



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-4125

July 28, 2009

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 5000483/2009003

Dear Mr. Heflin:

On June 23, 2009, 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 June 22, 2009, with you 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 and one self-revealing violations of very low safety significance (Green). All four of these findings were determined to involve violations of NRC requirements. Additionally, two licensee-identified violations, which were determined to be of very low safety significance, are 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/

Vincent G. Gaddy, Chief
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Division of Reactor Projects

Docket: 50-483
License: NPF-30

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w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000483
License: NPF-30
Report: 05000483/2009003
Licensee: Union Electric Company
Facility: Callaway Plant
Location: Junction Highway CC and Highway O
Dates: March 25 through June 23, 2009
Inspectors: D. Dumbacher, Senior Resident Inspector
J. Groom, Resident Inspector
P. Elkmann, Senior Inspector, Emergency Preparedness
D. Stearns, Health Physicist, Plant Support Branch 2
Approved By: V. Gaddy, Chief, Project Branch B
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000483/2009003; 3/25-6/23/2009, Integrated Resident and Regional Report; Maintenance Risk Assessments and Emergent Work Control and Access Control to Radiologically Significant Areas.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional based inspectors. Four 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

- SLIV. The inspectors identified a noncited violation of 10 CFR 50.9, "Completeness and Accuracy of Information," when AmerenUE failed to submit complete and accurate quantification of risk contributors associated with a license amendment supporting a modification to replace the underground portion of the essential service water system Train B piping with high density polyethylene pipe. The inspectors questioned the risk impact of a possible control room fire which led to the discovery that the licensee had not followed their process for screening out fire areas. The licensee entered this item into their corrective action program as Callaway Action Request 200902810 and also submitted an update to License Amendment 191 to correctly account for the control room fire risk.

This finding affects the Mitigating Systems cornerstone and is greater than minor because the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations in order to perform its regulatory function. Consistent with the guidance in Section IV.A.3 and Supplement VII, Paragraph D.1 of the NRC Enforcement Policy, this finding was determined to be a Severity Level IV noncited violation. This finding has no crosscutting aspect because the licensee's failure to thoroughly review and submit the risk for control room fires was not part of a corrective action process, but instead an oversight by the licensing review process (Section 1R13).

- Green. The inspectors identified a noncited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," associated with the licensee's failure to adequately assess and manage risk associated with crane work over the essential service water system Train A. On March 31, 2009, the licensee performed work in the vicinity of the protected essential service water system train consisting of jack-hammering of the backfill material and movement of 1800 pound sand bags over the protected train piping. The resident inspectors observed these activities and noted that crane loads were suspended over safe shutdown equipment and questioned if adequate protection was provided for the protected train of essential service water.

Interviews with the crane operator determined that the lift was not performed in accordance with the requirements on an engineering judgment memo that limited the lift height to 2 feet. The 2-foot height requirement was exceeded because the engineering analysis was not translated into the work instructions for the crane operator. Subsequent analysis by the licensee determined that the sand bags were lifted to a height of approximately 12 feet above the exposed protected train piping but that a postulated load drop from that height would not impact the protected essential service water train.

This finding was determined to be more than minor because it is similar to Example 7.g of Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that key safety functions were significantly degraded without sufficient compensation. Specifically, the licensee failed to implement the prescribed significant compensatory measures associated with crane work in the vicinity of safe shutdown equipment. This finding had a crosscutting aspect in the area of human performance associated with the work controls component because the licensee failed to include appropriate risk insights in planned work activities. The licensee entered this item into their corrective action program as Callaway Action Request 200902726 [H.3(a)](Section 1R13).

- Green. The inspectors identified a noncited violation of 10 CFR 50.65(a)(4) associated with the licensee's failure to perform an adequate risk assessment for planned maintenance on the emergency diesel generator Train A and essential service water pump Train A. On April 28, 2009, Callaway Plant operators removed the emergency diesel generator Train A and essential service water pump Train A from service. The inspectors' review of the plant risk profile for the in-progress maintenance activity uncovered that this risk had not been accounted for by the plant safety monitor tool. The licensee entered this item into their corrective action program as Callaway Action Request 200903480

The finding is more than minor because the risk, when correctly assessed, put the plant into a higher risk category for large early release frequency. Also the licensee risk assessment failed to consider risk significant systems, structures, and components and support systems that were unavailable during the maintenance. This finding had a crosscutting aspect in the area of human performance associated with the work controls component because the licensee failed to appropriately plan work activities consistent with nuclear safety by incorporating risk insights [H.3(a)](Section 1R13).

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing, noncited violation of Technical Specification 5.4.1.a, which resulted from a failure to comply with radiation work permit instructions. Specifically, on November 2, 2008, during a change out of the chemical and volume control system reactor coolant Filter FBG06, the technicians failed to follow radiation work permit instructions that required notification of the ALARA specialist if the vent port radiation monitor reading was greater than or equal to 1500 millirem per hour to determine if additional briefing requirements were needed. The licensee entered this item into their corrective action program as Callaway Action Request 200811469. As corrective action, the licensee has modified the briefing procedure and modified the radiation work

permits to include a requirement to notify radiation protection supervision to evaluate dose rate readings of the vent port and filter housing. Other corrective actions are being evaluated.

Failure to comply with radiation work permit requirements is a performance deficiency. The finding is greater than minor because it is associated with the cornerstone attribute of exposure control and affected the cornerstone objective, in that, the failure to follow radiation work permit requirements increases the potential for increased dose. The finding involved workers' unplanned, unintended doses or potential of such a dose (resulting from actions or conditions contrary to the radiation work permit). Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding to have very low safety significance because (1) it was not associated with ALARA planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. Additionally, the finding had a crosscutting aspect in the area of human performance, work practices, because the licensee failed to communicate human error prevention techniques during the prejob briefing and ensure that all personnel understood limits stated in the radiation work permit. In addition, personnel proceeded with the filter change out even though radiation levels were significantly higher than anticipated [H.4(a)](Section 2OS1).

B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers (Callaway Action Requests) are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

AmerenUE operated the Callaway Plant near 100 percent until April 12, 2009, when the secondary plant was shut down and reactor power reduced to approximately 9 percent due to the main turbine control Valve 1 failing closed. The secondary plant restarted on April 14, and returned to near 100 percent power on April 16. On June 6, the secondary plant power was reduced to 20 percent to effect repairs to main feedwater Pump A and a steam leak on the moisture separator reheater system. Power was returned to near 100 percent on June 7. The plant was maintained at full 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)

.1 Summer Readiness for Offsite and Alternate AC Power

a. Inspection Scope

The inspectors performed a review of the licensee's preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator and the plant to verify that the appropriate information was being exchanged when issues arose that could affect the offsite power system. Specifically the procedures were verified to ensure they specified:

- Required actions needed when notified by the transmission system operator that posttrip voltage of the offsite power system would not be acceptable to assure the continued operation of safety-related loads without transferring to the onsite power supply
- Compensatory actions needed when it is not possible to predict the posttrip voltage at the nuclear power plant for current grid conditions
- Required assessment of plant risk based on maintenance activities which could affect grid reliability or the ability of the transmission system to provide the offsite power system
- Required communications between the nuclear power plant and the transmission system operator when changes at the nuclear power plant could impact the transmission system or when the capability of the transmission system to provide adequate offsite system power is challenged

On June 16, 2009, the inspectors evaluated the licensee staff's preparations for summer readiness of offsite and ac power systems against the site's procedures and determined that the staff's actions were adequate. Documents reviewed are listed in the attachment.

These activities constitute completion of one readiness for summer weather affect 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 licensee's adverse weather procedures for seasonal extremes on June 16, 2009 (e.g., extreme high 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 licensee's procedures used 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 systems:

- The emergency diesel ventilation and ultimate heat sink systems which are risk-significant systems susceptible to summer weather conditions systems were reviewed as part of this inspection. Additionally the inspectors interviewed the licensee's unit reliability staff to assess actions to address summertime temperatures.

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.

.3 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

Since thunderstorms with potential tornados and high winds were forecast in the vicinity of the facility for June 15 and 16, 2009, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. On June 15, the inspectors

walked down the ultimate heat sink and security related systems because their safety-related and nonsafety-related functions could be affected or required as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. 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. The inspectors also reviewed a sample of corrective action program items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the 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 of significance were identified.

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- April 1, 2009, Auxiliary feedwater system Train A, while essential service water Train B was out of service
- May 12, 2009, Containment spray system Train B, following maintenance
- June 12, 2009, Ultimate heat sink system Train A, during Procedure OSP-SA-0017B actuating both trains of essential service water and ultimate heat sink using manual operator action to direct the essential service water flow over the cooling tower fill material.

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 walked down 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 three partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

On March 25, 2009, the inspectors performed a complete system alignment inspection of the nitrogen system supplying both the atmospheric steam dumps and the turbine-driven auxiliary feedwater pump discharge valves to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample 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:

- March 31, 2009, Fire Area C-1, control building Rooms 3101 and 3104 during work on the essential service water supply and return piping
- April 2, 2009, Fire Area A-1, Room 1115, normal charging pump room
- April 2, 2009, Fire Area A-1, Room 1204, 1988 pipe chase
- April 7, 2009, Fire Area A-28, Room 1413, auxiliary shutdown panel
- May 7, 2009, Fire Area C-9, Room 3301, engineered safety features switchgear room
- June 1, 2009, Fire Area RW-1, radwaste building

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. 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 six quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

On June 11, 2009, the inspectors reviewed the licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the containment cooler heat exchangers. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, "Heat Exchanger Performance Monitoring Guidelines;" the licensee properly utilized biofouling controls; the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one heat sink inspection sample as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On May 14, 2009, (Scenario DS-15) and June 1, 2009, (Scenario DS-37) the inspectors observed two different crews of licensed operators in the plant's simulator 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 two licensed-operator requalification program samples 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:

- June 10, 2009, 48 and 15 volt power supplies to balance of plant engineered safety features actuation system and load shedding/emergency load sequencing logic circuits

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 one quarterly maintenance effectiveness sample 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:

- March 31, 2009, Essential service water Train B high density polyethylene tie-in
- April 2, 2009, Risk associated with crane work above protected essential service water Train A
- April 2, 2009, Risk associated with control room fire input to License Amendment 191
- April 6, 2009, The risk assessment, calculated for the essential service water Train A modification, was not properly translated to the licensee safety monitor large early release frequency
- April 9, 2009, Residual heat removal Train B and containment spray room coolers were unavailable due to maintenance
- April 28, 2009, Risk associated with planned tagout of emergency diesel generator Train A and essential service water Train A

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

- .1 Introduction. The inspectors identified a Severity Level IV, noncited violation of 10 CFR 50.9, "Completeness and Accuracy of Information" when AmerenUE failed to submit complete and accurate quantification of risk contributors associated with the planned essential service water modification license amendment. The licensee had incorrectly screened out the risk associated with main control room fires during NRC requests for additional information to support reviews that led to License Amendment 191.

Description. By letter dated December 1, 2008, AmerenUE submitted a license amendment application that resulted in License Amendment 191 "Callaway Plant, Unit 1 – Issuance of Amendment Re: One-Time Extension of Completion Time for Train B of the Essential Service Water System Piping Replacement and Alternating Current (AC) Sources (TAC No. ME0210)." This NRC license amendment extended the completion time for Technical Specifications 3.7.8, Condition A, and 3.8.1, Condition B, from 72 hours to 14 days. The modification was to replace the underground portion of the essential service water system Train B piping with high density polyethylene pipe. This work commenced on March 31, 2009. On April 2, the NRC resident inspectors questioned the risk impact of a possible control room fire since the available essential service water Train A was not, by design, protected against 'hot shorts' in the case of a fire. This led to the discovery that the licensee had not followed their submitted process to screen out only fire areas with preestablished fire frequencies less than 1.0 E-3/year. The licensee had established fire area frequencies in the Callaway specific Individual Plant Examination of External Events which had been generated in response to NRC Generic Letter 88-20 "Individual Plant Examination for Severe Accident Vulnerabilities - 10 CFR 50.54 (f)." The fire frequency for control room fires was greater than 1.0 E-3/year. Some of the risk significant fire areas identified in the amendment request required additional risk management measures such as increased fire watches as commitments to support approval of License Amendment 191. The NRC determined that the additional risk would have been acceptable and License Amendment 191 would still have been issued, but only after additional reviews and possible inclusion of additional risk management actions. The licensee calculated that, adding the control room fire risk to the overall risk when lengthening the modification, technical specification completion time would have increased the change in plant risk (Δ CDF) from 9.45 E-06/year to 9.92 E-06/year.

Analysis. The performance deficiency associated with this finding involved the licensee's failure to submit complete and accurate quantification of the associated change in plant risk to support License Amendment 191 request. This finding affects the Mitigating Systems cornerstone and is greater than minor because the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations in order to perform its regulatory function. Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated with the traditional enforcement process. Consistent with the guidance in Section IV.A.3 and Supplement VII, Paragraph D.1, of the NRC Enforcement Policy, this finding was determined to be a Severity Level IV noncited violation. This finding has no crosscutting

aspect because the licensee's failure to thoroughly review and submit the risk for control room fires was not part of a corrective action process, but instead, an oversight by the licensing review process.

Enforcement. Title 10 of the Code of Federal Regulations 50.9(a) requires, in part, that information provided to the NRC by a licensee for a license condition to be maintained by the licensee shall be complete and accurate in all material respects. Contrary to the above, AmerenUE failed to submit a complete and accurate license amendment request to support the NRC's approval process for License Amendment 191. This is a Severity Level IV noncited violation consistent with Supplement VII, Paragraph D.1, of the NRC Enforcement Policy. Because this finding is of very low safety significance and has been entered into the corrective action program as Callaway Action Request 200902810, this violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000483/2009003-01, "Failure to Submit Complete and Accurate Risk Information for a Requested License Amendment."

- .2 Introduction. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because the licensee failed to adequately assess and manage risk associated with crane work over essential service water Train A.

Description. On March 30, 2009, Callaway Plant began a one-time 14 day Technical Specification Limiting Condition for Operation for essential service water system Train B to allow for installation of underground high density polyethylene piping. During the installation project, the licensee implemented a risk management action to protect operable essential service water Train A. On March 31, the licensee performed work in the vicinity of the protected essential service water system train consisting of jackhammering of the backfill material and movement of 1800 pound sand bags over the protected train piping. The inspectors observed these activities and noted that crane loads were suspended over safe shutdown equipment. The inspectors questioned if adequate protection was provided for the protected train of essential service water. Specifically, the inspectors questioned if the effects of a potential load drop had been analyzed since essential service water Train A was the only available safe shutdown train.

The lifting and placement of the sandbags was conducted in accordance with Procedure APA-ZZ-00365, Addendum L, "Callaway Plant Lifting Operations." The procedure requires that when light loads (less than 2000 pounds) are lifted in the vicinity of protected safe shutdown equipment, an engineering judgment memo for rigging is required to be completed to assure the lift will not impact the equipment. The engineering judgment memo completed for the lift that occurred on March 31 was performed under Request for Resolution 200803779 and concluded that movement of sand bags was allowed provided that the bottom of the load not be lifted to a height exceeding 2 feet while traversing over exposed essential service water piping. The inspectors questioned whether lifts performed on March 31 met the requirements specified in the engineering judgment memo. The licensee interviewed the crane operator and discovered that the load lifts performed did not conform to the requirements specified in the engineering judgment memo in that they exceeded the 2-foot maximum lift requirement. The licensee determined that the lifts were not conducted in accordance with station procedures since the requirements of the engineering judgment memo were not translated into work documents.

The licensee performed Calculation XX-114, "Load Drop Analysis for Essential Service Water Underground Piping," to determine the impact on the equipment from a postulated load drop. That calculation concluded that, if an 1800 pound suspended sandbag was dropped directly onto the protected essential service water train, the equipment would still be available to perform its intended safety function.

Analysis. The inspectors determined that the licensee's failure to adequately assess and manage risk associated with crane work over safety related equipment was a performance deficiency. This finding was determined to be more than minor because it is similar to Example 7.g of Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that key safety functions were significantly degraded without sufficient compensation. Specifically, the licensee failed to implement the prescribed significant compensatory measures associated with crane work in the vicinity of safe shutdown equipment. This finding was associated with the Mitigating Systems cornerstone attribute of human performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was evaluated in accordance with Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Management Significance Determination Process," and determined to be of very low safety significance (Green), using Flowchart 1. This determination was based on incremental core damage probability deficit of less than 1 E-6 for the given condition since subsequent analysis revealed that a postulated load drop would not adversely impact the protected train of essential service water. This finding had a crosscutting aspect in the area of human performance associated with the work controls component because the licensee failed to include appropriate risk insights in planned work activities. Specifically, the engineering judgment memo lift requirements for lifting over the operable safe shutdown train were not translated into work documents [H.3(a)].

Enforcement. Title 10 of the Code of Federal Regulations Part 50.65(a)(4), requires, in part, that licensees assess and manage the increase in risk that may result from proposed maintenance activities. Contrary to the above, on March 31, 2009, the licensee failed to adequately assess and manage the increased risk associated with crane work in the vicinity of operable safe shutdown equipment as specified in the engineering judgment memo associated with Request For Resolution 200803779. Because this issue was of very low safety significance and was entered into the corrective action program as Callaway Action Request 200902726, this violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000483/2009003-02, "Inadequate Controls of Crane Work Above the Protected Train of Essential Service Water."

- .3 Introduction. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," associated with the licensee's failure to perform an adequate risk assessment for planned maintenance on the emergency diesel generator Train A and essential service water pump Train A.

Description. On April 28, 2009, Callaway Plant operators removed the emergency diesel generator Train A and essential service water pump Train A from service for a planned outage scheduled for a 43-hour duration. The licensee assessed the risk for this maintenance activity using the SAFEMON computer program. The inspectors' review of the plant risk profile for the in-progress maintenance activity questioned whether the

licensee fault trees addressed the unavailable cooling to emergency core cooling Train A equipment. The licensee's review discovered that this risk had not been accounted for since the functional equipment group EFA and four others were inappropriately removed from the equipment out of service log used by the safety monitor. The work planning input to the equipment out-of-service log locations list window detail tab had been changed by operations department causing an underestimated risk on the April 28 SAFEMON risk assessment.

Reanalysis following discovery of the data omissions revealed that incremental core damage probability would have increased $7.9 \text{ E-}7$ and large early release probability would have increased approximately $2.9 \text{ E-}8$. The licensee uses core damage frequency and large early release frequency to determine risk action levels. The additional risk would have maintained the core damage frequency in the yellow risk action level. However, the change in risk affecting large early release frequency would have changed from a green status to yellow. This was consistent with the yellow large early release frequency calculated by the schedulers in the original planning of the work week. No additional risk management actions were necessary due to the increase in the core damage frequency or large early release frequency values.

Analysis. The licensee's failure to perform an adequate risk assessment of in-progress maintenance, on essential service water Train A and the emergency diesel generator Train A, constitutes a performance deficiency and a finding. The finding is more than minor because the risk assessment, when correctly assessed, put the plant into a higher risk category for large early release frequency. Also, per Manual Chapter 0612, "Issue Screening," Appendix B, Section 3, Item 5(a), the licensee risk assessment failed to consider risk significant systems, structures, and components and support systems that were unavailable during the maintenance. The finding was evaluated in accordance with Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Management Significance Determination Process," and determined to be of very low safety significance (Green), using Flowchart 1. This determination was based on the licensee's incremental core damage probability deficit of less than $1 \text{ E-}6$ for the given condition of essential service water pump and emergency diesel generator out of service for 43 hours. This finding had a crosscutting aspect in the area of human performance associated with the work controls component because the licensee failed to appropriately plan work activities consistent with nuclear safety by incorporating risk insights. Specifically, the operators failed to ensure the correct input for the safety monitor to account for the unavailable essential service water Train A and emergency diesel generator Train A [H.3(a)].

Enforcement. Title 10 of the Code of Federal Regulations, Part 50.65(a)(4), requires, in part, that licensees assess and manage the increase in risk that may result from proposed maintenance activities. Contrary to the above, on April 28, 2009, the licensee failed to adequately assess and manage the increased risk of maintenance on the essential service water system Train A and emergency diesel generator Train A. Because this issue was of very low safety significance and was entered into the corrective action program as Callaway Action Request 200903480, this violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000483/2009003-03, "Inadequate, At Power, Risk Assessment for Maintenance Activities on One Train of Essential Service Water and Emergency Diesel Generator."

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- March 31, 2009, Door SGK04A , Emergency exhaust system, Callaway Action Request 200902667
- April 2, 2009, Essential service water system pipe thinning, Callaway Action Request 200902667
- May 13, 2009, Thermography results indicated increased fouling of the containment coolers Train B, Callaway Action Request 200903864
- May 28, 2009, Emergency Diesel generator Smith Blair couplings, Callaway Action Request 200904273
- June 11, 2009, Residual heat exchanger Train A room scaffolding impact, Callaway Action Request 200904299

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

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following temporary/permanent modifications to verify that the safety functions of important safety systems were not degraded:

- April 1, 2009, Temporary Modification 08-0004, aligning temporary diesels to safeguards transformer Train A
- May 28, 2009, Temporary Modification 09-0004, for encapsulation of steam leak associated with flow element on moisture separator reheater

The inspectors reviewed the temporary modification 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 modification 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:

- April 6, 2009, Postmaintenance test of weld overlays for essential service water Train B supply pipe wall thinning, Job 09002360
- April 6, 2009, Postmaintenance test of emergency diesel generator Train B, Job 08004924
- April 8, 2009, Essential service water Train B pump replacement, Job 07512173
- April 27, 2009, Postmaintenance test of load shed emergency load sequencer power Supply NF039A, Job 09502410

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 four 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 six 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.

- May 5, 2009, EGHV0102 Component cooling water Train B to residual heat removal heat exchanger inservice test/valve stroke using the MOVATS testing method
- May 6, 2009, Reactor coolant system leakage surveillance per Procedure OSP-BB-0009, "RCS Inventory Balance"
- May 13, 2009, Monthly routine surveillance of the emergency diesel generator Train B
- May 26, 2009 , Routine surveillance per Procedure OSP-SA-0007A, "Train A AFAS Slave Relay Test"
- May 29, 2009, Job 09502541, Routine surveillance testing slave relays designed to auto start emergency diesels and charging pumps
- June 8, 2009, Routine surveillance per Procedure OTG-ZZ-0004, "Power Operations"

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

These activities constitute completion of six surveillance testing inspection samples 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

The inspectors performed an in-office review of the Callaway Plant Radiological Emergency Preparedness Plan, Revision 34, received April 6, 2009. This revision updated the Technical Support Center layout, updated emergency plan references to NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and updated plant titles throughout the document.

This revision was compared to its previous revision, to the criteria of NUREG-0654, and to the emergency preparedness planning 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 an approval of licensee-generated changes; therefore, this revision is subject to future inspection. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on April 22, 2009, 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 and Emergency Operating Facility 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.

.2 Training Observations

a. Inspection Scope

The inspectors observed simulator training evolutions for licensed operators on April 22, and June 17, 2009, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the

corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These simulator training activities constitute completion of two samples as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

Inspection Scope

This area was inspected to assess licensee personnel's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation packages reported by the licensee in the Occupational Radiation Safety Cornerstone
- Controls (surveys, posting, and barricades) of radiation, high radiation, or airborne radioactivity areas
- Radiation work permits (or radiation exposure permits), procedures, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Physical and programmatic controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools
- Self-assessments, audits, licensee event reports, and special reports related to the access control program since the last inspection
- Corrective action documents related to access controls
- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies

- Radiation work permit (or radiation exposure permit) briefings and worker instructions
- Adequacy of radiological controls, such as required surveys, radiation protection job coverage, and contamination control during job performance
- Dosimetry placement in high radiation work areas with significant dose rate gradients
- Changes in licensee procedural controls of high dose rate – high radiation areas and very high radiation areas
- Controls for special areas that have the potential to become very high radiation areas during certain plant operations
- Posting and locking of entrances to all accessible high dose rate – high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

Either because the conditions did not exist or an event had not occurred, no opportunities were available to review the following items:

- Barrier integrity and performance of engineering controls in airborne radioactivity areas
- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem committed effective dose equivalent

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

These activities constitute completion of 21 of the required 21 samples as defined in Inspection Procedure 71121.01-05.

b. Findings

Introduction. The inspectors reviewed a Green, self-revealing, noncited violation of Technical Specification 5.4.1.a, which resulted from a failure to comply with radiation work permit instructions.

Description. On November 2, 2008, a change of the chemical and volume control system reactor coolant Filter FBG06 was required due to high differential pressure. At approximately 10 p.m., the night shift radiation protection as low as reasonably achievable (ALARA) specialist conducted a prejob briefing with the auxiliary building radiation protection technician and the radwaste training operator assigned to the task. Electronic dosimeter alarms were set at 20 millirem dose and 2500 millirem per hour dose rate. This evolution was controlled using radiation work Permit 842020FILTER. The radiation work permit also included a statement to notify the ALARA specialist if the vent port radiation monitor reading is greater than or equal to 1500 millirem per hour to determine if additional briefing requirements are needed.

The filter change began at approximately 10:40 p.m. when operations department personnel isolated and drained the filter housing. A remote radiation monitor, installed near the vent port of the filter housing, indicated 6800 millirem per hour. In order to verify the remote monitor reading, the radwaste operator removed a shield plug allowing the radiation protection technician to obtain a reading on the outside of the filter housing. This reading was 940 Roentgens per hour. The radiation protection technician and the radwaste operator discussed the higher dose rates and decided the electronic dosimeter alarm setpoints were adequate and decided to continue the task. The ALARA specialist was not contacted prior to removal of the filter as required by the radiation work permit. As the filter was raised above the top of the filter room, the radwaste operator received a dose rate alarm. In order to place the job in a safe condition, the operator continued with the movement of the filter to the shielded drum for storage. After the drum lid was put in place by the radiation protection technician, as the radwaste operator passed by the drum to exit the area, his electronic dosimeter dose alarm was received. The radwaste operator exited the radiological controlled area at approximately 11:36 p.m. with a total dose of 21 millirem.

During a review of the electronic dosimeter alarms, it was noted that the requirement to notify the ALARA specialist if the vent port reading was greater than 1500 millirem per hour was not adequately communicated to the radiation protection technician and the radwaste operator during the prejob brief. The licensee convened a review team to evaluate the issue. As corrective action, the licensee has modified the briefing procedure and modified the radiation work permits to include a requirement to notify radiation protection supervision to evaluate dose rate readings of the vent port and filter housing. Other corrective actions were being evaluated.

Analysis. The failure to comply with radiation work permit requirements is a performance deficiency. The finding is greater than minor because it was associated with cornerstone attribute of exposure control and affected the cornerstone objective, in that, the failure to follow radiation work permit requirements increases the potential for increased dose. The finding involved workers' unplanned, unintended doses or potential of such a dose (resulting from actions or conditions contrary to the radiation work permit). Using the Occupational Radiation Safety Significance Determination Process, the inspector determined the finding to have very low safety significance because (1) it was not associated with ALARA planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. Additionally, the finding had a crosscutting aspect in the area of human performance, work practices, because the licensee failed to communicate human error prevention techniques during the prejob briefing and ensure that all personnel understood limits stated in the radiation work permit. In addition, personnel proceeded with the filter change out even though radiation levels were significantly higher than anticipated [H.4(a)].

Enforcement. Technical Specification 5.4.1a states, in part, "Written procedures shall be established, implemented, and maintained covering the procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Section 7.e.(1) of Regulatory Guide 1.33, "Quality Assurance Program Requirements," lists procedures for access control to radiation areas including a radiation work permit system. Radiation work Permit 842020FILTER included a requirement to notify the ALARA specialist if the vent port radiation reading is greater than or equal to 1500 millirem per hour to determine if additional briefing requirements are needed. Contrary to the above, on November 2,

2008, workers did not implement the requirements of the radiation work permit during the removal of the chemical and volume control system filter and did not contact the ALARA specialist when the vent port radiation reading exceeded 1500 millirem per hour. Because this failure to follow radiation work permit requirements is of very low safety significance and has been entered into the licensee's corrective action program as CAR 200811469, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000483/2009003-04, "Failure to Comply with Radiation Work Permit Requirements."

2OS2 ALARA Planning and Controls (71121.02)

Inspection Scope

The inspectors assessed licensee personnel's performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable. The inspectors used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed the following:

- Current 3-year rolling average collective exposure
- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Site-specific ALARA procedures
- Integration of ALARA requirements into work procedure and radiation work permit (or radiation exposure permit) documents
- Workers' use of the low dose waiting areas
- First-line job supervisors' contribution to ensuring work activities are conducted in a dose efficient manner
- Source-term control strategy or justifications for not pursuing such exposure reduction initiatives
- Specific sources identified by the licensee for exposure reduction actions, priorities established for these actions, and results achieved since the last refueling cycle
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Resolution through the corrective action process of problems identified through post-job reviews and post-outage ALARA report critiques
- Corrective action documents related to the ALARA program and follow-up activities, such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

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

These activities constitute completion of 5 of the required 15 samples and 7 of the optional samples as defined in Inspection Procedure 71121.02-05.

b. Findings

No findings of significance were identified.

OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the first 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 Safety System Functional Failures (MS05)

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance for the period from the first quarter 2008 through the first quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC integrated inspection reports for the time period 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. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one safety system functional failures sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index – High Pressure Injection Systems (MS07)

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index – High Pressure Injection Systems performance indicator for the period from the first quarter 2008 through the first quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. 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 March 2008 through March 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 high pressure injection system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Radiological Occurrences performance indicator for the period from October 1, 2008, to March 31, 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's assessment of the performance indicator for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's performance indicator data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review, and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

These activities constitute completion of the occupational radiological occurrences sample as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.5 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences performance indicator for the period from October 1, 2008, to March 31, 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates between October 1, 2008, to March 31, 2009, to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Additionally, the inspectors reviewed the licensee's historical 10 CFR 50.75(g) file and selectively reviewed the licensee's analysis for discharge pathways resulting from a spill, leak, or unexpected liquid discharge focusing on those incidents which occurred over the last few years.

These activities constitute completion of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

40A2 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 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of January 1, 2009, through June 23, 2009, although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and maintenance rule assessments. The inspectors compared and contrasted their results with the results contained in the

licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

The licensee did identify the following trends as noteworthy:

- Emergency action level identification/performance needs additional focus
- Secondary plant equipment failures have adversely impacted unit reliability
- Potential trend with NRC identified maintenance rule type violations

The resident inspectors concurred with these items as being the noteworthy trends needing additional corrective actions. Additionally the inspectors noted that control of fire impairments (Callaway Action Request 200902652) was noteworthy as an adverse trend item.

4. Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors provided additional focus for the following corrective action items:

- ASME code issue associated with use of 2-bolt verses 4-bolt flanged gaskets in the emergency diesel generator system (Callaway Action Request 200812985)
- Turbine-driven auxiliary feedwater pump trip throttle valve failure to open event on May 25, 2009. This resulted in the inspectors recommending this issue to regional management as a special inspection (Callaway Action Request 200904216). This issue is to be documented in detail in Inspection Report 05000483/2009009.
- Reactivity management in May 2009

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

b. Findings and Observations

No findings of significance were identified.

In 2004, the licensee performed a reactivity management self assessment and documented the results in Report SA04-OP-F01. Two of the attributes shortfalls of the report stated, in part, that a senior reactor operator does not provide proper oversight during reactivity manipulations by ensuring full attention is given to the proper setup and

operation of reactivity controls, and a dedicated reactivity senior reactor operator is not assigned to maintain dedicated oversight for reactivity manipulations involving lengthy evolutions. Although identified as attribute shortfalls by the assessment team, the report documented that the licensee would not correct the shortfalls because the station's expectations were being met with the reactivity management standards in place at that time.

In 2007, licensee personnel initiated several corrective action documents to address weaknesses in operator performance during plant shutdowns. In addition, the licensee initiated corrective action documents to address industry operating experience and industry initiatives on reactivity management. As a result of the issues identified in the corrective action documents, the licensee revised procedures to provide additional instructions to operators on plant shutdowns and specifically, control of the plant during low power operations following a unit downpower. The licensee also established the dedicated senior reactor operator to serve as a reactivity monitor during power changes until stable power is achieved. In addition, the licensee developed reactivity management plans for use by operators during power changes.

In 2009, the licensee performed a reactivity management self assessment and identified further actions to strengthen reactivity management performance. The issues the identified during the assessment were documented in the corrective action program. One item identified in the assessment was the need for additional barriers to ensure a conservative decision making process is used when recommending operation of the plant at lower power levels for an extended period of time and that such evolutions should be discouraged.

40A3 Event Follow-up (71153)

(Closed) LER 05000483/2009001-00, Technical Specification Required Shutdown Due to Loss of Power Supply

At 2:28 p.m. 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 p.m. and Mode 3 was reached at 8:17 p.m. on February 19, 2009. The power supply was replaced and the system was restored to operable at 10:09 p.m. on February 19, 2009.

The inspectors reviewed the licensee's extent of condition review for similar power supply failures which identified a population of 14 power supplies in the balance of plant engineered safety features actuation system and load shedding and emergency load sequencing cabinets. Based on a review of the failure history of the applicable power supplies, the most common failure mechanism appears to have been failed or degraded capacitors. The capacitors have failed by opening, shorting, or leaking causing the output voltage to have increased ripple, lower voltage output, or no output.

The licensee determined the causes for this event include inadequate trending of condition monitoring data, no preventive maintenance strategy for critical power supplies, and previous corrective actions not being implemented. 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. This licensee-identified finding involved a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." The enforcement aspects of the violation are discussed in Section 4OA7 of this report. This LER is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with the Callaway Plant security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting Summary

On April 14, 2009, 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. The licensee acknowledged the issues presented.

On April 30, 2009, the health physics inspector presented the inspection results to Mr. S. Sandbothe, Manager, Regulatory Affairs, 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 June 22, 2009 the inspectors presented the inspection results to Mr. A. Heflin, Senior Vice President and Chief Nuclear Officer, and other members of the 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.

40A7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- Title 10 of the Code of Federal Regulations 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures be established to assure conditions adverse to quality are promptly identified and corrected. Contrary to the above, the licensee failed to implement adequate corrective actions for the identified adverse condition that load shedding emergency load sequencing and balance of plant engineered safety feature actuation system power supplies were failing prematurely due to aging. Failures in 1992, 2002, 2008, and most recently in 2009 resulted in recommendations for a preventative maintenance program upgrade to establish a frequency to changeout the power supplies. These recommendations were identified but not implemented. Immediate corrective actions were to prepare power supply change out packages until a modification could be completed.

This finding was entered in the licensee's corrective action program as Callaway Action Request 200903381. This finding is greater than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. 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 nontechnical 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.

- Section 20.1902(a) of Title 10 of the Code of Federal Regulations states, in part, that the licensee shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA." Contrary to the above, on October 27, 2008, during a walk down of the auxiliary building, the radiation area posting for room 1322 was found lying on the floor and was not conspicuously posted at the entrance to the room. Radiation levels within the room were as high as 30 millirem per hour. The violation was identified by a licensee individual who immediately notified the radiation protection department and the issue was corrected. This issue has been documented as Callaway Action Request 200811123. The finding was determined to be of very low safety significance because it did not involve ALARA planning and controls, did not involve an overexposure, did not have a substantial potential for overexposure, and did not result in an impaired ability to assess dose.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

G. Bradley, Manager, Operations
K. Bruckerhoff, Assistant Manager, Protective Services
T. Elwood, Supervising Engineer, Regulatory Affairs/Licensing
J. Geyer, Manager, Radiation Protection
K. Gilliam, Supervisor, Radiation Protection Operations
T. Hooper, Nuclear Test Engineer
G. Hurla, Supervisor, Radiation Protection Operations
J. Imhoff, System Engineer
B. Kelley, Supervisor, Radwaste Operations
S. Maglio, Assistant Manager, Regulatory Affairs
D. Martin, Supervising Engineer for Risk Assessment
K. Mills, Manager, Plant Engineering
B. Pae, System Engineer
S. Petzel, Engineer, Regulatory Affairs
J. Pitts, Supervising Engineer

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000483/2009003-01	NCV	Failure to Submit Complete and Accurate Risk Information for a Requested License Amendment (Section 1R13)
05000483/2009003-02	NCV	Inadequate Controls of Crane Work Above the Protected Train of Essential Service Water (Section 1R13)
05000483/2009003-03	NCV	Inadequate, At Power, Risk Assessment for Maintenance Activities on One Train of Essential Service Water and Emergency Diesel Generator (Section 1R13)
05000483/2009003-04	NCV	Failure to Comply with Radiation Work Permit Requirements (Section 2OS1)

Closed

05000483/2009001-00	LER	Technical Specification Required Shutdown Due to Loss of Power Supply (Section 4OA3)
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LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OSP-NE-0003	Technical Specification Action-AC Sources	21
OTO-ZZ-00012	Severe Weather	17
PDP-ZZ-00027	Summer Reliability Program	2

JOB

08511897

Section 1R04: Equipment Alignments

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MTE-ZZ-QA013	MOVATS UDS Testing of Torque Controlled Limatorque Motor Operated Rising Stem Valves	8
ARC-581, Addendum 1	Correction of Available Margin TKA02, TKA03, TKA04, TKA05 and TKA06	0
ARC-582	Backup Nitrogen Supply System Design Pressure Losses	0

CALLAWAY ACTION REQUEST

200812839

DRAWING

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-22EN01(Q)	Piping and Instrumentation Diagram Containment Spray System	15

JOB

07509787

Section 1R05: Fire Protection

CALLAWAY ACTION REQUEST

200902821

Section 1R07: Heat Sink Performance

CALLAWAY ACTION REQUESTS

200600012 200605143 200811581 200901600

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPRI	Heat Exchanger Performance Monitoring Guidelines, NP-7552	

Section 1R11: Licensed Operator Requalification Program

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
TDP-ZZ-00010	Operational Evaluations	18

CALLAWAY ACTION REQUESTS

200904734 200904743

Section 1R12: Maintenance Effectiveness

CALLAWAY ACTION REQUESTS

200701468	200705793	200801687	200809703	200901694
200703785	200707771	200804337	200810149	200902386
200705410	200711411	200809421	200810379	200904796
200705497	200711745			

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
APA-ZZ-00365	Callaway Plant Lifting and Rigging Program	18
APA-ZZ-00365 Addendum L	Callaway Plant Lifting Operations	6
APA-ZZ-0750	Hazard Barrier Program	16
OTO-ZZ-00001	Control Room Inaccessibility	31

CALLAWAY ACTION REQUESTS

200606525	200803779	200803781	200902663	200902812
200705918	200803781	200900121	200902726	200902812
200803779				

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E-21001(Q)	Main Single Line Diagram	14
E-23NB14(Q)	Schematic Diagram Class 1E Bus NB02 Feeder Breaker 152NB0209	5
E-23NB15(Q)	Schematic Diagram Class 1E Bus NB02 Feeder Breaker 152NB0212	4

REQUESTS FOR RESOLUTION

200802993	200803779
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MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Calc. XX-114	Load Drop Analysis for ESW Underground Piping	0
PRAER 07-307	Additional Control Room Fire Risk Assessment of the ESW CT Extension	2

Section 1R15: Operability Evaluations

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EDP-ZZ-01121	Raw Water Systems Predictive Performance Program	14

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-U90111(Q)	Hanger Location Drawing Small Pipe ESWS Pumphouse	10
M-25EF01(Q)	Hanger Location DWG. Essential Service Water Control Building (A&B) Train	12

CALLAWAY ACTION REQUESTS

200902667 200903925

JOB

09002360

REQUESTS FOR RESOLUTION

003317B 006239D 008464C

ULTRASONIC THICKNESS REPORTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
5019-09-006	Component ID EF-031-HBC-30"	March 31, 2009
5019-09-009	Component ID EF-031-HCB-30"	April 1, 2009

Section 1R18: Plant Modifications

DRAWING

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-22AC02	Piping and Instrumentation Diagram Main Turbine	17

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ASME OM-S/G-1994	Requirements for Preoperational and Initial Start-Up Vibration Testing of Nuclear Power Plant Piping Systems	
TM 09-0004	Encapsulate ¾" Line Upstream of ACV0076	0

Section 1R19: Postmaintenance Testing

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-22EF01(Q)	Piping and Instrumentation Diagram Essential Service Water System	72
M-UC0211(Q)	UHS Cooling Tower Piping Plan and Sections	14

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
APA-ZZ-00662	ASME Section XI Repair/Replacement	18
APA-ZZ-00662 Appendix A	ASME Section XI Repair/Replacement Program Mandatory Requirements	3
APA-ZZ-00662 Appendix B	ASME Section XI Code Cases Applied to the Third Inspection Interval	3
EDP-ZZ-01111	Vibration Predictive Maintenance Program	13
OTS-EF-P001B	Performance Testing of Essential Service Water Pump B	5

JOBS

07004499.900 09002360.510

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MP 08-0046	Perform Weld Overlays on ESW Line EF-111-HBC	3

Section 1R22: Surveillance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OSP-BB-0009	Reactor Coolant System Inventory Balance	22

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OSP-SA-0017A	Train A SIS-CSAS Slave Relay Test	23
OSP-SA-0007A	Train A AFAS Slave Relay Test	21
OTG-ZZ-00004	Power Operation	75

JOBS

04503596 08509875 09002277 09502541

Section 1EP04: Emergency Action Level and Emergency Plan Changes

CALLAWAY ACTION REQUEST

200903342

Section 1EP06: Drill Evaluation

Drill 2009-002 scenario

Drill 2009-003 scenario

Section 2OS1: Access Controls to Radiologically Significant Areas

AUDIT

<u>NUMBER</u>	<u>TITLE</u>
AP09-003	Quality Assurance Audit of Radiation Protection

CALLAWAY ACTION REQUESTS

200811067	200811459	200811515	200812227	200900590
200811123	200811469	200811539	200812881	200900617
200811297	200811475	200811556	200900126	200901421
200811345	200811486	200811769	200900181	200901835
200811350	200811514			

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
HDP-ZZ-01500	Radiological Postings	31
HDP-ZZ-03000	Performing Radiation Surveys	4
HDP-ZZ-01300	Internal Dosimetry Program	25
HDP-ZZ-06001	High Radiation/Very High Radiation Area Access	36

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
HTP-ZZ-01203	Radiological Area Access Control	42
HTP-ZZ-06028	Radiological Controls for Pools That Contain or Store Spent Fuel	6
APA-ZZ-01000	Callaway Plant Radiation Protection Program	29
APA-ZZ-01106	Lock and Key Control	19

RADIATION WORK PERMITS

<u>NUMBER</u>	<u>TITLE</u>
08007781	Perform Engineering and Operations Walk Down of Containment
842020FILTER	Auxiliary Building Filter Changes
900101ABCOV	Radiation Protection Job Coverage Activities in the Auxiliary and Fuel Buildings
900301ROUTINE	Radwaste Technician Routine Activities

Section 2OS2: ALARA Planning and Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
APA-ZZ-01000	Callaway Plant Radiation Protection Program	29
HDP-ZZ-01101	Administrative Controls for Radiation Shielding	16
HDP-ZZ-01200	Radiation Work Permits	11
HDP-ZZ-08000	Respiratory Protection Program	21
HTP-ZZ-06009	Personnel Contamination Assessment and Decontamination	40
HTP-ZZ-08002	Respiratory Protection Issue and Use	35

Section 4OA1: Performance Indicator Verification

CALLAWAY ACTION REQUESTS

200800175 200802264 200810598 200810933

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RRA-ZZ-00001	NRC Performance Indicator Program	5

Section 4OA2: Identification and Resolution of Problems

CALLAWAY ACTION REQUESTS

200400676	200702606	200901501	200901609	200901738
200606980	200704820	200901502	200901620	200901741
200701278	200704911	200901568	200901622	200901748
200701944	200707507	200901570	200901655	200901757
200702597	200709951	200901592	200901724	200902652
200702601	200900238			

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OTN-BG-00002	Reactor Makeup Control and Boron Thermal Regeneration System	034
ODP-ZZ-00001	Operations Department – Code of Conduct	016, 049
ODP-ZZ-00001 Addendum 04	Operating Experience	001
APA-ZZ-01250	Operational Decision Making	004
APA-ZZ-01300	Reactivity Management Program	007
OTG-ZZ-00004	Power Operation	041
OTG-ZZ-00005	Plant Shutdown 20% Power to Hot Standby	018, 034
OTG-ZZ-00005 Addendum 01	Opening Reactor Trip Breakers in Mode 2 – IPTE	003
OTG-ZZ-00005 Addendum 02	Control Bank Insertion	000
OTG-ZZ-00005 Addendum 03	Maintaining Mode 1 with the Turbine Tripped	001
OTG-ZZ-00005 Addendum 04	Maintaining Mode 2 Following a Down Power – IPTE	002
EDP-ZZ-01129	Callaway Plant Risk Assessment	019
OTO-BG-00001	Loss of Letdown	004
OTO-NN-00001	Loss of Safety Related Instrument Power	006

MISCELLANEOUS DOCUMENTS

Simple Surveillance Report SP08-002
Simple Surveillance Report SP08-046
Quality Assurance Audit of Operations AP07-003
Quality Assurance Audit of Operations AP05-002
Quality Assurance Surveillance Report SP06-039
Simple Self Assessment Report SA07-OP-S06
Self Assessment Report SA04-OP-F01

Section 40A3: Event Follow-up

CALLAWAY ACTION REQUESTS

200802264 200812666