



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

November 2, 2015

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

SUBJECT: CALLAWAY PLANT – NRC INTEGRATED INSPECTION
REPORT 05000483/2015003

Dear Mr. Diya:

On September 19, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Callaway Plant. On September 30, 2015, the NRC inspectors discussed the results of this inspection with Mr. D. Neterer and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented three findings of very low safety significance (Green) in this report. Two of these findings involved violations of NRC requirements. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

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

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC resident inspector at the Callaway Plant.

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

F. Diya

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Sincerely,

/RA/

Nicholas H. Taylor, Branch Chief
Project Branch B
Division of Reactor Projects

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

Enclosure:

Inspection Report 05000483

w/ Attachments:

1. Supplemental Information
2. Request for Information

F. Diya

- 2 -

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Letter to Fadi Diya from Nicholas Taylor November 2, 2015

SUBJECT: CALLAWAY PLANT – NRC INTEGRATED INSPECTION
REPORT 05000483/2015003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000483

License: NPF-30

Report: 05000483/2015003

Licensee: Union Electric Company

Facility: Callaway Plant

Location: Junction Highway CC and Highway O
Steedman, MO

Dates: June 21 through September 19, 2015

Inspectors: T. Hartman, Senior Resident Inspector
M. Langelier, P.E., Resident Inspector
L. Carson, II, Sr. Health Physicist
C. Cowdrey, Operations Engineer
N. Green, PhD, Health Physicist
S. Hedger, Operations Engineer
P. Hernandez, Health Physicist
M. Kennard, Operations Engineer
J. O'Donnell, CHP, Health Physicist
M. Phalen, Sr. Health Physicist
J. Tice, Project Engineer

Approved By: Nicholas H. Taylor
Chief, Project Branch B
Division of Reactor Projects

SUMMARY

IR 05000483/2015003; 06/21/2015 – 09/19/2015; Callaway Plant; Licensed Operator Requalification Program and Licensed Operator Performance, Operability Determinations and Functionality Assessments, and Radiation Monitoring Instrumentation.

The inspection activities described in this report were performed between June 21 and September 19, 2015, by the resident inspectors at the Callaway Plant and inspectors from the NRC's Region IV office. Three findings of very low safety significance (Green) are documented in this report. Two of these findings involved violations of NRC requirements. The significance of an inspection finding is indicated by its color (Green, White, Yellow, or Red) and determined using Inspection Manual Chapter 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas," Dated December 4, 2014. Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding with four examples for failing to conduct and evaluate simulator performance testing in accordance with the standards of ANSI/ANS-3.5-2009. Specifically, the licensee failed to do the following:
 - set the instantaneous main turbine load reduction to 50 percent as supported by design basis data in the 2014 performance of Transient (11), "Maximum Design Load Rejection"
 - include the evaluation of parameter "pressurizer temperature" in the 30 percent, 50 percent, and 80 percent power Steady-State Performance Test as specified in accordance with the standard, Appendix B, Section B.3.1
 - include the evaluation of parameter "secondary heat balance data" in the 30 percent, 50 percent, and 80 percent power Steady-State Performance Test as specified in accordance with the standard, Appendix B, Section B.3.1
 - replicate the dynamic functioning of annunciators on the simulator panels used during normal, abnormal, off-normal, and emergency evolutions, or to identify and correct noticeable differences in accordance with the standard, Sections 4.2.1.2 and 4.2.1.4

The licensee initiated corrective action documented in Callaway Action Requests 201504760, 201504759, 201504418, and 201504355.

The licensee's failure to conduct and evaluate performance testing in accordance with the ANSI/ANS-3.5-2009 standard as endorsed by Regulatory Guide 1.149, Revision 4, was the performance deficiency. The performance deficiency is more than minor because it adversely impacted the human performance attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, the performance deficiency could have become more significant in that not correcting noticeable differences between the simulator and the reference plant can both leave the potential for negative training of licensed operators and call into question the ability to conduct valid

licensing examinations with the simulator. Using Manual Chapter 0609, "Significance Determination Process," Attachment 4, Tables 1, 2, and 3 worksheets; and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)," Flowchart Block #14, the finding was determined to have very low safety significance (Green) because it dealt with deficiencies associated with simulator testing, modification, and maintenance and there was no evidence that the plant-referenced simulator does not demonstrate the expected plant response or have uncorrected modeling and hardware deficiencies related to the examples.

The examples supporting this finding involved actions taken with the simulator testing and maintenance program before the present performance period. Therefore, no cross-cutting aspect is assigned to the finding. (Section 1R11)

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to follow their operability determination procedure. Specifically, when an auxiliary feedwater control valve failed to operate from the main control room, the licensee failed to evaluate the operability of the component in accordance with Procedure ODP-ZZ-00001, Addendum 15, "Operability and Functionality Determinations." The immediate corrective action taken by the licensee was to evaluate the operability of the flow control valve. After determining that the equipment was inoperable, the licensee entered the required technical specification condition and performed the required technical specification actions. The licensee entered this issue into their corrective action program as Callaway Action Request 201502708.

This performance deficiency is more than minor and, therefore, a finding, because, if left uncorrected, it has the potential to lead to a more significant safety concern if safety-related systems are not properly evaluated for operability. The finding affects the Mitigating System Cornerstone because the performance deficiency is related to the auxiliary feedwater system's ability to conduct short-term decay heat removal. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety significance because it did not affect system design, did not result in a loss of system function, did not represent a loss of function of a single train for greater than its technical specifications allowed outage time, and did not cause the loss of function of one or more non-technical specification trains of equipment designated as high safety-significance. This finding has a cross-cutting aspect of challenge the unknown in the human performance cross-cutting area because the licensee did not stop when faced with uncertain conditions. Specifically, rather than declaring the system inoperable and allowing the process to evaluate the condition, the licensee declared the system operable without fully understanding the failure mechanism [H.11]. (Section 1R15)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors identified a non-cited violation of Callaway Plant's License No. NPF-25, Condition 2.B.(3), for the licensee performing non-routine maintenance on a J.L. Shepherd calibrator without license authorization. The licensee documented this issue in their corrective action program as Corrective Action Request 201505175. Their immediate corrective action was to secure the calibration source and review their procedural requirements.

Performing non-routine maintenance on a J.L. Shepherd calibrator without a license authorization is a performance deficiency. This finding is more than minor because the

performance deficiency adversely affects the Occupational Radiation Safety Cornerstone, in that, if the licensee performs non-routine maintenance on radiologically risk significant sources without being specifically authorized or trained on how to perform the non-routine maintenance, an uncontrolled high radiation area could result. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation was of very low safety significance (Green) because (1) it was not an as low as 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. The finding had a conservative bias cross-cutting aspect in the area of human performance, because individuals did not use decision making practices that emphasized prudent choices over those that were simply allowable, or ensure a proposed action was safe in order to proceed, rather than unsafe in order to stop. Specifically, licensee staff assumed that they could perform any type of maintenance on the calibrator without verifying that their license authorized those activities [H.14]. (Section 2RS5)

Licensee-Identified Violations

A violation of very low safety significance that was identified by the licensee has been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 4OA7 of this report.

PLANT STATUS

Callaway began the inspection period at 100 percent power. On July 23, 2015, the plant was shut down due to excessive leakage from the reactor coolant system. Callaway identified and corrected the condition and returned the plant to 100 percent power on July 27. Callaway operated at full power until August 11 when the plant tripped off line from a fault on a distribution line coming into the plant switchyard. Callaway identified and corrected the condition and returned the plant to 100 percent power on August 13. Callaway operated at full power for the remainder of the inspection period with the exception of planned power reductions for routine surveillances and post-maintenance testing.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- August 3, 2015, train A auxiliary feedwater system
- August 20, 2015, train B safety injection system
- September 10, 2015, train A control room air conditioning

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the trains were correctly aligned for the existing plant configuration.

These activities constituted three partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On August 31, 2015, the inspectors performed a complete system walk-down inspection of the essential service water system. The inspectors reviewed the licensee's procedures and system design information to determine the correct system lineup for the existing plant configuration. The inspectors then visually verified that the system was correctly aligned for the existing plant configuration.

These activities constituted one complete system walk-down sample, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on five plant areas important to safety:

- June 15, 2015, north and south ultimate heat sink cooling tower electrical rooms, fire areas UNCT and USCT
- July 15, 2015, train A essential service water pump room, fire area UNPH
- July 20, 2015, essential service water pipe space, fire area C-1
- August 12, 2015, residual heat removal heat exchanger rooms, fire areas A-9 and A-10
- September 1, 2015, train A emergency core cooling pump rooms, fire area A-2

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted five quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On June 24, 2015, the inspectors completed an inspection of the station's ability to mitigate flooding due to internal causes. After reviewing the licensee's flooding analysis, the inspectors chose two plant areas containing risk-significant structures, systems, and components that were susceptible to flooding:

- ultimate heat sink cooling tower north switchgear and fan room

- ultimate heat sink cooling tower south switchgear and fan room

The inspectors reviewed plant design features and licensee procedures for coping with internal flooding. The inspectors walked down the selected areas to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether operator actions credited for flood mitigation could be successfully accomplished.

These activities constitute completion of one flood protection measures sample, as defined in Inspection Procedure 71111.06.

b. Findings

No findings were identified.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On July 24, 2015, the inspectors observed plant startup just-in-time simulator training for an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance.

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 Review of Licensed Operator Performance

a. Inspection Scope

On July 23, 2015, 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 and risk due to a technical specification required plant shutdown. The inspectors observed the operators' performance of the following activities:

- power reduction
- reactor shutdown
- plant cooldown

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.

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

b. Findings

No findings were identified.

.3 Biennial Review of Regualification Program

The licensed operator requalification program involves two training cycles that are conducted over a 2-year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination. The examiners observed the associated training cycles during this inspection period.

a. Inspection Scope

To assess the performance effectiveness of the licensed operator requalification program, the inspectors conducted personnel interviews, reviewed both the operating tests and written examinations, and observed ongoing operating test activities.

The inspectors interviewed four licensee personnel from the training staff to determine their understanding of the policies and practices for administering requalification examinations. The inspectors also reviewed operator performance on the written examinations and operating tests. These reviews included observations of portions of the operating tests by the inspectors. The operating tests observed included seven job performance measures and two scenarios that were used in the current biennial requalification cycle. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content.

The results of these examinations were reviewed to determine the effectiveness of the licensee's appraisal of operator performance and to determine if feedback of performance analyses into the requalification training program was being accomplished. The inspectors interviewed members of the training department and reviewed minutes of training review group meetings to assess the responsiveness of the licensed operator requalification program to incorporate the lessons learned from both plant and industry events. Examination results were also assessed to determine if they were consistent with the guidance contained in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process."

On September 3, 2015, the licensee informed the inspectors of the completed cycle results for the station for both the written examinations and the operating tests:

- 10 of 10 crews passed the simulator portion of the operating test
- 57 of 57 licensed operators passed the simulator portion of the operating test

- 56 of 57 licensed operators passed the job performance measure portion of the operating test
- 56 of 57 licensed operators passed the written examination

There were two licensed operators that failed a portion of the examination. Both the individual that failed the written exam and the job performance measure portion of the operating test were remediated, retested, and passed their retake examinations or tests.

The inspectors compared these results to NRC Inspection Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," values and determined that there were no findings based on these results and because all of the individuals that failed the applicable portions of their examinations and/or operating tests were remediated, retested, and passed their retake examinations prior to returning to shift.

The inspectors observed examination security measures in place during administration of the exams (including controls and content overlap) and reviewed any remedial training and re-examinations, if necessary. The inspectors also reviewed medical records of five licensed operators for conformance to license conditions and the licensee's system for tracking qualifications and records of license reactivation for six operators.

The inspectors reviewed simulator performance for fidelity with the actual plant and the overall simulator program of maintenance, testing, and discrepancy correction. Part of the inspection included a review of a simulator issue that NRC examiners identified in the 2014 NRC initial licensing examination. It dealt with the simulator's initiation of a safety injection signal during an anticipated transient without scram event (Simulator Fidelity Report within Examination Report 05000483/2014301). At the conclusion of this inspection, the licensee was in the process of reviewing the technical basis for the issue amongst their engineering and simulator staff. An evaluation of the issue is expected to be completed in October 2015. When the evaluation is made available, NRC staff will review the results to determine if any regulatory actions will result from this issue.

The inspectors completed one inspection sample of the biennial licensed operator requalification program.

b. Findings

Failure to Conduct Simulator Testing and Maintenance In Accordance With ANSI/ANS-3.5-2009

Introduction. The inspectors identified a Green finding with four examples for failing to conduct simulator testing and maintenance in accordance with the standards of ANSI/ANS-3.5-2009. Specifically, the licensee failed to do the following:

- set the instantaneous main turbine load reduction to 50 percent as supported by design basis data in the 2014 performance of Transient (11), "Maximum Design Load Rejection"

- include the evaluation of parameter “pressurizer temperature” in the 30 percent, 50 percent, and 80 percent power Steady-State Performance Test as specified in accordance with the standard, Appendix B, Section B.3.1
- include the evaluation of parameter “secondary heat balance data” in the 30 percent, 50 percent, and 80 percent power Steady-State Performance Test as specified in accordance with the standard, Appendix B, Section B.3.1
- replicate the dynamic functioning of annunciators on the simulator panels used during normal, abnormal, off-normal, and emergency evolutions, or to identify and correct noticeable differences in accordance with the standard, Sections 4.2.1.2 and 4.2.1.4

Description. In order to maintain an NRC-approved simulation facility, the licensee is required to conduct testing and maintenance throughout the life of the simulator to ensure that it can be used to model control manipulations consistent with the actual plant. An acceptable method for conducting this testing is by using industry standard ANSI/ANS-3.5, “Nuclear Power Plant Simulators for Use in Operator Training and Examination.” This industry standard has been endorsed by the NRC as an acceptable method to completing required simulator testing to meet the requirements of 10 CFR 55.46 per Regulatory Guide 1.149, “Nuclear Power Plant Simulation Facilities for Use in Operator Training, License Examinations, and Applicant Experience Requirements.” Per licensee Procedure TDP-IS-00002, “Simulator Configuration Management,” the licensee uses ANSI/ANS-3.5-2009 as the standard for their simulator testing.

Example 1: Transient (11), “Maximum Design Load Rejection,” involves initiating the maximum design step load reduction that will not result in a reactor trip. The document Simulator Information Formal Tracking Number 20130001, Test ID T5285 (accepted on December 5, 2013), represents the current record of completing this test. In the description of the test, it says that main turbine loading is reduced from 100 percent to 75 percent power. The basis for this plant-specific parameter is typically detailed in the Final Safety Analysis Report (FSAR), but there was no reference to the FSAR in the test record. The NRC inspectors located, and verified via discussion with the licensee, that the description for the maximum design load rejection was stated in the FSAR. In the FSAR, Revision OL-17, Section 7.7.1.8, it states, in part, that, “The steam dump system, together with control rod movement, is designed to accept a 50 percent loss of net load without tripping the reactor.” On July 14, 2015, the licensee communicated to the NRC inspectors that the test’s initial conditions were not correctly set up to match the FSAR since 2000. The test was revised to include the correct initial conditions and recompleted on July 6, 2015. The results met the transient test acceptance criteria stated in ANSI-3.5-2009, Section 4.1.4.

The licensee is documenting corrective actions addressing this issue in Callaway Action Request 201504760.

Examples 2 and 3: The licensee had completed steady-state tests at 30 percent, 50 percent, and 80 percent reactor power levels in 2015. The tests, described in Appendix B, Section B.1.1, and Section 4.1.3.1 of the standard; involve operating the simulator at a fixed reactor power level, monitoring the output of defined plant parameters, and comparing to specific tolerance bands specified in the acceptance

criteria. Two of the defined plant parameters, “pressurizer temperature” and “secondary heat balance data,” were not evaluated versus reference plant data in the tests. The NRC inspectors asked if the parameters were modeled in the simulator and if there was reference plant data available for comparison to the parameters. The licensee determined that these parameters were modeled in the simulator and that they could be evaluated versus available reference plant data as part of the tests. “Pressurizer temperature” was made available for tracking in the simulator in 2006, but the licensee failed to add it to the testing regimen. “Secondary heat balance data” used to be included in the steady-state tests, but during the process of implementing plant computer upgrades in the simulator during the 1998-2000 timeframe, tracking of this parameter set was discontinued.

On July 14, 2015, the licensee provided new testing records showing that the parameter “pressurizer temperature” was included in a new performance of the 30 percent, 50 percent, and 80 percent reactor power levels. Also, simulator “secondary heat balance data” was evaluated in steady-state tests evaluated versus four different calorimetric results completed in the plant associated with the current fuel load. No simulator fidelity issues were identified. The licensee is documenting corrective actions addressing these issues in Callaway Action Requests 201504759 and 201504418.

Example 4: Part of the inspection involves reviewing the status of equipment and controls in the plant control room versus the displays in the simulator to ensure that noticeable differences are identified. With their identification, the simulator differences can be corrected or tracked on a licensee simulator differences list, if justified by training needs analysis as having minimal impact on operator training. The expectation is that the simulator’s instrumentation and controls include those in the reference plant and that comparisons between the simulator and reference plant identify and address noticeable differences is discussed in ANSI-3.5-2009, Sections 3.2.1.2, 4.2.1.2, and 4.2.1.4.

On June 16, 2015, the NRC inspectors reviewed the current state of the plant control room. As part of this, the inspectors reviewed the defeated annunciator log book. There were several annunciators in the control room that were defeated within the last year, indicating recent changes. However, there were three annunciators that have been defeated for time ranging from July 20, 2005, to December 1, 2011. Since these alarms have been defeated for a long time, these are essentially permanent changes that remove the ability for control room operators to receive these alarms.

The three annunciators in question were not identified on the licensee simulator differences list, so the NRC inspectors asked the licensee about how they were addressing the modeling of these three annunciators in the simulator. It was determined on June 17, 2015, that these annunciator alarms were in service in the simulator, and had not been defeated to match the reference plant. In effect, the licensee left three active annunciators in the simulator that licensed operators could be called upon to respond to in abnormal events that they will not have to respond to in the actual plant.

The licensee took corrective action to place disabled annunciator tags on the three annunciators in the simulator that day. Licensee review of the actions taken in the 2005 through 2011 timeframe revealed that the defeated annunciators were evaluated in the plant’s change control processes, but were not evaluated for impact on the simulator. Further actions are documented in Callaway Action Request 201504355.

Analysis. The licensee's failure to conduct testing and maintenance in accordance with the ANSI/ANS-3.5-2009 standard as endorsed by Regulatory Guide 1.149, Revision 4, was the performance deficiency. Per licensee Procedure TDP-IS-00002, "Simulator Configuration Management," the licensee uses ANSI/ANS-3.5-2009 as the standard for simulator testing and maintenance. The performance deficiency is more than minor because it adversely impacted the human performance attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, the performance deficiency could have become more significant in that not completing the required simulator testing and maintenance correctly can lead to not detecting and correcting errors in the simulator so it actually models the plant correctly. This can leave the potential for negative training of licensed operators and call into question the ability to conduct valid licensing examinations with the simulator. Using Manual Chapter 0609, "Significance Determination Process," Attachment 4, Tables 1, 2, and 3 worksheets (issue date June 19, 2012); and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)," Flowchart Block #14 (issue date December 6, 2011), the finding was determined to have very low safety significance (Green) because the issue dealt with deficiencies associated with simulator testing, modifications, and maintenance, and there was no evidence that the plant-referenced simulator does not demonstrate the expected plant response or does not have uncorrected modeling and hardware deficiencies related to these examples.

The examples supporting this finding involved actions taken with the simulator testing and maintenance program before the present performance period. Therefore, no cross-cutting aspect is assigned.

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 05000483/2015003-01, "Failure to Conduct Simulator Testing and Maintenance In Accordance With ANSI/ANS-3.5-2009."

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed three instances of degraded performance or condition of structures, systems, and components:

- July 24, 2015, digital feedwater control panel issue resulting in trip of train B main feedwater pump
- July 24, 2015, train A centrifugal charging pump motor bearing oil seal loose
- September 1, 2015, reactor coolant system boundary leakage

The inspectors reviewed the extent of condition of possible common cause structure, system, and component failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the structures, systems, and

components. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constituted completion of three maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

On June 22, 2015, the inspectors reviewed a risk assessment performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk for the replacement of auxiliary building/fuel building fire protection cross-connect valve KCV0068.

The inspectors verified that this risk assessment was performed in a timely manner and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessment and verified that the licensee implemented appropriate risk management actions based on the result of the assessment.

The inspectors also observed portions of three emergent work activities that had the potential to cause an initiating event or to affect the functional capability of mitigating systems:

- July 22, 2015, reactor coolant system leak on valve BBV0400
- July 29, 2015, auxiliary feedwater flow control valve ALHV0009 common cause failure concerns
- August 3, 2015, power range nuclear instrument N43 failed downscale

The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected structures, systems, and components.

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

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed four operability determinations that the licensee performed for degraded or nonconforming structures, systems, or components:

- June 8, 2015, train A emergency diesel generator room fan failure, Callaway Action Request 201504143
- June 15, 2015, train A control room air conditioning unit tripped, Callaway Action Request 201504294
- July 23, 2015, auxiliary feedwater flow control valve ALHV0011 did not open on demand, Callaway Action Request 201505586
- August 3, 2015, safety injection accumulator C not sampled, Callaway Action Request 201505586

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded structure, system, or component to be operable, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability of the degraded structure, system, or component.

The inspectors reviewed operator actions taken or planned to compensate for degraded or nonconforming conditions. The inspectors verified that the licensee effectively managed these operator workarounds to prevent adverse effects on the function of mitigating systems and to minimize their impact on the operators' ability to implement abnormal and emergency operating procedures.

These activities constitute completion of four operability and functionality review samples, which included one operator work-around sample, as defined in Inspection Procedure 71111.15

b. Findings

Introduction. Inspectors identified a finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to perform an operability determination for a safety related component in accordance with plant procedures. Specifically, when an auxiliary feedwater control valve failed to operate from the main control room, the licensee failed to evaluate the operability of the component in accordance with the plant procedure.

Description. On July 23, 2015, during a forced plant outage, the running main feedwater pump was tripped due to issues with the speed control. The auxiliary feedwater system was subsequently placed in service manually in accordance with Procedure OTN-AL-00001, "Auxiliary Feedwater System." Per the procedure, the motor-driven auxiliary feedwater pump flow control valves, ALHV0005, ALHV0007,

ALHV0009, and ALHV0011, were closed and the pumps were started. After the pumps were started, the motor-driven auxiliary feedwater pump flow control valve controllers were manually set at approximately 50 percent open and with the exception of ALHV0011, the valves opened as demanded. The control room crew sent an operator to investigate and open the valve locally. The operator began to open ALHV0011, and once it was off its closed seat, the valve operated as expected from the main control room.

Procedure OTN-AL-00001 contains a "Precaution and Limitation" discussing how the turbine-driven auxiliary feedwater pump flow control valves, which are pneumatically-operated, can become hydraulically locked if the valves are closed while the turbine-driven pump is running then subsequently secured, the valves are leaking, or they are closed while the motor-driven pumps are running. The procedure goes on to discuss that this condition may require operator intervention to open the valves, but due to the design, it does not affect the function of the valves. This precaution was brought to the attention of the shift manager with the belief that it should apply to the motor-operated valves as well. The shift manager also misinterpreted the precaution's applicability to the motor-driven auxiliary feedwater flow control valves, which are motor-operated not pneumatically-operated. Based on this misperception, the shift manager made the determination that ALHV0011 was operable throughout this event.

The inspectors challenged the licensee about the position that ALHV0011 could become hydraulically locked. The licensee's engineering staff evaluated the condition and determined that the valve could not become hydraulically locked and would not have been able to perform its design function in the as-found condition. The licensee then declared the valve inoperable until the cause of the failure was determined and repaired.

Procedure APA-ZZ-00500, Appendix 1, "Operability and Functionality Determinations," is the governing document for evaluating operability and it references Procedure ODP-ZZ-00001, Addendum 15, "Operability and Functionality Determinations," as guidance for the shift manager. Procedure ODP-ZZ-00001, Addendum 15, dictates that recognition of a degraded or nonconforming condition is the entry point for operability and functionality determinations. In this case, the shift manager failed to recognize the stuck closed valve as a degraded or nonconforming condition and, therefore, did not perform an operability determination.

Analysis. The licensee's failure to follow their operability determination procedure was a performance deficiency. The performance deficiency is more than minor and, therefore, a finding, because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, if the licensee had not corrected the degraded condition of valve ALHV0011, the valve may have failed to respond during an event and challenged the safety function of the motor driven auxiliary feedwater system. The finding affects the Mitigating System Cornerstone because the performance deficiency is related to the auxiliary feedwater system's ability to conduct short-term decay heat removal.

This finding was assessed using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated April 29, 2015, and was determined to be of very low safety significance because it did not affect system design, did not result in a loss of system function, did not represent a loss of function of a single train for greater than its technical specifications allowed outage time, and did not cause the loss of function of one or more non-technical specification trains of equipment

designated as high safety-significance. This finding has a cross-cutting aspect of challenge the unknown in the human performance cross-cutting area because the licensee did not stop when faced with uncertain conditions. Specifically, rather than declaring the system inoperable and allowing the process to evaluate the condition, the licensee declared the system operable without fully understanding the failure mechanism [H.11].

Enforcement. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be accomplished in accordance with procedures. Procedure ODP-ZZ -00001, Addendum 15, "Operability and Functionality Determinations," Revision 8, an Appendix B quality related procedure, requires licensee personnel to recognize potentially degraded or nonconforming conditions and evaluate operability. Contrary to the above, on July 23, 2015, the licensee did not recognize a degraded condition and evaluate operability. Specifically, licensee personnel did not recognize an auxiliary feedwater valve that would not respond to main control board signals was degraded and, therefore, did not identify the valve was inoperable. Because this finding is of very low safety significance and was entered into the corrective action program as Callaway Action Request 201505411, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000483/2015003-02, "Failure to Follow Operability Determination Procedure."

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed four post-maintenance testing activities that affected risk-significant structures, systems, or components:

- July 5, 2015, train B class 1E switchgear air conditioning unit after bearing replacement
- July 27, 2015, train A centrifugal charging pump after motor seal replacement
- July 27, 2015, auxiliary feedwater flow control valve ALHV0011 after potentiometer repair
- August 12, 2015, auxiliary feedwater flow control valves ALHV0005 and ALHV0007 after Modutronics card replacement

The inspectors reviewed licensing- and design-basis documents for the structures, systems, or components and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected systems, structures, and components.

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

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's forced outages that concluded on July 27 and August 13, 2015, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the outage plan, appropriately managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- review and verification of the licensee's fatigue management activities
- monitoring of shutdown and cooldown activities
- verification that the licensee maintained defense-in-depth during outage activities
- monitoring of heat-up and startup activities

These activities constitute completion of two outage activities samples, as defined in Inspection Procedure 71111.20.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed three risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the structures, systems, and components were capable of performing their safety functions:

In-service tests:

- August 18, 2015, train B safety injection pump testing

Other surveillance tests:

- August 19, 2015, train B centrifugal charging pump testing
- August 21, 2105, train B solid state protection system slave relay testing

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected structures, systems, or components following testing.

These activities constitute completion of three surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS5 Radiation Monitoring Instrumentation (71124.05)

a. Inspection Scope

The inspectors evaluated the accuracy and operability of the radiation monitoring equipment used by the licensee (1) to monitor areas, materials, and workers to ensure a radiologically safe work environment and (2) to detect and quantify radioactive process streams and effluent releases. The inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance in the following areas:

- selected plant configurations and alignments of process, post-accident, and effluent monitors with descriptions in the Final Safety Analysis Report and the offsite dose calculation manual
- selected instrumentation, including effluent monitoring instrument, portable survey instruments, area radiation monitors, continuous air monitors, personnel contamination monitors, portal monitors, and small article monitors to examine their configurations and source checks
- calibration and testing of process and effluent monitors, laboratory instrumentation, whole body counters, post-accident monitoring instrumentation, portal monitors, personnel contamination monitors, small article monitors, portable survey instruments, area radiation monitors, electronic dosimetry, air samplers, and continuous air monitors
- audits, self-assessments, and corrective action documents related to radiation monitoring instrumentation since the last inspection

These activities constitute completion of one sample of radiation monitoring instrumentation as defined in Inspection Procedure 71124.05.

b. Findings

Introduction. The inspectors identified a Green NCV of Callaway Plant's License No. NPF-25, Condition 2.B.(3), for the licensee performing non-routine maintenance on a J.L. Shepherd calibrator without license authorization.

Description. Callaway uses a J.L. Shepherd Model 89-400 shielded calibration range irradiator (the Shepherd) to calibrate portable radiation detection instrumentation used by the radiation protection staff. The Shepherd contains two Cs-137 sealed sources with original activities of 400 Ci and 130 mCi, manually controlled by a vertical rod. At the time of the inspection, the source activities were approximately 290 Ci and 95 mCi,

respectively. The 290 Ci source produced a radiation field of 1006 R/hr at one foot from the source.

On May 29, 2014, while performing the routine preoperational checks on the Shepherd calibrator, a radiation protection technician discovered that the safety interlock had failed. This interlock system is designed to prevent the calibrator's cabinet door from being opened while the source is unshielded. Upon discovery, the radiation protection technician controlled the hazard by securing the source in the shielded position by placing a "locked high radiation area" padlock on the source rod. On June 2, 2014, licensee staff performed non-routine maintenance on the calibrator, replacing the failed safety interlock spring to repair the safety interlock system.

The inspectors determined that performing maintenance on the interlock system of the Shepherd was not authorized by Callaway's license. The NRC defines non-routine maintenance in NUREG-1556, Volume 5, "Program-Specific Guidance About Self-Shielded Irradiator Licenses," to be "any repair, removal, replacement, or alteration involving: electrical and mechanical systems that control source or shielding movement, the irradiator's shielding or sealed source, safety interlocks, any component that may affect safe operation of the irradiator, or any other activities during which personnel could receive radiation doses exceeding NRC limits."

The licensee performed similar work multiple times in 2011 and 2014, demonstrating their lack of understanding of the Part 50 license commitments to Part 30. Prior to 2011, Callaway routinely had the vendor come to the plant to perform repairs and maintenance.

Analysis. Performing non-routine maintenance on a J.L. Shepherd calibrator without license authorization is a performance deficiency. The finding is more than minor because the performance deficiency adversely affects the Occupational Radiation Safety Cornerstone, in that, if the licensee performs non-routine maintenance on radiologically risk significant sources without being specifically authorized or trained on how to perform the non-routine maintenance, an uncontrolled high radiation area could result. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation was of very low safety significance (Green) because (1) it was not an as low as reasonably achievable (ALARA) 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. The finding had a conservative bias cross-cutting aspect in the area of human performance, because individuals did not use decision making practices that emphasized prudent choices over those that were simply allowable, or ensure a proposed action was safe in order to proceed, rather than unsafe in order to stop. Specifically, licensee staff assumed that they could perform any type of maintenance on the calibrator without verifying that their license authorized those activities [H.14].

Enforcement. Union Electric Company License No. NPF-25, Condition 2.B(3) states, in part, that the Commission licensed Union Electric Company, pursuant to 10 CFR Part 30, to receive, possess, and use at any time any byproduct material as sealed sources for reactor instrumentation and radiation monitoring equipment calibration. Title 10 of the *Code of Federal Regulations* 30.34(c) states, in part, that "each person licensed by the Commission pursuant to the regulations in this part shall confine his possession and use of the byproduct material to the locations and purposes

authorized in the license. Except as otherwise provided in the license, a license issued pursuant to the regulations in this part shall carry with it the right to receive, acquire, own, and possess byproduct material.”

Contrary to the above, on June 2, 2014, the licensee did not confine its possession and use of the byproduct material to the locations and purposes authorized in the license, namely to receive, acquire, own, and possess byproduct material. Specifically, the licensee performed non-routine maintenance, i.e., repairing of the safety interlock, on a J.L. Shepherd device without a specific license condition authorizing the repair. This violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. The issue was entered into the licensee’s corrective action program as Callaway Action Request 201505175: NCV 050004832014003-03, “Unauthorized Non-Routine Maintenance on a Sealed Source Device.”

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

The inspectors evaluated whether the licensee maintained gaseous and liquid effluent processing systems and properly mitigated, monitored, and evaluated radiological discharges with respect to public exposure. The inspectors verified that abnormal radioactive gaseous or liquid discharges and conditions, when effluent radiation monitors are out-of-service, were controlled in accordance with the applicable regulatory requirements and licensee procedures. The inspectors verified that the licensee’s quality control program ensured radioactive effluent sampling and analysis adequately quantified and evaluated discharges of radioactive materials. The inspectors verified the adequacy of public dose projections resulting from radioactive effluent discharges. The inspectors interviewed licensee personnel and reviewed or observed the following items:

- radiological effluent release reports since the previous inspection and reports related to the effluent program issued since the previous inspection
- effluent program implementing procedures, including sampling, monitor setpoint determinations and dose calculations
- equipment configuration and flow paths of selected gaseous and liquid discharge system components, filtered ventilation system material condition, and significant changes to their effluent release points, if any, and associated 10 CFR 50.59 reviews
- selected portions of the routine processing and discharge of radioactive gaseous and liquid effluents (including sample collection and analysis)
- controls used to ensure representative sampling and appropriate compensatory sampling
- results of the inter-laboratory comparison program
- effluent stack flow rates

- surveillance test results of technical specification-required ventilation effluent discharge systems since the previous inspection
- significant changes in reported dose values
- selected radioactive liquid and gaseous waste discharge permits
- Part 61 analyses and methods used to determine which isotopes are included in the source term
- offsite dose calculation manual changes
- meteorological dispersion and deposition factors
- latest land use census
- records of abnormal gaseous or liquid tank discharges
- groundwater monitoring results
- changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater
- identified leakage or spill events and entries made into 10 CFR 50.75 (g) records, if any, and associated evaluations of the extent of the contamination and the radiological source term
- offsite notifications, and reports of events associated with spills, leaks, and groundwater monitoring results
- audits, self-assessments, reports, and corrective action documents related to radioactive gaseous and liquid effluent treatment since the last inspection

These activities constitute completion of one sample of radioactive gaseous and liquid effluent treatment, as defined in Inspection Procedure 71124.06.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07)

a. Inspection Scope

The inspectors evaluated whether the licensee's radiological environmental monitoring program quantified the impact of radioactive effluent releases to the environment and sufficiently validated the integrity of the radioactive gaseous and liquid effluent release program. The inspectors verified that the radiological environmental monitoring program was implemented consistent with the licensee's technical specifications and offsite dose calculation manual, and that the radioactive effluent release program met the design

objective in Appendix I to 10 CFR Part 50. The inspectors verified that the licensee's radiological environmental monitoring program monitored non-effluent exposure pathways, was based on sound principles and assumptions, and validated that doses to members of the public were within regulatory dose limits. The inspectors reviewed or observed the following items:

- annual environmental monitoring reports and offsite dose calculation manual
- selected air sampling and dosimeter monitoring stations
- collection and preparation of environmental samples
- operability, calibration, and maintenance of meteorological instruments
- selected events documented in the annual environmental monitoring report which involved a missed sample, inoperable sampler, lost dosimeter, or anomalous measurement
- selected structures, systems, or components that may contain licensed material and has a credible mechanism for licensed material to reach ground water
- records required by 10 CFR 50.75(g)
- significant changes made by the licensee to the offsite dose calculation manual as the result of changes to the land census or sampler station modifications since the last inspection
- calibration and maintenance records for selected air samplers, composite water samplers, and environmental sample radiation measurement instrumentation
- inter-laboratory comparison program results
- audits, self-assessments, reports, and corrective action documents related to the radiological environmental monitoring program since the last inspection

These activities constitute completion of one sample of radiological environmental monitoring program as defined in Inspection Procedure 71124.07.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08)

a. Inspection Scope

The inspectors evaluated the effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material. The inspectors interviewed licensee personnel and reviewed the following items:

- the solid radioactive waste system description, process control program, and the scope of the licensee's audit program
- control of radioactive waste storage areas including container labeling/marketing and monitoring containers for deformation or signs of waste decomposition
- changes to the liquid and solid waste processing system configuration including a review of waste processing equipment that is not operational or abandoned in place
- radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides
- processes for waste classification including use of scaling factors and 10 CFR Part 61 analysis
- shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and preparation of the disposal manifest
- audits, self-assessments, reports, and corrective action reports radioactive solid waste processing, and radioactive material handling, storage, and transportation performed since the last inspection

These activities constitute completion of one sample of radioactive solid waste processing, and radioactive material handling, storage, and transportation as defined in Inspection Procedure 71124.08.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors reviewed licensee event reports for the period of third quarter 2014 through second quarter 2015 to determine the number of scrams that occurred. The inspectors compared the number of scrams reported in these licensee event reports to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute

Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned scrams per 7000 critical hours performance indicator for Callaway Plant, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed operating logs and corrective action program records for the period of third quarter 2014 through second quarter 2015 to determine the number of unplanned power changes that occurred. The inspectors compared the number of unplanned power changes documented to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned power outages per 7000 critical hours performance indicator for Callaway Plant, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors reviewed the licensee's basis for including or excluding in this performance indicator each scram that occurred between the third quarter 2014 and second quarter 2015. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned scrams with complications performance indicator for Callaway Plant, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Safety System Functional Failures (MS05)

a. Inspection Scope

For the period of second quarter 2014 through first quarter 2015, the inspectors reviewed licensee event reports, maintenance rule evaluations, and other records that could indicate whether safety system functional failures had occurred. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, and NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," Revision 3, to determine the accuracy of the data reported.

These activities constituted verification of the safety system functional failures performance indicator for Callaway Plant, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

On July 1, 2015, the inspectors selected Callaway Action Request 201504790, which identified the train B Class 1E air conditioning unit (SGK05B) fan bearing has high vibrations for an in-depth follow-up.

The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews, and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to correct the condition.

These activities constitute completion of one annual follow-up sample as defined in Inspection Procedure 71152.

b. Findings

No findings were identified.

40A6 Meetings, Including Exit

Exit Meeting Summary

On June 18, 2015, the inspectors debriefed Mr. B. Cox, Senior Director, Nuclear Operations, and other members of the licensee's staff of the results of the licensed operator requalification program inspection. On September 10, 2015, the results of the inspection were telephonically exited with Mr. B. Cox, Senior Director, Nuclear Operations, and other members of your staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On July 17, 2015, the inspectors presented the radiation safety inspection results to Mr. F. Diya, Vice President, Nuclear Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On September 30, 2015, the inspectors presented the inspection results to Mr. D. Neterer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of the NRC Enforcement Policy, for being dispositioned as an NCV.

Title 10 of the *Code of Federal Regulations* 55.46(c), "Plant-Referenced Simulators," requires, in part, that a plant-referenced simulator must demonstrate expected plant response to operator input and to transient and accident conditions to which the simulators have been designed to respond. Contrary to the above, on December 12, 2013, and March 23, 2015, the simulator failed to demonstrate expected plant response to operator input and to transient and accident conditions to which the simulator has been designed to respond. Specifically, during simulator post-event testing on those dates, the simulator did not correspond in direction of change of all monitored plant parameters and, in one case, the letdown portion of the chemical and volume control system automatically isolated when this did not occur in the reference plant. The violation was of very low safety significance because it dealt with identified simulator modeling deficiencies that did not negatively impact operator performance in the actual plant during reportable events. The licensee entered this issue into their corrective action program as Callaway Action Report 201504406.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

F. Bianco, Director, Nuclear Operations
M. Covey, Assistant Operations Manager, Support
B. Cox, Senior Director, Nuclear Operations
F. Diya, Senior Vice President and Chief Nuclear Officer
R. Farnam, Director, Training
J. Geyer, Director, Radiation Protection
L. Graessle, Senior Director, Operations Support
C. Graham, Consulting Health Physicist
W. Gruer, Manager, Operations (Training)
J. Houston, Senior Health Physicist, Radiation Protection
G. Hurla, Supervisor, Radiation Protection
J. Little, Supervisor, Safety Analysis/Reactor Engineering
S. Maglio, Manager, Regulatory Affairs
J. Mayer, Supervisor, Radwaste Operations
M. McLachlan, Director, Engineering Systems
J. McLaughlin IV, NESM System Engineer, Systems Engineering
V. Miller, Supervisor, Radiation Protection
S. Petzel, Engineer, Regulatory Affairs
J. Reuter, Technician, Radiation Protection
C. Smith, Manager, Radiation Protection
R. Stough, Operations Training Manager
F. Stuckey, Health Physicist
T. Trent, ALARA Coordinator, Radiation Protection
D. Turley, Supervisor, Engineering Systems
T. Witt, Licensing Engineer, Regulatory Affairs

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000483/2015003-01	FIN	Failure to Conduct Simulator Testing and Maintenance In Accordance with ANSI/ANS-3.5-2009 (Section 1R11)
05000483/2015003-02	NCV	Failure to Follow Operability Determination Procedure (Section 1R15)
05000483/2015003-03	NCV	Unauthorized Non-Routine Maintenance on a Sealed Source Device (Section 2RS5)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OSP-EF-00001	Essential Service Water Valve Lineup Verification	9
OSP-EF-00001, Checklist 2	Both Essential Service Water Trains Secured	2
OTN-AL-00001, Checklist 1	Auxiliary Feedwater Valve Alignment	22
OTN-AL-00001, Checklist 2	Motor Driven Auxiliary Feedwater Pump A and B Switch Alignment	18
OTN-AL-00001, Checklist 4	Turbine Driven Auxiliary Feedwater Pump Switch Alignment	18
OTN-EF-00001, Checklist 1	Normal Valve Lineup Essential Service Water System Train A	33
OTN-EF-00001, Checklist 2	Normal Valve Lineup Essential Service Water System Train B	32
OTN-EF-00001, Checklist 3	Normal Valve Lineup Essential Service Water Pumphouse Train A	30
OTN-EF-00001, Checklist 4	Normal Valve Lineup Essential Service Water Pumphouse Train B	28
OTN-EF-00001, Checklist 5	Normal Electrical Lineup Essential Service Water System Train A	27
OTN-EF-00001, Checklist 6	Normal Electrical Lineup Essential Service Water System Train B	28
OTN-EF-00001, Checklist 7	Normal Control Room Handswitch Lineup - Essential Service Water System Train A	30
OTN-EF-00001, Checklist 8	Normal Control Room Handswitch Lineup - Essential Service Water System TrainB	30
OTN-EF-00001, Checklist 9	Normal Handswitch Lineup - Essential Service Water System Train A	28
OTN-EF-00001, Checklist 10	Normal Handswitch Lineup - Essential Service Water System Train B	29
OTN-EM-00001, Checklist 2	Safety Injection System Outside Containment Valve Lineup	26
OTN-EM-00001, Checklist 3	Refueling Water Storage and Safety Injection System Control Room Switch Lineup	21

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OTN-EM-00001, Checklist 4	Safety Injection System Breaker and Switch Lineup	21
OTN-GK-00001	Control Building HVAC System	47
MDP-ZZ-S0001	Scaffolding Installation and Evaluation	35

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-22AL01(Q)	Piping & Instrumentation Diagram – Auxiliary Feedwater System	44
M-22EF01(Q)	Piping & Instrumentation Diagram – Essential Service Water System	79
M-22EF02(Q)	Piping & Instrumentation Diagram – Essential Service Water System	74
M-22EG01(Q)	Piping & Instrumentation Diagram – Component Cooling Water System	10
M-22EG02(Q)	Piping & Instrumentation Diagram – Component Cooling Water System	21
M-22EM01(Q)	Piping & Instrumentation Diagram – High Pressure Coolant Injection System	38
M-22EJ01(Q)	Piping & Instrumentation Diagram – Residual Heat Removal System	61

Jobs

15003055

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RFR 16044A	Perform Seismic II/I Evaluation for Auxiliary Building Scaffold Storage	0
RFR 16044B	Evaluate Storage of Scaffold Parts in Auxiliary Building	0
RFR 16044C	Evaluate Storage of Scaffold Parts in Auxiliary Building	0

Section 1R05: Fire Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Fire Preplan Manual	38, 39
APA-ZZ-00742	Control of Ignition Sources	27
OTO-KC-00001, Addendum A-02	Auxiliary Building – 1974' Train A Emergency Core Cooling System Pump Rooms	0
OTO-KC-00001, Addendum A-09	Auxiliary Building – 2000' B Residual Heat Removal Heat Exchanger Room	0
OTO-KC-00001, Addendum A-10	Auxiliary Building – 2000' B Residual Heat Removal Heat Exchanger Room	0

Callaway Action Requests

200910463 201309668 201409049 201505603

Jobs

14006321

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
KC-45	Detailed Fire Modeling Report for Fire Compartment: A-2	0
KC-57	Detailed Fire Modeling Report for Fire Compartment: C-1	1
KC-82	Fire Safety Analysis for Fire Area: A-2	1
KC-89	Fire Safety Analysis for Fire Area: A-9	1
KC-90	Fire Safety Analysis for Fire Area: A-10	1
KC-113	Fire Safety Analysis Calculation for Fire Area: C-1	1
KC-157	Fire Safety Analysis for Fire Area: UNCT	1
KC-158	Fire Safety Analysis Calculation for Fire Area: UNPH	1
KC-159	Fire Safety Analysis for Fire Area: USCT	1
ULNRC-06169	Response to Request for Additional Information Round 3 Re: Application for Amendment to Facility Operating License NPF-30 Revision to Final Safety Analysis Report Standard Plant Section 3.6 for High Density Polyethylene Pipe Crack Exclusion (TAC No. MF3202, LDCN 13-0016)	0

Section 1R06: Flood Protection Measures

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-U2EF01 (Q)	Essential Service Water System Piping and Instrumentation Diagram	66

Callaway Action Requests

201105608	201503563	201504534	201504538
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EF-123	Ultimate Heat Sink Thermal Performance Analysis using GOTHIC 7.2(b)	1
M-FL-17	Summary of Flood Levels in all Fuel Building Rooms, Diesel Generator Building Rooms, and Site Specific Rooms and/or Areas	0

Section 1R11: Licensed Operator Requalification Program

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
APA-ZZ-00605	Temporary System Modifications	32
APA-ZZ-01400, Appendix A	Simple Self-Assessment Template	18
CTM-OPS	Operations Training Programs	48
CTM-OPS, Addendum 5	Licensed Operator Continuing Training (LOCT) Program	5
E-0	Reactor Trip or Safety Injection	2, 3, 16
FR-S.1	Response to Nuclear Power Generation	1, 10
OTG-ZZ-00002	Reactor Startup – IPTE	55
OTG-ZZ-00003	Plant Startup Hot Zero Power to 30% Power – IPTE	59
OTG-ZZ-00004	Plant Operation	90
OTG-ZZ-00005	Plant Shutdown 20% Power to Hot Standby	45
ODP-ZZ-00001	Operations Department – Code of Conduct	93
ODP-ZZ-00001, Attachment 2	Medical and Physical Qualifications	93

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ODP-ZZ-00001, Addendum 3	Crew Performance Improvement and Qualifications	31
ODP-ZZ-00017	Annunciator Status and Tracking	27
OTA-RK-00018, Addendum 40E	Boron Thermal Regeneration System Chiller Surge Tank Level High or Low	0
OTA-RK-00024, Addendum 97F	Breathing Air System Trouble	0
OTA-RK-00026	Turbine Bearing/Lube Oil High/Low Temperature	4
TDP-IS-00001	Simulator Operation and Maintenance	13
TDP-IS-00002	Simulator Configuration Management	29
TDP-IS-00002, Appendix C	Simulator Scenario Based Testing (SBT) and Documentation	2
TDP-ZZ-00018	NRC Correspondence Concerning Operator Licensing	10

Callaway Action Requests

200100945	200306603	201301940	201306740	201403516
201403597	201406122	201408897	201409327	201501892
201502128	201502152	201503621	201504260	201504355
201504390	201504417	201504418	201504429	201504759
201504760				

Audits, Self-Assessments, And Surveillances

<u>Number</u>	<u>Title</u>	<u>Date</u>
Audit Report No. AP14-006	Nuclear Oversight Audit of Operations Training	July 18, 2014
Self-Assessment #201309685-16	Simulator Formal and Operations Training Comprehensive	September 13, 2014

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Simulator Steady-State 30% Power Test	February 22, 2015
	Simulator Steady-State 50% Power Test	February 22, 2015

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Simulator Steady-State 100% Power Test	February 23, 2015
SIFT # 20140001, Test ID T2762	Performance Test: TRANS 2, Transient 2 Loss of all Feedwater	March 20, 2014
SIFT #20140001, Test ID T2770	Performance Test TRANS 10, Transient 10 Slow Primary System Depressurization	May 22, 2014
SIFT #20150037, Record 7921	Instrument Loop Circuit Card Saturation	May 14, 2015
	Callaway Energy Center Simulator Differences	June 10, 2015
SIFT #20120195, Record 7508	Turbine Vibrations at 800 rpm Excessive	April 4, 2012
SIFT #20150011, Record 7895	Steam Generator Level Recovery Deviation	March 23, 2015
SIFT #2013011, Record 7745	Pressurizer Power Operated Relief Valve Opening Below Minimum Pressure	November 1, 2013
SIFT #20080919, Record 7036	Pressurizer Power Operated Relief Valve Did Not Close on Low Pressure	September 24, 2008
SIFT #20120292, Record 7605	Reactor Coolant System Power Operated Relief Valve Link Error	June 12, 2014
SIFT #20140094, Record 7878	Rapid Rod Control Operation Causing an Urgent Alarm	December 16, 2014
SIFT #2001-05-14, Record 5253	Major Controls Upgrade Mod Request	August 1, 2014
SIFT #20130001, Test ID T2764	Performance Test: TRANS 4, Transient 4 Trip of all Reactor Coolant Pumps	November 22, 2013
SIFT #20130001, Test ID T5285	Performance Test: TRANS 11, Transient 11 Maximum Design Load Rejections	December 5, 2013
	Scenario Based Testing Package – Scenario DS-20	June 11, 2015
	Scenario Based Testing Package – Scenario DS-32	June 11, 2015
	Scenario Based Testing Package – Scenario DS-22	August 14, 2013
	Scenario Based Testing Package – Scenario DS-03	June 5, 2014
	Scenario Based Testing Package – Scenario DS-39	June 5, 2014
	Background Information for Westinghouse Owners Group Emergency Response Guideline, E-0, Reactor Trip or Safety Injection, High Pressure	1

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Westinghouse Owners Group, Emergency Response Guidelines, Background Volume FR-S, FR-C, FR-H – High Pressure Version	1
BD-FR-S.1	Response to Nuclear Power Generation/Anticipated Transient Without Scram	4
BD-E-0	Reactor Trip or Safety Injection	6
DW-88-004	ERG Feedback Form – Affected Guidelines: E-0 FR-S.1	March 2, 1989
	Callaway Energy Center Simulator Differences	June 10, 2015
SIFT #20150011, Record 7895	Steam Generator Level Recovery Deviation	March 23, 2015
URO-SSF-01-P006J	Start SF02 and Parallel Motor Generator Sets SF01 and SF02	May 22, 2015
EOS-SNK-01-P034J (RCA)	Energize NK03 from Battery NK13	June 4, 2015
URO-AEO-07-P022J(RCA)	Perform Local Actions to Ensure Turbine/Reactor Trip	May 21, 2015
EOS-SAL-11-P081J(A)	Local Turbine Driven Auxiliary Feedwater Pump Start Assuming Loss of AC and DC Power with reset of Turbine Driven Auxiliary Feedwater mechanical overspeed trip	April 30, 2015
SRO-RER-02-A193J(TC)	Classify Emergency Events Requiring Emergency Plan Implementation	May 21, 2015
SRO-ADM-08-A025J	Determine Reportability Requirements	May 13, 2015
SRO-ADM-14-A198J	Evaluate Conditions for Restarting of Refueling Preshuffle of Irradiated Fuel Assemblies in the Spent Fuel Pool	April 30, 2015
URO-SAC-01-C195J(A)	Respond to a Turbine Exhaust Hood high temperature while Synchronizing Turbine to the Grid	March 19, 2015
URO-SGS-01-C029J	Placing Containment H2 Analyzer in Service	May 19, 2015
URO-SEF-02-C170J	Manually Operate an Essential Service Water Train / Isolate from Service Water	March 19, 2015
URO-AEO-02-C201J(A)	Transfer to Hot Leg Recirculation – No Residual Heat Removal Flow	June 3, 2015

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
URO-AEO-01-C200J(A)	Depressurize the Reactor Coolant System using Pressurizer Power Operated Relief Valve and Block Safety Injection	May 29, 2015
URO-SAL-04-C020J	Aligning Essential Service Water to Auxiliary Feedwater Suction	May 29, 2015
DS-41	Dynamic Simulator Exam Scenario	April 27, 2015
DS-45	Dynamic Simulator Exam Scenario	April 30, 2015
DS-23	Dynamic Simulator Exam Scenario	April 7, 2015

Section 1R12: Maintenance Effectiveness

Callaway Action Requests

201505319 201505327

Jobs

15003177 15003191

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision Date</u>
M-721-0093	Westinghouse Operation and Maintenance Manual for Charging/Safety Injection Pump	241
	Large Motor Preventive Maintenance Background Information Document	2
Night Order	Digital Feedwater Controls touchscreen buttons	July 30, 2015

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
APA-ZZ-00701	Control of Fire Protection Impairments	21
APA-ZZ-00703	Fire Protection Operability Criteria and Surveillance Requirements	24
APA-ZZ-00750	Hazard Barrier Program	35
EDP-ZZ-04107	HVAC Pressure Boundary Control	28

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ODP-ZZ-00002, Appendix 3	Risk Management Actions for Fire Risk Systems and Components	3

Callaway Action Requests

201505308	201505519	201505586	201505587
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Jobs

13005113	15003335	15003376
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
25326	Fire Protection Impairment Permit	0

Section 1R15: Operability Evaluations

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
APA-ZZ-00500, Appendix 1	Operability and Functionality Determinations	23
KDP-ZZ-00013	Emergency Response Facility and Equipment Evaluation	13
KDP-ZZ-00013, Appendix 1	Equipment Important to Emergency Response Matrix	2
OSP-ZZ-00001	Control Room Shift and Daily Log Readings and Channel Checks	86
ODP-ZZ-00001, Addendum 12	Operator Burdens and Workarounds	6
ODP-ZZ-00001, Addendum 15	Operability and Functionality Determinations	8

Callaway Action Requests

201505855	201502104	201506468	201506378	201503173
201504143	201204094	201502678	201401012	201501937
201504294	201505411	201505332	201506357	201505586
201505601	201505618			

Jobs

15002019 15001441 15002536 14005857

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision Date</u>
GM-03	Emergency Diesel Generator Room Temperatures without Heating, Venting and Air Conditioning	2A
ZZ-179	Plant AC Bus Load List	8
D1105-1	Colt-Pielstick Diesel Engines Ratings and Derating Factors	November 1977
	Operations Autolog dated July 23, 2015 (original)	July 23, 2015
	Operations Autolog dated July 23, 2015 (updated)	July 27, 2015
	Operations Autolog dated July 23, 2015	September 2, 2015
	DNA History Plot of Accumulator Tank Levels from July 2 through August 3, 2015	August 3, 2015

Section 1R19: Post-Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
MTE-ZZ-QA033	Motor Operated Valve Actuator Test System Universal Diagnostic System Testing of Torque Controlled Modutronic Limitorque Motor Operated Rising Stem Valves	8

Callaway Action Requests

201504790

Jobs

08512683 15002859 15003177 15003199 15003479

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RFR 7173A	Fan Shaft Material Change for SGK04A/B & SGK05A/B	A
RFR 8649A	SGK04A/B and SGK05A/B Fan Shafts	A

Section 1R20: Refueling and Other Outage Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OTG-ZZ-00002	Reactor Startup – IPTE	55
OTG-ZZ-00003	Plant Startup Hot Zero Power to 30% Power – IPTE	59
OTG-ZZ-00004	Plant Operation	90
OTG-ZZ-00005	Plant Shutdown 20% Power to Hot Standby	45
OTG-ZZ-00006	Plant Cooldown Hot Standby to Cold Shutdown	73

Callaway Action Requests

201505308	201505321	201505795
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Forced Outage Schedule	July 23, 2015
	Forced Outage Schedule	August 11, 2015

Section 1R22: Surveillance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ISF-SB-0A33C	Solid State Protection System Train Slave Relay K605, K606, K745, and K619 Test	28
OSP-EM-P001B	Safety Injection Train B Inservice Test – Group B	49
OSP-BG-P005B	Centrifugal Charging Pump B Inservice Test – Group B	52

Section 2RS5: Radiation Monitoring Instrumentation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
APA-ZZ-01003	Off-site Dose Calculation Manual	21
HDP-ZZ-01300	Internal Dosimetry Program	32
HDP-ZZ-04700	Count Room and Whole Body Counter Quality Control Program	17
HDP-ZZ-04000	Radiation Protection Instrumentation Program	27

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
HTP-HC-09002	10 CFR 61 Sampling Program	4
HTP-SD-06033	Control of Area Radiation Monitor Alarm Setpoints	5
HTP-ZZ-04101-DTI-M177-Cal	Ludlum Model 177 Frisker Calibration	2
HTP-ZZ-04102-DTI-RO2-Cal	Eberline RO-2 Survey Meter Calibration	2
HTP-ZZ-04106-DTI-14C-Cal	Ludlum 14C Survey Meter Calibration	3
HTP-ZZ-04108-DTI-M3-Cal	Ludlum Model 3 Frisker Calibration	2
HTP-ZZ-04122-DTI-HD-29A-Cal	RADeCO Model HD-29A Low Volume Air Sampler Calibration	2
HTP-ZZ-04128-DTI-TENNELEC-5	Operation of Tennelec Series 5 Model XLB	6
HTP-ZZ-04131-DTI-SHEPHERD	Operation of the Shepherd Model 89 Calibrator	3
HTP-ZZ-04136-DTI-PING-APANTC-CAL	Apantec PING-1A Continuous Air Monitor Calibration	3
HTP-ZZ-04142-DTI-PCM1-CAL	Eberline PCM-1 Contamination Monitor Calibration	3
HTP-ZZ-04148-DTI-Shonka-Cal	Calibration of the Keithley 35040 Therapy Dosimeter with the Shonka Wyckoff Ionization Chamber	0
HTP-ZZ-04149-DTI-AMP100-Cal	Calibration of the AMP-100 Area Monitor	9
HTP-ZZ-04167-DTI-ASP-NRD-Cal	Eberline ASP-1 Neutron Survey Meter Calibration	6
HTP-ZZ-04175-DTI-PM7-CAL	Eberline Model PM-7 Portal Monitor Calibration	1
HTP-ZZ-04176-DTI-SAM12-CAL	Thermo Fisher Model SAM-12 Small Article Monitor Calibration	3
HTP-ZZ-04177-DTI-PCM2-CAL	Eberline PCM-2 Calibration	4

Callaway Action Requests

201308433	201401242	201401451	201401477	201401815
201402202	201402960	201403659	201404871	201404872
201404876	201503394	201503398		

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
SSA 201309684-01	RP Instrument Program	July 23, 2014
SSA 201406362-5-2	Self Assessment	May 14, 2015
AP15-002	Nuclear Oversight Audit of Radiation Protection	February 23, 2015
201406362-5.2	Radiation Safety Team Pre-Inspection	May 18, 2015

Effluent Discharge Monitor Calibrations

<u>Number</u>	<u>Title</u>	<u>Date</u>
11504673	GHRE0010B	October 8, 2012
12511043	GHRE0010B	April 22, 2014
11502392	GTRE0021B	November 15, 2012
12509292	GTRE0021B	February 28, 2014
11505994	HBRE0018	May 2, 2012
12508817	HBRE0018	February 24, 2014

Radiation Protection Instrument Calibrations

<u>Number</u>	<u>Title</u>	<u>Date</u>
CAM-4019-HP	PING-1A	July 3, 2013
CAM-4019-HP	PING-1A	July 28, 2014
CAM-4035-HP	AMS-4	April 29, 2014
CAM-4035-HP	AMS-4	February 10, 2015
CAM-4039-HP	AMS-4	October 2, 2014
PM-4014-HP	PCM-1B	June 23, 2014
PM-4017-HP	PCM-1B	August 2, 2014
PM-4020-HP	PM-7	June 2, 2015
PM-4022-HP	PCM-2	June 15, 2015

Radiation Protection Instrument Calibrations

<u>Number</u>	<u>Title</u>	<u>Date</u>
PM-4023-HP	PM-7	May 19, 2015
PM-4027-HP	PCM-2	July 24, 2014
TM-4007-HP	SAM-12	July 10, 2014
TM-4007-HP	SAM-12	May 28, 2015
2006-HP	Keithley Model 35040	December 11, 2013
CRM-4077-HP	Ludlum Model 177	August 15, 2014
CRM-4184-HP	Ludlum Model 3	November 5, 2014
GMI-4172-HP	Telepole WR	October 28, 2014
GMI-4204-HP	Amp-100	August 6, 2014
ION-4021-HP	Eberline RO-2	January 28, 2015
LAS-4139-HP	RADECO Model HD-29A	August 21, 2014
NRM-4018-HP	Eberline ASP-1	May 1, 2015

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
CA-M-20140527-4	CF-1 Calibration Facility Survey	May 27, 2014
CA-M-20140626-2	CF-1 Calibration Facility Survey	June 26, 2014
OE 205401	Shepherd Calibrator source could be lifted with the calibrator turned off and key removed	July 15, 2003
OE 301447	Shepherd 89 Door Interlock Mechanism	August 28, 2012
OE 216431	Shepherd Model 89 Calibrator Interlock Failure	June, 8, 2005
OE 207751	Calibration Irradiator Safety Interlock Malfunction	December 10, 2003
OE 313040	Shepherd Model 89 Calibrator Interlock Failure	September 8, 2014
OE 299325	Cesium-137 Instrument Calibrator Experienced a Source Interlock Malfunction	February 3, 2007
OE 298754	Shepherd Calibrator Interlock Malfunction	August 25, 2004

Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
APA-ZZ-01003	Offsite Dose Calculation Manual	19
ESP-GG-03004	FGG02A In-Place Charcoal Filter Test	16
ESP-GG-03005	FGG02A By-Pass Leakage Test	15
ESP-GK-03007	FGK01 By-Pass Leakage Test	14
ESP-GK-03008	FGK03 By-Pass Leakage Test	11
ESP-GK-03010	FGK01 By-Pass Leakage Test	10
HDP-ZZ-07000	Radiological Environmental Monitoring Program and Groundwater Protection Initiative	5
HTP-ZZ-02006	Liquid Radwaste Release Permit (Batch)	86
HTP-ZZ-02007	Gaseous Radwaste Release Permit (Gas Decay Tank)	44
HTP-ZZ-02008	Gaseous Radwaste Release Permit (Auxiliary/Fuel Building Ventilation)	27
HTP-ZZ-02009	Gaseous Radwaste Release Permit (Fuel Handling Building Ventilation)	26
HTP-ZZ-02009, Addendum A	Gaseous Radwaste Release Permit	9
HTP-ZZ-02012	Gaseous Radwaste Release Permit (Containment)	49
RP-DTI-ESR	Response to Spills or Leaks of RAM into Groundwater	7

Audits and Self-Assessments

<u>Title</u>	<u>Date</u>
EPRI Groundwater Protection Program Self-Assessment	January 2014

Callaway Action Requests

201309470	201402761	201400248	201402316	201404299
201405071				

Radioactive Effluent Release Permits

<u>Number</u>	<u>Title</u>
RP102015L0029	Liquid Radwaste Discharge Monitor Tank B
RP122015G0001	Unit Plant Vent
RP132015G0002	Radwaste Building Vent

In-Place Filter Testing and Carbon Testing Records

<u>Air Filtration System</u>	<u>Train</u>	<u>Test</u>	<u>Date</u>
Aux/Fuel Emergency	FGG02A	HEPA (In-Place)	July 14, 2014
Control Room Ventilation	FGK01B	HEPA (In-Place)	February 9, 2015
Control Room Ventilation	FGK01A	HEPA (In-Place)	July 7, 2013
Control Room Ventilation	FGK02B	HEPA (In-Place)	February 25, 2015
Aux/Fuel Emergency	FGG02B	HEPA (In-Place)	December 17, 2013

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
Chapters 11&12	UFSAR	May 2015
APA-ZZ-01003	Offsite Dose Calculation Manual 2014	21
	Radiation Monitor Operability Log (between 01/01/2013 and 05/26/2015)	May 26, 2015
Q1-2015	System Health Report: SQ – Radiation Monitoring	
2013	Annual Radioactive Effluent Release Report	March 2014
2014	Annual Radioactive Effluent Release Report	March 2015
218-03792	Decommissioning Records Review and 10 CFR50.75(g)(1) Applicability Review for 2013	November 26, 2014
218-03856	4th Quarter 2014 Decommissioning Record	May 21, 2015

Section 2RS7: Radiological Environmental Monitoring Program

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
HDP-ZZ-07000	Radiological Environmental Monitoring Program and Groundwater Protection Initiative	7
HTP-ZZ-04143- DTI-INTAKE- SMPLR	Operation of Intake Structure River Water Sampler	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
HTP-ZZ-04143-DTI-PORTLAND-SMPLR	Operation of the Portland River Water Composite Sampler	7
HTP-ZZ-07001-DTI-AIR SAMPLING	Collection and Shipping of Environmental Air Samples	8
HTP-ZZ-07001-DTI-WATER SAMPLING	Collection and Shipping of Environmental Water Samples	7
HTP-ZZ-07101-DTI-REMP-AMPL-SCHED	Radiological Environmental Monitoring Program Sample Location and Analysis Schedule	15
HTP-ZZ-07101-DTI-RAW MILK	Collection and Shipping of Environmental Raw Milk Samples	2
HTP-ZZ-07101-DTI-CROP SAMPLING	Collection and Shipping of Environmental Crop Samples	5
RP-DTI-ENVIRONMENTAL-SPILLRESP	Response to Spills or Leaks of Radioactive Material into Groundwater	9

Self-Assessments, and Surveillances

<u>Title</u>	<u>Date</u>
EPRI Groundwater Protection Program Self-Assessment	January 2014

Callaway Action Requests

201308112 201308118 201405071

Miscellaneous Documents

<u>Title</u>	<u>Date/Revision</u>
Title 10 CFR 50.72(g) File	July 2015
Callaway Annual Land Use Census	2013
Callaway Annual Land use Census	2014
Callaway Annual Radiological Environmental Operating Report	2013
Callaway Annual Radiological Environmental Operating Report	2014

Miscellaneous Documents

<u>Title</u>	<u>Date/Revision</u>
Callaway Groundwater Protection Team Charter	2015
Callaway Groundwater Protection Team Meeting Minutes	2014/2015
Callaway Inter Laboratory Comparison Program Results	2013
Callaway Inter-Laboratory Comparison Program Results	2014
Callaway Met Tower Calibration and Maintenance Records	2014/2015
Callaway Off-Site Dose Calculation Manual	18 & 19
Sample of Manhole 86-2 During Discharge for Tritium	PM1008100
Selected Environmental Air Sample Calibration and Maintenance Records	2014/2015
Selected Environmental Water Pump Maintenance	2014/2015

Section 2RS8: Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
APA-ZZ-01000	Callaway Energy Center Radiation Protection Program	41
APA-ZZ-01011	Process Control Program	13
HDP-ZZ-09000	Radioactive Material Shipping Program	2
HTP-HC-09002	10CFR61 Sampling Program	4
HTP-ZZ-09003	Shipment of Radioactive Materials	3
RDP-ZZ-00200	Radwaste Operational Guidelines	19
RTN-HC-01000	Preparation of Radwaste/Radioactive Material for Shipment	24
RTN-HC-01900	On-Site Storage Container Handling Procedure	6
RTN-HM-00200	Radioactive Waste Container Control Program	20

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
201308863-17	Storage & Handling of Radioactive Material	March 11, 2014
AP14-003	Nuclear Oversight Audit of Radiological & Non Radiological Environmental Audit	June 17, 2014
201408190-19	Radioactive Shipment Documentation	February 25, 2015

Callaway Action Requests

201308332	201308737	201401407	201401703	201401725
201401738	201401976	201402812	201403491	201406585
201501344	201501357	201504196	201504338	

Radiological Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
CA-M-20140425-5	Drywell RAM Storage Area – ROUTINE	April 25, 2014
CA-M-20150421-6	7228 Dry Waste Compactor Area – Routine	April 21, 2015
CA-M-20150515-5	Reactor Building Laydown Area	May 15, 2015
CA-M-20150522-2	Radwaste Yard Plant South	May 22, 2015
CA-M-20150604-9	Old Steam Generator Storage Facility	June 4, 2015
CA-M-20150617-10	7226 Radwaste Truck Bay	June 17, 2015
CA-M-20150622-2	CF-1 Calibration Facility – Routine	June 22, 2015
CA-M-20150701-3	Shipment Liner Characterization	July 1, 2015

Radioactive Material and Waste Shipments

13-047	14-005	14-009	14-010	14-012
14-026	14-027	14-030	14-034	14-035
14-046	14-052	14-054	14-056	14-060
15-003	15-011	15-012		

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Final Safety Analysis Report – Chapter 11.4: Solid Waste Management System	OL-21
336399001	Waste Stream Report: SFP Filter – Cycle 19	November 28, 2012
T64.0340 8 & T64.RSHP 8	Shipping and Packaging Radioactive Material	July 18, 2013
337745007	Waste Stream Report: FHE01A Resin	November 4, 2013
T64.0650 8	Radwaste Shipping	February 18, 2014
	2013 Annual Radioactive Effluent Release Report	April 30, 2014
LTR-REA-14-61	Callaway Capsule W Shipping Activity Estimate	June 16, 2014

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
0856-04	Waste Stream for Large Components – Solid – Low Level Radioactive Waste	September 15, 2014
370912001	Waste Stream Report: Dry Active Waste – Cycle 20	January 14, 2015
	2014 Annual Radioactive Effluent Release Report	April 30, 2015

Section 40A1: Performance Indicator Verification

Callaway Action Requests

201408530 201408897

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2014-006-00	Licensee Event Report: Main Generator Excitation Transformer Faulted to Ground, Causing Reactor Trip Callaway Energy Loss Calculation Data from July 2014 to June 2015	0
2014-005-00	All Emergency Core Cooling System Accumulator Isolation Valve Operator Breakers Closed in Mode 3 with Reactor Coolant System Pressure Greater Than 1000 PSIG	0
2014-003-01	Inverter NN11 Inadvertently Transferred to its Alternate AC Source	1

Section 40A2: Identification and Resolution of Problems

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
APA-ZZ-00320	Work Execution	56
APA-ZZ-00352	Callaway Quality Control Inspection Program	19
APA-ZZ-00500	Corrective Action Program	62
APA-ZZ-00500 Appendix 5	Maintenance Rule (MR)	19
APA-ZZ-00500 Appendix 10	Trending Program	10
EDP-ZZ-01128 Appendix 4	Maintenance Rule System Functions	14

Callaway Action Requests

201500087 201501221 201504790

Jobs

15001138 15002859

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RFR 7173A	Fan Shaft Material Change for SGK04A/B & SGK05A/B	A
RFR 8649A	SGK04A/B and SGK05A/B Fan Shafts	A

Section 40A7: Licensee-Identified Violations

Callaway Action Requests

201504406

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Event Review Team Meeting Summary – Unit Trip Turbine Trip Due to Failure of Unit Auxiliary Transformer (Callaway Action Request 201305943)	July 27, 2013
T61.0810 8 T61.0740 8	Licensed and Non-Licensed Operator Continuing Training, review of Isophase Bus Duct Fire and Trip Response	January 10, 2014
SIFT #20130148, Record 7782	Reactor Coolant System Cooling Response During Unit Auxiliary Transformer Fire Testing	December 12, 2013
	Event Review Team Meeting Summary, Unit Trip Turbine Trip Due to Failure of Unit Auxiliary Transformer (Callaway Action Report 201305943)	August 15, 2013

**The following items are requested for the
Public Radiation Safety Inspection
at Callaway
July 13 – 17, 2015
Integrated Report 2015003**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **June 25, 2015**.

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 Louis Carson at (817) 200-1221 or louis.carson@nrc.gov.

PAPERWORK REDUCTION ACT STATEMENT

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

5. Radiation Monitoring Instrumentation (71124.05)

Date of Last Inspection: **August 26, 2013**

- A. List of contacts and telephone numbers for the following areas:
1. Effluent monitor calibration
 2. Radiation protection instrument calibration
 3. Installed instrument calibrations
 4. Count room and Laboratory instrument calibrations
- B. Applicable organization charts
- C. Copies of audits, self-assessments, vendor or NUPIC audits for contractor support and LERs, written since date of last inspection, related to:
1. Area radiation monitors, continuous air monitors, criticality monitors, portable survey instruments, electronic dosimeters, teledosimetry, personnel contamination monitors, or whole body counters
 2. Installed radiation monitors
- D. Procedure index for:
1. Calibration, use and operation of continuous air monitors, criticality monitors, portable survey instruments, temporary area radiation monitors, electronic dosimeters, teledosimetry, personnel contamination monitors, and whole body counters.
 2. Calibration of installed radiation monitors
- 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. Calibration of portable radiation detection instruments (for portable ion chambers)
 2. Whole body counter calibration
 3. Laboratory instrumentation quality control
- F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, related to the following programs:
1. Area radiation monitors, continuous air monitors, criticality monitors, portable survey instruments, electronic dosimeters, teledosimetry, personnel contamination monitors, whole body counters,
 2. Installed radiation monitors,
 3. Effluent radiation monitors
 4. Count room radiation instruments
- NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.
- G. Offsite dose calculation manual, technical requirements manual, or licensee controlled specifications which lists the effluent monitors and calibration requirements.
- H. Current calibration data for the whole body counter's.
- I. Primary to secondary source calibration correlation for effluent monitors.
- J. A list of the point of discharge effluent monitors with the two most recent calibration

- K. dates and the work order numbers associated with the calibrations.
Radiation Monitoring System health report for the previous 12 months

6. Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

Date of Last Inspection: **August 26, 2013**

- A. List of contacts and telephone numbers for the following areas:
 - 1. Radiological effluent control
 - 2. Engineered safety feature air cleaning systems
- 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. Radioactive effluents
 - 2. Engineered Safety Feature Air cleaning systems
- D. Procedure indexes for the following areas
 - 1. Radioactive effluents
 - 2. Engineered Safety Feature Air cleaning systems
- 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. Sampling of radioactive effluents
 - 2. Sample analysis
 - 3. Generating radioactive effluent release permits
 - 4. Laboratory instrumentation quality control
 - 5. In-place testing of HEPA filters and charcoal adsorbers
 - 6. New or applicable procedures for effluent programs (e.g., including ground water monitoring programs)
- F. List of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, associated with:
 - 1. Radioactive effluents
 - 2. Effluent radiation monitors
 - 3. Engineered Safety Feature Air cleaning systems

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are “searchable” so that the inspector can perform word searches.
- G. 2013 and 2014 Annual Radioactive Effluent Release Report or the two most recent reports
- H. Current Copy of the Offsite Dose Calculation Manual
- I. Copy of the 2013 and 2014 interlaboratory comparison results for laboratory quality control performance of effluent sample analysis, or the two most recent results.
- J. Effluent sampling schedule for the week of the inspection

- K. New entries into 10 CFR 50.75(g) files since date of last inspection
- L. Operations department (or other responsible dept.) log records for effluent monitors removed from service or out of service
- M. Listing or log of liquid and gaseous release permits since date of last inspection
- N. A list of the technical specification-required air cleaning systems with the two most recent surveillance test dates of in-place filter testing (of HEPA filters and charcoal adsorbers) and laboratory testing (of charcoal efficiency) and the work order numbers associated with the surveillances
- O. System Health Report for radiation monitoring instrumentation. Also, please provide a specific list of all effluent radiation monitors that were considered inoperable for 7 days or more since November 2011. If applicable, please provide the relative Special Report and condition report(s) moreover
- P. A list of all radiation monitors that are considered §50.65/Maintenance Rule equipment.
- Q. A list of all significant changes made to the Gaseous and Liquid Effluent Process Monitoring System since the last inspection. If applicable, please provide the corresponding UFSAR section in which this change was documented.
- R. A list of any occurrences in which a non-radioactive system was contaminated by a radioactive system. Please include any relative condition report(s).

7. Radiological Environmental Monitoring Program (71124.07)

Date of Last Inspection: **August 26, 2013**

- A. List of contacts and telephone numbers for the following areas:
 1. Radiological environmental monitoring
 2. Meteorological monitoring
- 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. Radiological environmental monitoring program (including contractor environmental laboratory audits, if used to perform environmental program functions)
 2. Environmental TLD processing facility
 3. Meteorological monitoring program
- D. Procedure index for the following areas:
 1. Radiological environmental monitoring program
 2. Meteorological monitoring program
- 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. Environmental Program Description
 2. Sampling, collection and preparation of environmental samples

3. Sample analysis (if applicable)
 4. Laboratory instrumentation quality control
 5. Procedures associated with the Offsite Dose Calculation Manual
 6. Appropriate QA Audit and program procedures, and/or sections of the station's QA manual (which pertain to the REMP)
- F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, related to the following programs:
1. Radiological environmental monitoring
 2. Meteorological monitoring

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

- G. Wind Rose data and evaluations used for establishing environmental sampling locations
- H. Copies of the 2 most recent calibration packages for the meteorological tower instruments
- I. Copy of the 2013 and 2014 Annual Radiological Environmental Operating Report and Land Use Census, and current revision of the Offsite Dose Calculation Manual, or the two most recent reports.
- J. Copy of the environmental laboratory's interlaboratory comparison program results for 2013 and 2014, or the two most recent results, if not included in the annual radiological environmental operating report
- K. Data from the environmental laboratory documenting the analytical detection sensitivities for the various environmental sample media (i.e., air, water, soil, vegetation, and milk)
- L. Quality Assurance audits (e.g., NUPIC) for contracted services
- M. Current NEI Groundwater Initiative Plan and status
- N. Technical requirements manual or licensee controlled specifications which lists the meteorological instruments calibration requirements
- O. A list of Regulatory Guides and/or NUREGs that you are currently committed to relative to the *Radiological Environmental Monitoring Program*. Please include the revision and/or date for the committed item and where this can be located in your current licensing basis/UFSAR.
- P. If applicable, per NEI 07-07, provide any reports that document any spills/leaks to groundwater since the last inspection

8. Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)

Date of Last Inspection: **August 26, 2013**

- A. List of contacts and telephone numbers for the following areas:
 - 1. Solid Radioactive waste processing
 - 2. Transportation of radioactive material/waste
- B. Applicable organization charts (and list of personnel involved in solid radwaste processing, transferring, and transportation of radioactive waste/materials)
- C. Copies of audits, department self-assessments, and LERs written since date of last inspection related to:
 - 1. Solid radioactive waste management
 - 2. Radioactive material/waste transportation program
- D. Procedure index for the following areas:
 - 1. Solid radioactive waste management
 - 2. Radioactive material/waste transportation
- 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. Process control program
 - 2. Solid and liquid radioactive waste processing
 - 3. Radioactive material/waste shipping
 - 4. Methodology used for waste concentration averaging, if applicable
 - 5. Waste stream sampling and analysis
- F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection related to:
 - 1. Solid radioactive waste
 - 2. Transportation of radioactive material/waste

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

- G. Copies of training lesson plans for 49CFR172 subpart H, for radwaste processing, packaging, and shipping.
- H. A summary of radioactive material and radioactive waste shipments made from date of last inspection to present
- I. Waste stream sample analyses results and resulting scaling factors for 2013 and 2014, or the two most recent results.
- J. Waste classification reports if performed by vendors (such as for irradiated hardware)
- K. A listing of all onsite radwaste storage facilities. Please include a summary or listing of the items stored in each facility, including the *total* amount of radioactivity and the *highest* general area dose rate.

Although it is not necessary to compile the following information, the inspector will also review:

- L. Training, and qualifications records of personnel responsible for the conduct of radioactive waste processing, package preparation, and shipping