



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

February 11, 2008

Charles D. Naslund, Senior Vice
President and Chief Nuclear Officer
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P.O. Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT - NRC INTEGRATED INSPECTION
REPORT 05000483/2007005

Dear Mr. Naslund:

On December 31, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Callaway Plant. The enclosed report documents the inspection findings, which were discussed on January 8, 2008, with Mr. T. E. Hermann, Vice President - Engineering, and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

This report documents five findings that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has determined that violations are associated with these issues. Additionally, a licensee identified violation which was determined to be of very low safety significance is listed in this report. Because of the very low safety significance and because they are entered into your corrective action program, these violations are being treated as noncited violations, consistent with Section VI.A of the Enforcement Policy. If you contest these noncited violations you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Callaway Plant facility.

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

document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Vincent G. Gaddy, Chief
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Docket: 50-483
License: NPF-30

Enclosure:
NRC Inspection Report 05000483/2007005
w/attachment: Supplemental Information

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/RA/				
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-483
License: NPF-30
Report Number: 05000483/2007004
Licensee: Union Electric Company
Facility: Callaway Plant
Location: Junction Highway CC and Highway O
Fulton, Missouri
Dates: September 23 through December 31, 2007
Inspectors: D. Dumbacher, Senior Resident Inspector
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Enclosure

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SUMMARY OF FINDINGS

IR 05000483/2007005; 09/23-12/31/2007; Callaway Plant: Equipment Alignment, Maintenance Risk Assessments and Emergent Work Control, Access Control to Radiologically Significant Areas and Other.

This report covered a 3-month inspection by resident inspectors, a regional health physicist, operations engineers, reactor inspectors, and an emergency preparedness inspector. Five Green noncited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the Significance Determination Process does not apply may be Green or assigned a severity level after NRC's management review. The NRC's program of overseeing the safe operation of commercial nuclear power reactors is described in NUREG 1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," after AmerenUE confirmed that the load shedding emergency load sequencing test could not demonstrate that component cooling water pump breakers would perform satisfactorily in service. On November 19, 2007, AmerenUE determined that quantitative data did not exist to demonstrate that component cooling water pump breakers would be capable of closing at Step 1 (5 seconds) of the load shedding emergency load sequence. Technical Specification Surveillance Requirement 3.8.1.18, testing of the emergency load sequencing, required the licensee to verify that load blocks are actuated within +/-10 percent of the specified start time.

This finding is more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective to ensure availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was determined to have very low safety significance because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent a loss of safety function of a single train for greater than its Technical Specification allowed outage time and did not affect seismic, flooding, or severe weather initiating events (Section 1R04).

- Green. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4) after AmerenUE operating personnel failed to implement prescribed risk management actions associated with maintenance on the Train B emergency diesel generator. On October 2, 2007, NRC inspectors performed a walkdown of the risk management actions prescribed and noted the omission of the measures to protect the turbine-driven auxiliary feedwater pump. AmerenUE's review determined that operators failed to follow work instructions to post the protective measure.

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This finding affected the mitigating systems cornerstone. This finding is greater than minor because it was related to maintenance risk management; the overall plant risk assessed was greater than 1.0 E-6; and the licensee failed to implement some prescribed significant compensatory measures. Using Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," Flowchart 2, "Assessment of Risk Management Actions," the inspectors determined this finding to be of very low safety significance because other risk management actions were taken. This finding has a crosscutting aspect in the area of human performance associated with the work practices component because operating personnel did not follow instructions to implement the licensee's prescribed risk management actions [H.4(b)] (Section 1R13).

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing, noncited violation of a Technical Specification 5.4.1.a. required procedure that resulted in the external contamination of a work group with two of the four workers receiving internal contamination. Specifically, a work group alarmed the personnel contamination monitors while exiting the Radiological Control Area. The licensee investigated the event and determined that the workers did not use the faceshields as required by their radiation work permit and that the radiation protection technician failed to recognize that the workers did not have them. As corrective action, the licensee developed a plant systems job aid for new and supplemental radiation protection technicians, added the event as operating experience to radiation protection and radiation worker training, and implemented disciplinary action.

The failure to adhere to a radiation work permit requirement is a performance deficiency. This finding is more than minor because it is associated with the occupational radiation safety exposure control attribute and affected the cornerstone objective to ensure the adequate protection of the worker health and safety from unnecessary exposure to radiation. The failure to adhere to a radiation work permit requirement led to workers' unintended and additional personnel exposure. The finding was determined to be of very low safety significance because it did not involve: (1) as low as reasonably achievable planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding has a human performance crosscutting component with an aspect of work practices in human error prevention techniques because the workers did not use peer- and self-checking to ensure the radiation work permit required protective equipment was used [H.4(a)] (Section 2OS1).

- Green. The inspectors reviewed a self-revealing, noncited violation of a Technical Specification 5.4.1.a. required procedure that resulted when mechanical maintenance workers did not report electronic dosimeter alarms when received. Specifically, during troubleshooting of a waste gas compressor failure, two mechanical maintenance workers received an electronic dosimeter dose rate alarm. The workers exited the room, checked their dosimeters for a dose alarm, determined the noise was due to the compressor, and returned to work as no worker had a visible dose alarm. The workers failed to recognize that the electronic dosimeters would not hold and display a dose rate alarm once out of the elevated radiation field. The workers did not notify radiation

protection of the electronic dosimeter alarms. When exiting the radiological control area, the electronic dosimeter system alerted the workers to the alarms and barred them from the radiological control area for further entries. As corrective action, the workers were coached on expected dosimeter alarm response and the mechanical maintenance supervisor discussed the event during their group meeting as a learning experience.

The failure to notify radiation protection of an electronic dosimeter alarm is a performance deficiency. This finding is more than minor because it is associated with the occupational radiation safety exposure control attribute and affected the cornerstone objective to ensure the adequate protection of the worker health and safety from unnecessary exposure to radiation. The failure to notify radiation protection in the event of an electronic dosimeter alarm could lead to a worker's unintended and additional personnel exposure. The finding was determined to be of very low safety significance because it did not involve: (1) as low as reasonably achievable planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding has a human performance crosscutting component with an aspect of work practices in human error prevention techniques because the workers proceeded in the face of uncertainty or unexpected circumstances when dose rate alarms were received [H.4(a)] (2OS1).

Cornerstone: Emergency Preparedness

- Green. The inspectors identified a noncited violation of 10 CFR 50.54(q), 10 CFR 50.47(b)(10), and 10 CFR Part 50, Appendix E, IV(B), for practices that require licensee protective action recommendations to be made for areas offsite that are not affected by the radiological release, contrary to federal guidance. Programmatic expectations (including on-the-job training) to recommend offsite protective actions for the public in areas where dose assessment has not identified that protective action guides are exceeded is a performance deficiency.

This finding is more than minor because it is not similar to the examples of Manual Chapter 0612, Appendix E, and has the potential to impact public safety. This finding is of very low safety significance because it is a failure to comply with NRC requirements, is associated with Emergency Preparedness Planning Standard 50.47(b)(10), is associated with a risk significant planning standard as defined in Manual Chapter 0609, Appendix B, and is not a risk significant planning standard functional failure or risk significant planning standard degraded function because appropriate licensee protective action recommendations in accordance with federal guidance would be issued for all areas of the emergency planning zone where Protective Action Guides are identified as exceeded. This finding is a noncited violation of 10 CFR 50.54(q) and 50.47(b)(10). The licensee has entered this issue into their corrective action system as Callaway Action Request 200707375. This finding was evaluated as not having a crosscutting aspect (Section 4OA5).

B. Licensee-Identified Violations

One violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and its corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

AmerenUE operated the Callaway Plant at full power for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of risk important systems and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned; and (2) compared deficiencies identified during the walkdown to AmerenUE's Final Safety Analysis Report (FSAR) and corrective action program to ensure problems were being identified and corrected.

- October 2, 2007, Train A emergency diesel generator when Train B emergency diesel generator was out of service for planned maintenance
- October 16, 2007, Train B ultimate heat sink system when Train A essential service water pump and cooling tower fan were out of service for planned maintenance

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown (71111.04S)

a. Inspection Scope

The inspectors: (1) reviewed plant procedures, drawings, the FSAR, Technical Specifications, and vendor manuals to determine the correct alignment of the essential 4 kV power distribution system (NB); (2) reviewed outstanding design issues, operator workarounds, and FSAR documents to determine if open issues affected the functionality of the essential 4 kV power distribution system; and (3) verified that the licensee was identifying and resolving equipment alignment problems.

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- November 1, 8, 15, and 19, 2007, Train A and B of essential 4 kV power distribution system (NB) during and following replacement of the essential Transformer XNB02 potential transformer

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

Introduction. The inspectors identified a Green noncited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," after determining that the licensee had not correctly identified all engineered safety features actuation sequencing test prerequisites and initial conditions per Technical Specification Surveillance Requirement 3.8.1.18.

Description. On November 15, 2007, NRC inspectors determined AmerenUE had not accounted for an interlock with the component cooling water pump breaker and the time to charge the component cooling water pump breaker charging springs should the 4 kV essential busses experience a loss of offsite power. On November 19, 2007, AmerenUE determined that quantitative data did not exist to support that component cooling water pump breakers would be capable of closing at Step 1 (5 seconds) of the load shedding emergency load sequence. Technical Specification Surveillance Requirement 3.8.1.18, testing of the emergency load sequencing, required the licensee to verify that load blocks are actuated within +/-10 percent of the specified stop time. Per the Technical Specification bases, the 10 percent interval tolerance ensures that sufficient time exists for the diesel generator to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding equipment time delays are not violated.

An undervoltage condition on the 4 kV bus with an emergency charging pump already running would cause the component cooling water pump breakers to receive a simultaneous open and close signal. This would result in the breakers' charging springs to be discharged and recharged every 3.99 seconds as the diesel speed and voltage are increasing to nominal values. AmerenUE was not able to verify compliance with Surveillance Requirement 3.8.1.18 because the duration of the charging spring time had never been tested and the test had not been performed with an already running emergency centrifugal charging pump. Subsequent to this discovery, the licensee changed out the affected breakers and verified that the "as found" and "as left" breaker spring charging times tested in an acceptable time. This new data supported the licensee's operability determination. This condition was previously described and evaluated by AmerenUE under Callaway Action Request (CAR) 200308820 but did not address the testing requirements of Surveillance Requirement 3.8.1.18. In accordance with Technical Specification Surveillance Requirement 3.0.3, AmerenUE determined the risk associated with deferring additional Surveillance Requirement 3.8.1.18 testing until the next refueling outage was acceptable.

Analysis. The performance deficiency associated with this finding involved failure of AmerenUE to establish appropriate initial test conditions. This finding, failure to

correctly test 4 kV essential bus loading, is more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective to ensure availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was determined to have very low safety significance because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent a loss of safety function of a single train for greater than its Technical Specification allowed outage time, and did not affect seismic, flooding, or severe weather initiating events.

Enforcement. 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," required the licensee to ensure all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures. Test procedures shall include provisions for assuring that all prerequisites for the given test have been met. Contrary to the above, on November 19, 2007, the load shedding emergency load sequencing test could not demonstrate that component cooling water pump breakers would perform satisfactorily in service. Also the licensee had not tested the load sequencers with a prerequisite initial condition of an emergency charging pump running. Because this issue was entered into the licensee's corrective action program (CAR 200711067), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000483/2007005-01, Failure to Establish Needed Test Conditions to Satisfy Technical Specification Surveillance Requirement 3.8.1.18).

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

The inspectors walked down the eight listed plant areas to assess the material condition of active and passive fire protection features and their operational lineup and readiness. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional and that access to manual actuators was unobstructed; (4) verified that fire extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers, steel fire proofing, penetration seals, and oil collection systems) were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features and that the compensatory measures were commensurate with the significance of the deficiency; and (7) reviewed the FSAR to determine if AmerenUE identified and corrected fire protection problems.

- September 28, 2007, Fire Area A-22, Control Room Air Conditioning and Filtration Room

- September 28, 2007, Fire Area F-1, Fuel Building General Area
- October 16, 2007, Fire Area Ultimate Heat Sink Cooling Tower Rooms
- October 17, 2007, Fire Area C-22, Upper Cable Spreading Room
- October 17, 2007, Fire Area C-21, Lower Cable Spreading Room
- October 17, 2007, Fire Area C-33, South Vertical Cable Chase, Room 3804
- December 5, 2007, Fire Area A-9, Residual Heat Removal Heat Exchanger, Room 1309
- December 5, 2007, Fire Area A-10, Residual Heat Removal Heat Exchanger, Room 1310

Documents reviewed by the inspectors included:

- Final Safety Analysis Report, Section 9.5b, Fire Hazards Analysis
- Fire Protection System Requirements per Final Safety Analysis Report, Table 9.5.1-2
- Fire Detection Functional and Supervisory Operability Test, MSE-KC-FW001, Revision 25
- APA-ZZ-00741, Control of Combustible Materials, Revision 19

The inspectors completed eight samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

External Flooding

a. Inspection Scope

The inspectors: (1) reviewed the FSAR, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving external flooding; (2) reviewed the FSAR and corrective action program to determine if the licensee identified and corrected flooding problems; (3) inspected underground bunkers/manholes to verify the adequacy of (a) sump pumps, (b) level alarm circuits, (c) cable splices subject to submergence, and (d) drainage for bunkers/manholes; (4) verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and (5) walked down the one below listed area to verify the adequacy of: (a) equipment seals located below the

floodline, (b) floor and wall penetration seals, (c) watertight door seals, (d) common drain lines and sumps, (e) sump pumps, level alarms, and control circuits, and (f) temporary or removable flood barriers.

- November 15, 2007, Auxiliary Building Penetrations and Vulnerabilities to External Flooding

Documents reviewed by the inspectors included:

- Callaway FSAR Section 1.2.1.7, Hydrology
- Regulatory Guide 1.102, Flood Protection for Nuclear Power Plants
- Jobs for Excavation of the Essential Service Water Discharge Piping, April 2007
- Callaway Flood Analysis, Calculation ZZ-274

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R07 Biennial Heat Sink Performance (71111.07B)

a. Inspection Scope

The inspectors reviewed design documents (e.g., calculations and performance specifications), program documents, test and maintenance procedures, and corrective action documents. The inspectors interviewed chemistry personnel, maintenance personnel, engineers, and program managers. When available, the inspectors reviewed additional nondestructive examination results for the selected heat exchangers that demonstrated structural integrity.

For those heat exchangers directly connected to the safety-related service water system, the inspectors verified whether testing, inspection and maintenance, or the biotic fouling monitoring program provided sufficient controls to ensure proper heat transfer. Specifically, the inspectors reviewed: (1) heat exchanger test methods and test results from performance testing, (2) if necessary, heat exchanger inspection and cleaning methods and results, and (3) chemical treatments for microfouling and controls for macrofouling.

For those heat exchangers directly or indirectly connected to the safety-related service water system, the inspectors verified the licensee: (1) performed condition monitoring and operation consistent with design assumptions in the heat transfer calculations, (2) evaluated the potential for water hammer, as applicable, (3) instituted appropriate chemistry controls for heat exchangers indirectly connected to the safety-related service water system, and (4) flow tested redundant and infrequently used heat exchangers at maximum design flow.

For the ultimate heat sink and its subcomponents, the inspectors verified the licensee established appropriate controls for macrofouling and biological fouling. Since the

licensee had an above ground ultimate heat sink encapsulated by an embankment and excavated side slopes, the inspectors: (1) verified the licensee checked for settling and sediment buildup every 5 years, (2) reviewed third-party inspections of the ultimate heat sink, (3) confirmed the licensee established and implemented preventive maintenance tasks to control vegetation, and (4) verified sufficient reservoir capacity existed.

The inspectors selected heat exchangers that ranked high in the plant specific risk assessment and were directly or indirectly connected to the safety-related service water system. The inspectors selected the following specific heat exchangers:

- EEG01B Component Cooling Water Heat Exchanger B
- KKJ01A Diesel Generator A Coolers
- SGL15B Penetration Room Cooler B

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Quarterly Inspection

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators to identify deficiencies and discrepancies in the training and to assess operator performance and the evaluator's critique.

- September 27, 2007, Licensed Operator Dynamic Simulator Exam DS-15 involving a faulted and a separate ruptured steam generator

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Biennial Inspection

a. Inspection Scope

The inspectors were on site the week of August 27, 2007, the first week of six total weeks for operating test administration. The inspectors: (1) evaluated examination

security measures and procedures for compliance with 10 CFR 55.49; (2) evaluated the licensee's sample plan of the written examinations for compliance with 10 CFR 55.59 and NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, as referenced in the licensee's requalification program procedures; (3) evaluated each licensed operator's performance on the biennial written examination and the first and second annual operating tests against Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process," requirements; and (4) reviewed the maintenance of license conditions for compliance with 10 CFR 55.53 by reviewing facility records (medical and administrative), procedures, and tracking systems for licensed operator training, qualification, and watch standing. The inspectors reviewed remedial training for examination failures for compliance with facility procedures and adequacy to address deficient areas.

Furthermore, the inspectors: (1) interviewed five personnel, including operators, instructors, evaluators, and training supervisors, regarding the policies and practices for administering requalification examinations; (2) observed the administration of two dynamic simulator scenarios to one requalification crew; and (3) observed three evaluators administer five job performance measures, including two in the control room simulator in a dynamic mode and three in the plant under simulated conditions.

On December 17, 2007, the inspectors conducted an in-office review of the full requalification examination results to assess whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I. Results are listed below:

Results:

- The licensee identified that 2 out of 9 crews evaluated failed the dynamic simulator test. These failures are documented in CARs 200708172 and 200709229.
- The licensee identified that 1 out of 47 individuals failed the dynamic simulator test.
- The licensee identified that 2 out of 47 individuals failed the walk-through test (job performance measures).
- The licensee identified that 6 out of 47 individuals failed the comprehensive biennial written examination.
- The licensee identified that 39 out of 47 individuals passed all portions of the exam.

The inspectors interviewed members of the training department and operating crews to assess the responsiveness of the licensed operator requalification program. The inspectors also observed examination security practices for the operating tests given while the inspectors were on site August 27-31, 2007.

Additionally, the inspectors assessed the Callaway Plant-referenced simulator for compliance with 10 CFR 55.46 using Baseline Inspection Procedure 71111.11

(Section 03.11). This assessment included the adequacy of the licensee's simulation facility for use in operator licensing examinations and for satisfying experience requirements as prescribed by 10 CFR 55.46. The inspectors reviewed a sample of simulator performance test records (transient tests, surveillance tests, malfunction tests, and scenario-based tests), simulator discrepancy report records, and processes for ensuring simulator fidelity commensurate with 10 CFR 55.46. The inspectors also interviewed members of the licensee's simulator configuration control group as part of this review.

The inspectors completed one sample.

b. Findings

No findings of significance were identified. Because the simulator was not on the same core load as the reference plant, the inspectors informed the licensee that the simulator could not be used for satisfying experience requirements by performing reactivity/control manipulation credits on the simulator for the next initial exam application submittal unless all requirements of 10 CFR 55.46 are met and a review by the regional office is completed.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

The inspectors reviewed the three listed maintenance conditions to: (1) verify the appropriate handling of structures, systems, and component performance or condition problems; (2) verify the appropriate handling of degraded structures, systems, or component functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of structures, systems, or component issues reviewed under the requirements of the maintenance rule, 10 CFR Part 50, Appendix B, and the Technical Specifications.

- CAR 200709523, Train B, Failure to report unavailability time for the normal service water system.
- CAR 200709540, Maintenance related failures of Train B emergency diesel generator.
- CAR 200709688, Failure of Valve BNHV8806 to open due to a sticking auxiliary contact.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the three below listed assessment activities to verify: (1) performance of risk assessments when required by 10 CFR 50.65 (a)(4) and licensee procedures prior to changes in plant configuration for maintenance activities and plant operations; (2) the accuracy, adequacy, and completeness of the information considered in the risk assessment; (3) that the licensee recognizes, and/or enters as applicable, the appropriate licensee-established risk category according to the risk assessment results and licensee procedures; and (4) the licensee identified and corrected problems related to maintenance risk assessments.

- October 2, 2007, Planned maintenance on Train B emergency diesel, emergency service water pump, and ultimate heat sink cooling components
- October 16, 2007, Planned maintenance on Train A emergency diesel, emergency service water pump, and ultimate heat sink cooling components
- November 21, 2007, Emergent risk assessment for deferring Surveillance Requirement 3.8.1.18 testing of component cooling water breakers

Documents reviewed by the inspectors included:

- EDP-ZZ-01129, Callaway Plant Risk Assessment, Revision 12

The inspectors completed three samples.

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.65(a)(4) after AmerenUE operating personnel failed to implement prescribed risk management actions associated with maintenance on the Train B emergency diesel generator.

Description. On October 2, 2007, operating personnel rendered the Train B emergency diesel generator and essential service water pump inoperable for planned maintenance. AmerenUE's risk assessment for the maintenance prescribed protecting the turbine-driven auxiliary feedwater pump with signs to communicate the importance of maintaining the pump available per Procedure EDP-ZZ-1129. NRC inspectors performed a walkdown of the risk management actions prescribed and noted the omission of the measures to protect the pump. AmerenUE's review determined that operators had failed to follow work instructions to post the protective measure.

Analysis. The performance deficiency associated with this finding involved a failure to follow work instructions to implement risk management actions. This finding is greater than minor because it was related to maintenance risk management; the overall plant risk assessed was greater than 1.0 E-6; and the licensee failed to implement prescribed significant compensatory measures. This finding, involving the auxiliary feedwater system, was associated with the mitigating systems cornerstone equipment

performance attribute and affected the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors used Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," Flowchart 2, "Assessment of Risk Management Actions," to analyze the finding.

The inspectors determined this finding is of very low safety significance because the Appendix K flowchart result was Green based on an incremental core damage probability greater than 1 E-6 and less than 1 E-5 and three or more risk management actions taken. This finding has a crosscutting aspect in the area of human performance associated with the work practices component because operating personnel did not follow instructions to implement the licensee's prescribed risk management actions [H.4(b)].

Enforcement. 10 CFR 50.65(a)(4) required the licensee to assess and manage the increase in risk that may result from proposed maintenance activities. Contrary to the above, on October 2, 2007, the licensee failed to adequately manage the increase in risk that occurred during the maintenance of the Train B emergency diesel generator. Because this issue was entered into the licensee's corrective action program (CAR 200709330), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000483/2007005-02, Failure to Adequately Manage Increased Risk During a Maintenance Activity.)

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plant status documents such as operator shift logs, emergent work documentation, deferred modifications, and standing orders to determine if an operability determination was warranted for degraded components; (2) referred to the FSAR and design basis documents to review the technical adequacy of licensee operability determinations; (3) evaluated compensatory measures associated with operability determinations; (4) determined degraded component impact on any Technical Specifications; (5) used the significance determination process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that AmerenUE has identified and implemented appropriate corrective actions associated with degraded components.

- October 5, 2007, CAR 200708874, Operability Determination for Pressure Transmitter BBPT-455 Out of Calibration
- October 5, 2007, CAR 200709602, Emergency Diesel Generator B Intercooler Pump Mechanical Seal Leak

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17B)

a. Inspection Scope

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, equipment protection from hazards, operations, flowpaths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the one modification listed below. The inspectors verified that: (1) modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; (2) postmodification testing maintained the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, structures, systems and components performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria has been met; and (3) the licensee has identified and implemented appropriate corrective actions associated with permanent plant modifications.

- November 14, 2007, Modification MP-07-0162 installing a permanent skirt around the refueling water storage tank vent

Documents reviewed by the inspectors included:

- November 1, 2007, Night Order, Maintaining Residual Water Storage Tank Vent Operability
- Modification MP-070162
- Modification drawing Number 109-00004, Revision 7
- CAR 200700194

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the five listed postmaintenance test activities of risk significant systems or components. For each item, the inspectors: (1) reviewed the applicable licensing-basis and/or design-basis documents to determine the safety functions; (2) evaluated the safety functions that may have been affected by the maintenance activity; and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test

equipment was calibrated, procedures were followed, jumpers were properly controlled, the test data results were complete and accurate, the test equipment was removed, the system was properly re-aligned, and deficiencies during testing were documented. The inspectors also reviewed the FSAR to determine if AmerenUE identified and corrected problems related to postmaintenance testing.

- September 26, 2007, PATS 04502358/900 and 06522092/900 on Train B Control Room Pressurization Fan and Filtration Unit
- October 2, 2007, PMT 007000344/900 on Train B Essential Service Water Pump Motor
- October 2, 2007, PMT 04502426 on Train B Emergency Diesel Generator Supply Fan
- October 2, 2007, PMT 06122519/910 on Train B Emergency Diesel Generator Supply Fan Suction Damper
- October 2, 2007, PMT 04502078/950 on Train B Emergency Diesel Generator Jacket Water Temperature Regulator
- November 19, 2007, PMT 07689836/900 on Essential Service Water Emergency Makeup Valve EGHV0012 to the Component Cooling Water System

Documents reviewed by the inspectors included:

- Procedure MSE-ZZ-QS002, Revision 23
- Procedure OSP-EF-P001B, Revision 47
- Procedure OSP-EG-V001B, Revision 30

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the FSAR, procedure requirements, and Technical Specifications to ensure that the listed surveillance activities demonstrated that the structures, systems, or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated Technical Specifications operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of American Society of Mechanical

Engineers code requirements; (12) updating of performance indicator data; (13) engineering evaluations, root causes, and bases for returning tested structures, systems, or components not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms setpoints. The inspectors also verified that AmerenUE identified and implemented any needed corrective actions associated with the surveillance testing.

- September 24, 2007, Inservice Test Surveillance 07508755, Train B Auxiliary Feedwater Pump
- September 25, 2007, Routine Surveillances 05518543 and 06519557, Loop Calibration Procedure for Loop Temperature; Refueling Water Storage Tank Temperature Indication ITL-BN000T5
- October 4, 2007, Routine Surveillance 07507107, Train B Emergency Diesel Generator Test
- November 13, 2007, Inservice Test Surveillance 0751020, Train A Residual Heat Removal Pump
- November 20, 2007, Inservice Test Surveillance 07510769 on the Turbine-Driven Auxiliary Feedwater Pump
- December 4, 2007, Routine Surveillance 07001296 to Determine Axial Flux Difference with Alarm Inoperable
- December 7, 2007, Reactor Coolant System Leakage Detection Surveillance 07512329

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three routine, three inservice test, and one reactor coolant system leakage detection surveillances.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On November 20, 2007, the inspectors observed one emergency response drill, which contributed to drill/exercise performance and emergency response organization performance indicators. The inspectors: (1) observed the training evolution to identify any weaknesses and deficiencies in classification, notification, and protective action requirements development activities; (2) reviewed the identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee is properly identifying failures; and (3) determined whether licensee performance is in

accordance with the guidance of the Nuclear Energy Institute 99-02, "Voluntary Submission of Performance Indicator Data," acceptance criteria.

- November 20, 2007, Session 4 of Cycle 07-05 Drill from the Simulator Involving Reactor Coolant Leak Outside Containment and a Seismic Event

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

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

- Performance indicator events and associated documentation packages reported by the licensee in the occupational radiation safety cornerstone
- Controls (surveys, posting, and barricades) of radiation, high radiation, or airborne radioactivity areas in the auxiliary, spent fuel pool, and radiate buildings
- Radiation work permits, procedures, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Barrier integrity and performance of engineering controls in three potential airborne radioactivity areas
- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem committed effective dose equivalent

- Physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within spent fuel and other storage pools.
- Corrective action documents related to access controls
- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies
- Dosimetry placement in high radiation work areas with significant dose rate gradients
- Changes in licensee procedural controls of high dose rate - high radiation areas and very high radiation areas
- Controls for special areas that have the potential to become very high radiation areas during certain plant operations
- Posting and locking of entrances to all accessible high dose rate - high radiation areas and very high radiation areas

The inspectors completed 16 of the required 21 samples.

b. Findings

- .1 Introduction. The inspectors reviewed a self-revealing, Green NCV of a Technical Specification 5.4.1.a. required procedure that resulted in the external contamination of a work group with two of the four workers receiving internal contamination.

Description. On April 11, 2007, workers removing valve bonnet, stem, and disc assemblies from valve actuators in Room 1124 alarmed the personnel contamination monitors upon exiting the radiological control area. The radiation protection technician providing job coverage stopped the work activity when surveys indicated contamination rates of up to 40 mRad beta and requested the workers place the work in a safe condition and leave the area. All four workers in the area, including the radiation protection technician, were found to be contaminated. Two workers could not clear the personnel contamination monitors and were sent for whole body counts. The internal dose assessment for each individual was less than 1 millie. The licensee investigated the event and determined that the workers did not use the faceshields as required by their radiation work permit when breaching contaminated systems and that the radiation protection technician failed to recognize the workers were without their faceshields. As corrective action, the licensee developed a plant systems job aid for new and supplemental radiation protection technicians, added the event as an operating experience to radiation protection and radiation worker training, and implemented disciplinary action.

Analysis. Failure to adhere to a radiation work permit requirement is a performance deficiency. This finding is more than minor because it is associated with the occupational radiation safety exposure control attribute and affected the cornerstone objective to ensure the adequate protection of worker health and safety from

unnecessary exposure to radiation. Failure to adhere to a radiation work permit requirement led to workers' unintended and additional personnel exposure. This finding was determined to be of very low safety significance because it did not involve: (1) as low as reasonably achieved (ALARA) planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding has a human performance crosscutting component with an aspect of work practices in human error prevention techniques because the workers did not use peer- and self-checking to ensure the radiation work permit required protective equipment was used [H.4(a)].

Enforcement. Technical Specification 5.4.1.a. required procedures be established, implemented, and maintained covering activities specified in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 7.e. of the Regulatory Guide required procedures for access control to radiation areas including a radiation work permit system. Procedure APA-ZZ-01004, "Radiological Work Standards," Revision 8, Step 3.7 required radiation workers to adhere to the radiological work standards detailed within procedures, the radiation work permit, and plant training programs. In addition, Step 4.1.1. of the same procedure required, in part, radiation workers ensure they know their radiation work permit requirements including the special instructions. Radiation Work Permit 06116341500, "Special Instructions for Workers Require the Use of Face Shields When Contaminated Systems are Breached," Revision 0. Contrary to Procedure APA-ZZ-01004, workers did not adhere to their radiation work permit requirement to use face shields when contaminated systems were breached. Because this finding is of very low safety significance and was entered into the licensee's corrective action program (CAR 200703726), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy: NCV 05000483/2007005-03, Failure to Adhere to a Radiation Work Permit Requirement.

- .2 Introduction. The inspectors reviewed a self-revealing, noncited violation of a Technical Specification 5.4.1.a. required procedure that resulted when mechanical maintenance workers did not report electronic dosimeter alarms when initially received.

Description. On June 25, 2007, two mechanical maintenance workers received dose rate alarms during an entry into the Waste Gas Compressor Room B. The workers were briefed for the radiological conditions prior to entering the room. During the work activity, a worker thought they heard a dose rate alarm. The workers exited the room, checked their dosimeters for a dose alarm, determined the noise was due to the compressor, and returned to work as no worker had a visible dose alarm. The workers failed to recognize that the electronic dosimeters would not hold and display a dose rate alarm once out of the elevated radiation field. The workers did not notify radiation protection of the electronic dosimeter alarms. When exiting the radiological control area, the electronic dosimeter system alerted the workers to the alarms and barred them from the radiological control area for further entries. For the two workers that received the dose rate alarms, one dose rate alarm was a single alarm lasting for 10 seconds while the other worker had four alarms with one lasting for 40 seconds. As corrective action, the workers were coached on expected dosimeter alarm response and the mechanical maintenance supervisor discussed the event during their group meeting as a learning experience.

Analysis. Failure to notify radiation protection of an electronic dosimeter alarm is a performance deficiency. This finding is more than minor because it is associated with the occupational radiation safety exposure control attribute and affected the cornerstone objective to ensure the adequate protection of the worker health and safety from unnecessary exposure to radiation. Failure to notify radiation protection in the event of an electronic dosimeter alarm could lead to a worker's unintended and additional personnel exposure. This finding was determined to be of very low safety significance because it did not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding has a human performance crosscutting component with an aspect of work practices in human error prevention techniques because the workers proceeded in the face of uncertainty or unexpected circumstances when dose rate alarms were received [H.4(a)].

Enforcement. Technical Specification 5.4.1.a. required procedures be established, implemented and maintained covering activities specified in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 7.e. of the Regulatory Guide required procedures for access control to radiation areas including a radiation work permit system. Procedure APA-ZZ-01004, "Radiological Work Standards," Revision 8, Step 4.1.1 required, in part, radiation workers ensure they know their actions upon an electronic dosimeter alarm which are to place work in a safe condition, exit the work area, and report the alarm to radiation protection. Contrary to Procedure APA-ZZ-01004, the workers did not report their electronic dosimeter alarms during their work activity to radiation protection personnel. Because this finding is of very low safety significance and was entered into the licensee's corrective action program (CAR 200706231), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy: NCV 05000483/2007005-04, Failure to Notify Radiation Protection of an Electronic Dosimeter Alarm.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining individual and collective radiation exposures ALARA. The inspectors used the requirements in 10 CFR Part 20 and the licensee's procedures required by Technical Specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed:

- Current 3-year rolling average collective exposure
- Ten work activities from previous work history data and the outage which resulted in the highest personnel collective exposures (SAMPLE 2 and SAMPLE 5).
- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Site-specific ALARA procedures

- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling and engineering groups
- Integration of ALARA requirements into work procedure and radiation work permit documents
- Person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements
- Shielding requests and dose/benefit analyses
- Dose rate reduction activities in work planning
- Postjob (work activity) reviews
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity exposures, the intended dose outcome, and the accuracy of dose rate and man-hour estimates
- Method for adjusting exposure estimates, or replanning work, when unexpected changes in scope or emergent work were encountered
- Exposure tracking system
- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding
- Exposures of individuals from selected work groups
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Source-term control strategy or justifications for not pursuing such exposure reduction initiatives
- Specific sources identified by the licensee for exposure reduction actions, priorities established for these actions, and results achieved since the last refueling cycle
- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results

- Resolution through the corrective action process of problems identified through postjob reviews and postoutage ALARA report critiques
- Corrective action documents related to the ALARA program and followup activities, such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

The inspectors completed 25 of the required 29 samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

Reactor Safety Cornerstone

On November 16, 2007, the inspectors sampled licensee submittals for the performance indicators listed below for the period from June 2006 through June 2007. The definitions and guidance of Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, were used to verify the licensee's basis for reporting each data element in order to verify the accuracy of performance indicator data reported during the assessment period. The inspectors reviewed licensee event reports, out-of-service logs, operating logs, and the maintenance rule database as part of the assessment. In addition, the inspectors interviewed licensee personnel associated with performance indicator data collection, evaluation, and distribution.

- Auxiliary Feedwater System
- Residual Heat Removal System
- Support Cooling System

The inspectors completed three samples in this cornerstone.

Occupational Radiation Safety Cornerstone

Occupational Exposure Control Effectiveness

The inspectors reviewed licensee documents from October 1, 2006, through June 30, 2007. The review included corrective action documentation that identified occurrences in locked high radiation areas (as defined in the licensee's Technical Specifications), very high radiation areas (as defined in 10 CFR 20.1003), and unplanned personnel exposures (as defined in Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guideline," Revision 5). Additional records reviewed included ALARA records

and whole body counts of selected individual exposures. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the performance indicator data. In addition, the inspectors toured plant areas to verify that high radiation, locked high radiation, and very high radiation areas were properly controlled. Performance indicator definitions and guidance contained in Nuclear Energy Institute 99-02, Revision 5, were used to verify the basis in reporting for each data element.

The inspectors completed the required sample (1) in this cornerstone.

Public Radiation Safety Cornerstone

Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences

The inspectors reviewed licensee documents from October 1, 2006, through June 30, 2007. Licensee records reviewed included corrective action documentation that identified occurrences for liquid or gaseous effluent releases that exceeded performance indicator thresholds and those reported to the NRC. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the performance indicator data. Performance indicator definitions and guidance contained in Nuclear Energy Institute 99-02, Revision 5, were used to verify the basis in reporting for each data element.

The inspectors completed the required sample (1) in this cornerstone.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a daily screening of items entered into the licensee's corrective action program. This assessment was accomplished by reviewing the daily CAR screening report and control room logs and attending selected CAR board and work control meetings. The inspectors: (1) verified that equipment, human performance, and program issues were being identified by the licensee at an appropriate threshold and that the issues were entered into the corrective action program; (2) verified that corrective actions were commensurate with the significance of the issue; and (3) identified conditions that might warrant additional followup through other baseline inspection procedures.

b. Findings

No findings of significance were identified.

.2 Selected Issue Followup Inspection

a. Inspection Scope

In addition to the routine review, the inspectors selected the below listed issues for a more in-depth review. The inspectors considered the following during the review of AmerenUE's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

- October 4, 2007, CAR 200709540, Train B emergency diesel field flash did not flash
- October 17, 2007, CAR 200708619, ECV0081 consequential disposition
- November 14, 2007, Cumulative effect of operator workaround review associated with CARs and night orders for loss of the residual water storage tank inventory through ECV0081 while recirculating, Diesel Generator B manual shutdown lever needed, residual water storage tank vent operability, and Emergency Diesel Generator B starting air system operability challenge

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples, one being an operator workaround.

b. Findings

No findings of significance were identified. The inspectors noted that there were four examples of nonrisk significant operator workarounds not classified, nor required to be classified, as workarounds by the licensee workaround program. Inspection Procedure 71152 defines an operator workaround as operator action(s) taken to compensate for a degraded or nonconforming condition that complicates the operation of plant equipment. A risk significant operator workaround is defined as operator action(s) taken to compensate for a degraded or nonconforming condition which could result in an increase in the baseline core damage or large early release frequency. The cumulative review focused on degradations to the Train B emergency diesel shutdown lever, leaking valves affecting the refueling water storage system, the refueling water storage tank vent vulnerability to icing and a failing pressure switch for one of the Train B emergency diesel starting air receivers. Each of these resulted in complicated operation of plant equipment, yet was not considered as an operator workaround by the licensee. Three of the items were complex enough to require operations department night orders to provide guidance on handling the degradations. The corrective actions for the two refueling water storage tank issues were noted to have unexpected delays due to engineering problems. In each case the licensee appropriately evaluated and maintained the affected equipment operability.

.3 Semiannual Trend Review

a. Inspection Scope

The inspectors completed a semiannual trend review of repetitive or closely related issues that were documented in plant trend reports, problem lists, performance indicators, system health reports, quality assurance audit reports, corrective documents, and corrective maintenance documents to identify trends that might indicate the existence of more safety significant issues. The inspectors' review consisted of the 6-month period of June through December 2007. When warranted, some of the samples extended beyond those dates to fully assess the issue. The inspectors compared and contrasted their results with the Third Quarter 2007 - Callaway Quarterly Trend Report (AUPI 07-005).

The inspectors completed one sample.

b. Assessment and Observations

Licensee Identified Adverse Trends

The licensee identified adverse trends in use of and adherence to procedures, plant status control, and emergency Action Level declarations. The inspectors agree that each of these three sets of adverse conditions have had sufficient examples to be considered an adverse trend. The inspectors reviewed and communicated additional examples of each of these trends to the licensee. Specifically, the use of "local control" for maintenance activity worker protection was a contributor to two of the examples.

.4 Radiation Safety

a. Inspection Scope

The inspectors evaluated the effectiveness of the licensee's problem identification and resolution process with respect to the following inspection areas:

- Access Control to Radiologically Significant Areas (Section 2OS1)
- ALARA Planning and Controls (Section 2OS2)

b. Findings

No findings of significance were identified.

.5 Heat Sink Problem Identification and Resolution Evaluations

a. Inspection Scope

The inspectors evaluated licensee corrective actions related to the health of the ultimate heat sink during this inspection and reviewed other corrective actions since the last heat sink inspection in November 2005.

b. Findings

The inspectors determined that, as a result of numerous issues, the licensee developed an appropriate plan to resolve the numerous deficiencies related to internal corrosion of their essential service water piping. The long standing deficiencies related to corrosion and low flow conditions in small bore piping, flow erosion at flow orifices and the essential service water pump discharge piping, microbiologically induced corrosion of their large bore piping and corrosion of vent and drain valves. The licensee established a plan to correct these deficiencies during Refueling Outage 16. The licensee documented their plans in CAR 200704465.

4OA5 Other

.1 (Closed) Unresolved Item 05000483/2007004-01, Licensee Practices Allow Protective Action Recommendations for Areas Where Protective Action Guides are not Exceeded

a. Inspection Scope

The inspectors reviewed the licensee protective action recommendation practices. This issue involved recommendations made by the licensee to offsite authorities, and was previously characterized as "Unresolved" pending NRC consultation with the Federal Emergency Management Agency. A discussion was held with the Federal Emergency Management Agency, Region VII, on October 10, 2007, to ensure a complete understanding of the issue.

b. Findings

Introduction. The inspectors identified a Green NCV for licensee practices that allowed protective action recommendations be made by the licensee for areas of the emergency planning zone in which radiological protective action guides have not been exceeded, contrary to federal guidance and the requirements of 10 CFR 50.54(b)(10) and 10 CFR Part 50, Appendix E, IV(B).

Description. The NRC identified that Procedure EIP-ZZ-00212, "Protective Action Recommendations," Revision 21, allows the licensee to generate shelter or evacuation protective action recommendations for members of the public in areas of the emergency planning zone where radiological protective action guides have not been exceeded. The licensee and offsite agencies have adopted a prompt protective action scheme based on EPA-400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," and NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, Supplement 3, "Criteria for Protective Action Recommendations for Severe Accidents," that provides for retaining prior protective action recommendations as meteorological conditions change, as discussed in Regulatory Information Summary 2003-12, "Clarification of NRC Guidance for Modifying Protective Actions." However, inspectors determined that with an existing keyhole protective action recommendation, when a wind shift occurs followed by an increased severity in the radiological release (which would require evacuation of affected down-wind sectors 10 miles from the plant), the licensee's practice is to recommend

protective actions 10 miles downwind from the plant in every emergency planning zone sector that is currently affected, and was previously recommended for actions between 2 and 5 miles from the reactor, regardless of the prevailing wind direction at the time the radiological release increases in severity.

Federal guidance for the choice of protective actions during an emergency is described in EPA-400-R-92-001. Specifically, a protective action recommendation is warranted when radiation doses are projected between 1 and 5 rem Total Effective Dose Equivalent, or between 5 and 25 rem Thyroid Committed Effective Dose Equivalent. Guidance also recommends that protective action decisions be based on dose projections without waiting for confirming environmental measurements, and states that protective actions are seldom justified in areas where the protective action guides are not exceeded, based in part on minimizing overall risk to the public (balancing the risk of radiation injury against the risk of taking protective actions).

The inspectors interviewed licensee emergency planners, emergency response organization dose assessment staff, and licensee management, concerning the expectations and practices for protective action recommendations under conditions of changing wind direction and radiological severity. The inspectors posed an example consisting of a slow 180° wind shift followed (after the wind direction stabilizes) by additional core damage, to illustrate and understand the licensee's practices. The inspectors determined that, under the posted conditions, the licensee would recommend extending protective actions to ten miles in all emergency planning zone sectors where actions had previously been recommended between 2 and 5 miles, and the licensee's recommendation would not be limited to those sectors radiologically affected at the time core damage increased in severity.

The inspectors determined that, under conditions of changing wind direction and release severity, the licensee's practices would always result in appropriate protective action recommendations to offsite authorities for areas where radiological risk to the public exists, but can also result in recommendations to take action in areas where radiological risk is not determined to exist.

Analysis. Practices (including associated training) to recommend offsite protective actions for the public in areas where dose assessment has not identified that protective action guides are exceeded is a performance deficiency. The finding is more than minor because it is not similar to the examples of Manual Chapter 0612, Appendix E, and has the potential to impact public safety in that unnecessary protective actions may expose unaffected members of the public to additional risk. The finding is associated with the emergency response organization attributes of 50.47(b) planning standards and training. The finding affects the emergency preparedness cornerstone objective because recommendations to offsite authorities to take protective actions in areas where protective action guides are not identified as exceeded affects the ability to protect the health and safety of the public, and may result in unnecessary risk to the public. This finding was evaluated using the emergency preparedness significance determination process and was determined to have very low safety significance (Green) because: it is a failure to comply with NRC requirements, is associated with emergency preparedness planning standard 50.47(b)(10), is associated with a risk significant planning standard as defined in Manual Chapter 0609, Appendix B, Section 2.0, and is not a risk significant

planning standard functional failure or a risk significant planning standard degraded function because appropriate protective action recommendations would be issued for all areas of the plume phase emergency planning zone where protective action guides are identified as exceeded. The finding was evaluated as not having a crosscutting aspect.

Enforcement. 10 CFR 50.54(q) states, in part, "A licensee . . . shall follow and maintain in effect emergency plans which meet the standards in §50.47(b) and the requirements in Appendix E . . ." 10 CFR 50.47(b)(10) states, in part, "A range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place . . ." 10 CFR Part 50, Appendix E, IV(B) states, in part, "The means to be used for determining the magnitude of and for continually assessing the impact of the release of radioactive materials shall be described, including . . . the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety . . ." Federal guidance for the choice of protective actions during an emergency is described in EPA-400-R-92-001. Licensee Procedure EIP-ZZ-00212, "Protective Action Recommendations," Revision 21, states, in part, "(§5.1.1.2) Subsequent protective action recommendations are made based on plant conditions (taking into account core and containment conditions) and/or dose assessment. (§5.1.2) If dose calculations project doses beyond 5 miles that exceed protective action guidelines for evacuation (1 rem TED, 5 rem CD Thyroid) . . . upgrade protective action recommendations to evacuate a 5 mile radius around the plant and 10 miles downwind of the plant in affected sectors . . . (§5.1.4) If affected sectors change based on meteorological conditions . . . the protective actions should be modified accordingly."

Contrary to the above, the licensee's implementation of Procedure EIP-ZZ-00212 did not ensure that guidelines for the choice of protective actions during an emergency, consistent with federal guidance, are developed and in place. Specifically, licensee upgrades to protective action recommendations were not made based on plant conditions and dose assessments or appropriately modified based on meteorological conditions because licensee processes may result in the licensee issuing protective action recommendations to offsite authorities for areas of the plume phase emergency planning zone between 5 and 10 miles downwind where doses to the public are not projected in excess of federal protective action guides. Because this failure is of very low safety significance and has been entered into the licensee's corrective action system (CAR 200707375), this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy:

NCV 05000483/2007005-05, Licensee Practices Allow Protective Action Recommendations for Areas Where Protective Action Guides Are Not Exceeded.

4OA6 Management Meetings

Exit Meeting Summary

On October 5, 2007, the inspector presented the occupational radiation safety inspection results to Mr. F. Diya, Plant Director, and other members of his staff who acknowledged the findings.

On November 8, 2007, the inspectors presented the results of biennial heat sink inspection to Mr. T. Herrmann, Vice President, Engineering, and other members of licensee management. The licensee acknowledged the information presented.

On November 15, 2007, the inspectors presented the emergency preparedness exercise inspection results to Mr. K. Bruckerhoff, Supervisor, Emergency Preparedness, who acknowledged the findings.

The inspectors presented the licensed-operator biennial requalification inspection results during a telephonic exit to Mr. B. Barton, Training Manager, at the conclusion of the inspection on December 18, 2007. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 8, 2008, the resident inspectors presented the results of their inspection to Mr. T. E. Hermann, Vice President - Engineering, and other members of his staff who acknowledged the findings.

40A7 Licensee-Identified Violations

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

- 10 CFR 50.83 requires, in part, that prior to releasing part of a facility or site for unrestricted use, the licensee shall obtain NRC approval. Contrary to this, in January 2007, the licensee identified that on April 20, 2004, it had sold two parcels of land totaling 0.83 acres near the Highway 94 bridge at Logan Creek to the State of Missouri without obtaining NRC approval of the release of the land for unrestricted use. This was entered in the licensee's corrective action program as CAR 200700893. On May 15, 2007, the licensee submitted a request, consistent with 10 CFR 50.83, seeking approval to release these parcels of land. This finding is of very low safety significance because the property meets the definition of non-impacted areas in accordance with 10 CFR 50.2, and the property has no reasonable potential for residual radioactivity in excess of natural background. In accordance with the NRC Enforcement Policy, because the violation impacted the regulatory process, it was not suitable for evaluation under the Significance Determination Process and, therefore, was categorized at Severity Level IV.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Barton, Training Manager
K. Bruckerhoff, Supervisor, Emergency Preparedness
F. Diya, Plant Director
T. Elwood, Supervising Engineer, Licensing
B. Farnam, Manager, Radiation Protection
K. Gilliam, Supervisor, Radiation Protection
L. Graessle, Manager, Regulatory Affairs
A. Heflin, Vice President, Nuclear
T. Herrmann, Vice President, Engineering
J. Hiller, Engineer, Regional Regulatory Affairs
L. Kanuckel, Manager, Quality Assurance
R. Lamb, Manager, Maintenance
D. Lantz, Superintendent of Operations Training
S. Maglio, Assistant Manager, Regulatory Affairs
R. D. Myatt, Supervisor, Engineering
K. Mills, Manager, Engineering
D. Neterer, Manager, Nuclear Operations
S. Petzel, Engineer, Regulatory Affairs
J. Pitts, Component Engineer
T. Stotlar, Supervising Engineer, Engineering Services
V. Rider, ALARA Specialist, Radiation Protection

ITEMS OPENED AND CLOSED

Opened and Closed

05000483/2007005-01	NCV	Failure to Establish Needed Test Conditions to Satisfy Technical Specification Surveillance Requirement 3.8.1.18 (Section 1R04)
05000483/2007005-02	NCV	Failure to Adequately Manage Increased Risk During a Maintenance Activity (Section 1R13)
05000483/2007005-03	NCV	Failure to Adhere to a Radiation Work Permit Requirement (Section 2OS1.b.1)
05000483/2007005-04	NCV	Failure to Notify Radiation Protection of an Electronic Dosimeter Alarm (Section 2OS1.b.2)
05000483/2007005-05	NCV	Licensee Practices Allow Protective Action Recommendations for Areas Where Protective Action Guides are not Exceeded (Section 4OA5)

Closed

05000483/2007004-01 URI Licensee Practices Allow Protective Action
Recommendations for Areas Where Protective Action
Guides are not Exceeded (Section 4OA5)

DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Callaway Action Requests

200101197	200105306	200200367	200206806
200303330	200307247	200307584	200308233
200308820	200404465	200500476	200502288
200703369	200710418	200711067	

Procedures

OSP-SA-2413A, Train A Diesel Generator and Sequencer Testing Surveillance 05515515
OSP-SA-2413A, Train B Diesel Generator and Sequencer Testing Surveillance 05515199
MPE-ZZ-QS005, General Electric 4.16 kV Breaker PM, Revision 24
MPE-ZZ-QS006, GE Magneblast Breaker Overhaul, Revision 4

Piping and Instrumentation Diagrams

M-22AL01, Auxiliary Feedwater System, Revision 33
M-22BG01, Chemical and Volume Control System, Revision 28
M-22BN01, Refueling Water Storage System, Revision 25

Electrical Schematics

E-23BG01, Centrifugal Charging Pump A, Revision 4
E-23EG01A, Component Cooling Water Pump A, Revision 10
E-23EG01B, Component Cooling Water Pump C, Revision 7

Jobs

07009346	P710032	04502241	04503771
04502250			

Miscellaneous

Technical Specification 3.8.1 bases document

November 19, 2007 operating logs

Callaway Training lesson plan, Load Shedding Emergency Load Sequencing

PRA Evaluation Request (PRAER) form Surveillance Requirement 3.0.3, Risk Assessment for Issue associated with Surveillance Requirement 3.8.1.18

Section 1R07: Heat Sink Performance

Calculations

06-131, Thermal performance test data evaluation and uncertainty analysis for component cooling water Heat Exchanger EEG01B, Revision A

EG-20, Max component cooling water temperature during post-LOCA, Revision 0, Addendum 1

EG-42, Calculate the number of component cooling water tubes that can be plugged, Revision 0

KJ-10, Determine tube plugging limits for diesel generator intercooler heat exchangers, EKJ03A/B, diesel generator jacket water heat exchangers, EKJ06A/B, and the lube oil coolers, EKJ04A/B, Revision 0

Callaway Action Requests

200304456	200409580	200508419	200700668	200704465
200307329	200500193	200508460	200701786	200707154
200408127	200501114	200510182	200701932	200710344
200409298	200502084	200510364	200701963	
200409298	200502746	200600553	200703313	
200409557	200505038	200608153	200703582	

Drawings

C-U101, Ultimate Heat Sink Retention Pond Plan & Sections, Revision 6

C-U102, Ultimate Heat Sink Discharge & Outlet Structures Plans & Sections, Revision 5

E-1026-00001, Cathodic Protection System - Area A, Drawing Legend & Key Plan, Revision 7

E-1026-00002, Cathodic Protection System Site Plan - Area B, Revision 5

E-1026-00004, Cathodic Protection System Site Plan - Area D, Revision 5

E-1026-00008, Cathodic Protection System Details, Revision 0

E-1026-00009, Cathodic Protection System Details, Revision 2

8600-X-89745, Site Plan Cathodic Protection Equipment, Revision 19, Sheet 1 of 2

8600-X-89746, Site Plan Cathodic Protection Equipment, Revision 16, Sheet 2 of 2

Health Risk Evaluations

EF-03-03, Small Bore Essential Service Water Piping Corrosion (4 inch Diameter and Less)

EF-03-07, Corrosion of Large Bore Essential Service Water Piping - ESW Flow Only (Includes Underground)

EF-07-03, B ESW Pump is Degrading

EF-07-04, Pump Discharge Heads are Carbon Steel and Susceptible to Corrosion

EF-07-05, Improvements to the Operation of the Cooling Tower Bypass Lines

EG-03-07, Erosion/Corrosion of Component Cooling Water Heat Exchanger Gasket Surfaces

Inspections and Tests

Component Cooling Water Train B, Heat Exchanger EEG01B Inspection, dated October 16, 2005

Component Cooling Water Train B, Heat Exchanger EEG01B Performance Tests, dated April 10, 2004; April 2, 2007

Diesel Generator A, Heat Exchanger Performance Test, dated July 30, 2003; August 23, 2006

ESP-EF-0002A, Essential Service Water Train A Flow Verifications, dated October 14, 2005; May 3, 2007

Residual Heat Removal A Room Cooler Inspection, dated March 2, 2004; August 23, 2005

Residual Heat Removal B Room Cooler Inspection, dated September 24, 2004; May 9, 2006

Procedures

CDP-ZZ-00950, Raw Water Systems Control Program, Revision 6

CTP-ZZ-06000, Circ and Service Water Chemical Additions, Revision 47

EDP-ZZ-01112, Heat Exchanger Predictive Performance Manual, Revision 8

EDP-ZZ-01121, Raw Water Systems Predictive Performance Manual, Revision 7

ETP-GL-00001, Area Room Cooler Test, Revision 4

ETP-EF-0002B, Essential Service Water Train B Flow Verification, Revision 9

ETP-EF-0002A, Essential Service Water Train A Flow Verification, Revision 8

ETP-EG-00001, Component Cooling Water Heat Exchanger Test, Revision 5

ETP-KJ-00003, Diesel Generator Heat Exchanger Test, Revision 4

ETP-ZZ-03001, GL 89-13 Heat Exchanger Inspection, Revision 5

ESP-EF-0002A, Essential Service Water Train A Flow Verification, Revision 0

ESP-EF-03002, Ultimate Heat Sink Retention Pond In-service Inspection, Revision 3

MPM-ZZ-QQ001, Room Cooler Inspection, Revision 12

OSP-EF-P001B, ESW Train B Inservice Test, Revision 41

OSP-EF-V001B, ESW Train B Valve Operability, Revision 29

OSP-ZZ-00001, Control Room Shift and Daily Log Readings/Channel Checks, Revision 45

OTS-EF-P001B, Performance Testing of Essential Service Water Pump B, Revision 0

Requests for Resolution

07809C	22364A	16196C
19513	16196B	

Specifications

10466-M-072(Q), Design Specification for Component Cooling Water Heat Exchangers for the Standardized Nuclear Unit Power Plant System (SNUPPS), Revision 11

072-00024, Instruction Manual for Component Cooling Water Heat Exchangers for the SNUPPS Project, Revision 6

Vendor Reports

E-1026-00012-103, Cathodic Protection Design Report - HARCO, dated August 21, 1992

2005 Cathodic Protection Survey and Assessment Report, dated May 5, 2006

Structural Integrity Report SIR-03-014, Callaway Nuclear Plant Life Cycle Management of Buried Piping, Revision 0

Structural Integrity Report SIR-06-288, Callaway Nuclear Plant Life Cycle Management of Buried Piping: Update to SIR-03-014 for ESW, SW, Fire Protection, and Cathodic Protection Systems, Revision 0

Miscellaneous

American Society of Mechanical Engineers Case N-578, Risk-Informed Requirements for Class 1, 2, and 3 Piping, Method B Section XI, Division 1

Callaway Obligations 4469 and 5764

Callaway Plant - System Flow Diagram - Service Water and Essential Service Water Systems - MIC and Flow Data Information

Control Room Chronological Logs, August 4-7 and August 21-23

Cycle 14 Raw Water Report

Essential Service Water and Selected Heat Exchanger CAR Summaries from October 24, 2004, through October 24, 2007

Essential Service Water System and Component Cooling Water System Health Reports

Essential Service Water Low Frequency Electromagnetic Technique Piping Report

Essential Service Water Temperature Plot for August 2007

Final Safety Analysis Report, Section 9.2.1.2, Essential Service Water System

Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment, dated July 18, 1989

Generic Letter 89-13, Supplement 1, Service Water System Problems Affecting Safety-Related Equipment, dated April 4, 1990

Heat Exchanger Specification Sheets for EKJ03A/B, EKJ04A/B, EKJ06A/B, SGL10A/B, and EEG01A/B

Letter ULNRC-2146, Response to Generic Letter 89-13 - Service Water System Problems Affecting Safety-Related Equipment, dated January 29, 1990

PROTO-HX, Version 4.10, Shell and Tube Heat Exchangers User Documentation

NUPIC Audit 19290, Audit of Proto Power Corporation, dated June 22, 2005

Report PD04594.03, Record of Eddy Current Inspection of Component Cooling Water Heat Exchanger A, April 2004

Report PR 17-17, Emergency Diesel Generator B - Heat Exchangers, dated September 2002

Report UOTCR 05-006, Cycle 14 Raw Water Report, dated February 9, 2005

Essential Service Water (EF) and Component Cooling Water (EG) - Lesson Plans

Inservice Inspection Reports for the Ultimate Heat Sink Retention Pond Performed in 1995, 2001, and 2006

Section 1R11: Licensed Operator Requalification Program

Procedures

E-0, Reactor Trip or Safety Injection

E-1, Loss of Reactor or Secondary Coolant

ES-1.2, Post LOCA Cooldown and Depressurization

TDP-ZZ-00010, Form CA2233, Dynamic Simulator Crew Operational Evaluation

TDP-ZZ-00022, LOCT Program, Revision 24

TDP-ZZ-00010, Operational Evaluations, Revision 14

Scenarios

DS-15, Revision 20070905

Twelve Scenarios for Second Annual Operating Examination (2007)

Twelve Scenarios for First Annual Operating Examination (2006)

Operations Training Policies and Reports

POL0027, Training Guide for Systematic Approach to Training, Revision 8
Last Four Self-Assessment Reports for the Current Biennial Cycle
List of all Currently Licensed Operators (licensee-tracked)
OLTS Report 17 for Currently Licensed Operators (NRC)
Medical Records Review for 10 Operators (randomly chosen)
OLTS Report 14 for Medical Conditions of Operators (NRC)

License Event Reports

2007: 2007-001 and 2007-002
2006: 2006-001 through 2006-009
2005: 2005-001 through 2005-003

Written examinations

Biennial Written Examinations (weeks 1-6 for SRO and RO)
Weekly Quizzes (3)
Biennial Examination Report and Analysis Report

Remediation Plans

Fourteen Remediation Plans for Failures During the Two Year Program

Job Performance Measures (JPM) Reviewed

Thirty JPM's for the First Annual Operating Test (2006)
Thirty JPM's for the Second Annual Operating Test (2007)

Simulator Discrepancy Reports (08/01/05 - 08/21/07)

64 of 282 open and 25 of 548 closed Discrepancy Reports

Simulator Testing and Maintenance Documents

Various Core Testing Documents
All transient Test Packages
All Steady State Test packages
TDP-IS-00001, Simulator Operation and Maintenance, Revision 5
TDP-IS-00002, Simulator Configuration Management, Revision 6

Section 1R12: Maintenance Effectiveness

Callaway Action Requests

200706386 200709523 200709540 200709688

Procedures

EDP-ZZ-001128, Maintenance Rule Program, Revision 9

Expert Panel Meeting Minutes

NET 07-0117 NET 07-0125 NET 07-0131

Miscellaneous

Numarc 93-01, Revision 3, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

Job 06528992, EOF Diesel Operability Test

Section 1R22: Surveillance Testing

Residual Heat Removal Train A, Inservice Test - Group A, OSP-EJ-P001A, Revision 44

Jobs

07512329 07510769

Procedures

OSP-BB-00009, Reactor Coolant System Inventory Balance, Revision 19
OSP-SE-00002, Axial Flux Difference Monitor Alarm Inoperable, Revision 10

Miscellaneous

BB9CYC16 Excel Spreadsheet

Section 2OS1: Access Controls to Radiologically Significant Areas

Callaway Action Requests

200700684	200701700	200703253	200703394
200703726	200703728	200703788	200705915
200706231	200706598	200707367	

Procedures

APA-ZZ-01000, Callaway Plant Radiation Protection Program, Revision 25
APA-ZZ-01004, Radiological Work Standards, Revision 8
HDP-ZZ-01500, Radiological Postings, Revision 23
HDP-ZZ-03000, Radiological Survey Program, Revision 25
HTP-ZZ-01203, Radiological Area Access Control, Revision 34
HTP-ZZ-06001, High Radiation/Very High Radiation Area Access, Revision 26

Radiation Work Permits

000264BTMWELD	000264HTR	000264TOPWELD	75022FOSAR
753321MAN	753322INSTALL	753323EC	790501HRA

Miscellaneous

2006 Forth Quarter, 2007 First and Second Quarter NRC Performance Indicator Transmittal Reports

Four individual workers' Internal Dose Assessment Records

Health Physics Operations Shift Turnover logs

Health Physics Radiological Surveys

Section 2OS2: ALARA Planning and Controls

ALARA In-Progress/Post-Work Reviews and Radiation Work Permits

000264BTMWELD	000264HTR	000264LAYOUT
000264TOPWELD	000269OVERSGHT	04502863Exam
6114483	6115112500	6116105
6524356	750101JOBICOV	750120JOBICOV
75022FOSAR	753321MAN	753322INSTALL
753323EC	753323SETUP	753323TEARDN
753324RPSGCOV	790501HRA	

Callaway Action Requests

200069634	200702403	200703277	200703830
200704253	200704350	200705515	200707685
200709429			

Procedures

APA-ZZ-01000, Callaway Plant Radiation Protection Program, Revision 25
APA-ZZ-01001, Callaway Plant ALARA Program, Revision 11
APA-ZZ-01004, Radiological Work Standards, Revision 8
HDP-ZZ-01100, ALARA Planning and Review, Revision 6
HDP-ZZ-01200, Radiation Work Permits, Revision 9
HTP-ZZ-01101, Administrative Controls for Radiation Shielding, Revision 13
HTP-ZZ-01433, Personnel Exposure Records, Revision 42

Miscellaneous

Callaway Plant Dose Comparison Report - Refuel 15

Callaway Plant Long Range Dose and Source Term Reduction Plan, Revision 2

Health Physics Operations Shift Turnover Logs

Health Physics Radiological Surveys

One Declared Pregnant Worker's Records

Temporary Shielding Packages: 06526754, 07000264.150, 07000265.150, 07000268.400, 07000269.304, 07000269.511

Section 4OA1: Performance Indicator Verification

Callaway Action Requests

200709263

Procedures

RRA-ZZ-00001, NRC Performance Indicator Program, Revision 2

Miscellaneous

2006 Forth Quarter, 2007 First and Second Quarter NRC Performance Indicator Transmittal Reports

Section 4OA2: Identification and Resolution of Problems

Callaway Action Requests

200610359

200700194

200707394

200710282

Procedures

ODP-ZZ-00035, Plant Status Control, Revision 1

OTN-EC-00001, Addendum 6, Filling the Spent Fuel Pool with Reactor Makeup Water

Jobs

07007508

07007768

07008014