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

November 5, 2012

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 05000483/2012004

Dear Mr. Heflin:

On September 25, 2012, 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 September 27, 2012, with Mr. F. Diya, Vice President Nuclear Operations, and other members of your staff.

The inspection 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.

One NRC-identified finding and one self-revealing finding of very low safety significance (Green) were identified during this inspection. Both 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 2.3.2 of the Enforcement Policy.

If you disagree with a cross-cutting aspect assignment in this report, or 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.

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, Chief
Project Branch B
Division of Reactor Projects

Docket No.: 50-483
License No: NPF-30

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

cc w/ encl: Electronic Distribution

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Publicly Avail.	☑Yes ☐ No	Sensitive	☐Yes ☑ No	Sens. Type Initials	NFO

SRI:DRP/B	SPE:DRP/B	C:DRS/TSB	C:DRS/EB1	C:DRS/EB2	C:DRS/OB
THartman	LWilloughby	RKellar	TFarnholtz	GMiller	VGaddy
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000483
License:	NPF-30
Report:	05000483/2012004
Licensee:	Union Electric Company
Facility:	Callaway Plant
Location:	Junction Highway CC and Highway O
Dates:	June 27 through September 25, 2012
Inspectors:	T. Hartman, Senior Resident Inspector Z. Hollcraft, Resident Inspector L. Carson, II, Senior Health Physicist P. Elkmann, Senior Emergency Preparedness Inspector N. Greene, Ph.D., Health Physicist N. Makris, Project Engineer J. O'Donnell, Health Physicist L. Ricketson, P.E., Senior Health Physicist L. Willoughby, Senior Project Engineer
Approved By:	Neil O'Keefe, Chief, Project Branch B Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000483/2012004; 06/27 - 09/25/2012, Callaway Plant, Integrated Resident and Regional Report; Operability Evaluations and Functionality Assessments and Radiological Hazard Assessment and Exposure Controls

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Two 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: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," involving the licensee’s failure to correct an adverse condition on a safety related system. Specifically, when a low oil condition was identified on an emergency diesel generator governor, the licensee fixed the symptom by adding oil, but failed to correct the condition by stopping the leak. This issue was entered into the licensee’s corrective action program as Callaway Action Request 201206798.

  Failure to correct an adverse condition on a safety related system was a performance deficiency. This finding 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 Manual Chapter 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” the finding was determined to be of very low safety concern because it affected the qualification of a mitigating system, but the affected train was still able to meet its PRA mission time. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution associated with the Corrective Action Program component because the licensee failed to thoroughly evaluate the problem such that the resolutions address causes including properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality [P.1(c)]. (Section 1R15)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a, because a worker did not follow radiation work permit

instructions. Specifically, an individual entered an area with radiation dose rates significantly higher than the areas on which he was briefed. As corrective action, the licensee coached the individual on the radiation work permit instructions and the licensee's expected radiation worker behavior. This was documented in the licensee's corrective action program as Callaway Action Request 201108483.

The failure to follow radiation work permit instructions is a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This finding had a crosscutting aspect in the human performance area, work practices component, in that the worker failed to use error prevention techniques, such as self-checking [H.4(a)]. (Section 2RS1)

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Callaway operated at 100 percent power for the duration of the inspection period with the exception of planned power reductions for routine surveillance testing.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

Partial Walkdown

a. Inspection Scope

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

- August 11, 2012, high pressure safety injection train A
- August 28, 2012, emergency diesel generator train A
- September 8, 2012, containment spray train B
- September 18, 2012, component cooling water pump B

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Final Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in Attachment 1.

These activities constitute completion of four partial system walkdown samples 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:

- July 8, 2012, turbine building during fire loop outage, fire area T-2
- July 20, 2012, emergency exhaust equipment rooms trains A and B, fire areas F-6 and F-7
- July 23, 2012, fire pump house during announced fire drill, fire area S-8
- September 1, 2012, south electrical penetration room, fire area A-17
- September 8, 2012, containment spray pump room train B, fire area A-4B

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 Attachment 1, 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 Attachment 1.

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.

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

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On August 14, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during requalification testing. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques
- Follow-up actions taken by the licensee for identified discrepancies

Specific documents reviewed during this inspection are listed in Attachment 1.

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 August 8 and 11, 2012, the inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity due to the evolutions listed below. The inspectors observed the operators' performance of the following activities:

- August 8, 2012, high pressure coolant injection system train A valve strokes, reactor coolant system subcooling monitor train A troubleshooting, and alternate emergency power system testing
- August 11, 2012, reactor coolant system dilution and response to loss of interlock annunciator P-9

In addition, 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 Attachment 1.

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:

- August 1, 2012, containment ventilation system
- August 9, 2012, review of periodic evaluation per 10 CFR 50.65a(3)

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
- 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 Attachment 1.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- July 16, 2012, 120 volt non-safety inverter PN09 failure and troubleshooting, Job 12003592
- July 17, 2012, work on train B reactor vessel level indication system (protected train work), Job 12003350
- July 23, 2012, Yellow risk during train B pressurizer power operated relief valve block valve breaker maintenance, Job 07507305
- August 13, 2012, 120 volt safety-related inverter NN14 failure and troubleshooting, Job 12003827

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 Attachment 1.

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

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- July 11, 2012, turbine-driven auxiliary feedwater pump trip throttle valve seat material qualification issue, Callaway Action Request 201204847
- July 30, 2012, containment normal sump level erratic indication, Callaway Action Request 201205304
- August 6, 2012, containment cooler B inlet temperature instrument failure, Callaway Action Request 201204954
- August 8, 2012, containment spray pump A room door seal leak, Callaway Action Request 201205597
- August 30, 2012, diesel generator A governor oil leak, Callaway Action Request 201201117

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 Attachment 1.

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," involving the licensee's failure to correct an adverse condition on a safety related system. Specifically, when a low oil condition was identified on an emergency diesel generator governor, the licensee fixed the symptom by adding oil, but failed to correct the condition by stopping the leak.

Description. On February 3, 2012, while performing plant rounds, an operations technician identified a low oil level condition in the governor for emergency diesel generator A. The technician initiated Job 12000746 to add oil to the governor. Later that day, oil was added to the governor. On February 12, 2012, an operations technician again identified a low oil condition in the governor for emergency diesel generator A. The technician initiated Job 12000905 to add oil to the governor. Upon hearing that the governor needed oil again within the short time frame, the system engineer initiated Callaway Action Request 201201117, performed a walkdown of the governor, and identified an oil leak coming from the drain of the governor. The oil leak was approximately one drop every five minutes. Job 12000924 was initiated to investigate and correct the leak. On February 14, 2012, the drain petcock valve was found to be slightly open. The drain petcock valve was tightened closed and oil was again added to the governor. Subsequent observation noted no additional leakage or oil loss.

A review of the oil leak identified, at the rate of loss with the oil level at the bottom of the sight glass, the diesel generator would operate normally for 3.4 days with an additional 2.9 days of degraded operation. After 6.3 days, the governor would no longer support diesel operation. The mission time for the emergency diesel generator is 7 days.

The inspectors noted that when the licensee first identified the low oil condition, the diesel generator would not have been able to support the full mission time and should have been considered inoperable. Once oil was added, the diesel was able to operate for its designed mission time. However, since the adverse condition was not corrected, the oil level lowered again rendering the diesel generator inoperable a second time.

Analysis. The inspectors determined that the failure to correct an adverse condition on a safety related component was a performance deficiency. Specifically, when a low oil condition was identified on an emergency diesel generator, the licensee fixed the symptom by adding oil, but failed to correct the condition by stopping the leak. 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.

The inspectors evaluated the finding in accordance with 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 affected the qualification of a mitigating system, but the affected train was still able to meet its PRA mission time. This finding has a cross-cutting aspect in the area of Problem

Identification and Resolution associated with the corrective action program component because the licensee failed to thoroughly evaluate the problem such that the resolutions address causes and extent of conditions, as necessary including properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality [P.1(c)].

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this, on February 3, 2012, the licensee did not correct an adverse condition on a safety related system. Specifically, when a low oil condition was identified on an emergency diesel generator, the licensee fixed the symptom by adding oil, but failed to correct the condition by stopping the leak. This caused the emergency diesel generator to become inoperable again due to inability to support the full mission time. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as Callaway Action Request 201206798, this violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000483/2012004-01, "Failure to Correct an Adverse Condition on an Emergency Diesel Generator."

1R18 Plant Modifications (71111.18)

Permanent Modifications

a. Inspection Scope

The inspectors reviewed key parameters associated with, materials, replacement components, timing, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, process medium properties, licensing basis, and failure modes for the permanent modification identified as MP 12-0019, "Install Isolation Valves for the Circulation and Service Hydraulic Pump C," associated with the circulating water isolation valve hydraulic system.

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 Attachment 1.

These activities constitute completion of one sample for 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:

- July 11, 2012, safety injection pump train A post-maintenance test, Job 1051509
- August 1, 2012, ultimate heat sink electrical room lighting breaker change, Job 07509139
- August 13, 2012, 120 volt safety-related inverter NN14 logic card replacement, Job 12003827
- August 20, 2012, 120 volt safety-related inverter NN14 component replacement, Job 12004372
- August 24, 2012, reactor vessel level indication system train B, Job 12003350

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 Attachment 1.

These activities constitute completion of five post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

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

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

- July 5, 2012, emergency diesel generator B fast start routine test, Job 12500704
- July 12, 2012, alternate emergency power system diesel routine surveillance test, Job 12506361

- July 17, 2012, emergency exhaust fan A routine surveillance test, Job 12506838
- July 18, 2012, emergency fuel oil pump A routine surveillance test, Job 12504725
- August 20, 2012, 120 volt safety-related inverter NN14 outage test, Job 12004372
- September 24, 2012, shutdown purge system containment isolation verification, Job 12509180

Specific documents reviewed during this inspection are listed in Attachment 1.

These activities constitute completion of a total of six surveillance testing inspection samples, including one containment isolation and five routine surveillances, as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of offsite siren emergency warning systems, tone alert radio systems, and backup notification and alerting methods, to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee's alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1; Federal Emergency Management Agency (FEMA) Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current FEMA-approved alert and notification system design report, “Callaway Plant Alert and Notification System Design Report,” dated April 2011. The specific documents reviewed during this inspection are listed in Attachment 1.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.02-05.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of primary and backup systems for augmenting the on-shift emergency response staff to determine the adequacy of licensee methods for staffing emergency response facilities in accordance with their emergency plan and the requirements of 10 CFR Part 50, Appendix E. The inspectors also reviewed the licensee's methods to notify the emergency response organization to staff alternative response facilities as necessary, and licensee training on the primary and backup notification methods. The specific documents reviewed during this inspection are listed in Attachment 1.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.03-05.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness (71114.05)

a. Inspection Scope

The inspectors reviewed the following documents originated between June 2010 and September 2012:

- The licensee's corrective action program requirements described in Procedure APA-ZZ-00500, "Corrective Action Program," Revision 54
- The licensee's program requirements for preparing event after-action reports described in Procedure EIP-ZZ-00260, "Event Closeout/Plant Recovery," Revision 23
- The licensee's program requirements for making changes to the site emergency plan and implementing procedures as described in Procedure KDP-ZZ-00400, "RERP Impact Evaluations and Changes," Revision 19
- The licensee's program requirements for the protection of onsite workers during hostile actions as described in Procedures OTO-SK-00002 "Plant Security Event, Aircraft Threat," Revision 15, and EIP-ZZ-SK001, "Response to Security Events," Revision 8
- The licensee's program requirements for maintaining emergency preparedness facilities and equipment as described in Procedure KDP-ZZ-00013, "Emergency Response Facility and Equipment Evaluation," Revision 9

- Summaries of 164 corrective action program entries assigned to the emergency preparedness department and emergency response organization
- After-action reports for events on April 13, 2010, and September 18, 2011
- Quality Assurance reports, assessments, and audits
- Program assessments
- Drill evaluation reports

The inspectors evaluated responses to the corrective action program requests, audits, and assessments, to determine the licensee's ability to identify, evaluate, and correct problems in accordance with the licensee program requirements, planning standard 10 CFR 50.47(b)(14), and 10 CFR Part 50, Appendix E. The inspectors selected 26 corrective action program entries for detailed review against the program requirements. The inspectors also toured the near-site alternate Technical Support Center and Operations Support Center to determine the licensee's compliance with Appendix E to Part 50, Section IV.E(8)(c). The specific documents reviewed during this inspection are listed in Attachment 1.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.05-05.

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 is 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 Attachment 1.

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

b. Findings

Introduction. The inspectors reviewed a Green, self-revealing non-cited violation of Technical Specification 5.4.1.a because a worker did not follow radiation work permit instructions.

Description. On October 17, 2011, the licensee was alerted by an electronic dosimeter dose rate alarm to a situation that involved an instrumentation and controls technician installing cameras that would be used during valve work, inside the bioshield. The

individual worked in accordance with Radiation Work Permit 191001HRA and was briefed on work area dose rates up to, but not exceeding, the dose rate alarm setpoint of his electronic dosimeter (150 millirem/hour). Without contacting radiation protection personnel as required by the radiation work permit, the instrumentation and controls technician climbed to areas higher than 8 feet above the floor level and entered into an area with a dose rate of 263 millirem/hour, which was significantly greater than that on which the technician was briefed.

The licensee investigated the circumstances that led to the individual receiving the dose rate alarm. They determined the individual had focused on locating the valve on which work was to be done. However, the individual did not perform an adequate "two-minute drill" to help himself assess the surroundings and recall the requirements of the radiation work permit. The individual was coached on the radiation work permit instructions and the licensee's expected behavior.

Analysis. The failure to follow radiation work permit instructions is a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This finding had a crosscutting aspect in the human performance area, work practices component, in that the worker failed to use error prevention techniques, such as self-checking. [H.4(a)].

Enforcement. Technical Specification 5.4.1.a required procedures be established, implemented, and maintained covering activities specified in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 7.e.(1) of the regulatory guide required procedures for access control to radiation areas including a radiation work permit system. Procedure APA-ZZ-01004, "Radiological Work Standards," Revision 21, Step, 4.3.1.a.3 required individuals working in the radiological controlled area ensure they adhere to the instructions on radiation work permits. Radiation Work Permit 191001HRA instructed workers to contact radiation protection personnel prior to accessing areas greater than 8 feet above floors or work platforms. Contrary to this, on October 17, 2011, the licensee failed to implement a procedure required by Technical Specification 5.4.1.a and Regulatory Guide 1.33 when a licensee worker did not adhere to the instructions on a radiation work permit. Specifically, an instrumentation and controls technician did not contact radiation protection personnel prior to accessing areas greater than 8 feet above the floor and entering into a dose rate of 263 millirem/hour. As corrective action, the licensee coached the individual on the radiation work permit instructions and the licensee's expected radiation worker behavior. Because this violation is of very low safety significance and has been entered into the licensee's corrective action program as Callaway Action Request 201108483, it is being treated as a non-cited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 5000483/2012004-02, "Failure to Follow Radiation Work Permit Instructions."

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 Attachment 1.

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

b. Findings

No findings were identified.

2RS3 In-plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

This area was inspected to verify in-plant airborne concentrations are being controlled consistent with ALARA principles and the use of respiratory protection devices on-site does not pose an undue risk to the wearer. 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, performed walkdowns of various portions of the plant, and reviewed the following items:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls

- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of National Institute for Occupational Safety and Health certified equipment, qualification and training of personnel, and user performance

- The licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions, status of self-contained breathing apparatus staged and ready for use in the plant and associated surveillance records, and personnel qualification and training

- Audits, self-assessments, and corrective action documents related to in-plant airborne radioactivity control and mitigation since the last inspection

Specific documents reviewed during this inspection are listed in Attachment 1.

These activities constitute completion of one sample as defined in Inspection Procedure 71124.03-05.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

This area was inspected to: (1) determine the accuracy and operability of personal monitoring equipment; (2) determine the accuracy and effectiveness of the licensee's methods for determining total effective dose equivalent; and (3) ensure occupational dose is appropriately monitored. 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, performed walkdowns of various portions of the plant, and reviewed the following items:

- External dosimetry accreditation, storage, issue, use, and processing of active and passive dosimeters

- The technical competency and adequacy of the licensee's internal dosimetry program

- Adequacy of the dosimetry program for special dosimetry situations such as declared pregnant workers, multiple dosimetry placement, and neutron dose assessment

- Audits, self-assessments, and corrective action documents related to dose assessment since the last inspection

Specific documents reviewed during this inspection are listed in Attachment 1.

These activities constitute completion of one required sample as defined in Inspection Procedure 71124.04-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Occupational Radiation Safety, Public 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 second quarter 2012 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 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams per 7000 critical hours performance for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of July 2011 through June 2012 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 Attachment 1.

These activities constitute completion of one unplanned scrams per 7000 critical hours sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Unplanned Power Changes per 7000 Critical Hours (IE03)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned power changes per 7000 critical hours performance for the period from third quarter 2011 through the second quarter 2012. 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, maintenance rule records, event reports, and NRC integrated inspection reports for the period of July 2011 through June 2012 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 Attachment 1.

These activities constitute completion of one unplanned power changes per 7000 critical hours sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams with complications performance indicator for the period from the third quarter 2011 through the second quarter 2012. 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, and NRC integrated inspection reports for the period July 2011 through June 2012 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 Attachment 1.

These activities constitute completion of one unplanned scrams with complications sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise Performance, performance indicator for the period April 2011 through June 2012. The performance indicator definitions and guidance in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used determine the accuracy of the reported performance indicator data. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance and site Procedure KDP-ZZ-02000, "NRC Performance Indicator Data Collection," Revision 14. The inspectors reviewed licensee records of performance indicator opportunities during predesignated control room simulator training sessions, the 2011 biennial exercise, and other drills. The specific documents reviewed are described in Attachment 1.

These activities constitute completion of one drill/exercise performance sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.6 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise Performance, performance indicator for the period April 2011 through June 2012. The performance indicator definitions and guidance in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used determine the accuracy of the reported performance indicator data. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance and site Procedure KDP-ZZ-02000, "NRC Performance Indicator Data Collection," Revision 14. The inspectors reviewed licensee records of drill and exercise participation opportunities for key emergency response organization personnel, organization rosters, and exercise participation records. The specific documents reviewed are described in Attachment 1.

These activities constitute completion of one emergency response organization drill participation sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.7 Alert and Notification System (EP03)

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise Performance, performance indicator for the period April 2011 through June 2012. The performance indicator definitions and guidance in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used determine the accuracy of the reported performance indicator data. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance and site Procedure KDP-ZZ-02000, "NRC Performance Indicator Data Collection," Revision 14. Specifically, the inspectors reviewed licensee records and processes, including procedural guidance for assessing opportunities for the performance indicator, and the results of periodic alert notification system operability tests. The specific documents reviewed are described in Attachment 1.

These activities constitute completion of one alert and notification system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.8 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the fourth quarter 2011 through the second quarter 2012. 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 one occupational exposure control effectiveness sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed performance indicator data for the fourth quarter 2011 through the second quarter 2012. 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 one 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 list of documents reviewed in Attachment 1.

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

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

- alternate emergency power system diesel generator 1 inadvertent isolation, Callaway Action Request 201205208

- conflicting guidance in the procedures directing the response to an abnormal condition of the safety-related 120 volt inverters, Callaway Action Request 201205681

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

b. Findings

No findings were identified.

.4 In-depth Review of Operator Workarounds

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the operator workarounds on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents.

The inspectors performed a review of the cumulative effects of operator workarounds. The documents listed in Attachment 1 were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their corrective action program, and proposed or implemented appropriate and timely corrective actions that addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an initiating event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of mitigating systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified operator workarounds.

This activity constitutes completion of one operator workaround inspection sample as part of the annual in-depth problem identification and resolution samples defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

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

Inverter NN14 Notice of Enforcement Discretion

Introduction. On August 19, 2012, safety-related inverter NN14 failed. After determining the cause of the failure, the length of time to repair, test, and return to service; the licensee requested enforcement discretion since activities would extend beyond the allowed outage time specified in technical specifications. An unresolved item was identified to assess whether the cause for the noncompliance, for which a Notice of Enforcement Discretion was granted, involved a violation.

Description. On July 27 and August 13, 2012, safety related inverter NN14 auto-transferred to the backup source. The licensee entered Technical Specification 3.8.7, Action A.1, which required returning the inverter to operable status within 24 hours or place the plant in Mode 3 within 6 hours and Mode 5 within 36 hours. Troubleshooting efforts concluded that the most likely cause for the inadvertent auto-transfer was a degraded card associated with the automatic static transfer switch. This card was replaced along with successful completion of post-maintenance testing.

On August 19, 2012, inverter NN14 failed again. The licensee entered Technical Specification 3.8.7, Action A.1. Troubleshooting revealed that the constant-voltage transformer phase B secondary windings were shorted to ground. The most probable cause of the short was determined to be degradation of the transformer windings/insulation.

In consultation with the vendor, the licensee determined that following replacement of the transformer, post-maintenance testing and temperature/voltage stabilization would exceed the time allowed by technical specifications. Therefore, the licensee contacted the NRC on August 20, 2012, to request enforcement discretion to extend the allowed outage time of Technical Specification 3.8.7, Action A.1, for an additional 36 hours (a total of 60 hours). The NRC staff evaluated the information provided by the licensee and granted Notice of Enforcement Discretion 12-4-002 (ADAMS ML12237A010).

An unresolved item was identified to assess whether the cause for the noncompliance, for which a Notice of Enforcement Discretion was granted, involved a violation URI 05000483/2012004-03, "Review Cause of the Failure of Inverter NN14."

4OA5 Other Activities

(Closed) Temporary Instruction 2515/185, Follow-up on the Industry's Ground Water Protection Initiative

a. Inspection Scope

An NRC follow-up assessment of the licensee's ground water protection program was performed the week of August 27, 2012. This review was to determine whether the licensee had implemented program elements that were identified as incomplete during the NRC's inspection of Temporary Instruction on Groundwater Protection, TI-2515/173, "Industry Groundwater Protection Initiative," on June 22, 2009. Inspectors interviewed personnel, performed walkdowns of selected areas, and reviewed the implementation of the program elements listed below.

b. Findings

The following elements had been implemented since the previous review:

- Element 1.1a – Perform hydrogeologic studies to determine predominant ground water flow characteristics and gradients.
- Element 1.1 b – Review existing hydrogeologic and geologic studies, historical environmental studies and permit or license-related reports.
- Element 1.1 c – Identify potential pathways for ground water migration from on-site locations to off-site locations through ground water.
- Element 1.1d – Establish the frequency for periodic reviews of site hydrogeologic studies.
- Element 1.2.c - Identify potential enhancements to leak detection systems or programs. These may include additional or increased frequency of rounds or walkdowns or inspections, or integrity testing.
- Element 1.2d – Identify potential enhancements to prevent spills or leaks from reaching ground water.
- Element 1.2f – Establish long-term programs to perform preventative maintenance or surveillance activities to minimize the potential for inadvertent releases of licensed materials due to equipment failure.
- Element 1.2g – Establish the frequency for periodic reviews of systems, structures, and components and work practices.
- Element 1.3.b - Consider, as appropriate, placing sentinel wells closer to structures, systems, and components that have the highest potential for

inadvertent releases that could reach ground water or structures, systems, and components where leak detection capability is limited.

- Element 1.3d – Establish a formal, written program for long-term ground water monitoring. For those ground water monitoring locations that are included in the REMP, revise the site's Offsite Dose Calculation Manual.

- Element 1.3f – Establish a long-term program for preventative maintenance of ground water wells.

- Element 1.4a – Establish written procedures outlining the decision making process for remediation of leaks and spills or other instances of inadvertent releases.

- Element 1.4b – Evaluate the potential for detectible levels of licensed material resulting from planned releases of liquids and/or airborne materials.

- Element 1.4c – Evaluate and document, as appropriate, decommissioning impacts resulting from remediation activities or the absence thereof.

All elements were verified as complete. No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On August 30, 2012, the inspectors presented the results of the radiation safety inspections to Mr. L. Graessle, Director of Plant 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 September 14, 2012, the inspector presented the results of the onsite inspection of the licensee's emergency preparedness program to Mr. C. Reasoner, Vice President, Engineering, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On September 27, 2012, the inspectors presented the inspection results to Mr. F. Diya, Vice President Nuclear Operations, and other members of the licensee staff. On October 9, 2012, the inspectors conducted a follow-up exit and presented updated inspection results to Mr. S. Maglio, Regulatory Affairs Manager. 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.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

F. Bianco, Assistant Operations Manager, Support
K. Blair, Engineer, Engineering Technical Support and Programs
L. Bodenschatz, Engineer, Maintenance Rule
B. Cox, Manager, Planning/Scheduling/Outages
W. Cravens, Medical Review Officer
L. Eitel, Supervising Engineer Systems, Balance of Plant
T. Elwood, Supervising Engineer, Licensing/Regulatory Affairs
G. Gary, Consulting Chemist, Ameren
K. Gilliam, ALARA Supervisor, Radiation Protection
L. Graessle, Director, Operations Support
C. Graham, Health Physicist, Radiation Protection
A. Heflin, Senior Vice President and Chief Nuclear Officer
G. Hurla, Supervisor, Radiation Protection
A. King, Senior Health Physicist, Radiation Protection
J. Little, Supervising Engineer Systems, Reactor/Safety Analysis
S. Maglio, Manager, Regulatory Affairs
P. McKenna, Manager, Emergency Preparedness
D. Neterer, Plant Director
H. Osborn, Regulatory Affairs Specialist
T. Pettus, Supervisor of Major Projects, Engineering
S. Petzel, Engineer, Regulatory Affairs
C. Reasoner, Vice President Engineering
C. Smith, Manager, Radiation Protection
F. Stuckey, Senior Health Physicist, Radiation Protection
D. Thompson, Senior Health Physicist, Radiation Protection

LIST OF ITEMS OPENED AND CLOSED

Opened

05000483/2012004-03	URI	Review the Cause of the Failure of Inverter NN14 (Section 4OA3)

Opened and Closed

05000483/2012004-01	NCV	Failure to Correct an Adverse Condition on an Emergency Diesel Generator (Section 1R15)
05000483/2012004-02	NCV	Failure to Follow Radiation Work Permit Instructions (Section 2RS1)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
ODP-ZZ-0016E, Appendix 1	Operations Technician General Inspection Guide	8
ODP-ZZ-0016E, Appendix 1	Operations Technician General Inspection Guide	12
OSP-BG-P005A	Centrifugal Charging Pump A Inservice Test – Group B	42

DRAWINGS

NUMBER	TITLE	REVISION / DATE
M-22EJ01 (Q)	Piping and Instrumentation Diagram – Residual Heat Removal System	59
M-33EG01	Piping and Instrumentation Diagram – Component Cooling Water System	10

CALLAWAY ACTION REQUESTS

201205668 201007538 201102434 201102435

JOBS

12004240

Section 1R05: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION / DATE
	Fire Preplan Manual	34
21592	Fire Protection Impairment Permit	July 8, 2012
APA-ZZ-00703	Fire Protection Operability Criteria and Surveillance Requirements	20
FPP-ZZ-00001	Auxiliary Building Prefire Strategies	23

CALLAWAY ACTION REQUESTS

199903704

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

NUMBER	TITLE	REVISION
CDP-ZZ-01100	Atmospheric Hazard Control Program	10
ODP-ZZ-00001	Operations Department – Code of Conduct	76
ODP-ZZ-00001, Addendum 1	Annunciator Response	8
ODP-ZZ-00017	Annunciator Status and Tracking	20
OTN-BG-00002	Reactor Makeup Control and Boron Thermal Regeneration System	41
OTO-SB-00069	SB069 Contingency Monitoring Actions	9

MISCELLANEOUS

NUMBER	TITLE	DATE
	Cycle 12-5 As Found Scenario	July 13, 2012

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION
EDP-ZZ-01128	Maintenance Rule Program	17
EDP-ZZ-01128, Appendix 1	Systems, Structures, and Components in the Scope of the Maintenance Rule at Callaway	8
EDP-ZZ-01128, Appendix 2	Summary of System Structure and Component Performance Criteria	22
EDP-ZZ-01128, Appendix 4	Maintenance Rule System Functions	7
OTO-GN-00002	Control Rod Drive Mechanism Cooling Fan Malfunctions	3

CALLAWAY ACTION REQUESTS

201004315	201205258	201205298	201205357	201205384
201205391	201200166	201000663	201010303	201110202

CALLAWAY ACTION REQUESTS

201100199

MISCELLANEOUS

NUMBER	TITLE	DATE
FSA 201200166-21	Maintenance Rule Periodic Assessment for Cycle 18 (6/13/10 through 11/25/11)	May 15, 2012

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00152	Emergent Issue Response	8
ODP-ZZ-00002	Equipment Status Control	64
ODP-ZZ-00002, Appendix 1	Protected Equipment Program	18
ODP-ZZ-00002, Appendix 2	Risk Management Actions for Planned Risk Significant Activities	6

CALLAWAY ACTION REQUESTS

201204962 201205680

JOBS

12003592 12003350 07507305 12003827

MISCELLANEOUS

NUMBER	TITLE	REVISION/ DATE
CA2980	Protected Equipment Work Approval Form	July 17, 2012
	Callaway Control Room Logs	July 23, 2012
WCAP-16673-P	7300 Process Protection and Control System Life Cycle Sourcebook (PA-SEE-0176)	0

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00500	Corrective Action Program	54
APA-ZZ-00500 Appendix 1	Operability and Functionality Determinations	18
APA-ZZ-00500 Appendix 3	Past Operability & Reportability Evaluations (REPO)	14
APA-ZZ-00500 Appendix 17	Screening Process Guidelines	15
APA-ZZ-0500 Appendix 22	Corrective Action Program Definitions	7
APA-ZZ-00322	Integrated Work Management Process Description	13
PDP-ZZ-00023	Work Screening and Processing	26
KDP-ZZ-00013	Emergency Response Facility and Equipment Evaluation	9
ODP-ZZ-00001, Addendum 15	Operability and Functionality Determinations	8
APA-ZZ-00500 Appendix 1	Operability and Functionality Determinations	15

CALLAWAY ACTION REQUESTS

201204847	201204973	201205304	201201117	201204954
199400595	199400609	201005797	201205597	

JOBS

12003602	12000746	12000905	12000924

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
00138	Parts Q List	August 13, 1997
332566	Certificate of Conformance/Compliance for Order No. 332566	1
	Control Room Logs	July 31, 2012

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
O120.0015	Night Order: Containment Temperature Monitoring	August 4, 2012
M-FL-02	Flooding of Auxiliary Building Rooms 1107 – 1114	0
SK-06	Auxiliary & Control Building Flood Analysis	1
M-FL-06	Auxiliary Building Flooding Due to Pipe Break (No Seismic Event)	0

Section 1R18: Plant Modifications

DRAWINGS

NUMBER	TITLE	REVISION
8600-X-89620	Piping & Instrumentation Diagram Hydraulic Unit SDA2101 Circulating and Service Water Pumphouse	8

CALLAWAY ACTION REQUESTS

201205084

JOBS

11007194

MISCELLANEOUS

NUMBER	TITLE	DATE
MP 12-0019	Engineering Change Notice	July 19, 2012
O120.0015	Night Order: Discharge Isolation Valves to Circulating and Service Hydraulic Pumps	July 19, 2012

Section 1R19: Post-Maintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION / DATE
ESP-UB-03012	FUB7001 In-Place Bypass Leakage Test	4
OSP-EM-P001A	Safety Injection Train A Inservice Test – Group B	45
OTO-ZZ-00001	Control Room Inaccessibility	35

PROCEDURES

NUMBER	TITLE	REVISION / DATE
ISL-BB-T443A	Reactor Coolant System Hot Leg Wide Range Temperature Loop 4	13
ISL-BB-0P403	Reactor Coolant System Pressure (Wide Range) Loop Calibration	21
ISL-BB-L1321	Instrumentation & Control Loop Calibration Surveillance – Reactor Vessel Level Train B	17

CALLAWAY ACTION REQUESTS

201205011

JOBS

1051509	12004372	07509139	12003350	12003827

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
OSP-GG-0001A	A Train Emergency Exhaust System Operability Test	10
OSP-JE-P001A	Emergency Fuel Oil Pump A Inservice Test	25
OSP-NE-0001B	Standby Diesel Generator B Periodic Tests	51
OTS-PA-00001	Operation and Testing of the Alternate Emergency Power Source	8
OSP-GT-00001	Shutdown Purge System Lineup Verification	9
OTS-NN-00014	NN14 Inverter Outage – IPTE	19

DRAWINGS

NUMBER	TITLE	REVISION
8600-X-90988	Single Line Diagram Alternate Emergency Power System	1

CALLAWAY ACTION REQUESTS

201204759

JOBS

12504725	12506838	12500704	12506361	12509180
12004372				

Section 1EP2: Alert and Notification System Evaluation

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
KSP-ZZ-00008	Tone Alert Radios	4
KSP-ZZ-00008	Appendix 1, Electric Utility Providers in the EPZ and other Information Providers	3
KSP-ZZ-00008	Appendix 2, Microsoft Access Tone Alert Radio Database Fields	1
KSP-ZZ-00110	Siren Alerting System Testing	7
	Tone Alert Radio Database Audit	January 2010
	Tone Alert Radio Database Audit	January 2011
	Tone Alert Radio Database Audit	January 2012

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

MISCELLANEOUS

NUMBER	TITLE	REVISION
EIP-ZZ-00200	Augmentation of the Emergency Callout System	14
EIP-ZZ-A0001	Emergency Response Organization	15
KSP-ZZ-00102	Monthly Emergency Communications System Testing	9
KSP-ZZ-00201	Emergency Augmentation Drill/Test	3
KSP-ZZ-00202	Emergency Response Notification System Weekly Testing	7
	Evaluation Report for the Augmentation Test conducted September 28, 2010	
	Evaluation Report for the Augmentation Test conducted December 14, 2010	
	Evaluation Report for the Augmentation Test conducted March 23, 2011	
	Evaluation Report for the Augmentation Test conducted June 15, 2011	

MISCELLANEOUS

NUMBER	TITLE	REVISION
	Evaluation Report for the Augmentation Test conducted September 14, 2011	
	Evaluation Report for the Augmentation Test conducted November 30, 2011	
	Evaluation Report for the Augmentation Test conducted March 19, 2012	
	Evaluation Report for the Augmentation Test conducted June 19, 2012	

Section 1EP5: Maintenance of Emergency Preparedness

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
APA-ZZ-00004	Emergency Preparedness Department Responsibilities	20
APA ZZ-00500	Appendix 12, Significant Adverse Condition – Significance Level 1	15
APA ZZ-00500	Appendix 13, Adverse Condition – Significance Level 2	14
APA ZZ-00500	Appendix 14, Adverse Condition – Significance Level 3	12
APA ZZ-00500	Appendix 15, Adverse Condition – Significance Level 4	12
APA ZZ-00500	Appendix 16, Adverse Condition – Significance Level 5	9
APA ZZ-00500	Appendix 17, Screening Process Guidelines	15
APA ZZ-00500	Appendix 21, Other Issues – Significance Level 6	12
EIP-ZZ-A0001	Emergency Response Organization	15
EIP-ZZ-A0020	Maintaining Emergency Preparedness	28
EIP-ZZ-A0066	RERP Training Program	21
Form CA2783	Emergency Response Facility Functionality Evaluation	
Form CA3100	Emergency Response Equipment Functionality Evaluation	
GDP-ZZ-01810	Nuclear Oversight Assessment Coverage	44
KDP-ZZ-00013	Emergency Response Facility and Equipment Evaluation	9
KDP-ZZ-00300	Maintaining Emergency Preparedness, Supplemental Documents	15

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
KDP-ZZ-02001	Drill and Exercise Program	11
KSP-ZZ-00007	Offsite Effectiveness of the Emergency Preparedness Program	9
PDP-ZZ-00023	Work Screening and Processing	26
	After Action Report for the April 13, 2010, Notification of Unusual Event	April 27, 2010
	After Action Report for the September 18, 2011, Alert	March 13, 2012
AP10-006	Nuclear Oversight Audit: Emergency Preparedness	July 29, 2010
AP11-008	Nuclear Oversight Audit: Emergency Preparedness	August 15, 2011
AP12-008	Nuclear Oversight Audit: Emergency Preparedness	August 2012
SA10-EP-C01	Benchmark: NEI Form and RUG4 Meeting	June 23, 2010
SA10-EP-S01	Assessment: Validate Drill and Exercise Performance	August 19, 2010
SA10-EP-C02	Benchmark: SONGS EP Assist Visit	September 2010
201100569-15	NRC EP Performance Indicators Self-Assessment	April 26, 2011
201201081-6.3	Readiness for September 2012 NRC Program Inspection, Self Assessment	July 16, 2012
01077217	Emergency Response Facility Functionality Evaluation	October 4, 2010
01132026	Emergency Response Facility Functionality Evaluation	October 17, 2010
01077256	Emergency Response Facility Functionality Evaluation	December 16, 2010
01077272	Emergency Response Facility Functionality Evaluation	March 28, 2011
17914	Emergency Response Facility Functionality Evaluation	May 16, 2011
01077302	Emergency Response Facility Functionality Evaluation	June 15, 2011
01077325	Emergency Response Facility Functionality Evaluation	September 20, 2011
01119507	Emergency Response Facility Functionality Evaluation	February 2, 2012
01077356	Emergency Response Facility Functionality Evaluation	April 9, 2012
01077372	Emergency Response Facility Functionality Evaluation	May 9, 2012

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
01077383	Emergency Response Facility Functionality Evaluation	July 10, 2012
01077390	Emergency Response Facility Functionality Evaluation	August 7, 2012
	Emergency Response Equipment Functionality Evaluation: SJRE0002 Steam Generator Blowdown Radiation Monitor	August 28, 2012
	Emergency Response Equipment Functionality Evaluation: GTRE0031 Containment Atmosphere Radiation Monitor	August 28, 2012
	Emergency Management Director Meeting Minutes, Fourth Quarter 2010	
	Emergency Management Director Meeting Minutes	March 21, 2011
	Emergency Management Director Meeting Minutes	June 20, 2011
	Emergency Management Director Meeting Minutes	September 19, 2011
	Emergency Management Director Meeting Minutes	December 12, 2011
	Emergency Management Director Meeting Minutes	June 11, 2012
	Evaluation Report for the Drill conducted September 9, 2010	
	Evaluation Report for the Drill conducted September 15, 2010	
	Evaluation Report for the Drill conducted September 22, 2010	
	Evaluation Report for the Drill conducted September 29, 2010	
	Evaluation Report for the Drill conducted October 6, 2010	
	Evaluation Report for the Drill conducted October 13, 2010	
	Evaluation Report for the Drill conducted December 1, 2010	
	Evaluation Report for the Drill conducted January 12, 2011	
	Evaluation Report for the Drill conducted January 19, 2011	

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Evaluation Report for the Drill conducted January 26, 2011	
	Evaluation Report for the Drill conducted March 30, 2011	
	Evaluation Report for the Drill conducted May 11, 2011	
	Evaluation Report for the Drill conducted June 22, 2011	
	Evaluation Report for the Drill conducted June 29, 2011	
	Evaluation Report for the Drill conducted September 7, 2011	
	Evaluation Report for the Drill conducted September 11, 2011	
	Evaluation Report for the Drill conducted July 20, 2011	
	Evaluation Report for the Drill conducted July 27, 2011	
	Evaluation Report for the Drill conducted August 3, 2011	
	Evaluation Report for the Drill conducted August 10, 2011	
	Evaluation Report for the Drill conducted August 17, 2011	
	Evaluation Report for the Drill conducted August 24, 2011	
	Evaluation Report for the Drill conducted December 7, 2011	
	Evaluation Report for the Drill conducted December 29, 2011	
	Evaluation Report for the Drill conducted July 9, 2012	
	Evaluation Report for the Drill conducted July 24, 2012	
	Evaluation Report for the Drill conducted August 21, 2012	
	Evaluation Report for the Drill conducted September 12, 2012	

CALLAWAY ACTION REQUESTS

201009834	201011526	201100128	201100323	201101266
201101687	201101783	201103935	201104179	201104442
201105543	201105927	201105980	201106204	201106251
201106882	201107465	201107484	201107528	201202166

CALLAWAY ACTION REQUESTS

201203349	201203749	201204367	201204516	201205145
201205183	201206544	201206551	201206553	201206554
201206555	201206556	201206561	201206562	201206563
201206564	201206567	201206569		

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

PROCEDURES

NUMBER	TITLE	REVISION
APA-ZZ-00014	Conduct of Operations – Radiation Protection	21
APA-ZZ-01004	Radiological Work Standards	21
HDP-ZZ-1500	Radiological Postings	39
HDP-ZZ-03000	Radiological Survey Program	37
HDP-ZZ-6100	Radioactive Sealed Source Leak Check Surveillance	13
HTP-ZZ-01203	Radiological Area Access Control	46
HTP-ZZ-02004	Control of Radioactive Sources	33
HTP-ZZ-06001	High Radiation/Locked High Radiation/Very High Radiation Area Access	44

CALLAWAY ACTION REQUESTS

201108483	201108946	201108871	201200372	201200482

RADIATION WORK PERMITS

NUMBER	TITLE	REVISION
200120LHRA	Miscellaneous Minor Work	0
082912RBENTRY	Reactor Building Entry	0
200320ALPSRESIN	Resin Sluicing	0
201401VALVETEAM	Valve Work	0

RADIOLOGICAL SURVEYS

MAP NUMBER	TITLE	DATE
1322	South Piping Penetration Room	August 14, 2012

1323	North Piping Penetration Room	August 14, 2012
7225	Low Level Drum Storage Area	August 3, 2012
1306C	Valve Compartments	October 26, 2011
RB-2000-AI	Reactor Building Inside Bioshield 2000' Loop "A"	October 17, 2011
RB-20231	Reactor Building S/G Sludge Lancing Platforms 2023	October 17, 2011

MISCELLANEOUS DOCUMENTS

TITLE	DATE
Radioactive Sources Requiring Leak Tests	August 27, 2012
Accountable Radioactive Source Inventory	August 27, 2012

Section 2RS2: Occupational ALARA Planning and Controls

PROCEDURES

NUMBER	TITLE	REVISION / DATE
54-ISI-400-020	AREVA NP Inc. Multi-Frequency Eddy Current Examination of Tubing	July 27, 2011
APA-ZZ-01001	Callaway Plant ALARA Program	15
CTP-BB-06300	RCS Optimized Shutdown Chemistry	32
ETP-ZZ-01300	Multi-Frequency Eddy Current Examination of Tubing	14
ETP-BB-01309	Steam Generator Eddy Current Testing Acquisition and Analysis Guidelines	22
ETP-ZZ-01310	TYPE W-9 Steam Generator Nozzle Dam Installation and Removal, Test, Operation and Maintenance Manual	0
HDP-ZZ-01100	ALARA Planning and Review	11
HDP-ZZ-01100	ALARA Planning and Review	13
HDP-ZZ-01200	Radiation Work Permits	18
HTP-ZZ-01101	Administrative Controls for Radioactivity	17

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
UO 12-0002	IER 11-1, Level 2 Self-Assessment of INPO Inadequate CRE Performance Improvements for Callaway Energy Center	January 24, 2012
UO 12-0007	IER 11-41, Level 2 Unplanned Personnel Exposure from Highly Radioactive In-Core Components Response for Callaway	March 27, 2012

CALLAWAY ACTION REQUESTS

201105450	201108869	201108911	201109057	201109132
201109111	201109174	201109257	201109394	201109405

RADIATION WORK PERMITS

NUMBER	TITLE	REVISION
180917004EC	Steam Generator Tube Eddy Current Testing in all Four Steam Generators – Area and Equipment Setup	0, 3, 4
180813187	Detension Reactor Vessel Studs, Removal, Clean Stud Holes, Lubricate Stud Holes	2
180813206	Install Reactor Vessel Studs, Tension, Remove	2
180917004MAN	Steam Generator Manway Cover Removal, Re-installation, and Bolt Hole Work	2
180917004PLUG	Steam Generator Tube Plugging and Stabilizing, Including Setup	3

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
	Callaway Energy Center Long Range Dose and Source Term Reduction Plan	5
RB-SGJP-AD	Steam Generator A&D Jump Platform Survey Sheets	October 25 – 30, 2011
RB-SGJP-BC	Steam Generator B&C Jump Platform Survey Sheets	October 25 – November 2, 2011

Section 2RS3: In-plant Airborne Radioactivity Control and Mitigation

PROCEDURES

NUMBER	TITLE	REVISION
HDP-ZZ-08000	Respiratory Protection Program	22
HTP-ZZ-08002	Respiratory Protection Issue and Use	41

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
CAR 201200069	Simple Self-Assessment Report – Callaway Respiratory Protection Program	April 23, 2012
10501126.510	Flow Test SJ-143 Fume Hoods at Primary Sample Sinks	February 1, 2012

CALIBRATION DOCUMENTS

SERIAL NUMBER	TITLE	DATE
42863	PortaCount Plus 8020	October 10, 2011
42868	PortaCount Plus 8020	January 11, 2012
L01925	PosiChek3 (Model 54-20-1110)	September 14, 2011
L01923	PosiChek3 (Model 54-20-1110)	March 13, 2012

SAMPLE ANALYSES

NUMBER	TITLE	DATE
227123	Air Quality Analysis	July 22, 2012
221976	Air Quality Analysis	April 16, 2012
216986	Air Quality Analysis	January 18, 2012
213282	Air Quality Analysis	November 7, 2011
208279	Air Quality Analysis	August 10, 2011

MAINTENANCE RECORDS

NUMBER	TITLE	DATE
APR-0003-HP	Respiratory Protection Maintenance Record	March 7, 2012

MAINTENANCE RECORDS

NUMBER	TITLE	DATE
SPR-0027-HP	Respiratory Protection Maintenance Record	May 18, 2012
SPR-0031-HP	Respiratory Protection Maintenance Record	May 14, 2012
SPR-0008-HP	Respiratory Protection Maintenance Record	May 16, 2012
SPR-0014-HP	Respiratory Protection Maintenance Record	May 16, 2012
SPR-0012-HP	Respiratory Protection Maintenance Record	May 16, 2012

CALLAWAY ACTION REQUESTS

201005544	201004639	201104745	201006317	201202999
201203105				

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Callaway Plant, Unit 1 – Use of Delta Protection Respiratory Protection Equipment	September 14, 2005
	Callaway Plant, Unit 1 – Use of Delta Protection Mururoa BLU Single-Use Respiratory Protection Suit	December 18, 2006

Section 2RS4: Occupational Dose Assessment

PROCEDURES

NUMBER	TITLE	REVISION
HDP-ZZ-01200	Radiation Work Permits	18
HTP-ZZ-01203	Radiological Area Access Control	46
HDP-ZZ-01300	Internal Dosimetry Program	29
HDP-ZZ-01480	External Radiation Dose Evaluation	26

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
SA10-RP-S03	Offsite Vendors Assessment Report (CAR#201000191)	January 11, 2010
CP-201100841	Notification of Results from the 2010 NVLAP On-site Assessment at Landauer	June 9, 2011

RADIATION SURVEYS

NUMBER	TITLE	DATE
RB-2047	Reactor Building 2047 General Area	August 30, 2012
RB-2026	Reactor Building 2026 General Area	August 30, 2012
RB-2000	Reactor Building 2000 General Area	August 29, 2012
RB-2068	Reactor Building 2068 General Area	August 29, 2012

RADIATION WORK PERMIT

NUMBER	TITLE	REVISION
209999NEUTRON	Radiation Work Permit (for Neutron Dose Tracking)	0

CALLAWAY ACTION REQUESTS

201201243	201103578	201011556	201103254	201109110
201107140	201201535	201204303		

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
	Waste Stream Report	May 24, 2012
082912RBENTRY	RWP Review Summary	August 30, 2012
210120RBSAFETY	RWP Review Summary	August 30, 2012
209999NEUTRON	RWP Review Summary	August 30, 2012
FS-5300-HP	Whole Body Counter MDA Report	August 29, 2012
HPCI-02-02	Callaway Plant Health Physics Department Calculation for Electronic Dosimeter Calibration Factor	April 5, 2006

Section 4OA1: Performance Indicator Verification

PROCEDURES

NUMBER	TITLE	REVISIONS
EIP-ZZ-00101	Classification of Emergencies	47
EIP-ZZ-00101	Addendum 2, Emergency Action Level Technical Bases Document	5, 6
EIP-ZZ-00102	Emergency Implementing Actions	48

PROCEDURES

NUMBER	TITLE	REVISIONS
EIP-ZZ-00201	Notifications	48
EIP-ZZ-00201	Addendum A, Control Room Notification Flowchart	15
EIP-ZZ-00201	Addendum C, EOF Notification Package	15
EIP-ZZ-00202	Protective Action Recommendations	

CALLAWAY ACTION REQUESTS

201006794 201107259

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
G215.0001.001	NRC Performance Indicator Transmittal Report – Third Quarter 2011	October 11, 2011
G215.0001.001	NRC Performance Indicator Transmittal Report – Fourth Quarter 2011	January 5, 2012
G215.0001.001	NRC Performance Indicator Transmittal Report – First Quarter 2012	April 3, 2012
G215.0001.001	NRC Performance Indicator Transmittal Report – Second Quarter 2012	July 11, 2012
	Callaway Control Room Logs	September 9, 2011
	Callaway Control Room Logs	September 16, 2011

Section 4OA2: Identification and Resolution of Problems

PROCEDURES

NUMBER	TITLE	REVISION
ODP-ZZ-00001 Addendum 12	Operator Burdens and Workarounds	4

DRAWINGS

NUMBER	TITLE	REVISION
8600-X-90988	Single Line Diagram – Alternate Emergency Power System	1

CALLAWAY ACTION REQUESTS

201205655	201205681	201205208

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Callaway Narrative Logs	August 13, 2012
EOSL# 18868	NF039A and NF039B Channel 4 Undervoltage and Degr	August 13, 2012
	List of Operator Burdens and Workarounds for previous 12 months	August 14, 2012
	Shift Manager Operation Focus Items	July 24, 2012

Section 4OA3: Event Follow-Up

MISCELLANEOUS

TITLE	DATE
Letter; Union Electric Co to NRC Docket 50-483, Callaway Plant Unit 1; Request for NRC Enforcement Discretion Regarding Requirements of Technical Specification 3.8.7, 'Inverter-Operating,' ULNRC-05901 (ML12235A531)	August 22, 2012

Section 4OA5: Other Activities

PROCEDURES

NUMBER	TITLE	REVISION
H190.0010	Response to Spills or Leaks of Radioactive Material into Groundwater	8
HTP-ZZ-07101	REMP Sample Locations and Analysis Schedule	8

CALLAWAY ACTION REQUEST

200812093	200812146	200812148	200903671

MISCELLANEOUS DOCUMENTS

TITLE	REVISION / DATE
Final Groundwater Model Report	October 31, 2008
Final Safety Analysis Report Section 2.4	2

The following items are requested for the
Occupational Radiation Safety Inspection
at Callaway
(August 27 – 31, 2012)
Integrated Report 2012004

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **August 17, 2012**.

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 inspectors will be Larry Ricketson, John O'Donnell, and Louis Carson.

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: October 21, 2011

A. List of contacts 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

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: October 21, 2011

A. List of contacts 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

3. In-Plant Airborne Radioactivity Control and Mitigation (71124.03)
Date of Last Inspection: April 30, 2010

A. List of contacts and telephone numbers for the following areas:
1. Respiratory Protection Program
2. Self contained breathing apparatus

B. Applicable organization charts

C. Copies of audits, self-assessments, vendor or NUPIC audits for contractor support (SCBA), and LERs, written since date of last inspection related to:
1. Installed air filtration systems
2. Self contained breathing apparatuses

D. Procedure index for:
1. use and operation of continuous air monitors
2. use and operation of temporary air filtration units
3. Respiratory protection

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. Respiratory protection program
2. Use of self contained breathing apparatuses
3. Air quality testing for SCBAs

F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the Airborne Monitoring program including:
1. continuous air monitors
2. Self contained breathing apparatuses
3. respiratory protection program

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 SCBA qualified personnel - reactor operators and emergency response personnel

H. Inspection records for self contained breathing apparatuses (SCBAs) staged in the plant for use since date of last inspection.

I. SCBA training and qualification records for control room operators, shift supervisors, STAs, and OSC personnel for the last year.

A selection of personnel may be asked to demonstrate proficiency in donning, doffing, and performance of functionality check for respiratory devices.

4. Occupational Dose Assessment (Inspection Procedure 71124.04)

Date of Last Inspection: September 24, 2010

A. List of contacts and telephone numbers for the following areas:
   1. Dose Assessment personnel

B. Applicable organization charts

C. Audits, self assessments, vendor or NUPIC audits of contractor support, and LERs written since date of last inspection, related to:
   1. Occupational Dose Assessment

D. Procedure indexes for the following areas
   1. Occupational Dose Assessment

E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.
   1. Radiation Protection Program
   2. Radiation Protection Conduct of Operations
   3. Personnel Dosimetry Program
   4. Radiological Posting and Warning Devices
   5. Air Sample Analysis
   6. Performance of High Exposure Work
   7. Declared Pregnant Worker
   8. Bioassay Program

F. List of corrective action documents (including corporate and subtiered systems) written since date of last inspection, associated with:
   1. NVLAP accreditation
   2. Dosimetry (TLD/OSL, etc.) problems
   3. Electronic alarming dosimeters
   4. Bioassays or internally deposited radionuclides or internal dose
   5. Neutron dose

   NOTE: The lists should indicate the significance level of each issue and the search criteria used.

G. List of positive whole body counts since date of last inspection, names redacted if desired

H. Part 61 analyses/scaling factors

Temporary Instruction 2515/185, Revision 1,
Follow-Up on the Industry's Ground Water Protection Initiative

As documented in the integrated Inspection Report 2009008, you had not fully implemented some of the objectives of Nuclear Energy Institute 07-07, at the time of the inspection. Please provide the status of each of these objectives. If the objective has not been fully implemented, please provide a copy of the corrective action document and specific corrective action assignment that ensures implementation of the objective. The following objectives were noted as incomplete:

(1) GPI Objective 1.1 - Site Hydrology and Geology.

(2) GPI Objective 1.2 - Site Risk Assessment.

(3) GPI Objective 1.3 - On-Site Ground Water Monitoring.

(4) GPI Objective 1.4 - Remediation Process.