UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

August 13, 2013

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

SUBJECT: CALLAWAY PLANT - NRC INTEGRATED INSPECTION REPORT 05000483/2013003

Dear Mr. Heflin:

On June 30, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Callaway Plant. The enclosed inspection report documents the inspection results which were discussed on July 2, 2013, with Mr. C. Reasoner, Vice President Engineering, and other members of your staff. On August 6, 2013, a supplemental exit to present a revised cross-cutting aspect for one finding to Mr. L. Graessle, Senior Director, Operations Support, and other members of the licensee 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.

Two NRC-identified and two self-revealing findings of very low safety significance (Green) were identified during this inspection. All of these findings were determined to involve violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2a of the Enforcement Policy.

If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Callaway Plant.

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of

NRC's Agencywide Document Access and Management 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/

Neil O'Keefe, Branch Chief
Project Branch B
Division of Reactor Projects

Docket Nos.: 50-483
License Nos: NPF-30

Enclosure: Inspection Report 05000483/2013003
w/ Attachment 1: Supplemental Information
Attachment 2: Occupational Radiation Safety Inspection Request for Information

cc w/ encl: Electronic Distribution

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

SRI:DRP/B	RI:DRP/B	RI:DRP/B	C:DRS/EB1	C:DRS/EB2	C:DRS/OB
THartman	JDykert	PSmagacz	TFarnholtz	GMiller	VGaddy
/RA/E	Not Avail	/RA/E	/RA/	/RA/	/RA/
08/06/13		08/06/13	08/07/13	08/09/13	08/09/13
C:DRS/PSB1	AC:DRS/PSB2	C:DRS/TSB	BC:DRP/B		
MHaire	JDrake	RKellar	NOKeefe		
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000483
License:	NPF-30
Report:	05000483/2013003
Licensee:	Union Electric Company
Facility:	Callaway Plant
Location:	Junction Highway CC and Highway O Steedman, MO
Dates:	March 28 through June 30, 2013
Inspectors:	T. Hartman, Senior Resident Inspector J. Dykert, Acting Resident Inspector P. Smagacz, Acting Resident Inspector L. Carson, II, Senior Health Physicist N. Greene, Ph.D., Health Physicist J. Laughlin, Emergency Preparedness Inspector W. Sifre, Senior Reactor Inspector
Approved By:	Neil O'Keefe, Chief, Project Branch B Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000483/2013003; 03/28/2013-6/30/2013; Callaway Plant, Integrated Resident and Regional Report; Maintenance Effectiveness, Maintenance Risk Assessments and Emergent Work Control, Problem Identification and Resolution, and Followup of Events and Notices of Enforcement Discretion.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Four Green non-cited 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.” The cross-cutting aspect is determined using Inspection Manual Chapter 0310, “Components Within the Cross-Cutting Areas.” Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process,” Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specifications 5.4.1 and Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," involving the failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment. Specifically, the licensee failed to properly pre-plan and perform maintenance on the unit auxiliary transformer that contributed to a fire. During Refueling Outage 19, the unit auxiliary transformer was providing power to non-safety house loads and train B battery chargers when it experienced a phase to phase short and fire in the surge capacitor. The fire and loss of power affected the performance of safety-related batteries and battery chargers, and led to manual actuations of the reactor protection system. This issue was entered into the licensee's corrective action program as Callaway Action Request 201302877. Corrective actions included installing new surge protectors on the unit auxiliary transformer, revising station procedures for connecting and disconnecting the surge protectors, and ordering new surge capacitors for the startup transformer.

  The failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment was a performance deficiency. The performance deficiency was more than minor because it adversely affected the protection against external factors attribute of the Initiating Events Cornerstone, and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the fault and fire led to a loss of power to mitigating systems while the reactor was shutdown. Using

Inspection Manual Chapter 0609, Appendix G, Attachment 1, Checklist 4, “PWR Refueling Operation: RCS level > 23'OR PWR Shutdown Operation with Time to Boil > 2 hours And Inventory in the Pressurizer,” the finding was determined to be of very low safety significance (Green) because the licensee maintained adequate event mitigation capabilities, the event did not result in a change in reactor coolant system inventory or temperature, and it did not require a quantitative risk assessment. This finding has a cross-cutting aspect in the human performance area associated with the resources component because the licensee failed to ensure that the equipment and maintenance procedures were adequate to assure nuclear safety [H.2(a)] (Section 1R13).

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1 and Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," involving the failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment. Specifically, the licensee directed contractors to perform work on safeguards transformer B with work instructions, training, and supervisory oversight that was not appropriate for the individuals performing the work. This issue was entered into the licensee’s corrective action program as Callaway Action Request 201302280. Corrective actions included a revision to the work instructions to be more specific on grounding locations and a refocus and retraining of grounding electrical systems. Planned corrective actions include establishing a process for identifying high risk outage activities similar to the process used for online maintenance.

  The failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment was a performance deficiency. This performance deficiency was more than minor because it adversely affected the procedure quality attribute of the Initiating Events Cornerstone, and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 1, “Initiating Events Screening Questions,” the finding was determined to be of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the human performance area associated with the work practices component because the primary cause for the performance deficiency was that the licensee failed to ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)] (Section 4OA2).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR 50.65, involving the licensee’s failure to monitor performance of structures, systems, or components in a manner sufficient to provide reasonable assurance that these structures, systems, or components are capable of fulfilling their intended

functions. Specifically, the licensee failed to adequately monitor the cooling water flow through the safety related room coolers that periodically became blocked by silting, to ensure they maintained their capability to remove the heat from the rooms. This issue was entered into the licensee's corrective action program as Callaway Action Request 201301108. Corrective actions included a requirement to monitor the flow rates monthly and determine the appropriate monitoring and flushing requirements based on the results.

The failure to monitor performance of structures, systems, or components in a manner sufficient to provide reasonable assurance that these structures, systems, or components are capable of fulfilling their intended functions was a performance deficiency. This performance deficiency was more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety significance (Green) because all of the questions received a negative response. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the operating experience component because the licensee failed to systematically collect, evaluate, and communicate relevant internal operating experience about silting of room coolers to internal stakeholders [P.2(a)] (Section 1R12).

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to perform activities affecting quality in accordance with procedures. Specifically, the licensee failed to recognize the significance of repetitive refrigerant leaks on the safety-related Class 1E electrical equipment air conditioning units units and assign the appropriate significance level in accordance with APA-ZZ-00500, "Corrective Action Program," Revision 57. This issue was entered into the licensee's corrective action program as Callaway Action Request 201304985. Further corrective actions are being evaluated, including enhancements to Callaway's corrective action procedure for raising significance of repetitive issues and evaluating new enhancements for the corrective action program's screening process.

  The failure to perform activities affecting quality in accordance with procedures was a performance deficiency. This performance deficiency was more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone objective of ensuring the reliability of systems that respond to initiating events. Specifically, the licensee failed to recognize the significance of repetitive refrigerant leaks on the safety related Class 1E electrical equipment air conditioning units and assign the appropriate significance level during issue screening, and therefore failed to perform a cause analysis and correct the cause. The finding required a detailed risk evaluation because it

involved the potential failure of safety related equipment for longer than the technical specification allowed outage time. A senior reactor analyst determined that the change to the core damage frequency was much less than E-7/yr (Green). In each case, the affected chiller, while incapable of meeting the 30-day design basis mission time, could have still functioned properly and supported the inverters during the probabilistic risk assessment 24-hour mission time. Therefore, there was no quantifiable increase in the core damage frequency or the large early release frequency. This finding has a cross-cutting aspect in the area of problem identification and resolution with a problem evaluation component, because the licensee failed to fully evaluate the collective body of data regarding the Class 1E air conditioning units such that the resolutions address the causes and extent of condition, including proper classification. Specifically the licensee failed to thoroughly evaluate the repetitive failures all facets of this issue, including properly classifying the refrigerant leaks, [P.1(c)] (Section 4OA3).

B. Licensee-Identified Violations

None

PLANT STATUS

Callaway began the inspection period at 93.5 percent power, coasting down at the end of the operating cycle. On April 8, 2013, the licensee shut the plant down to start Refueling Outage 19. The plant was returned to full power on June 1, 2013. Callaway operated at full power for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate-AC Power Systems

a. Inspection Scope

On May 20, 2013, the inspectors performed a review of 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 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. Examples of aspects considered in the inspectors' review included:

- the coordination between the transmission system operator and the plant's operations personnel during off-normal or emergency events
- the explanations for the events
- the estimates of when the offsite power system would be returned to a normal state
- the notifications from the transmission system operator to the plant when the offsite power system was returned to normal

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

corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant system:

- May 20, 2013, main step-up transformer initial energization on backfeed

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

b. Findings

No findings were identified.

.2 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 May 2, 2013, the inspectors reviewed the plant personnel's overall preparations and protection for the expected weather conditions. The inspectors walked down the owner controlled area before a tornado warning because safety-related functions could be affected as a result of high winds, tornado-generated missiles, or the loss of offsite power. The inspectors evaluated the plant staff's preparations against the site's procedures to determine whether the staff's actions were adequate. During the inspection, the inspectors focused on plant design features and the licensee's procedures to respond to tornados and high winds. 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 the 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 had identified adverse weather issues at an appropriate threshold and entered them into the corrective action program for resolution. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- April 9, 2013, residual heat removal system trains A and B with shutdown cooling in service
- April 9, 2013, safety injection and centrifugal charging pump systems with cold overpressure mitigation system in service
- June 26, 2013, spent fuel pool cooling train B alignment in standby readiness

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

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

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On June 12, 2013, the inspectors performed a complete system alignment inspection of the auxiliary feedwater system 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 inspected 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 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:

- April 6, 2013, fuel handling building laydown area and train B spent fuel pool heat exchanger room, fire areas F-1A and F-2
- April 23, 2013, reactor building, fire areas RB-1, RB-2, RB-3, RB-4, RB-6, RB-7, RB-8, and RB-11
- May 1, 2013, train B class 1E switchgear room and train B diesel generator building, fire areas C-10 and D-2
- May 1, 2013, train B component cooling water pump and heat exchanger room, fire area A-16B
- May 22, 2013, reactor building, fire areas RB-5, RB-10A and RB-10B

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented

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

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

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

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

- May 9, 2013, auxiliary shutdown panel, 2026 auxiliary building

These activities constitute completion of one internal flood protection measures inspection sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

Completion of Sections .1 through .5, below, constitutes completion of one sample as defined in Inspection Procedure 71111.08-05.

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, and Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspectors observed six nondestructive examination activities and reviewed four nondestructive examination activities that included four types of examinations. The licensee did not identify any relevant indications accepted for continued service during the nondestructive examinations.

The inspectors directly observed the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Vessel Stud 18	2CH-STUD-18	Ultrasonic
Reactor Vessel Studs (27 studs)	2CH-STUD-8/11/1/14/17/20/21/ 23/26/27/29/30/32/33/36/38/39/ 41/42-R-1/44/45/47/48/50/51/ 53-R1/54	Ultrasonic
Containment Cooling	2-GN-02-F043	Magnetic Particle
Essential Service Water	Inlet and Outlet flange to SGL09B	Liquid Penetrant
High Pressure Coolant Injection	2-EM-01-A003-IWA	Liquid Penetrant
High Pressure Coolant Injection	2-EM-01-A004-IWA	Liquid Penetrant

The inspectors reviewed records for the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Vessel Hot Leg Nozzle	2-RV-301-121-A	Ultrasonic, Eddy Current
Reactor Vessel Hot Leg Nozzle	2-RV-301-121-B	Ultrasonic, Eddy Current

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Vessel Hot Leg Nozzle	2-RV-301-121-C	Ultrasonic, Eddy Current
Reactor Vessel Hot Leg Nozzle	2-RV-301-121-D	Ultrasonic, Eddy Current

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors reviewed two indications that were previously examined, and verified that the licensee evaluated and accepted the indications in accordance with the ASME Code and/or an NRC approved alternative. The inspectors also verified the qualifications of all nondestructive examination technicians performing the inspections were current.

The inspectors reviewed three welds on pressure retaining risk significant systems.

The inspectors reviewed records for the following welding activities:

SYSTEM	WELD IDENTIFICATION	WELD TYPE
Main Feedwater	FW-03	GTAW
Main Feedwater	FW-04	GTAW
Main Feedwater	FW-05	GTAW

The inspectors verified that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX, requirements. The inspectors also verified that essential variables were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.01.

b. Findings

No findings were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

The inspectors reviewed the results of the licensee's bare metal visual inspection of the reactor vessel upper head penetrations, and verified that there was no evidence of boric acid challenging the structural integrity of the reactor head components and attachments. The inspectors also verified that the required inspection coverage was

achieved and limitations were properly recorded. The inspectors verified that the personnel performing the inspection were certified examiners to their respective nondestructive examination method. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.02.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Procedure EDP-ZZ-01004, "Boric Acid Corrosion Control Program," Revision 14. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety significant components, and that engineering evaluation used corrosion rates applicable to the affected components and properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity. The inspectors confirmed that corrective actions taken were consistent with the ASME Code, and 10 CFR Part 50, Appendix B, requirements. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.03.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities (71111.08-02.04)

The licensee did not perform any steam generator tube inspection.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection Scope

The inspectors reviewed 15 condition reports associated with inservice inspection activities and determined that the corrective actions taken were appropriate. The inspectors concluded that the licensee has an appropriate threshold for entering inservice inspection issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective

program for applying inservice inspection industry operating experience. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.05.

b. Findings

No findings were identified.

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

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On May 12, 2013, the inspectors observed a crew of licensed operators in the plant's simulator during plant startup and digital feedwater training. The inspectors assessed the following areas:

- Licensed operator performance
- The quality of the training provided
- The modeling and performance of the control room simulator
- Follow-up actions taken by the licensee for identified discrepancies

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

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance

a. Inspection Scope

On April 8, 2013, the inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observation, the plant was in a period of heightened activity and risk due to shutting down and cooling down of the plant for Refueling Outage 19.

The inspectors assessed the operators' adherence to plant procedures, including Procedure ODP-ZZ-00001, "Operations Department – Code of Conduct," and other operations department policies. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- February 13, 2013, emergency core cooling system room cooler silting
- April 24, 2013, spent fuel pool bridge crane failure during Refuel Outage 19
- May 21, 2013, excore nuclear instrumentation NI-32 power supply failure

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 monitoring
- Charging unavailability for performance monitoring
- 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 three quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR 50.65, involving the licensee's failure to monitor performance of structures, systems, or components in a manner sufficient to provide reasonable assurance that these structures, systems, or components are capable of fulfilling their intended functions. Specifically, the licensee failed to adequately monitor the cooling water flow through the safety related room coolers to ensure they maintained their capability to remove the heat from the rooms.

Description. On February 13, 2013, the licensee identified that the cooling water flow rate through the safety-related residual heat removal system train B room cooler was 10.5 gallons per minute. The minimum acceptable flow rate to maintain operability is 39 gallons per minute with a target flow rate of 96 gallons per minute. These room coolers are support equipment required to maintain the associated safety-related pumps operable. The flow rate was measured as a pre-cleaning evolution. Each emergency core cooling system room cooler is cleaned every 36 months. As an extent of condition, the licensee checked the flow rates for the remaining safety-related room coolers and found the containment spray pump train B and the centrifugal charging pump train B room coolers below the minimum required flow rates. All the other room coolers were above the minimum flow rates.

The inspectors questioned the licensee about the methods used to verify the room coolers' ability to maintain room temperatures during an accident. Every 12 weeks, the licensee performs a flush to maintain the cooling water flow rates through the cooler, and every 36 months the licensee cleans and inspects the coolers. The lower cooling water flow was directly attributed to silting from the service water system. The service water system cools the essential service water system components under normal plant conditions. This system takes suction from an intake bay included as part of the cooling tower basin. The cooling tower basin water level is maintained by a makeup water system that takes suction from the Missouri River and discharges into the cooling tower at the service water intake bay. This was the major source of silt in the plant.

The licensee utilizes a chemical system to attempt to force the silt to settle out prior to the service water intake bay, then attempts to maintain the silt in solution while in transit through the plant to minimize deposition in plant components. This helps minimize the silt deposition in plant components, but cannot completely eliminate it. The amount of silt present in the cooling water is also affected by river level and mechanical shocks to the systems (i.e. pump starts and stops).

The inspectors determined that the licensee had previously experienced silt buildup in this system. The licensee only monitored the cooling water flow rates to plant components just prior to cooler cleaning (using temporary monitoring equipment), and did not adjust the flushing or cleaning frequency based on river conditions or silt content in the makeup water. The inspectors also determined that the Missouri River had experienced low levels, which were conducive to higher silt content, and had experienced instances where chemical treatment was out of service, rendering silting in the plant more likely. The inspectors also noted that there were no flow rate indicators to allow plant personnel to monitor flow rates to the room coolers during routine rounds. Based on these observations, the inspectors concluded that the licensee did not adequately monitor to ensure that the room coolers maintained adequate cooling water flow, and the licensee did not have a process to predict and control the silt levels. Additionally, the licensee established minimum required cooling water flow rates to maintain components operable but does not monitor these flow rates at a frequency often enough to ensure compliance is maintained at all times.

The licensee performed a past operability utilizing the residual heat removal room as the bounding condition for all three room coolers. They used a dynamic evaluation of the system and determined that even at the 10.5 gallons per minute of cooling water flow, the system would still be able to perform its design function and maintain room temperature as required. This was a change from the static evaluation that conservatively assumed a constant maximum temperature for the cooling water across the required time frame.

This issue was entered into the licensee's corrective action program as Callaway Action Request 201301108.

Analysis. The inspectors determined that the failure to monitor the performance of structures, systems, or components in a manner sufficient to provide reasonable assurance that these structures, systems, or components are capable of fulfilling their intended functions was a performance deficiency. Specifically, the licensee failed to maintain the emergency core cooling system room coolers in a condition where they demonstrated that the function was being reliably maintained. This finding is more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding was of very low safety significance (Green) because it did not affect the design or qualification of mitigating systems, structures, and components, did not result in a loss of system and/or function, did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time, and did not represent an actual loss of function of one or more non-technical specification trains for greater than 24 hours. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the operating experience component because the cause of this finding

involved the failure to systematically collect, evaluate, and communicate relevant internal operating experience related to silting to internal stakeholders [P.2(a)].

Enforcement. Title 10 of the Code of Federal Regulations 50.65.a(1) requires, in part, that the holders of an operating license shall monitor the performance or condition of structures, systems, or components (SSCs) within the scope of the rule as defined by 10 CFR 50.65 (b), against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. 10 CFR 50.65 (a)(2) states, in part, that monitoring as specified in 10 CFR 50.65 (a)(1) is not required where it has been demonstrated that the performance or condition of an SSC is being effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function.

Contrary to the above, prior to February 13, 2013, the licensee failed to demonstrate that the performance or condition of the emergency core cooling system room coolers had been effectively controlled through the performance of appropriate preventive maintenance and did not monitor against licensee-established goals. Specifically, the licensee did not monitor the flow rates of the cooling water to the emergency core cooling system pump room coolers to ensure they stayed above the minimum required. Instead, the licensee flushed the coolers at a frequency that they believed would maintain the flow rates acceptable. When they actually did monitor flow rates to the coolers they found some of them below the acceptable criteria, which demonstrated that the performance or condition of these SSCs was not being effectively controlled through the performance of appropriate preventive maintenance and, as a result, that goal setting and monitoring was required.

The violation did not result in any actual or potential safety consequences. Corrective actions included a requirement to monitor the flow rates monthly and determine the appropriate monitoring and flushing requirements based on the results. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as Callaway Action Request 201301108, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: "NCV 05000483/2013003-01, Failure to Monitor and Maintain Emergency Core Cooling System Room Coolers."

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 30, 2013, loss of 200/300 series power distribution yard loops, Job 13001562

- April 10-11, 2013, reactor coolant system draindown and reactor vessel head removal, Job 11513843
- April 17, 2013, reactor coolant pump seal replacement, Job 12000645
- April 17, 2013, unit auxiliary transformer repair, Job 11502461
- May 1, 2013, outage work with train B protected and train A being worked
- May 6, 2013, testing and repair of cable splices on transformer XNB01 to engineered safety features bus NB01, Job 12500296
- May 22, 2013, repair turbine-driven auxiliary feedwater pump bearing oil cooler, Job 13003162
- June 14, 2013, pressurizer pressure channel 4 transmitter replacement, Job 13003873

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

b. Findings

Introduction. The inspectors reviewed a Green, self-revealing, non-cited violation of Technical Specification 5.4.1 for the licensee's failure to appropriately pre-plan maintenance on equipment that can affect the performance of safety-related equipment. Specifically, the licensee failed to properly pre-plan and perform maintenance when placing the unit auxiliary transformer in a backfeed line-up, because the written instructions did not prevent mechanical damage to its surge capacitor, which later caught on fire and caused a loss of power.

Description. On April 14, 2013, the licensee performed Job 11502461 on the 29 year old surge capacitors, in order to place the transformer in a backfeed line-up. The job used Procedure OTS-MA-00001, "Establish Backfeed of the Unit Auxiliary Transformer," to

disconnect a solid copper rod and move it while it was still connected to the surge capacitor bushing. The procedure, as written, did not provide details about how to accomplish this without damaging the bushing.

On April 17, 2013, during Refueling Outage 19, oil leaked out of the damaged surge capacitor bushing and caught fire. Shortly thereafter, heavy soot in the air created a phase-to-phase fault and shorted the output of the unit auxiliary transformer. This resulted in a loss of one of two offsite power sources. After the transformer was deenergized, the fire brigade responded to the scene and the remaining oil burned out within a few minutes. The licensee's event investigation found that mechanical damage to the surge capacitor bushing was one of the causes of the fire. Specifically, workers decided to move the surge capacitor while it was still connected via the rigid connector, instead of doing so while still connected to the flexible connector. While moving it, the bushing was damaged in a way that allowed oil to leak through the bushing.

At the time of the event, safety-related equipment in train A was operable and powered by an independent offsite source, which maintained the reactor coolant and spent fuel pool inventories and temperatures. The unit auxiliary transformer had been powering one of the 13.8 kV non-safety related busses, PA02, which provided power to house loads and the train B safety related battery chargers. Due to scheduled outage work, the train B safety related equipment and the other non-safety related bus, PA01, were already deenergized.

Following the loss of power, the licensee verified that residual heat removal was still in service, and reviewed the emergency action level entry criteria. NRC inspectors later verified that no declaration entry criteria had been met. Several buildings around the plant had lost power, including the turbine building. Additionally, the licensee was relying on the train B batteries and chargers to power train B control room instrumentation. When power was lost to the chargers, the batteries began to discharge until power was restored to the chargers. Operators decided to manually actuate several reactor protection system actuations to conserve battery power. When work began to restore the lost power through the unit startup transformer, an increase in the calculated station risk resulted due to reduced power availability.

This issue was entered into the licensee's corrective action program as Callaway Action Request 201302877.

Analysis. Failure to properly pre-plan procedures for performing maintenance to prevent mechanical damage to the unit auxiliary transformer surge capacitor was a performance deficiency. The performance deficiency was determined to be more than minor because it adversely affected the procedure quality attribute of the Initiating Events Cornerstone, and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the inadequate work instructions led to damage that challenged power availability while the reactor was shutdown.

The inspectors evaluated the finding in accordance with Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process." The inspectors determined that the finding was of very low safety significance (Green) because the licensee maintained adequate event mitigation capabilities, the event did not result in a change in reactor coolant system inventory or temperature, and it did not require a quantitative assessment as determined in Appendix G, Attachment 1, Checklist 4, "PWR Refueling Operation: RCS level > 23" or PWR Shutdown Operation with Time to Boil > 2 hours And Inventory in the Pressurizer." This finding has a cross-cutting aspect in the area of human performance with a resources component because the licensee did not ensure that their equipment and maintenance procedures were adequate to assure nuclear safety. [H.2(a)].

Enforcement. Technical Specifications 5.4.1.a states, in part, that "Written procedures shall be established, implemented, and maintained covering the following activities: the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978." Regulatory Guide 1.33, Appendix A, states, in part, "Maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances." Contrary to the above, the licensee did not properly pre-plan procedures for performing maintenance on the unit auxiliary transformer, which affected the performance of the safety related batteries and chargers. Corrective actions taken include installing new surge protectors on the unit auxiliary transformer, revising station procedures that involve work on these surge capacitors to disconnect and reconnect them at a flexible wiring coupling point, and ordering new surge capacitors for the unit startup transformer. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as Callaway Action Request 201302877, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000483/2013003-02, "Failure to Appropriately Pre-plan and Perform Maintenance on the Unit Auxiliary Transformer."

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- April 9, 2013, application of Technical Specification 3.3.9 with no reactor coolant pump in service, Callaway Action Request 201302518
- May 1, 2013, train B diesel generator sequencer testing after the fast start time was challenged by slow frequency stabilization following governor tuning, Callaway Action Request 201303352
- May 20, 2013, boron dilution mitigation system inoperable due to excore nuclear instrumentation NI-32 spiking high, Callaway Action Request 201303949

- June 5, 2013, turbine-driven auxiliary feedwater pump flow control valve positioner air leak, Callaway Action Request 201304561

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure technical specification operability was properly justified and to verify 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. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

Permanent Modifications

a. Inspection Scope

The inspectors reviewed key affected parameters associated with materials, replacement components, timing, heat removal, equipment protection from hazards, operations, flow paths, pressure boundary, structural, process medium properties, licensing basis, and failure modes for the permanent modification listed below.

- April 16, 2013, reactor coolant pumps A-D no-leak shutdown seal installation

The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; post-modification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur; systems, structures and components' performance characteristics still meet the design basis; the modification design assumptions were appropriate; the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample for permanent plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- April 23, 2013, 4160 V breaker NB0211 after the NFPA-0805 modification, Job 09003317
- April 28, 2013, diesel generator B after intercooler pump maintenance, Job 13002497
- May 20, 2013, main step-up transformer after replacement , Job 12000576
- May 28, 2013, feedwater control system after digital upgrade modification, Job 10006482
- May 29, 2013, reactor coolant pump D after motor replacement, Job 05515978
- June 21, 2013, nonsafety auxiliary feedwater pump after bearing replacement and shaft alignment, Job 11002478

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 post-maintenance 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 six post-maintenance testing inspection samples.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for Refueling Outage 19, conducted between April 8 and May 28, 2013, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity.

- Refueling activities, including fuel handling and heavy load lifts associated with reactor vessel assembly/disassembly.

- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing.

- Licensee identification and resolution of problems related to refueling outage activities.

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

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Reference setting data

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

- April 13, 2013, residual heat removal train A check valve inservice test, Job 11512090

- April 13, 2013, containment isolation valves from the refueling water storage tank to the safety injection and centrifugal charging pumps suction valves testing, Job 11514030

- April 14, 2013, refuel bridge interlock routine testing, Job 11514132

- April 25, 2013, essential service water train B flow balance routine testing, Job 11514535

- April 29, 2013, engineered safeguard features actuation system routine testing, Job 11514838

- May 25, 2013, reactor coolant system pressure isolation valve routine testing, Job 11514596

- June 25, 2013, safety injection accumulator A in-leakage testing, Job 13507893

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

These activities constitute completion of seven surveillance testing inspection samples (4 routine, 1 inservice, 1 containment isolation and 1 reactor coolant system leakage) as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The Nuclear Security and Incident Response headquarters staff performed an in-office review of the latest revisions of various emergency plan implementing procedures and the emergency plan located under ADAMS accession number ML131510221.

The licensee determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the plan, and that the revised plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.04-02.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

This area was inspected to: (1) review and assess licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures, (2) verify the licensee was properly identifying and reporting occupational radiation safety cornerstone performance indicators, and (3) identify those performance deficiencies that were reportable under a performance indicator and which may have represented a substantial potential for overexposure of the worker.

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 walkdowns of various portions of the plant, performed independent radiation dose rate measurements, and reviewed the following items:

- Performance indicator events and associated documentation reported by the licensee in the occupational radiation safety cornerstone
- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions
- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability
- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage, and contamination controls; the use of electronic dosimeters in high noise areas; dosimetry placement; airborne radioactivity monitoring; controls for highly activated or contaminated materials

(non-fuel) stored within spent fuel and other storage pools; and posting and physical controls for high radiation areas and very high radiation areas

- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

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

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.01-05.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

This area was inspected to assess performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). 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 licensee personnel and reviewed the following items:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements

- ALARA work activity evaluations/postjob reviews, exposure estimates, and exposure mitigation requirements

- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies

- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry

- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas

- Audits, self-assessments, and corrective action documents related to ALARA planning and controls since the last inspection

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

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.02-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the first quarter 2013 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

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

b. Findings

No findings were identified.

.2 Safety System Functional Failures (MS05)

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicator for the period from the second quarter 2012 through the first quarter 2013. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." 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 period of April 2012 through March 2013 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - heat removal system performance indicator for the period from the second quarter 2012 through the first quarter 2013. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of April 2012 through March 2013 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 - heat removal system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Reactor Coolant System Leakage (BI02)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for the period from the second quarter 2012 through the first quarter 2013. To determine the accuracy of the performance indicator data reported

during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator logs, reactor coolant system leakage tracking data, issue reports, event reports, and NRC integrated inspection reports for the period of April 2012 through March 2013 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.5 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the third quarter 2012 through the first quarter 2013. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed corrective action program records associated with high radiation area (greater than 1 rem/hr) and very high radiation area non-conformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 mrem. The inspectors also conducted walkdowns of high radiation areas (greater than 1 rem/hr) and very high radiation area entrances to determine the adequacy of the controls of these areas.

These activities constitute completion of the occupational exposure control effectiveness sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.6 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the third quarter 2012 through the first quarter 2013. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed the licensee's corrective action program records and selected individual annual or special reports to identify potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

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

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

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

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an

integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 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 December 2012 through May 2013 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 semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified. The inspectors did identify a trend when reviewing previous performance deficiencies that have occurred at the station. The inspectors identified that a substantial number of recent performance deficiencies are related to the maintenance program (work planning, risk evaluations, scheduling, maintenance activities, etc.)

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors reviewed the circumstances surrounding the following issues, and assessed the corrective actions:

- assess threshold for cause evaluations, Callaway Action Request 201300076.
- root cause evaluation for the arc-flash and injuries at safeguards transformer B, Callaway Action Request 201202280
- fuel transfer cart emergency pull cable damaged, Callaway Action Request 201302722

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

b. Findings

Introduction. The inspectors reviewed a Green, self-revealing, non-cited violation of Technical Specifications 5.4.1.a and Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," involving the failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment. Specifically, the licensee directed contractor electricians to perform work on the safeguards transformer B with inadequate work instructions, training, and supervisory oversight.

Description. On March 30, 2013, the inspectors and licensee responded to loss of non-essential power to portions of the site. This was a direct result of a contract electrician attempting to hang an electrical ground in the back of the safeguards transformer B breaker MDV52-4 cubicle in the switchyard. This portion of the 13.8 kV cubicle was energized and was not the location where an electrical ground was intended to be placed. As the grounding clamp neared the energized cable, an arc-flash occurred which resulted in a phase-to-ground fault and a trip of breaker MDV52-2. This injured four individuals and deenergized the 200 series and portions of the 300 series power distribution circuits. No essential power was lost and the plant remained at 100 percent power.

Investigation showed that the work instructions for Job 10508098.515 were vague and not descriptive. The instructions stated, in part,

> 5.2. For XMDV24 [safeguards transformer B], INSTALL PPE [personal protective equipment] grounds at the following locations;
>
> - Transformer high voltage side. These are generally installed on the transformer side of disconnect switch MDV25.
>
> - Transformer Low side breaker MD523 located in switchgear building.
>
> - Transformer Low side breaker MD524 located in switchgear building.

The switchgear building that the work instructions referenced houses breakers MD523 and MD524, which has three upper and three lower panels. The contractor electricians were told to install the grounds in the upper panel for the transformer low side breakers. The contractors were not briefed about the load side of the breakers, which was only accessible through the lower panel and was energized from an alternate power supply.

Later that day, the contactor electricians, believing the entire safeguards transformer B was deenergized, attempted to hang the grounds without any personnel protective equipment. The contractor electricians began work in the lower panel for breaker MD523, which still had power from the alternate power supply feeding the distribution system. They did not perform a live-dead-live check of the cable to verify it was deenergized. As they approached the energized bus with the grounding cable, an arc-flash occurred. This arc-flash resulted in four individuals being injured and caused MDV52-2 to trip open, deenergizing the 200 series and 300 series distribution circuits. Additionally, it was identified that these contractor electricians were brought on site to perform 480 V work and were not properly trained for the 13.8 kV work.

This issue was entered into the licensee's corrective action program as Callaway Action Request 201302280.

Analysis. The inspectors determined that the failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment was a performance deficiency. Specifically, the licensee directed contractors to perform work on safeguards transformer B with inadequate work instructions, training, and supervisory oversight. The inspectors evaluated the performance deficiency in accordance with Inspection Manual Chapter 0612, Appendix B, "Issue Screening." This finding is more than minor because it adversely affected the procedure quality attribute of the Initiating Events Cornerstone, and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Even though the actual result was a loss of non-safety busses, the work instructions would have allowed the same action on breaker MDV524 that was connected to the safety-related train A bus.

Using Inspection Manual Chapter 0609, Appendix A, Exhibit 1, “Initiating Events Screening Questions,” the inspectors determined the finding was of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the human performance area associated with the work practices component because the primary cause for the performance deficiency was that the licensee failed to ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)].

Enforcement. Technical Specification 5.4.1.a states, in part, that “Written procedures shall be established, implemented, and maintained covering the following activities: the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978.” Regulatory Guide 1.33, Appendix A, states, in part, “Maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.” Contrary to the above, the licensee failed to properly pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment. Specifically, the licensee directed contractor electricians to perform work on the safeguards transformer B with inadequate work instructions, training, and supervisory oversight. The violation did not result in any actual or potential safety consequences. Corrective actions included a revision to the work instructions to be more specific on grounding locations and a refocus and retraining on grounding of electrical systems. Planned corrective actions include establishing a process for identifying high risk outage activities similar to the process used for online maintenance. Because this violation was of very low safety significance and it was entered into the licensee’s corrective action program as Callaway Action Request 201302280, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000483/2013003-03, "Failure to Appropriately Pre-plan and Perform Maintenance on Safeguards Transformer B."

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 Arc-Flash Event at the Safeguards Transformer B

a. Event Response

On March 30, 2013, the inspectors and licensee responded to an arc-flash event that occurred in the licensee’s switchyard. This was a direct result of a contract electrician attempting to hang an electrical ground in the back of the safeguards transformer B breaker MDV52-4 cubicle. This portion of the 13.8 kV cubicle was energized and was not the location where an electrical ground was intended to be placed. As the grounding clamp neared the energized cable an arc-flash occurred which resulted in a phase to ground fault and a trip of breaker MDV52-2. This injured four individuals and de-energized the 200 series and portions of the 300 series power distribution circuits. No essential power was lost and the plant remained at 100 percent power. The station evaluated the conditions and determined no emergency action level entry conditions

existed. The inspectors evaluated whether the actions taken in response to the event were appropriate.

b. Findings

A finding associated with this event follow-up is documented in Section 4OA2.4 of this report. No additional findings were identified.

.2 (Closed) Licensee Event Report 2013-001-00, Violation of Technical Specification 3.0.3 Due to a Class 1E Electrical Equipment A/C Unit Inoperability

a. Inspection Scope

On December 17, 2012, licensee personnel declared the Class 1E electrical equipment air conditioning train A unit inoperable due to a Freon refrigerant leak. The leak rate could not be quantified and had existed prior to the time of discovery; therefore, licensee personnel concluded that the air conditioning unit was inoperable for an undetermined amount of time prior to discovery. Although the unit does not have its own technical specification required actions, the loss of refrigerant would have challenged the unit's capability to meet the required 30 day mission time.

When Callaway's Class 1E electrical equipment air conditioning unit is not capable of performing its design function, the equipment it supports will become inoperable and several limiting conditions for operation will not be met, including Technical Specification 3.8.7, which only addresses inoperability of one inverter. Since there are two inverters in each train of Class 1E electrical equipment and no action statement for having both inverters inoperable, Limiting Condition for Operation 3.0.3 must be entered when a Class 1E electrical equipment air conditioning unit is inoperable. In this instance, the licensee reported that the Limiting Condition for Operation 3.0.3 action statement was exceeded because the Class 1E electrical equipment air conditioning train A unit was inoperable prior to the time of discovery, no compensatory actions were taken, and the refrigerant leak rate could not be calculated. The inspectors reviewed the licensee event report, associated corrective action requests, root cause report, maintenance rule equipment system report, and the corrective actions taken to determine whether the licensee adequately evaluated the condition. The inspectors identified one Green non-cited violation, as described below. This licensee event report is closed.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to perform activities affecting quality in accordance with procedures. Specifically, the licensee failed to recognize the significance of repetitive refrigerant leaks on the safety related Class 1E electrical equipment air conditioning units and assign the appropriate significance level in accordance with their corrective action program procedure. As a result, the licensee failed to identify and correct the cause of the leaks.

Description. On December 17, 2012, Callaway plant exceeded the allowed outage time for Technical Specification Limiting Condition for Operation 3.0.3 because both inverters were inoperable in train A Class 1E electrical equipment. The inverters were inoperable for more than 7 hours because their supporting air conditioning unit leaked refrigerant for an unknown amount of time. The corrective action program screening committee identified this occurrence of a refrigerant leak as level 1, significant condition adverse to quality. The licensee performed a root cause investigation for the December 17, 2012, event, and found that in previous Callaway action requests, there had been sixteen occurrences of refrigerant leaks, rolled up into three separate trending Callaway action requests in the preceding 4 years. The root cause of the leaks was determined to be fretting caused by inadequate support for refrigerant tubing at various parts of the system. The licensee's corrective actions included increased preventative maintenance on the units, an expanded scope and schedule of inspections for refrigerant leaks, and added new system health report trending requirements.

The inspectors determined that the licensee did not address the corrective action program screening process, which recognized the trend of leaks, but failed to elevate the significance level for the sixteen instances of refrigerant leaks and their associated roll-up trends as required by the program. All of them had been screened as level 3 adverse conditions, or lower, in significance. The inspectors determined that these screenings were not performed in accordance with Procedure APA-ZZ-00500, "Corrective Action Program," Revision 57, which stated in part, "Conditions with a frequency of occurrence deemed unacceptable and may result in a Significant Condition Adverse to Quality," are examples of an important condition adverse to quality, significance level 2. A significance level 2 results in a more rigorous cause evaluation and prompts the development of robust corrective actions based upon operating experience, extent of cause, and extent of condition. A significance level 3 will only result in a simple cause evaluation that is not required to consider extent of cause or operating experience for corrective actions. Because the appropriate significance had not been assigned to any chiller refrigerant leaks as required by the corrective action program prior to December 17, 2012, Callaway did not implement effective corrective actions for a repetitive issue that resulted in safety related equipment being inoperable for more than its technical specification allowed outage time and exceeding Limiting Condition For Operation 3.0.3.

This issue was entered into the corrective action program as Callaway Action Request 201304985.

Analysis. The inspectors determined the failure to perform activities affecting quality in accordance with procedures was a performance deficiency. Specifically, the licensee failed to recognize the significance of repetitive refrigerant leaks on the safety related Class 1E electrical equipment air conditioning units and assign the appropriate significance level during issue screening, and thus failed to identify and correct the cause. The inspectors evaluated the performance deficiency in accordance with Inspection Manual Chapter 0612, Appendix B, "Issue Screening." This finding is more than minor because it adversely affected the equipment performance attribute of the

Mitigating Systems Cornerstone objective of ensuring the reliability of systems that respond to initiating events.

The inspectors evaluated the finding in accordance with Inspection Manual Chapter 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions.” The inspectors determined the finding required a separate detailed risk evaluation because it involved the potential failure of safety related equipment for longer than the technical specification allowed outage time. A senior reactor analyst performed the detailed risk evaluation. The analyst determined that the change to the core damage frequency was much less than E-7/yr (Green). The affected chiller, while incapable of meeting the 30 day design basis mission time, could have still functioned properly and supported the inverters during the probabilistic risk assessment 24 hour mission time. Therefore, there was no quantifiable increase to the core damage frequency or the large early release frequency. This finding has a cross-cutting aspect in the area of problem identification and resolution with a problem evaluation component, because the licensee failed to fully evaluate the collective body of data regarding the Class 1E air conditioning units such that the resolutions address the causes and extent of condition, including proper classification. Specifically the licensee failed to thoroughly evaluate the repetitive failures all facets of this issue, including properly classifying the refrigerant leaks, [P.1(c)].

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, the licensee did not screen the sixteen occurrences of refrigerant leaks, from 2008 to 2012, in accordance with Procedure APA-ZZ-00500, “Corrective Action Program,” Revision 57. The violation did not result in any potential or actual safety consequences. The licensee’s corrective actions included corrective action procedure enhancements that assist in clarifying when to raise significance of repetitive issues as well as evaluating further enhancements for the corrective action program’s screening process. Because this violation was of very low safety significance and it was entered into the licensee’s corrective action program as Callaway Action Request 201304985, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000483/2013003-04, "Failure to Correctly Screen Repetitive Equipment Failures."

4OA5 Other Activities

a. Inspection Scope

(Closed) Temporary Instruction 2515/188: Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

The inspectors accompanied the licensee on the following seismic walkdowns:

- September 10, 2012, control building room 3605

- September 11, 2012, ultimate heat sink train A

and verified that the licensee confirmed that the following seismic features associated with:

- subcooling monitoring cabinet train A
- reactor pressure vessel level instrumentation system cabinet train A
- containment shed/sequence channel 1 logic cabinet
- engineered safety features actuation system channel 1 terminal cabinet
- engineered safety features actuation system channel 1 logic cabinet
- W process analog protection set cabinet 3
- W nuclear instrumentation nuclear instrument 1 cabinet
- ultimate heat sink cooling fan train A

were free of potential adverse seismic conditions:

- anchorage was free of bent, broken, missing or loose hardware
- anchorage was free of corrosion that is more than mild surface oxidation
- anchorage was free of visible cracks in the concrete near the anchors
- anchorage configuration was consistent with plant documentation
- structures, systems, and components will not be damaged from impact by nearby equipment or structures
- overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment
- attached lines have adequate flexibility to avoid damage
- the area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area
- the area appears to be free of potentially adverse seismic interactions that could cause a fire in the area
- the area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding)

The inspectors independently performed their walkdown and verified that the following seismic walkdown equipment list items were appropriately evaluated by the licensee:

- June 13, 2013, turbine-driven auxiliary feedwater pump
- June 14, 2013, motor-driven auxiliary feedwater pump A

The inspectors observed no unacceptable conditions on the independent walkdown. Additionally, the inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the seismic walkdown equipment list and these items were walked down by the licensee.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 18, 2013, the inspectors presented the results of the radiation safety inspection to Mr. L. Graessle, Senior Director of Operations Support, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On May 2, 2013, the inspectors presented the inspection results of the review of inservice inspection activities to Mr. M. McLachlan, Director, Engineering Systems, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was retained.

On July 2, 2013, the inspectors presented the inspection results to Mr. C. Reasoner, Vice President Engineering, 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 retained.

On August 6, 2013, the inspectors conducted a supplemental exit to present a revised cross-cutting aspect for one finding to Mr. L. Graessle, Senior Director, Operations Support, 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 retained

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Brownawell, Licensing Engineer, Regulatory Affairs
J. Doughty, ISI Program Owner
T. Elwood, Supervising Engineer, Regulatory Affairs and Licensing
G. Forster, ISI Coordinator
G. Gary, Consulting Chemist, Ameren
K. Gilliam, ALARA Supervisor, Radiation Protection
L. Graessle, Senior Director, Operations Support
M. Hoehn, Supervising Engineer, Engineering Programs
L. Kanuckel, Director, Engineering Design
A. King, Senior Health Physicist, Radiation Protection
M. McLachlan, Director, Engineering Systems
S. Petzel, Licensing Engineer, Regulatory Affairs
D. Purvis, Supervisor, Quality Control
C. Reasoner, Vice President Engineering
C. Smith, Manager, Radiation Protection
D. Thompson, Senior Health Physicist, Radiation Protection
S. Thomure, Engineer, Welding

NRC Personnel

G. Replogle, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000483/2013003-01	NCV	Failure to Monitor and Maintain Emergency Core Cooling System Room Coolers (Section 1R12)
05000483/2013003-02	NCV	Failure to Appropriately Pre-plan and Perform Maintenance on the Unit Auxiliary Transformer (Section 1R13)
05000483/2013003-03	NCV	Failure to Appropriately Pre-plan and Perform Maintenance on Safeguards Transformer B (Section 4OA2)
05000483/2013003-04	NCV	Failure to Correctly Screen Repetitive Equipment Failures (Section 4OA3)

Closed

05000483/2013-001-00	LER	Violation of Technical Specification 3.0.3 Due to a Class 1E Electrical Equipment A/C Unit Inoperability (Section 4OA3.2)
2515/188	TI	Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

NUMBER	TITLE	REVISION
EDP-ZZ-01129	Callaway Energy Center Risk Assessment	36
PDP-ZZ-00027	Summer Reliability Program	4
ODP-ZZ-00002, Attachment 4	Equipment Status Control	72
OSP-NB-00001	Class 1E Electrical Source Verification	36
OSP-NE-00003	Technical Specification Actions – A.C. Sources	26
OTO-ZZ-00012	Severe Weather	25
OTS-MA-00001	Main Step-Up Transformer Backfeed – IPTE	19

DRAWING

NUMBER	TITLE	REVISION
E-23PA11	Schematic Diagram Unit Auxiliary Source 13.8 kV Bus PA02	3

CALLAWAY ACTION REQUESTS

201304034 201304090

JOBS

13003083 13504759.495 1200576.710

Section 1R04: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
OTN-EC-00001	Fuel Pool Cooling and Cleanup System	39
OTN-EC-00001, Checklist 1	Fuel Pool Cooling and Cleanup System Valve Lineup (Outside Containment)	23
OTN-EJ-00001	Addendum 3, Placing A Residual Heat Removal Train In Service for Reactor Coolant System Cooldown	18
OSP-BB-00003	Pressure Operated Relief Valve/Residual Heat Removal COMS Alignment Verification	13
OSP-SF-00003	Pre-Core Alteration Verifications, Attachment 1, Actions Required Prior to Entering Mode 6	27

DRAWINGS

NUMBER	TITLE	REVISION
M-22AL01	Piping & Instrument Diagram – Auxiliary Feedwater System	41
M-22EC01	Piping & Instrument Diagram – Fuel Pool Cooling and Cleanup System, Sheet 1	24
M-22EC02	Piping & Instrument Diagram – Fuel Pool Cooling and Cleanup System, Sheet 2	32
OTN-AL-00001	Auxiliary Feedwater System	31
OTN-AL-00001 Checklist 1	Auxiliary Feedwater Valve Alignment	20

Section 1R05: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION
Fire Preplan Manual	Fire Pre-plan Manual	34
FPP-ZZ-00001 Attachment 40	Pre-Plan/Fire Area #A-16B, Auxiliary Building, 2026' Elevation	23
FPP-ZZ-00002 Attachment 2	Pre-Plan/Fire Areas #F-1A and F-2, Fuel Building, 2000' Elevation	7
FPP-ZZ-00003 Attachment 2	Pre-Plan/Fire Area #RB-1, Reactor Building, 2001' Elevation	9
FPP-ZZ-00003 Attachment 3	Pre-Plan/Fire Area #RB-2, Reactor Building, 2000' Elevation	9
FPP-ZZ-00003 Attachment 4	Pre-Plan/Fire Areas #RB-3, RB-4, RB-7, and RB-8, Reactor Building, 2026' Elevation	9
FPP-ZZ-00003 Attachment 5	Pre-Plan/Fire Area #RB-1, #RB-10A, Reactor Building, 2047' Elevation	9
FPP-ZZ-00003 Attachment 6	Pre-Plan/Fire Area #RB-5, Reactor Building, 2051' Elevation	9
FPP-ZZ-00003 Attachment 7,8	Pre-Plan/Fire Area #RB-6, #RB-10B, Reactor Building, 2068' Elevation	9
FPP-ZZ-00004 Attachment 12	Pre-Plan/Fire Area #C-10, Control Building and Communications Corridor, 2000' Elevation	17
FPP-ZZ-00007 Attachment 2	Pre-Plan/Fire Area #D-2, Diesel Generator Building, 2000' Elevation	12

Section 1R06: Flood Protection Measures

PROCEDURES

NUMBER	TITLE	REVISION
Fire Preplan Manual	Fire Pre-plan Manual, Attachment 53 Fire Area #A-23	34
OTN-RP-00001	Auxiliary Shutdown Panel	6
OTO-ZZ-00001	Control Room Inaccessibility	37
OTO-ZZ-00002	Control Room Operations with Fire	7
OTS-ZZ-00001	Cooldown From Outside the Control Room	9

DRAWINGS

NUMBER	TITLE	REVISION
A-2303	Auxiliary and Reactor Building Floor Plan, El. 2026'-0"	7
M-2G023	Equipment Locations Reactor and Auxiliary Buildings Plan	7
M-23KC18	Piping Isometric Fire Protection Auxiliary Building	5
M-2P1411	Drainage System (LF) Auxiliary Building Area 1	1
M-2P1421	Drainage System (LF & LE) Auxiliary Building Area 2	0
M-0P1431	Drainage System (LF) Auxiliary Building Area 3	4
M-0P1441	Drainage System (LE & LF) Auxiliary Building Area 4	3

CALLAWAY ACTION REQUESTS

201304333

CALCULATIONS

NUMBER	TITLE	REVISION
M-FL-03	Flooding of Individual Auxiliary Building Rooms	2
M-FL-03	Flooding of Individual Auxiliary Building Rooms	3

Section 1R08: Inservice Inspection Activities

PROCEDURES

NUMBER	TITLE	REVISION
EDP-ZZ-01004	Boric Acid Corrosion Control Program	14
ETP-BB-03154	Reactor Vessel Head Installation – IPTE	17
ETP-BB-03165	Reactor Vessel Head Stud Removal	13

Section 1R08: Inservice Inspection Activities

PROCEDURES

NUMBER	TITLE	REVISION
PDI-ISI-254-SE-NB	Remote Inservice Examination of Reactor Vessel Nozzle to Safe End and Nozzle to Pipe, and Safe End to Pipe Welds Using the Nozzle Scanner	2
WDI-STD-088	Underwater Remote Visual Examination of Reactor Vessel Internals	9
WDI-STD-146	ET Examination of Reactor Vessel Pipe Welds Inside Surface	11
WDI-STD-1130	Automated Examination of Reactor Vessel Cladding Using Ultrasonic and Eddy Current Techniques	0

MISCELLANOUS

NUMBER	TITLE	REVISION / DATE
E170.0105	Callaway Power Plant Third Interval Inservice Inspection Program Plan	6
NE 04-0035	Root Cause Analysis for CAR 200403580 – Loop C Cold Leg Stainless Steel Safe End-to-Pipe Weld Indications	May 18, 2004
WCAP-16280-NP	Flaw Evaluation Handbook for Callaway Unit 1 Reactor Vessel Inlet Nozzle Safe End Weld Region	0
MLH-04-063	Flaw Evaluation of the Cold Leg 247° Elbow-to-Safe End Weld Flaw Indications (2-BB-01-F302) at Callaway	3
AP12-009	Nuclear Oversight Audit of In-Service Inspection and Testing	October 30, 2012
WDI-PJF-1308925-EPP-002	2013 Reactor Vessel Inlet Nozzle and Clad Patch Examinations – Exam Program Plan	1

CALLAWAY ACTION REQUESTS

201302740	201206745	201301642	201301821	201108951
201301908	201202852	201109393	201109131	201109115
201108971	201202089	201109188	201109224	201110386
201202082	201301926	201302472	201108548	201108411
201108402				

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

NUMBER	TITLE	REVISION
ETP-AE-00002	Digital Feedwater Control System Power Ascension – IPTE	1
OTG-ZZ-00003	Plant Startup Hot Zero Power to 30% Power – IPTE	55
OTG-ZZ-00004	Power Operation	86
OTG-ZZ-00005	Plant Shutdown 20% Power to Hot Standby	43
OTG-ZZ-00006	Plant Cooldown Hot Standby to Cold Shutdown	67

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION
EDP-ZZ-01128	Maintenance Rule Program	20
EDP-ZZ-01128, Appendix 2	Maintenance Rule Program	9
EDP-ZZ-01128, Appendix 4	Maintenance Rule Program	24
OSP-KE-00001	Refueling Machine and Auxiliary Hoist Load Test	9
OSP-KE-00003	Cask Handling Crane Bridge and Trolley Travel Limit Verification	17

DRAWINGS

NUMBER	TITLE	REVISION
M-22EF01	Piping and Instrumentation Diagram – Essential Service Water System	78
M-23EF02	Piping Isometric – Essential Service Water System – Auxiliary Building A Train Supply	33
M-23EF03	Piping Isometric – Essential Service Water System – Auxiliary Building A Train Return	33
M-23EF04	Piping Isometric – Essential Service Water System – Auxiliary Building B Train Supply	22
M-23EF05	Piping Isometric – Essential Service Water System – Auxiliary Building B Train Return	22

CALLAWAY ACTION REQUESTS

201302454	201302482	201302878	201303004	201303128
201303949	201304220	201304285	201301108	201301117

CALLAWAY ACTION REQUESTS

201301128 201302608

JOBS

10517675 12511565 13500577

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00150	Outage Preparation and Execution	40
APA-ZZ-00315	Configuration Risk Management Assessment	9
APA-ZZ-00500	Corrective Action Program	57
EDP-ZZ-01129	Callaway Energy Center Risk Assessment	36
ODP-ZZ-00002	Equipment Status Control	72
ODP-ZZ-00002, Appendix 1	Protected Equipment Program	19
OOA-ZZ-SM001	Safety Monitor	5
OTN-BB-00002 Addendum 06	Draining the Reactor Coolant System to Limited Inventory or Reduced Inventory – Infrequently Performed Test or Evolution	20
OTO-BB-00006	Pressurizer Pressure Control Malfunction	18

DRAWINGS

NUMBER	TITLE	REVISION
8600-X-89233	Single Line Diagram – On-site Electrical Power Distribution System	42
8600-X-90005	300 Series On-site Power Distribution System	46

CALLAWAY ACTION REQUESTS

201303616	201302877	201304112	201302820	201302518
201304112	201304463	201302454	201302482	201302188
201302195	201302202	201304699	11513843	

JOBS

12500296	13001564	13001565	13001562	12000645
13003873	11513843	11502461	13003162	

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00100	Written Instructions Use and Adherence	30
APA-ZZ-00500 Appendix 1	Operability and Functionality Determinations	19
APA-ZZ-00520	Reporting Requirements and Responsibilities	39
ISL-SE-00N32	Source Range N32 Channel Calibration	37
ODP-ZZ-00001	Operations Department – Code of Conduct	81
OSP-NE-0001B	Standby Diesel Generator B Periodic Tests	55
OSP-KA-V0003 Attachment 1	Nitrogen Accumulator Leak Rate Test Data Sheet	26
OSP-SA-2413B	Train B Diesel Generator and Sequencer Testing	19

CALLAWAY ACTION REQUESTS

201303286	201303284	201303316	201303352	201302518
201303949	201109619	201109944	201109826	201304561

JOBS

10006987	13002487	11513041	12513803	11514779
11514839	13002988	13003717		

Section 1R18: Plant Modifications

PROCEDURES

NUMBER	TITLE	REVISION
ECA-0.0	Loss of All AC Power	17
OTO-BG-00001	Pressurizer Level Control Malfunction	16

CALLAWAY ACTION REQUESTS

201208283

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
BO-03-2, Addendum 3	Impact of Westinghouse RCP Shutdown Seal Installation on Core Uncovery During a Station Blackout	November 7, 2012
MP 10-0009	200910442 – Installation of New Westinghouse RCP Shutdown Seals	0
TB-04-22	Reactor Coolant Pump Seal Performance – Appendix R Compliance and Loss of All Seal Cooling	1
WCAP-1700-P-A	PRA Model for the Westinghouse Shut Down Seal	1

Section 1R19: Post-Maintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION
ETP-ZZ-00002	Digital Feedwater Control System Power Ascension Test-IPTE	1
OSP-NE-0001B	Standby Diesel Generator B Periodic Tests	55
OSP-SA-2413B	Train B Diesel Generator and Sequencer Testing	19
OTS-AP-00001	Non-Safety Auxiliary Feedwater Pump Testing and Operation	2
OTS-AP-00001, CL0002	Non Safety Auxiliary Feedwater Pump Valve Lineup	2
OTS-MA-00001	Main Step-Up Transformer Backfeed – IPTE	19

CALLAWAY ACTION REQUESTS

201303198 201304980

JOBS

05515978	10006482	10006484	11002478	11512942
12000425	12000426	12000576	12000577	12000578
09003317	13002497			

MISCELLANEOUS

NUMBER	TITLE	DATE
S01198, S01199, S01200, S01201	Test Reports for Single Phase Transformers	April 6 - 20, 2012

MISCELLANEOUS

NUMBER	TITLE	DATE
	Report of Witness Tests – 345/23.75 kV, 533.3 MVA Single Phase GSU Transformers Manufactured by Mitsubishi	April 19, 2012
SBA-E81104	Transformer Installation Report – 533.3 MVA, 345/√3/23.75kV Single Phase Generator Step-Up Transformer	September 9 - November 19, 2012
SSN-S4799	Site Test Procedure – 533.3 MVA 345.000 KV – 23.75 KV 1 Phase Generator Step-Up Transformer	November 7, 2012

Section 1R20: Refueling and Other Outage Activities

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00908	Fitness For Duty Programs	29
APA-ZZ-00911	Fatigue Management	3
OSP-SA-2413A	Train A Diesel Generator and Sequencer Testing	17
OTG-ZZ-00003	Plant Startup Hot Zero Power to 30% Power – IPTE	55
OTG-ZZ-00004	Power Operation	86
OTG-ZZ-00005	Plant Shutdown 20% Power to Hot Standby	43
OTG-ZZ-00006	Plant Cooldown Hot Standby to Cold Shutdown	67
OTN-BB-00002 Addendum 06	Draining the RCS to Limited Inventory or Reduced Inventory – IPTE	20

CALLAWAY ACTION REQUESTS

201304186

JOBS

11514466 13505334

MISCELLANEOUS

NUMBER	TITLE	DATE
	Callaway Refueling Outage 19 Overview	March 14, 2013
	Refuel 19 – Major Scope Summary	March 18, 2013
	Refuel 19 – Coastdown Plan	March 10, 2013

MISCELLANEOUS

NUMBER	TITLE	DATE
	Refuel 19 – Operations OCC Schedule	March 25, 2013
	Refuel 19 – Operations Control Room Schedule	March 25, 2013

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
ESP-EF-0002B	Essential Service Water Train B Flow Verification	21
ODP-ZZ-00029	Reactor Coolant System Leakage Action Level Guideline	3
OSP-BB-VL003	Reactor Coolant System to Residual Heat Removal Pressure Isolation Valves Inservice Test – IPTE	18
OSP-BB-VL005	BBV0001, BBV0022, BBV0040, BBV0059, and EM8815 Inservice Test – IPTE	19
OSP-BB-VL006	Reactor Coolant System Pressure Isolation Valves Inservice Tests – IPTE	41
OSP-BB-00006	Reactor Coolant Circulation	12
OSP-BB-00009	Reactor Coolant System Inventory Balance	34
OSP-BN-V0005	BN Suction Header Valves Inservice Test	0
OSP-EJ-PV04A	Train A Residual Heat Removal and Reactor Coolant System Check Valve Inservice Test – IPTE	6
OSP-EM-V0004	Residual Heat Removal Check Valve and Safety Injection Pump Recirculation Valve Inservice Test	21
OSP-KE-00001	Refueling Machine and Auxiliary Hoist Load Test	9
OSP-SA-2413B	Train B Diesel Generator and Sequencer Testing	19

CALLAWAY ACTION REQUESTS

201303004	201303128	201303211	201304423	

JOBS

10006987	11513041	11514535	11514596	11514838
13001671	11514030	11514132	11512090	13507893

Section 1EP4: Emergency Action Level and Emergency Plan Changes

MISCELLANEOUS

NUMBER	TITLE	REVISION
	Radiological Emergency Response Plan	41

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00014	Conduct of Operations – Radiation Protection	21
APA-ZZ-00405	Special Nuclear Material Control and Accounting Procedure	25
APA-ZZ-01000	Control of Radioactive Material	11
APA-ZZ-01004	Radiological Work Standards	23
HDP-ZZ-01200	Radiation Work Permits	20
HDP-ZZ-01500	Radiological Postings	40
HDP-ZZ-03000	Radiological Survey Program	39
HDP-ZZ-06000	Contamination Control and Alpha Monitoring Program	18
HTP-ZZ-01203	Radiological Area Access Control	50
HTP-ZZ-02004	Control of Radioactive Sources	35
HTP-ZZ-06001	High Radiation/Locked High Radiation/Very High Radiation Area Access	45
HTP-ZZ-06028	Radiological Controls for Pools that Contain or Store Spent Fuel	9

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	REVISION
201208410-18	Self-Assessment: Radiological Hazard Assessment and Exposure Control	16

RADIOLOGICAL SURVEYS

NUMBER	TITLE	DATE
CA-M-20130225-12	6105 – Fuel Pool Heat Exchanger A	February 25, 2013
CA-M-20130408-31	RB2023 S/G Sludge Lance Platforms	April 8, 2013
CA-M-20130410-23	RB2000 Inside Bioshield General Area	April 10, 2013
CA-M-20130411-21	RB2023 Platform General Area Dose Rates	April 11, 2013

RADIOLOGICAL SURVEYS

NUMBER	TITLE	DATE
CA-M-20130412-29	7402D Filter Valve Compartments	April 12, 2013
CA-M-20130412-39	Reactor Coolant Pump D Platform	April 11, 2013
CA-M-20130413-09	RB2047 Head Lift and Set on Head Stand	April 13, 2013
CA-M-20130415-02	RB RCP1 – C Seal Area Seal Installed	April 15, 2013
CA-M-20130415-21	Reactor Coolant Pump Post-Building Scaffold	April 15, 2013

CALLAWAY ACTION REQUESTS

201200648	201206358	201206464	201206584	201207005
201207805	201300319	201301075	201301361	201302105
201302256	201302450	201302464	201302465	201302525
201302549	201302665			

RADIATION WORK PERMITS

NUMBER	TITLE	REVISION
13002003	Dive Work to Repair Fuel Transfer System Cable	0
190803635	Motor Change on D Reactor Coolant Pump and Associated Tasks	2
190812208	Replace Cartridge Seal Assembly on D Reactor Coolant Pump	2

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Callaway Alpha Monitoring Program Self-Assessment	November 2012
H120.0032	Accountable Radioactive Source Inventory	March 25, 2013
	Callaway Energy Center Refuel 19 Daily Outage Report	April 18, 2013

Section 2RS2: Occupational ALARA Planning and Controls

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-01001	Callaway Plant ALARA Program	15
HDP-ZZ-01100	ALARA Planning and Review	14

PROCEDURES

NUMBER	TITLE	REVISION
HTP-ZZ-01101	Administrative Controls for Radioactivity	17
HDP-ZZ-01200	Radiation Work Permits	20

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
AP-13-001	Nuclear Oversight Audit Radiation Protection	March 5, 2013

CALLAWAY ACTION REQUESTS

201207840	201208335	201208337	201300648	201300704
201300864	201301757			

RADIATION WORK PERMITS

NUMBER	TITLE	REVISION
190803635	Motor Change on D Reactor Coolant Pump and Associated Tasks	2
190812208	Replace Cartridge Seal Assembly on D Reactor Coolant Pump	2
190813187	Detension Reactor Vessel Studs, Removal, Clean Stud Holes, Lubricate Stud Holes	2

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
WO 07005548	Catalytic H2 Recombiner Shielding	June 2007
WO 11513358	CVCS Regeneration Heat Exchanger Shielding	November 2011
WO 11514272	Chemical Addition Tank Shielding	December 2011
	Callaway Energy Center Long Range Dose and Source Term Reduction Plan	5

Section 4OA1: Performance Indicator Verification

CALLAWAY ACTION REQUESTS

201101042	201109408	201207169	20127493	201300120

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Callaway Energy Center Mitigating System Performance Indicator Basis Document	10
	Mitigating System Performance Indicator Derivation Report: Heat Removal System Unreliability Index	March 2013
	Mitigating System Performance Indicator Derivation Report: Heat Removal System Unavailability Index	March 2013
CA2565 1.c	NRC Performance Indicator Transmittal Report for Safety System Functional Failures First Quarter 2013	April 13, 2013
CA2565 1.c	NRC Performance Indicator Transmittal Report for Safety System Functional Failures Second Quarter 2012	July 3, 2012
CA2567 1.a	NRC Performance Indicator Transmittal Report for Reactor Coolant System Leakage First Quarter 2013	April 8, 2013

Section 4OA2: Identification and Resolution of Problems

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00500	Corrective Action Program	57
APA-ZZ-00500 Appendix 10	Trending Program	7
APA-ZZ-00500 Appendix 12	Significant Adverse Condition – Significance Level 1	20
Safe Work Practices	Safe Work Practices Manual	19

DRAWINGS

NUMBER	TITLE	REVISION
8600-X-89233	Single Line Diagram – On-site Electrical Power Distribution System	42
8600-X-90005	300 Series On-site Power Distribution System	46

CALLAWAY ACTION REQUESTS

201302280	201300076	201300046	201302086	201303810
201300957	201303107	201302722		

JOBS

10508098

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Adverse Trend or Emerging Trend CARS originated 12-1-2012 to 6-1-2013	June 10, 2013
	OSHA Citation and Notification of Penalty	May 30, 2013

Section 4OA3: Event Follow-Up

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00500, Appendix 17	Adverse Condition Classification	17
EIP-ZZ-00101	Classification of Emergencies	47
EIP-ZZ-00101 Addendum 1	Emergency Action Level Classification Matrix	3
EIP-ZZ-00101 Addendum 1	Emergency Action Level Technical Bases Document	6

DRAWINGS

NUMBER	TITLE	REVISION
8600-X-89233	Single Line Diagram – On-site Electrical Power Distribution System	42
8600-X-90005	300 Series On-site Power Distribution System	46

CALLAWAY ACTION REQUESTS

201101583	201107228	201107450	201101543	201104045
201107711	201208791			

JOBS

10508098

MISCELLANEOUS

NUMBER	TITLE	DATE
LER 05000483/2010-010-00	Violation of Technical Specification 3.0.3 Due to 'B' Class 1E Electrical Equipment Air Conditioning Unit Inoperability	March 21, 2011

Section 4OA5: Other Activities

DRAWINGS

NUMBER	TITLE	REVISION
M-015-U0027	Mechanical Equipment Installation 2 AT MS 4-3740	12

CALLAWAY ACTION REQUESTS

201206775	201206436	201206498	201206434	201206518
201206500				

MISCELLANEOUS

NUMBER	TITLE	DATE
1025286	Electric Power Research Institute Seismic Walkdown Guidance	May 31, 2012
NA	Callaway Nuclear Power Plant – Seismic Walkdown Equipment List, Revision 0, In Response to NTTF Recommendation 2.3: Seismic	August 31, 2012
NA	Seismic Walkdown Checklist (Stevenson Associates)	September 10, 2012
NA	Area Walk-By Checklist (Stevenson Associates)	September 10, 2012
	Fukushima Seismic Walkdowns Performed by Callaway	April 17, 2013
WCAP-17675-NP	Ameren Missouri – Callaway Energy Center Post-Fukushima NTTF 2.3 Seismic Walkdown Submittal Report	November 2012

The following items are requested for the
Occupational Radiation Safety Inspection
at Callaway Plant
(April 15 – 19, 2013)
Integrated Report 2013003

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **March 25, 2013**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc.

If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact Natasha Greene at (817) 200-1154 or Natasha.Greene@nrc.gov.

Currently, the other inspector will be Louis Carson. He may be contacted at (817) 200-1221 or Louis.Carson@nrc.gov.

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

1. Radiological Hazard Assessment and Exposure Controls (71124.01)
Date of Last Inspection: August 31, 2012

A. List of contacts (with official title) and telephone numbers for the Radiation Protection Organization Staff and Technicians

B. Applicable organization charts

C. Audits, self assessments, and LERs written since date of last inspection, related to this inspection area

D. Procedure indexes for the radiation protection procedures

E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
1. Radiation Protection Program Description
2. Radiation Protection Conduct of Operations
3. Personnel Dosimetry Program
4. Posting of Radiological Areas
5. High Radiation Area Controls
6. RCA Access Controls and Radworker Instructions
7. Conduct of Radiological Surveys
8. Radioactive Source Inventory and Control
9. Declared Pregnant Worker Program

F. List of corrective action documents (including corporate and subtiered systems) since date of last inspection
a. Initiated by the radiation protection organization
b. Assigned to the radiation protection organization
c. Identify any CRs that are potentially related to a performance indicator event

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable" so that the inspector can perform word searches.

If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with IP 71151)

G. List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)

H. List of active radiation work permits

I. Radioactive source inventory list

2. Occupational ALARA Planning and Controls (71124.02)
Date of Last Inspection: August 31, 2012

A. List of contacts (with official title) and telephone numbers for ALARA program personnel

B. Applicable organization charts

C. Copies of audits, self-assessments, and LERs, written since date of last inspection, focusing on ALARA

D. Procedure index for ALARA Program

E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
1. ALARA Program
2. ALARA Committee
3. Radiation Work Permit Preparation

F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the ALARA program. In addition to ALARA, the summary should also address Radiation Work Permit violations, Electronic Dosimeter Alarms, and RWP Dose Estimates.

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable."

G. List of work activities greater than 1 rem, since date of last inspection. Include original dose estimate and actual dose.

H. Site dose totals and 3-year rolling averages for the past 3 years (based on dose of record)

I. Outline of source term reduction strategy