specifically, Callaway Plant operators failed to establish there was a reasonable expectation of operability of component cooling water heat exchanger train B following identification of degraded conditions. Because of the very low safety significance and AmerenUE's action to place this issue in their corrective action program as Callaway Action Request 201001152 this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy: NCV 05000483/2010002-01, "Failure to Follow Operability Determination Procedure."

2. Introduction. The NRC identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," after the licensee failed to adequately select suitable replacement parts essential to the operation of the component cooling water system heat exchangers.

   Description. On October 19, 2008, during Refueling Outage 16, Callaway engineering personnel identified that the component cooling water heat exchanger train A had a small gap measured at 1/16 inch deep by 24 inches long between the divider plate and

channel head. Similar conditions were identified on the component cooling water heat exchanger train B on October 25, 2008, where the gap was measured at 1/4 inch deep by 37 and 1/2 inches long. The location of the gap was such that it allowed essential service water flow to bypass the heat exchanger which resulted in a reduced heat transfer capability. The causes of the gap were corrosion of the divider plate and dislodging of the divider plate gasket. The gasket material used was 1/8 inch Garlock Blue-GARD 3000. The licensee initiated Callaway Action Requests 200810719 and 200811077 to document the identified gap in both component cooling water heat exchangers. Operability was evaluated assuming the gasket along the entire 75 inch length of the divider plate was missing.

The inspectors reviewed the Callaway action requests and noted that this type of gasket material used on the component cooling water heat exchangers was the same type of gasket that developed a leak on the emergency diesel generator train B in 2008. Causal analysis performed by the licensee determined that this particular type of gasket requires approximately 2500 psi of compression to seal. The causal analysis also concluded that an uneven bolting pattern resulted in a lack of compression. NRC Inspection Report 05000483/2009007 concluded that the licensee failed to adequately select suitable replacement parts essential to the operation of the emergency diesel generators. Specifically, the use of 1/8 inch Garlock Blue-GARD 3000 in an unevenly bolted configuration resulted in a lack of compression which caused the aramid fiberous gasket material to absorb water and soften. A loss of gasket integrity eventually occurred once the gasket had sufficiently softened. Since the component cooling water heat exchangers have an uneven bolting pattern and based on the operating experience from the emergency diesel generator, the inspectors questioned the selection of 1/8 inch Garlock Blue-GARD 3000 for the component cooling water heat exchanger divider plate.

Research by the licensee found that the original gasket material for the component cooling water heat exchangers was specified as 1/8 inch thick black rubber or neoprene. The use of 1/8 inch Garlock Blue-GARD 3000 was approved under Request for Resolution 17402A on October 14, 1996. That request for resolution determined that the Garlock Blue-GARD 3000 is an acceptable gasket material based on the system's operating characteristics. The request for resolution examined compatibility of the new gasket material with system fluids, system pressures, and system temperatures but failed to address the required gasket compression to ensure adequate seating forces at all locations along the divider plate. Consultation with the heat exchanger vendor revealed that the bolting forces available are less than half of what is required for operation and gasket seating. Based on this information, the licensee concluded the selection of Garlock Blue-GARD 3000 may have contributed to the initiation of heat exchanger bypass flow.

Corrective actions to address the identified gap in the component cooling water heat exchanger were scheduled to be implemented during the licensee's next refueling outage. The corrective actions included a modification to restore the sealing surfaces between the divider plate and channel head. The modification originally proposed the use of Garlock Blue-GARD 3000 gasket material, but following discovery that the application may result in a lack of compression the licensee initiated actions to evaluate alternate sealing technologies for the component cooling water heat exchangers.

Analysis. The performance deficiency associated with this finding involved the licensee's failure to adequately select suitable replacement parts essential to the operation of the component cooling water heat exchangers. This finding was greater than minor because it was associated with the mitigating systems cornerstone attribute of design control and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," this issue screened as very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage time and did not affect seismic, flooding, or severe weather initiating events. This finding was determined not to have a crosscutting aspect since it is a performance deficiency not reflective of current licensee performance.

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established for the selection and review for suitability of application of materials and parts that are essential to the safety related functions of structures, systems, and components. Contrary to the above, on October 14, 1996, the licensee failed to ensure the suitability of repair parts essential to the safety-related function of component cooling water heat exchangers. Specifically, the licensee approved the use of Garlock Blue-GARD 3000 gasket material under Request for Resolution 17402A without ensuring that the gasket would be adequately compressed. Because this violation is of very low safety significance and has been entered into the licensee's corrective action program as CAR 201001900, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000483/2010002-02, "Failure to Ensure Suitable Replacement Parts Essential for the Operation of the Component Cooling Water System."

3. Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," after AmerenUE failed to provide adequate design control measures for verifying the adequacy of the ultimate heat sink thermal performance analysis evaluating the impact of heat rejected during a large break loss of coolant accident.

Description. The inspectors identified that the Callaway Plant failed to maintain an adequate design control calculation for the thermal performance analysis of the ultimate heat sink. The analysis of record, EF-54, Revision 3, "Ultimate Heat Sink Thermal Performance Analysis," was a 2007 update to more clearly address performance at various essential service water flow rates and address both single and dual train operation. The updated analysis focused on the prediction of maximum pond outlet water temperature and evaporation (losses) at the limiting/bounding essential service water flow rates for limiting meteorological conditions. The updated analysis assumed and stated that, "consistent with the design licensing basis assumptions in Final Safety Analysis Report ultimate heat sink Sections 9.5.2.2 and 9.5.2.3, two trains of essential service water operate for the first eight hours of a large break loss of coolant accident event with single train thereafter." This assumption had been present in Revisions 1

and 2 but not in Revision 0. Revision 0, in effect up to 1993, assumed only a single train of essential service water at varying flow rates. Callaway Final Safety Analysis Report Site Addendum Table 9.2-6, "Ultimate Heat Sink Single Failure Analysis," identified three single failures: A single passive failure of one of the discharge headers within the cooling tower, a single active failure of one cooling tower fan, and a single active failure of diesel power to two cooling tower fans.

The Final Safety Analysis Report examples did not list a potential single active failure for each train's motor-operated valve designed to redirect the essential service water return flow up and over the tower fill material. A failure to close of either motor-operated valve EFHV65 or EFHV66 would result in only two available cooling tower fans and approximately 290 MBTU/hour of rejected heat being added to the ultimate heat sink pond that was not accounted for in the first 8 hours of the large break loss of coolant accident event. A single active failure of one cooling tower fan would add 145 MBTU/hour not accounted for in the first 8 hours. The EF-54, Revision 3, analysis assumed that two trains of ultimate heat sink cooling tower fans (four fans total) operate for the first 8 hours of a large break loss of coolant accident event. The EF-54, Revision 3, analysis resulted in a maximum predicted ultimate heat sink water temperature of 92.15 degrees Fahrenheit occurring 20 hours after the event for 110 percent essential service water design flow during minimum heat transfer conditions. Ultimate heat sink operability relied on maintaining the ultimate heat sink pond supply to the essential service water pumps' suctions at or below 92.3 degrees Fahrenheit.

On March 4, 2010, the licensee performed another calculation using the methodology of EF-54 to model the limiting single active failure. The results of this analysis showed that between the first and second hour of a design basis accident, the ultimate heat sink pond would exceed its maximum temperature and stay above this limit for approximately 1.5 days. Eight hours into this accident the ultimate heat sink pond would reach 107.7 degrees Fahrenheit. This resultant temperature could not support operability should the single active failure of either motor-operated valve EFH V65 or EFH V66 occur. A licensee review of the last three years determined that neither of these valves had been inoperable without a corresponding essential service water system technical specification limiting condition for operation entry. With further analysis the licensee determined that a more restrictive operating range based on pond volume and initial temperature would ensure that the ultimate heat sink pond will not exceed 92.3 degrees Fahrenheit during a design basis accident. This compensatory measure was implemented using operating department night order, "Maintaining UHS Operability," through the remainder of this inspection period.

Analysis. The performance deficiency associated with this finding was the incorrect calculation assumptions in the ultimate heat sink thermal performance analysis of record. This finding was similar to NRC Inspection Manual Chapter 0612 Appendix E, "Examples of Minor Issues," Example 3j, as the incorrect assumptions provided a reasonable doubt as to the operability of the ultimate heat sink cooling pond. This finding was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of design control and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating

events to prevent undesirable consequences. A resident inspector performed the initial significance determination for the inoperable essential service water system under certain conditions using the NRC Inspection Manual 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The finding screened to a Phase 2 significance determination because it potentially involved an inoperable system for greater than the technical specification allowed outage time. A Region IV senior reactor analyst performed a Phase 2 significance determination using the "Risk Informed Inspection Notebook for the Callaway Nuclear Generating Station," Revision 2.1a. Assuming a conservative exposure period of one year, that the entire essential service water system was inoperable, and that only the large break and medium break loss of coolant sequences were affected, the finding was potentially Yellow, which meant that the issue warranted further review. The Region IV senior reactor analyst performed a bounding Phase 3 significance determination and limited the review to only large and medium break loss of coolant accidents. The analyses used the Callaway SPAR Model, Revision 3.50, and determined the frequency for the large break loss of coolant accident (2.5E-6/year) and the medium break loss of coolant accident (2E-4/year). The combined frequency for both events was approximately:

2.5E-6 + 2E-4 = 2E-4/year

The narrow scenarios of interest also involved the concurrent failure of a single motor operated valve that would permit essential service water flow to bypass the cooling tower. From NUREG/CR-6928, "Industry Average Performance for Components and Initiating Events," the analyst noted that the mean failure probability for a motor-operated valve to close was approximately 1E-3. Since the plant had two of these valves, and the failure of either valve to function could result in challenging system operability, the total probability that one or the other valve failed was approximately 2E-3. The frequency for the event of interest that involved a large break loss of coolant accident concurrent with the failure of either valve EFHV65 or EFHV66 was approximately:

2E-4 * 2E-3 = 4E-7

Based on this frequency, the analyst determined that the change to core damage frequency was less than 4E-7. Therefore, the finding was of very low safety significance (Green). The dominant core damage sequences included medium break loss of coolant accidents concurrent with the failure of essential service water system cooling tower bypass valves. The finding was mitigated because the motor-operated valves actually remained operable during the past year, which helped to minimize the frequencies of the scenarios of interest. To evaluate the change to the large early release frequency, the analyst used Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process." The finding screened as having very low safety significance for the large early release frequency because it did not affect the intersystem loss of coolant accident or steam generator tube rupture accident categories. This finding was determined to not have a crosscutting aspect as the calculation of record was not reflective of current licensee performance.

Enforcement. Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criteria III, "Design Control," required that AmerenUE establish measures to assure that

applicable regulatory requirements and design bases be correctly translated into specifications and that design control measures be provided for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculation methods, or by the performance of a suitable testing program. Contrary to the above, on April 17, 2007, AmerenUE did not establish measures to assure that applicable regulatory requirements and the design basis of the ultimate heat sink thermal performance analysis was translated into calculation EF-54, Revision 3, "Ultimate Heat Sink Thermal Performance Analysis," and failed to ensure that the design was correctly verified. Because of the very low safety significance and AmerenUE's action to place this issue in their corrective action program as Callaway Action Request 201001813, this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy: NCV 05000483/2010002-03, "Failure to Maintain an Adequate Ultimate Heat Sink Thermal Performance Analysis."

1R18 Plant Modifications (71111.18)

Temporary Modifications

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded the inspectors reviewed the following temporary modifications:

- January 26, 2010, Temporary modification TM 10-0001 for nitrogen cover gas to the degraded condensate pump C suction expansion joint

- February 3, 2010, Feedwater train A temperature input to nuclear instrument system heat balance (calorimetric) process computer software change request CR 10608

The inspectors reviewed the plant design change or temporary modifications and the associated safety-evaluation screening against the system design bases documentation, including the Final Safety Analysis Report and the technical specifications, and verified that the change did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two samples for temporary plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings of significance were identified.

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 6, 2010, Postmaintenance test of turbine-driven auxiliary feedwater pump discharge valve ALHV0008, Job 06529254
- January 29, 2010, Postmaintenance test of reactor trip bypass circuit breaker A, Job 10000742
- March 3, 2010, Review of postmaintenance test of the train A residual heat removal pump PEJ01A, Job 09513289
- March 8, 2010, Postmaintenance test of turbine-driven auxiliary feedwater pump following lubrication of the trip throttle valve, Job 09513440
- March 19, 2010, Postmaintenance test of emergency diesel generator train B following replacement of relay 5B, Job 10001748

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 five postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance 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
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

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

- January 4, 2010, Inservice comprehensive test of essential service water pump A, Job 09508130
- January 6, 2010, Inservice test of the turbine-driven auxiliary feedwater pump, Job 08008735
- January 20, 2010, Routine surveillance test of the emergency diesel generator B, Job 08501770
- February 1, 2010, Inservice test of the motor-driven auxiliary feedwater pump A, Job 095012051
- February 2, 2010, Routine surveillance test/verification of the at-power moderator temperature coefficient, Job 08508083
- March 19, 2010, Procedure OSP-BB-00009, "Reactor Coolant System Inventory Balance," Job 10504507

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

These activities constitute completion of six surveillance testing inspection samples (two routine, three inservice test and one reactor coolant system leakage) as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

1. The inspectors performed an in-office review of Addendum 2 to Emergency Plan Implementing Procedure EIP-ZZ-00101, "Emergency Action Level Technical Basis Document," Revision 1, issued January 26, 2010. This revision clarified that the intent of emergency action level SU 6.1, "Unidentified or Pressure Boundary Leakage GT 10 gpm, or, Identified Leakage GT 25 gpm," does not include the normal operation of a pressure relief valve, and made minor editorial corrections. The change to emergency action level SU 6.1 was reviewed and approved by the NRC on October 26, 2009 (see ML090350501, and ML092890462).

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, to Nuclear Energy Institute Report 99-01, "Emergency Action Level Methodology," Revision 4, 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.

2. The inspectors also performed an in-office review of the Callaway Plant Radiological Emergency Response Plan, Revision 35. This revision modified the definition of 'cellular paging system' to permit the use of electronic devices other than a dedicated pager to perform the paging function, revised site organization titles, and made minor editorial corrections.

   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 two samples as defined in Inspection Procedure 71114.04-05.

b. Findings

   No findings of significance 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, "IC Set 74," on March 24, 2010, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The drill involved damaged main turbine blading, loss of a 4 kV essential bus normal feeder breaker and the impact of the subsequent water hammer of the essential water system, and a steam generator tube rupture.

   The inspectors observed emergency response operations in the simulator and 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 of significance 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 2009 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 of significance 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 performance indicator for the period from the first quarter 2009 through the fourth quarter 2009. 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 5. 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 2009 through December 2009 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 of significance 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 2009 through the fourth quarter 2009. 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 5. 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 2009 through December 2009, 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 of significance 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 2009 through the fourth quarter 2009. 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 5. 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 2009 through December 2009 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. 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 of significance 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 of significance 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 of significance 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 corrective action items documenting:

- Switchyard breaker and transformer failures that occurred on February 19 and 20, 2010, and November 4, 2009, Callaway Action Requests 200909304, 201001515, and 201001370

- Corrective actions to address aging issues in engineered safety feature actuation system power supplies, Callaway Action Requests 200901694, 200903381 and 201001054

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

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

(Closed) Licensee Event Report 05000483/2009-001-01, Technical Specification Required Shutdown Due to Loss of Power Supply

At 2:28 am on February 19, 2009, while operating at 100 percent reactor power a power supply failure in the balance of plant engineered safety features actuation system affected numerous technical specification limiting conditions for operation. Technical Specification 3.3.2.Q required the plant to be in Mode 3 within 6 hours and Mode 4 in 12 hours. Load reduction began at 5:30 am and Mode 3 was reached at 8:17 am on

February 19, 2009. The power supply was replaced and the system was restored to operable at 10:09 am on February 19, 2009. The licensee performed a reportability evaluation and determined that a licensee event report was required in accordance with 10 CFR 50.73 (a)(2)(i)(A) since the failure of the power supply resulted in the completion of a technical specification required shutdown.

The licensee submitted a licensee event report on April 17, 2009. A supplement to the original licensee event report was submitted on February 4, 2010, to provide additional causes of the power supply failure discovered during the licensee's investigation. The licensee determined the causes for this event include inadequate actions taken in response to trending of condition monitoring preventive maintenance data gathering and failure to replace power supplies prior to exceeding the expected service life. Corrective actions to prevent recurrence for this event include developing a time-based power supply replacement and refurbishment program addressing the obsolescence of power supplies in the load shedding and emergency load sequencing system and engineered safety features actuation system. Compensatory measures have been established for the current operating cycle until the power supplies identified can be replaced or refurbished. 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 corrective actions required to address the performance deficiency. This licensee event report is closed.

4OA6 Meetings

Exit Meeting Summary

On February 10, 2010, the Emergency Preparedness inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency plan and emergency action levels to Mr. K. Bruckerhoff, Assistant Manager, Protective Services. 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 10, 2010, the Emergency Preparedness inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency plan to Mr. K. Bruckerhoff, Assistant Manager, Protective Services, and other members of the licensee's 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 22, 2010, the inspectors presented the inspection results to Mr. G. Bradley, Acting Plant Director, 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.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a noncited violation.

- Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established to assure that applicable regulatory requirements and the design basis, for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, the licensee failed to adequately translate the design and licensing basis requirements of the Callaway high energy line break analysis into equipment specifications for valve FBV0146. Specifically, the licensee failed to provide adequate specifications or procedural guidance to maintain this valve in its required position and as such, valve FBV0146 was found open on December 15, 2009. Valve FBV0146 is required to be maintained closed to prevent subjecting safety related equipment to the harsh environments following a postulated high energy line break. Following discovery by the licensee that valve FBV0146 was out of the required position, the licensee closed the valve and implemented interim measure to maintain the valve closed. This finding was entered in the licensee's corrective action program as Callaway Action Requests 200910313. This finding is greater than minor because it was associated with the design control attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance because it was not a design or qualification deficiency resulting in a loss of operability or functionality, did not represent a loss of system safety function for greater than its Technical Specification allowed outage time, did not result in an actual loss of safety function of non-technical specification risk significant equipment for greater than 24 hours, and did not screen as risk significant due to a seismic, flooding, or severe weather initiating event.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

K. Bruckerhoff, Assistant Manager, Protective Services
M. Hall, Assistant Manager, Plant Engineering
L. Kanuckel, Manager, Plant Engineering
G. Kremer, Assistant Manager, Design Engineering
S. Maglio, Assistant Manager, Regulatory Affairs
S. Petzel, Engineer, Regulatory Affairs
A. Schnitz, Engineer, Regulatory Affairs

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000483/2010002-01	NCV	Failure to Follow Operability Determination Procedure (Section 1R15)
05000483/2010002-01	NCV	Failure to Ensure Suitable Replacement Parts Essential for the Operation of the Component Cooling Water System (Section 1R15)
05000483/2010002-01	NCV	Failure to Maintain an Adequate Ultimate Heat Sink Thermal Performance Analysis (Section 1R15)

Closed

05000483-2009-001-01	LER	Technical Specification Required Shutdown Due to Loss of Power Supply (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1RO1: Adverse Weather Protection

CALLAWAY ACTION REQUESTS

201000367 200908401

JOBS

09003021 09008083

Section 1RO4: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION / DATE
APA-ZZ-00395	Significant Operator Response Timing	12
ISF-EG-000L2	Component Cooling Water Surge Tank B Level Channel Op Test	19
OTO-ZZ-00008	Steam/Feedwater Line Break	7

DRAWINGS

NUMBER	TITLE	REVISION / DATE
2-BN01-C009/123(Q)	Borated Refueling Water Storage System Auxiliary Building	1
C-2C2414(Q)	Reactor Building Concrete Neat Line and Reinforcing Plan Refueling Pool	0
C-2C905(Q)	Reactor Building Concrete Neat Line and Reinforcing Reactor Cavity and Instrument Tunnel	0
C-2S919(Q)	Reactor Building Incore Instrumentation Tube Supports and Platforms	2
E-23 BB03(Q)	Schematic Diagram Reactor Coolant Pump Thermal Barrier Component Cooling Water Isolation Valves	5
E-23BB03(Q)	Schematic Diagram Reactor Coolant Pump Thermal Barrier Component Cooling Water Isolation Valves	10
M-22BN01(Q)	Piping and Instrumentation Diagram Borated Refueling Water Storage System	25

CALLAWAY ACTION REQUESTS

200703182	200803354	200810299	200908796	201000543

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
Calculation EG-5	Calculate the NPSH Available to the Component Cooling Water Pumps	0
Calculation EG-5, Addendum 1	Calculate the NPSH Available to the Component Cooling Water Pumps under Elevated Post LOCA Temperature Conditions	0
Calculation M-EG-05, Addendum 2	Calculate the NPSH Available to the Component Cooling Water Pumps with the Surge Tank Empty	0
Calculation EG-32	Calculate the Volume Contained in the Component Cooling Water Surge Tanks	0
Calculation M-FL-018, Addendum 6	Containment Flooding Calculation post-LBLOCA and post-MSLB	1
Calculation TDI-6002-06	Total Head Loss – Wolf Creek/Callaway	1
SP09-25	Nuclear Oversight Surveillance Report SP09-25	December 14, 2009

Section 1RO5: Fire Protection

DRAWINGS

NUMBER	TITLE	REVISION / DATE
O-EJ02-C008/131(Q)	Residual Heat Removal System Auxiliary Building Train B	4
M-25BG15(Q)	Hanger Location Drawing CVCS-Boric Acid Transfer Pump A and Boric Acid Filter – Auxiliary Building	11

CALLAWAY ACTION REQUESTS

201000533

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

NUMBER	TITLE	REVISION / DATE
OTG-ZZ-00006, Addendum 10	Pressurizer Solid Operation – IPTE	9
OTO-BB-00003	Reactor Coolant System Excessive Leakage	17
OTO-EJ-00002	Loss of Residual Heat Removal due to Heavy Load Drop in Containment	9

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION / DATE
MPE-MD-NN001	ABB Power Circuit Breaker 18 Month PM Procedure	7

DRAWINGS

NUMBER	TITLE	REVISION / DATE
E-23BG37	Schematic Diagram Normal Charging Pump	9

CALLAWAY ACTION REQUESTS

200810719 200900168 200902372 200909455 200909684

201001712

JOBS

06522546 07514351 07514452

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION / DATE
PRAER 03-197	Safety Monitor Action Thresholds	2
PRAER 10-342	Risk Evaluation for Safeguard Transformer A, XMDV22 Forecast to be Out of Service for Greater than 7 Days.	0

CALLAWAY ACTION REQUESTS

201001515 201001756

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION / DATE
APA-ZZ-0500, Appendix 1	Operability Determinations	9
ESP-EF-0002B	Essential Service Water System Flow Balance Train B	13
ESP-EF-0002A	Essential Service Water System Flow Balance Train A	10
ETP-EG-00004	Thermal Performance Test of the B Component Cooling Water Heat Exchanger	0
OSP-EF-P001B	Essential Service Water Train B Inservice Test	60

DRAWINGS

NUMBER	TITLE	REVISION / DATE
1-75-06-32672A2	76” Gaskets 2 Pass	1
10466-M-072(Q)	Heat Exchanger Data Sheet SNUPPS Component Cooling Water Heat Exchangers	5
E-23KJ03A	Schematic Diagram Diesel Generator KJ01B Engine Control (Start/StopCircuit)	13
E-23NE13	Schematic Diagram Diesel Generator KJ01B Exciter/Voltage Control	10
MS-2	Piping Class Sheet Class HCB	72
MS-2	Piping Class Sheet Class HCD	81
M-072-00001	Setting Plan for Component Cooling Water Heat Exchangers 76” I.D. 37”-0” Tube Length	17
M-072-00024	Instruction Manual for Component Cooling Water Heat Exchangers for the SNUPPS Project	6
M-22BN01(Q)	Piping and Instrumentation Diagram Borated Refueling Water Storage System	25
M-22FB02	Piping and Instrumentation Diagram Auxiliary Steam System	13
M-23FB05	Piping Isometric Auxiliary Steam System Supply Auxiliary Building	1
M-25AL01	Hanger Location Drawing. Auxiliary Feedwater Pumps	17, 20
M-25BN01(Q)	Hanger Location Drawing Borated Refueling Water Storage System Auxiliary Building	14
M-25EC03	Hanger Location Drawing Fuel Pool Cooling and Clean-Up System Auxiliary and Fuel Buildings	0

CALLAWAY ACTION REQUESTS

200400872	200810719	201000525	200812008	200910313

201001152	201001159	RFR 19048	200811077	200901391
201001054	RFR 17402A	200704197	200508419	200207373
200102332	200101957	200101956		

JOBS

07503944	09511706	09512810	09513874	201001813
W214781	05514463	05516379	05516708	07009621
07503944	07506014	07506067	09001817	09007674

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
0901166.402	Component Cooling Water Heat Exchanger Design Report Addendum	0
BN-TOP-2	Design for Pipe Break Effects	2
CALC ARC-197	Pipe Stress Evaluation for the AL System	0
Calculation EG-52	Determination of Divider Plate Bypass Flow for the Component Cooling Water Heat Exchangers	0
Calculation EG-54	Ultimate Heat Sink Thermal Performance Analysis	3
Calculation 08-176	Thermal Performance Test Data Evaluation and Uncertainty Analysis for CCW Heat Exchangers EEG01A and EEG01B	A
M-PB-01	Total Pipe Break Summary	1
NRC letter	NRC/SNUPPS Safe Shutdown Analysis Appeal Meeting Notes	August 17, 1984
POD 200810719	Prompt Operability Determination for Observed Component Cooling Water A/B Heat Exchanger Divider Plate Gaps dated October 27, 2008	0
POD 200810719	Prompt Operability Determination for observed Component Cooling Water A/B Heat Exchanger Divider plate Gaps dated November 20, 2008	1

POD 201001152	Prompt Operability Determination for Component Cooling Water B Heat Exchanger Divider Plate Leakage dated February 11, 2010	00
POD 201001152	Prompt Operability Determination for Component Cooling Water B Heat Exchanger Divider Plate Leakage dated February 13, 2010	1
POD 201001152	Prompt Operability Determination for Component Cooling Water B Heat Exchanger Divider Plate Leakage dated February 26, 2010	2
POD 201001579	Prompt Operability Determination for Observed 84.76 mV RMS ripple on ESFAS Power Supply 8N26-1 15 VDC PS2	0
Report R3-764-9	Qualification Test Report ITT Barton Model 764 Differential Pressure Electronic Transmitter	October 5, 1982

SOS 97-1298

Section 1R18: Plant Modifications

PROCEDURES

NUMBER	TITLE	REVISION / DATE
APA-ZZ-00605	Temporary system modifications	25
ISF-SE-00N41	Power Range N41 COT	24
OSP-SE-00004	NIS Power Range Heat Balance	33
OSP-ZZ-00001	Control Room Shift and Daily Log Readings and Channel Checks	70

DRAWINGS

NUMBER	TITLE	REVISION / DATE
M22-KH-01	Piping and Instrumentation Diagram Service Gas System	27

JOBS

09508906

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
TM 10-0001	N2 Cover Gas for Condensate Pump C Suction Expansion Joint	January 7, 2010

Section 1R19: Postmaintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION / DATE
OSP-AL-P0002	Turbine-Driven Auxiliary Feedwater Pump Inservice Test - Group B	60
OSP-AL-V001C	Turbine-Driven Auxiliary Feedwater Valve Inservice Test	40
OSP-EJ-P001A	Residual Heat Removal Pump A Inservice Test	48
OSP-NE-0001B, Attachment 1	Diesel Generator B Rocker Arm Lubrication	40
OSP-SB-0001A	Reactor Trip Breaker A Trip Actuating Device Operational Test	16

DRAWINGS

NUMBER	TITLE	REVISION / DATE
E-23KJ03A(Q)	Schematic Diagram Diesel Generator KKJ01B Engine Control (Start/Stop) Circuit	13
E-23NE13(Q)	Schematic Diagram Diesel Generator KKJ01B Exciter/Voltage Control	10
E-23NE11(Q)	Schematic Diagram 4.16KV DG NE02 Feeder Breaker 152NB0211	10

E-23KJ04(Q)	Schematic Diagram Diesel Generator KKJ01B Annunciator and Miscellaneous Circuits	12
E-23KJ03B(Q)	Schematic Diagram Diesel Generator KKJ01B Engine Control (D/G Trips)	4

CALLAWAY ACTION REQUESTS

200002107

JOBS

09510959 10000742 09513440 10001748

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION / DATE
ESP-GK-03003	FGK02A Charcoal Test Canister Removal and Lab Testing	18
ESP-ZZ-00010	At-power Moderator Temperature Coefficient Measurement	20
OSP-AL-P001A	Motor-Driven Auxiliary Feedwater Pump A Inservice Test – Group A	53
OSP-AL-P0002	Turbine-Driven Auxiliary Feedwater Pump Inservice Test – Group B	60
OSP-EF-P001A	Essential Service Water Train A Inservice Test	62
OSP-NE-00001B	Standby Diesel Generator B Periodic Tests	38

JOBS

08508083 08501770 09512051

Section 1EP6: Drill Evaluation

CALLAWAY ACTION REQUESTS

201002504 201002505

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
	Team 1 Drill, IC Set 74: Essential Service Water Flooding Plus Steam Generator Tube Rupture	March 24, 2010

4OA1: Performance Indicator Verification

PROCEDURES

NUMBER	TITLE	REVISION / DATE
APA-ZZ-00500	Mitigating Systems Performance Index (MSPI)	2
ODP-ZZ-00029	RCS Leakage Action Level Guideline	0

CALLAWAY ACTION REQUESTS

200903505

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	5

Section 4OA2: Identification and Resolution of Problems

PROCEDURES

NUMBER	TITLE	REVISION / DATE
QCP-ZZ-05042	Visual Examination to ASME VT-3	17

DRAWINGS

NUMBER	TITLE	REVISION / DATE
E-003.2-00019	BBM1295-01 Power Transformer, Class OA/FA/FOA	8
10466-E-003.2-018-01	BBM1295-02 Power Transformer, Class OA/FA/FOA	0
M-25EF01(Q)	Hanger Location Drawing Essential Service Water Control Building A & B Trains	13

CALLAWAY ACTION REQUESTS

200101956	200809886	200810719	200906268	200910153
200910270	200910368	200910560	201000362	200905336
200909304	201000527	201001370	201001467	201001504
201001515	201001653			

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
Event Notification Worksheet 45715	Loss of Switchyard	