



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

October 26, 2007

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

SUBJECT: CALLAWAY PLANT - NRC INTEGRATED INSPECTION
REPORT 05000483/2007004

Dear Mr. Naslund:

On September 22, 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 September 20, 2007, with Mr. C. Naslund, Senior Vice President and Chief Nuclear Officer, 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 two 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, licensee identified violations which were determined to be of very low safety significance are listed in this report. These violations are being treated as noncited violations, consistent with Section VI.A of the Enforcement Policy. The noncited violations are described in the subject inspection report. If you contest these violations or the significance of 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

AmerenUE

-2-

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
Project Branch B
Division of Reactor Projects

Docket: 50-483
License: NPF-30

Enclosure:
NRC Inspection Report 05000483/2007004
w/attachment: Supplemental Information

cc w/enclosure:
John O'Neill, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2300 N. Street, N.W.
Washington, DC 20037

Scott A. Maglio, Assistant Manager
Regulatory Affairs
AmerenUE
P.O. Box 620
Fulton, MO 65251

Missouri Public Service Commission
Governor's Office Building
200 Madison Street
P.O. Box 360
Jefferson City, MO 65102-0360

H. Floyd Gilzow
Deputy Director for Policy
Missouri Department of Natural Resources
P. O. Box 176
Jefferson City, MO 65102-0176

Rick A. Muench, President and
Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

Dan I. Bolef, President
Kay Drey, Representative
Board of Directors Coalition
for the Environment
6267 Delmar Boulevard
University City, MO 63130

Lee Fritz, Presiding Commissioner
Callaway County Courthouse
10 East Fifth Street
Fulton, MO 65251

Les H. Kanuckel, Manager
Quality Assurance
AmerenUE
P.O. Box 620
Fulton, MO 65251

Director, Missouri State Emergency
Management Agency
P.O. Box 116
Jefferson City, MO 65102-0116

Scott Clardy, Director
Section for Environmental Public Health
P.O. Box 570
Jefferson City, MO 65102-0570

AmerenUE

-3-

Luke H. Graessle, Manager
Regulatory Affairs
AmerenUE
P.O. Box 620
Fulton, MO 65251

Thomas B. Elwood, Supervising Engineer
Regulatory Affairs/Licensing
AmerenUE
P.O. Box 66149, MC 470
St. Louis, MO 63166-6149

Certrec Corporation
4200 South Hulen, Suite 422
Fort Worth, TX 76109

Keith G. Henke, Planner
Division of Community and Public Health
Office of Emergency Coordination
930 Wildwood, P.O. Box 570
Jefferson City, MO 65102

Technical Services Branch Chief
FEMA Region VII
2323 Grand Boulevard, Suite 900
Kansas City, MO 64108-2670

Electronic distribution by RIV:
 Regional Administrator (**EEC**)
 DRP Director (**ATH**)
 DRS Director (**DDC**)
 DRS Deputy Director (**RJC1**)
 Senior Resident Inspector (**DED**)
 Branch Chief, DRP/B (**VGG**)
 Senior Project Engineer, DRP/B (**RWD**)
 Team Leader, DRP/TSS (**CJP**)
 RITS Coordinator (**MSH3**)

Only inspection reports to the following:

DRS STA (**DAP**)
 D. Pelton, OEDO RIV Coordinator (**DLP**)
ROPreports
 CWY Site Secretary (**DVY**)

SUNSI Review Completed: vgg ADAMS: Yes No Initials: vgg
 Publicly Available Non-Publicly Available Sensitive Non-Sensitive

R:\ REACTORS\ CW\2007\CW200704RP-DED.wpd

RIV:SRI:DRP/B	C:DRS/OB	C:DRS/PSB	C:DRS/EB2	C:DRS/EB1
DEDumbacher	ATGody	MPShannon	LJSmith	WBJones
<i>/RA VGGaddy for/</i>	<i>/RA/</i>	<i>/RA/</i>	<i>/RA DLProulx for/</i>	<i>/RA/</i>
10/26/07	10/22/07	10/22/07	10/22/07	10/23/07
C:DRP/B				
VGGaddy				
<i>/RA/</i>				
10/26/07				

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

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: June 24 through September 22, 2007
Inspectors: D. Dumbacher, Senior Resident Inspector
M. Peck, Senior Resident Inspector
J. Adams, PhD., Reactor Inspector, Engineering Branch 1
P. Elkmann, Emergency Preparedness Inspector
G. George, Reactor Inspector, Engineering Branch 1
M. Haire, Senior Operations Engineer
C. Ng, PhD., General Engineer
T. Stetka, Senior Operations Engineer
Approved By: V. Gaddy, Chief, Project Branch B

SUMMARY OF FINDINGS

IR 05000483/2007004; 06/24/2007 - 09/22/2007; Callaway Plant: Identification and Resolution of Problems, Event Follow-up.

This report covered a 3-month inspection by resident inspectors. Two 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 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: Initiating Events

- Green. A self-revealing Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified after the licensee failed to follow reassembly procedures for the letdown system backpressure control valve. In April 2007, during reassembly of letdown pressure control Valve BGPCV0131, Callaway maintenance personnel failed to install an alignment cage spacer. On September 7, 2007, a failed pressure transmitter combined with malfunctioning Valve BGPCV0131 caused upstream letdown relief Valve BG8117 to lift, diverting water into the pressurizer relief tank at a rate of 119 gpm until operators isolated letdown to stop the leakage.

This finding is greater than minor because, similar to Example 5b provided in Manual Chapter 0612, Appendix E, the licensee's failure to follow assembly procedures resulted in Valve BGPCV0131 being returned to service with a missing part. This finding, involving reactor coolant system letdown, affected the initiating events cornerstone equipment performance attribute and affected the objective to limit the likelihood of those events that upset plant stability and challenged critical safety functions during power operations. The inspectors used the Manual Chapter 0609, "Significant Determination Process," Phase 1 worksheet to analyze this finding. The inspectors determined this finding is of very low safety significance because it did not result in exceeding the Technical Specification limit for identified reactor coolant system leakage and did not affect any mitigating systems. This finding has a crosscutting aspect in the area of human performance associated with the work practices component because licensee personnel failed to follow established procedures (H.4(b)). This issue was entered into the licensee's corrective action program as Callaway Action Request 200708233 (Section 4OA3).

Cornerstone: Mitigating Systems

- Green. A self-revealing Green noncited violation of 10 CFR 50, Appendix B, Criteria XVI, "Corrective Action," was identified after the licensee allowed the Train B motor-driven auxiliary feedwater pump to be returned to service even though

Enclosure

maintenance personnel could not meet the coupling shaft separation tolerance during a maintenance activity on April 12, 2007. Engineering personnel approved deviating from the coupling shaft separation tolerance without considering the impact on the motor thrust bearing. On July 4, 2007, motor disassembly revealed that there was damage to the thrust bearing caused by the inadequate shaft separation distance.

This finding is greater than minor because, similar to Example 5b provided in Manual Chapter 0612, Appendix E, the licensee's failure to address the impact of plant changes allowed the component to be returned to service prior to correcting the problem. This finding 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 the Manual Chapter 0609, "Significant Determination Process," Phase 1 worksheet to analyze this finding. The inspectors determined this finding is of very low safety significance because it is not a design or qualification deficiency confirmed to result in loss of operability per Part 9900, Technical Guidance, "Operability Determination Process for Operability and Functional Assessment;" did not result in loss-of-safety function of a single train for greater than the Technical Specification allowed outage time; and was not a potentially risk significant seismic, flooding, or severe weather event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because engineering personnel did not thoroughly evaluate the apparent problem with the coupling (P.1(c)). This issue was entered into the licensee's corrective action program as Callaway Action Request 200708752 (Section 4OA2).

B. Licensee-Identified Violations

Two violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and their 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

1R01 Adverse Weather Protection (711111.01)

a. Inspection Scope

Readiness for Seasonal Susceptibilities

The inspectors completed a review of the licensee's readiness of seasonal susceptibilities involving outdoor hot ambient temperatures. The inspectors: (1) reviewed plant procedures, the Final Safety Analysis Report (FSAR), and Technical Specifications to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the refueling water storage tank building and electrical penetration rooms to ensure that adverse weather protection features were sufficient to support operability, including the ability to perform safe shutdown functions; (3) evaluated operator staffing levels to ensure the licensee could maintain the readiness of essential systems required by plant procedures; and (4) reviewed the corrective action program to determine if the licensee identified and corrected problems related to adverse weather conditions.

- August 16, 2007, inspectors verified that very high ambient temperatures did not cause the refueling water storage tank building and electrical penetration rooms to adversely affect the design basis of components within the rooms.

Documents reviewed by the inspectors included:

- Procedure PDP-ZZ-00027, Summer Reliability Program, Revision 0
- Callaway Action Request (CAR) 200603662
- CAR 200505725
- CAR 200708094

The inspectors completed one seasonal susceptibility sample.

b. Findings

No findings of significance were identified.

Enclosure

1R02 Evaluations of Changes, Tests, or Experiments (71111.02)

a. Inspection Scope

From July 23-31, 2007, the inspectors reviewed the effectiveness of the licensee's implementation of changes to the facility structures, systems, and components; risk-significant normal and emergency operating procedures; test programs; and the FSAR in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments."

The inspectors reviewed eight samples of 10 CFR 50.59 safety evaluations. The evaluations were reviewed to verify that licensee personnel had appropriately considered the conditions under which the licensee may make changes to the facility or procedures, or conduct tests or experiments without prior NRC approval. In addition, the inspectors reviewed 13 samples of 10 CFR 50.59 screenings, in which licensee personnel determined that evaluations were not required, to ensure that the exclusion of a full evaluation was consistent with the requirements of 10 CFR 50.59.

The inspectors reviewed a sample of recent licensee condition reports related to the 10 CFR 50.59 process to determine whether the licensee had identified problems and entered them into the corrective action program at the appropriate threshold.

The inspection procedure specifies the inspectors review a minimum sample of five licensee safety evaluations and a combination of 10 applicability determinations or screenings. The inspectors completed a review of eight licensee safety evaluations and 13 screenings.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

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 FSAR and corrective action program to ensure problems were being identified and corrected.

- July 3, 2007, Train A Auxiliary Feedwater System (AL)
- August 16, 2007, Refueling Water Storage System (BN)
- September 9, 2007, Chemical and Volume Control System (BG)

Documents reviewed by the inspectors included:

- Piping & Instrumentation Diagram M-22AL01, Auxiliary Feedwater System, Revision 33
- Piping & Instrumentation Diagram M-22BN01, Refueling Water Storage System, Revision 25
- Piping & Instrumentation Diagram M-22BG01, Chemical and Volume Control System, Revision 28
- Piping & Instrumentation Diagram M-22BG02, Chemical and Volume Control System, Revision 25
- Piping & Instrumentation Diagram M-22BG03, Chemical and Volume Control System, Revision 52
- Procedure OTN-BG-00001, Chemical and Volume Control System, Revision 41

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

The inspectors walked down the nine 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.

- July 6, 2007, Fire Area A-13, Auxiliary Feedwater
- July 6, 2007, Fire Area A-14, Auxiliary Feedwater
- July 6, 2007, Fire Area A-15, Auxiliary Feedwater

- July 25, 2007, Reactor Building
- July 31, 2007, Fire Area A-26, Chemical Storage Room
- August 3, 2007, Fire Area F-4, Air Handling Room
- August 3, 2007, Fire Area F-5, Electrical Equipment Room
- August 7, 2007, Fire Area A-28, Auxiliary Shutdown Panel Room
- August 7, 2007, Fire Area A-25, Containment Isolation Valve Room (South)

Documents reviewed by the inspectors included:

- Final Safety Analysis Report, Section 9.5b, Fire Hazards Analysis

The inspectors completed nine samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

Semiannual Internal Flooding

a. Inspection Scope

The inspectors: (1) reviewed the FSAR, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving internal 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 feedwater pump pipe chase verify the adequacy of: (a) equipment seals located below the floodline, (b) floor and wall penetration seals, (c) watertight door seals, (d) common drain line and sumps, (e) sump pumps, level alarms, and control circuits, and (f) temporary or removable flood barriers.

- July 20, 2007, Condensate Storage Tank Pump Pipe Chase, Room 19119
- August 16, 2007, Refueling Water Storage Tank

Documents reviewed by the inspectors included:

- Calculation ZZ-274, Internal Flooding Analysis Flood Area Designations, Data Acquisition, Plant Walkdown

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed AmerenUE programs, verified performance tests against industry standards, and reviewed critical operating parameters and maintenance records for the Train B containment coolers. The inspectors verified that: (1) performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; (2) AmerenUE utilized the periodic maintenance method outlined in Electric Power Research Institute NP-7552, "Heat Exchanger Performance Monitoring Guidelines;" (3) AmerenUE properly utilized biofouling controls; (4) AmerenUE's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and (5) the heat exchanger system was correctly categorized under the maintenance rule.

- September 13, 2007, Train B Containment Cooler Heat Exchangers Thermal Performance Test Based on the August 20, 2007, Test Results

Documents reviewed by the inspectors included:

- Containment Cooler Thermal Performance Test Data Evaluation and Uncertainty Analysis for Containment Coolers SGN01B/D provided by Proto Power Corporation, August 20, 2007
- Electric Power Research Institute NP-7552, Heat Exchanger Performance Monitoring Guidelines
- Union Electric Response to Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment, January 19, 1990
- CAR 200605143, Corrective Actions Associated with Previous Inadequate Performance of Technical Specification SR 3.6.6.7

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q)

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.

- July 2, 2007, Simulator Training Sessions Involving Plant Response to a Steam Generator Tube Rupture
- September 6, 2007, Licensed Operator Requalification Job Performance Measure Task Evaluation EOS-SNK1002J, Switch from Swing Charger NK25 to Normal Charger NK21
- September 13, 2007, Licensed Operator Dynamic Simulator Exam DS-15 Involving a Pressurizer Steam Space Leak with Loss of an Essential Safety Features Bus

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

The inspectors reviewed the four 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 200706138, Train B, Nonessential Service Water Pump Failure to Start
- Scoping Review for Spent Fuel Pool Systems, July 18, 2007
- CAR 200705263, Maintenance Related Failures of Busses NN02 and NK12
- CAR 200707433, Failure of the Emergency Offsite Facility Emergency Diesel Generator due to Improper Wiring

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four 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 four 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.

- June 28, 2007, Emergent Maintenance Surveillance on Bus NK12 to Satisfy Technical Specification SR 3.8.4.5
- July 3, 2007, Emergent Maintenance due to Bearing Material in Oil for Train B Motor-driven Auxiliary Feedwater Pump
- May 17, 2007, Unplanned Loss of 120 Volt Bus NN02
- August 27, 2007, Emergent and Planned Maintenance on the Turbine-driven Auxiliary Feedwater Pump

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

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.

- June 28, 2007, CAR 200706268, Missed Technical Specification 18-month Surveillance Requirement, SR 3.8.4.5, Associated with NK12 Battery Surveillance

- July 5, 2007, CAR 200706453, Train B Motor-driven Auxiliary Feedwater Pump Declared Inoperable due to Bearing Damage
- August 8, 2007, CAR 200707337, Loss of Feedwater Temperature Input to Reactor Calorimetric Calculation
- August 9, 2007, CAR 200707370, High Temperature in the Turbine-driven Auxiliary Feedwater Pump Room
- August 22, 2007, CAR 200708094, Temperature Stratification in the Refueling Water Storage Tank
- August 27, 2007, CAR 200707790, Cracked Set Screws on Mechanical Seal for the Turbine-driven Auxiliary Feedwater Pump
- September 17, 2007, CAR 200706742, Seismic Level Review for Westinghouse Nuclear Safety Advisory Letter Associated with Type A200 Size 1 and 2 Motor Starters

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed seven samples.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17B)

a. Inspection Scope

From July 23-31, 2007, the inspectors reviewed seven permanent plant modification packages and associated documentation, such as implementation reviews, safety evaluation applicability determinations, and screening, to verify that they were performed in accordance with regulatory requirements and plant procedures. The inspectors also reviewed the procedures governing plant modifications to evaluate the effectiveness of the program for implementing modifications to risk-significant systems, structures, and components, such that these changes did not adversely affect the design and licensing basis of the facility.

Further, the inspectors interviewed the cognizant design and system engineers for the identified modifications as to their understanding of the modification packages and process.

The inspectors evaluated the effectiveness of the licensee's corrective action process to identify and correct problems concerning the performance of permanent plant modifications by reviewing a sample of related condition reports.

The inspectors completed review of seven permanent plant modifications.

Documents reviewed by the inspectors are listed in the attachment.

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.

- June 26, 2007, PMT 06122244/910 on Essential Service Water Valve EFHV0043
- July 5, 2007, PMT 07006315/900 on Train B Motor-driven Auxiliary Feedwater Pump Following Motor Thrust Bearing Replacement
- July 14, 2007, PMT 06112675/925 on Valve EGTV0030
- July 17, 2007, PMT 06524684/910 on Electric Fire Pump PKC1001A
- September 20, 2007, PMT 07008302/900 on Control Room Air Conditioner SGK04A

Documents reviewed by the inspectors included:

- Procedure OSP-EF-V001A, Essential Service Water Train A Valve Operability, Revision 30
- Procedure OSP-EG-V001B, Component Cooling Water Train B Valve Inservice Test, Revision 29
- CAR 200706453
- Procedure OSP-KC-00001, Fire Pump Starting Test, Revision 15

The inspectors completed five 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.

- July 5, 2007, Routine Surveillance 07006208, NK-12 Battery Resistivity Checks per Technical Specification SR 3.8.4.2
- July 24, 2007, Surveillance 07507107, Train A Motor-driven Auxiliary Feedwater Pump Inservice Test
- July 31, 2007, Surveillance 07506292, Train B Safety Injection Pump Inservice Test (observed from auxiliary building)
- August 1, 2007, Routine Surveillance 07007146, Voltage Measurement on Vital Inverter NN11
- August 16, 2007, Routine Surveillance 07509357, Calibration of Channel III of 4 kV AC Degraded Voltage Signal Bistable and Loss of Voltage Signal to Load Shedding Emergency Load Sequencing
- August 16, 2007, Routine Surveillance, Licensee Core Thermal Power History
- August 21, 2007, Surveillance 07507265, Residual Heat Removal Train A Inservice Test - Group A
- August 28, 2007, Surveillance 07507577, Turbine-driven Auxiliary Feedwater Pump Inservice Performance Test

- August 28, 2007, Surveillance 07507612, Component Cooling Water Train B Containment Isolation Valve Test
- August 28, 2007, Routine Surveillance 07510532, Weekly Siren Quiet Test
- September 5, 2007, Surveillance 06523164, Section XI Reactor Coolant System Pressure Isolation Valves Leak Rate Test

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four routine, five inservice test, and two containment isolation valve samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the FSAR, plant drawings, procedure requirements, and Technical Specifications to ensure that the listed temporary modification was properly implemented. The inspectors: (1) verified that the modification did not have an affect on system operability/availability; (2) verified that the installation was consistent with modification documents; (3) ensured that the postinstallation test results were satisfactory and that the impact of the temporary modification on permanently installed structures, systems, or components were supported by the test; (4) verified that the modification was identified on control room drawings and that appropriate identification tags were placed on the affected drawings; and (5) verified that appropriate safety evaluations were completed. The inspectors verified that the licensee identified and implemented any needed corrective actions associated with temporary modification.

- August 14, 2007, Temporary Modification 07-0017, Elongate Holes in Emergency Diesel Generator B Servo Mechanism Mounting Bracket

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation (71114.01)

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2007 biennial emergency plan exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario simulated failures of control room annunciators, an unexpected power transient and pump runback, a steam generator tube rupture, emergency diesel generator failures, fission product barrier failures, core damage and an unfiltered radiological release to the environment via the Turbine Driven Auxiliary Feed Pump exhaust to demonstrate the licensee's capabilities to implement their emergency plan.

The inspectors evaluated exercise performance by focusing on the risk-significant activities of event classification, offsite notification, recognition of offsite dose consequences, and development of protective action recommendations in the Simulator Control Room and the following dedicated emergency response facilities:

- Technical Support Center
- Operations Support Center
- Emergency Operations Facility

The inspectors also assessed recognition of and response to abnormal and emergency plant conditions, the transfer of decision making authority and emergency function responsibilities between facilities, onsite and offsite communications, protection of emergency workers, emergency repair evaluation and capability, and the overall implementation of the emergency plan to protect public health and safety and the environment. The inspectors reviewed the current revision of the facility Emergency Plan, and emergency plan implementing procedures associated with operation of the above facilities and performance of the associated emergency functions. These procedures are listed in the Attachment to this report.

The inspectors compared the observed exercise performance with the requirements in the facility Emergency Plan, 10 CFR 50.47(b), 10 CFR Part 50, Appendix E, and with the guidance in the emergency plan implementing procedures and other federal guidance.

The inspectors attended the post-exercise critiques in each of the above facilities to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended a subsequent formal presentation of critique items to plant management.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample during the inspection.

b. Findings

The licensee and offsite officials have implemented a protective action scheme in which the licensee makes recommendations for areas 2 miles in radius from the plant, and in

affected sectors, sections 2 to 5 miles from the plant and sections 5 to 10 miles downwind, where a sector is a wedge-shaped area of the emergency planning zone marked by lines of radius $22\frac{1}{2}^\circ$ of arc apart. Offsite officials make and implement protective action decisions in geographical zones which are typically several sectors "wide" and may cross the five and ten mile section boundaries. The NRC identified the licensee's implementation and understanding of 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. Specifically, licensee processes allow protective action recommendations to be made for areas of the emergency planning zone 5 to 10 miles away from the reactor when those areas are not affected by the radiological plume.

Federal guidance for the choice of protective actions during an emergency is described in EPA-400-R-92-001, "*Manual of Protective Action Guides and Protective Actions for Nuclear Incidents*" (EPA-400). 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 further recommends that during the plume phase protective action decisions be based primarily on plant conditions and dose projections, without waiting for confirming environmental measurements. Federal guidance states that protective actions are seldom justified in areas where the protective action guides are not exceeded, based in part on minimizing the overall risk to the public.

The licensee and offsite agencies have adopted a prompt protective action scheme based on EPA-400 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." Upon declaration of a General Emergency classification the licensee recommends a minimum protective action of evacuation in a keyhole area 2 miles in radius in all directions, and evacuation to 5 miles in sectors affected by the wind, unless a radiological evaluation indicates a more extensive recommendation is required (under some conditions a shelter recommendation would be made). The inspectors determined the licensee procedure also provided for retaining protective action recommendations as meteorological conditions change, as discussed in Regulatory Information Summary 2003-12, "Clarification of NRC Guidance for Modifying Protective Actions" (that is, once a protective action is recommended for implementation, no reduction in the protective action recommended for that area is permitted). However, inspectors determined that, with an existing minimum keyhole protective action recommendation, when a wind shift is followed by an increase in radiological release severity, the licensee's practice is to recommend protective actions be taken between 5 and 10 miles from the plant in every emergency planning zone sector that previously had recommendations for actions between 2 and 5 miles from the reactor, regardless of the prevailing wind direction at the time when the radiological release increases in severity.

The inspectors interviewed a group including licensee emergency planners, emergency response organization dose assessment staff, and licensee management, to determine the licensee's expectations and practices for making protective action recommendations

under conditions of changing wind directions. The inspectors posed an example situation consisting of an initial two-mile 360° evacuation with three-sector evacuation between 2 and 5 miles downwind, followed by a slowly changing wind direction so that over a period of more than an hour the wind stabilizes at a direction opposite its initial direction (that is, a 180° wind direction change), followed more than an hour later by an increase in core damage severity requiring an extension of protective actions to 10 miles downwind. Licensee emergency planners, dose assessment staff, and management all strongly indicated that in the situation described the licensee would recommend an extension of protective actions to ten miles in all sectors along the 180° arc (that is, in any sector previously recommended for actions between 2 and 5 miles), and the licensee's recommendation would not be limited to the three affected sectors at the time core damage increased in severity.

The inspectors determined the licensee's practice always result in appropriate protective action recommendations to offsite authorities for areas where there is radiological risk to the public, but under conditions of changing wind direction and release severity, the licensee's practices can also result in recommendations to take actions in areas where dose assessment identifies radiological risk does not exist. The inspectors determined that the licensee had not adequately defined when an area of the emergency planning zone was affected by a radiological plume, in that a preexisting protective action recommendation for areas 2 to 5 miles from the plant should not automatically require future extension to areas 5 to 10 miles away in the absence of supporting radiological analysis (which may include appropriate professional judgement when the basis is described and documented). Inspectors determined that not increasing protective actions to include areas with no previous recommendation is not the same as reducing a previously-made recommendation, even for adjacent areas within the same sector; the 2 to 5 mile and 5 to 10 mile areas should be considered as distinct from one another in arriving at protective action recommendations.

This issue has been entered into the licensee's corrective action system as CAR 200707375. This issue is unresolved pending consultation with the Federal Emergency Management Agency, because the issue involves licensee processes for making protective action recommendations to offsite officials:
URI 05000483/2007004-01, Licensee Practices Allow Protective Action Recommendations for Areas Where Protective Action Guides Are Not Exceeded.

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

a. Inspection Scope

The inspector performed in-office reviews of:

- Revision 30 to the Callaway Plant Radiological Emergency Response Plan, implemented January 2007
- Revision 30A to the Callaway Plant Radiological Emergency Response Plan, implemented April 2007

- Revision 41 to emergency plan implementing procedure EIP-ZZ-00101, "Classification of Emergencies," implemented March 2007
- Revision 42 to emergency plan implementing procedure EIP-ZZ-00101, "Classification of Emergencies," implemented April 2007

These revisions changed the limit on radioactivity in primary coolant in Emergency Action Level 4Q based on NRC-approved changes to Technical Specification 3.4.16, updated vital electrical bus operability requirements in Emergency Action Levels 4G and 4I in accordance with a plant modification, and updated letters of agreement with offsite authorities.

The revisions were compared to their previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b), to determine if the revisions were adequately conducted according to the requirements of 10 CFR 50.54(q). This review was not documented in a safety evaluation report and did not constitute approval of licensee changes, therefore, these revisions are subject to future inspection.

The inspector completed four samples during the inspection.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On June 27 and July 18, 2007, the resident inspectors observed Teams' 1 and 3 emergency response drills, 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.

- June 27, 2007, Team 1 Drill from the Simulator
- July 18, 2007, Team 3 Drill from the Technical Support Center

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Reactor Safety Cornerstone

a. Inspection Scope

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.

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams with Complications (Loss of Normal Heat Removal)
- Unplanned Transients per 7000 Critical Hours

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

.2 Reactor Safety Cornerstone (Emergency Planning)

a. Inspection Scope

The inspectors reviewed licensee evaluations for the three emergency preparedness cornerstone performance indicators of Drill and Exercise Performance, Emergency Response Organization Participation, and Alert and Notification System Reliability, for the period April 2006 through June 2007. The definitions and guidance of NEI 99-02, "Regulatory Assessment Indicator Guidelines," Revisions 3 and 4, and the licensee Performance Indicator Procedure KDP-ZZ-02000, "NRC Performance Indicator Data Collection," Revision 5, were used to verify the accuracy of the licensee's evaluations for each performance indicator reported during the assessment period.

The inspectors reviewed a one hundred percent sample of drill and exercise scenarios and licensed operator simulator training sessions, notification forms, and attendance and critique records associated with training sessions, drills, and exercises conducted during the verification period. The inspectors reviewed 17 selected emergency responder qualification, training, and drill participation records. The inspectors reviewed alert and notification system testing procedures, maintenance records, and a one hundred percent sample of siren test records.

The inspectors completed one sample during the inspection.

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 follow-up through other baseline inspection procedures.

b. Findings

Failure to Promptly Correct a Condition Adverse to Quality for Train B Motor-driven Auxiliary Feedwater Pump

Introduction. A self-revealing Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified after the licensee failed to promptly correct an inadequate Train B motor-driven auxiliary feedwater pump coupling installation.

Description. On April 12, 2007, during restoration of the Train B motor-driven auxiliary feedwater pump, Callaway maintenance personnel could not meet the coupling shaft separation tolerance of 7.080" to 7.100". Engineering personnel approved a coupling shaft separation of 7.065" and allowed the component to be returned to service. However, the effect on the motor thrust bearing was not considered. On July 3, 2007, an equipment operator reported that the Train B motor-driven auxiliary feedwater pump outboard motor bearing oil sight glass appeared discolored due to possible bearing material in the oil. On July 4, 2007, motor disassembly revealed that there was damage to the thrust bearing. Approximately 10 percent of the bearing material had been lost due to the additional axial load applied by the shaft to the bearing during start-ups. The safety function over the pump's required mission time was preserved as the bearing wear had not yet become significant.

Analysis. The performance deficiency associated with this finding involved a failure to adequately evaluate an identified problem and its associated impact prior to returning a component to service. This finding is greater than minor because the licensee failed to adequately consider the impact of not meeting the shaft separation tolerances on the

auxiliary feedwater pump motor thrust bearing and allowed the pump to be returned to service. This finding is greater than minor because, similar to Example 5b provided in Manual Chapter 0612, Appendix E, the licensee's failure to address the impact of the change allowed the component to be returned to service prior to corrective action. 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 the Manual Chapter 0609, "Significant Determination Process," Phase 1 worksheet to analyze this finding.

The inspectors determined this finding is of very low safety significance because it is not a design or qualification deficiency confirmed to result in loss of operability per Part 9900, Technical Guidance, "Operability Determination Process for Operability and Functional Assessment;" did not result in loss-of-safety function of a single train for greater than the Technical Specification allowed outage time; and was not a potentially risk significant seismic, flooding, or severe weather event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because engineering personnel did not thoroughly evaluate the apparent problem with the coupling (P.1(c)).

Enforcement. Part 50 of Title 10 of the Code of Federal Regulations, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures must be established to assure conditions adverse to quality are promptly identified and corrected. Contrary to the above, on April 12, 2007, the licensee had not established measures to assure that an adequate evaluation would correct the adverse auxiliary feedwater pump shaft coupling tolerance identified by maintenance personnel. Because this violation is of very low safety significance and has been entered into the licensee's corrective action program as CAR 200708752, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy:
NCV 05000483/2007004-02, Failure to Promptly Identify and Correct a Condition Adverse to Quality for Train B Motor-driven Auxiliary Feedwater Pump.

.2 Selected Issue Follow-up 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.

- July 3, 2007, CAR 200706453, Train B Motor-driven Auxiliary Feedwater Pump Declared Inoperable

- August 27, 2007, CAR 200707790, Cracked Set Screws Found on Inboard Turbine-driven Auxiliary Feedwater Pump Mechanical Seal
- September 10, 2007, CAR 200708233, Found Cage Spacer Missing and Stem Broken in Valve BGPCV0131

Documents reviewed by the inspectors included:

- Modification MP 07-0084 Revision 0, Machine Motor Fastener Bolts for Pump DPAL01B
- Calculation AL-11, Revision 0, Minimum Bolt Strength
- Procedure C711061.500, Revision 0, Maintenance Procedures for Installing Coupling
- Night Order, BG Letdown Pressure Oscillations, August 11, 2007
- CAR 200706453, Motor-driven Auxiliary Feedwater Pump, Train B, Declared Inoperable

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

.3 Annual Exercise Evaluation Sample Review

a. Inspection Scope

The inspectors reviewed a listing of Callaway action requests originated between June 2005 and July 2007, and reviewed licensee drill evaluation reports for 2005 through 2007, to identify past emergency response organization performance issues, and evaluated the Biennial Exercise to determine whether past performance problems had been corrected according to the requirements of 10 CFR 50.47(b)(14). The inspectors also evaluated Callaway Action Requests 200707355, 200707373, 200707375, and 200707381, to ensure the full extent of the issues were identified.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

.1 Failure to Follow Maintenance Instructions Affecting the Letdown Backpressure Control Valve

a. Inspection Scope

The inspectors responded on September 6 and 7, 2007, to the Callaway Plant licensee's declaration that reactor coolant system leakage to the pressurizer relief tank had exceeded both Technical Specification 3.4.13 limits and licensee Emergency Action Level 4R for excessive leakage. Failure of the letdown system pressure Transmitter BGPT-131 and associated Valve BGPCV0131 caused the letdown line relief Valve BG8117 to relieve reactor coolant system water directly to the pressurizer relief tank at 119 gpm for five minutes until plant operators took action to isolate the leak from the reactor coolant system.

Documents reviewed by the inspectors included:

- Procedure EIP-ZZ-00101, Classification of Emergencies, Revision 42
- CAR 200708233, Cage Spacer Missing and Stem Broken in Valve BGPCV0131
- CAR 200708186, Letdown Relief Valve BG8117 Lifted

b. Findings

Introduction. A self-revealing Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified after the licensee failed to follow reassembly procedures for the letdown system backpressure control valve.

Description. In April 2007, Callaway Plant refueling outage maintenance personnel did not follow work instructions per Job 06116339, Step 5.1.4.b, requiring installation of an alignment cage spacer for letdown pressure control Valve BGPCV0131. This resulted in pressure oscillation transients on May 6 and August 7 and 10, 2007, during adjustments to the letdown system. The licensee's troubleshooting efforts evaluated the causes to be related to an out-of-calibration control system. On September 7, 2007, a failed pressure transmitter combined with malfunctioning Valve BGPCV0131 caused upstream letdown relief Valve BG8117 to lift. Reactor coolant to the letdown system was directed to the pressurizer relief tank until the operators could isolate the system. Repair efforts, with the letdown system isolated, resulted in increased reactor coolant system activity approaching the Technical Specification limit and increased auxiliary building area dose until the system could be restored on September 11, 2007.

Analysis. The performance deficiency associated with this finding involved a failure to follow maintenance restoration procedures which resulted in an inadequate control valve response. This finding is greater than minor because, similar to Example 5b provided in Manual Chapter 0612, Appendix E, the licensee's failure to follow assembly procedures resulted in Valve BGPCV0131 being returned to service with a missing part. This

finding, involving reactor coolant system letdown, affected the initiating events cornerstone equipment performance attribute and affected the objective to limit the likelihood of those events that upset plant stability and challenged critical safety functions during power operations. The inspectors used the Manual Chapter 0609, "Significant Determination Process," Phase 1 worksheet to analyze this finding.

The inspectors determined this finding is of very low safety significance because it did not result in exceeding the Technical Specification limit for identified reactor coolant system leakage and did not affect any mitigating systems. This finding has a crosscutting aspect in the area of human performance associated with the work practices component because licensee personnel failed to follow established procedures (H.4(b)).

Enforcement. Part 50 of Title 10 of the Code of Federal Regulations, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be accomplished in accordance with instructions, procedures, and drawings. Contrary to the above, in April 2007, the licensee did not accomplish reassembly of letdown pressure control Valve BGPCV0131 in accordance with instructions, procedures, and drawings. Specifically the failure to follow maintenance instructions per Job 06116339, Step 5.1.4.b, resulted in not installing an important alignment cage spacer. Because this violation is of very low safety significance and has been entered into the licensee's corrective action program as CAR 20070008233, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000483/2007004-03, Failure to Follow Maintenance Instructions Affecting the Letdown Backpressure Control Valve.

.2 (Closed) Licensee Event Report (LER) 05000483/2007-003-00, Over Temperature Delta Temperature Channel Inoperable for Greater than Technical Specification Allowable Time

On July 1, 2007, the licensee identified that the calibration of reactor coolant system temperature Loop 2 using an alternate in-house built test cart on June 9, 2007, introduced an out-of-tolerance lower flux input to the over temperature delta temperature reactor trip setpoint. This was sufficient to cause the over temperature delta temperature reactor trip setpoint to exceed its Technical Specification allowed value. The alternate test cart failed to ensure that the negative power supply to the cart was grounded to properly simulate the input from the nuclear instruments. Technical Specification 3.3.1 required that all four channels of the over temperature delta temperature logic be operable in Modes 1 and 2. The Loop 2 over temperature delta temperature setpoint was inoperable for 21 days without the required Technical Specification actions being taken. This finding is of very low safety significance because the finding does not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions will not be available. Licensee corrective actions were recorded in CARs 200706365 and 200706740. The inspectors reviewed the LER and no other findings of significance were identified. This LER is closed (See 4OA7).

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented the results of Inspection Procedure 71111.02, "Evaluations of Changes, Tests, or Experiments," and Inspection Procedure 71111.17, "Permanent Plant Modifications," to Mr. T. Herrmann, Vice President, Engineering, and other members of licensee management on July 31, 2007. The licensee's management acknowledged the issues and observations presented.

On August 10, 2007, the emergency preparedness inspectors presented the inspection results to Mr. T. Herrmann, Vice President, Engineering, and other members of his staff who acknowledged the findings.

On September 20, 2007, the resident inspectors presented the results of their inspection to Mr. C. Naslund, Senior Vice President and Chief Nuclear Officer, and other members of his staff who acknowledged the findings.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

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

- Title 10 of the Code of Federal Regulations, Part 50.65 (a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," required that before performing maintenance activities the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to this, on May 17, 2007, AmerenUE did not assess or manage work affecting reactor trip logic. This failure to implement maintenance risk management actions nearly resulted in a reactor trip when electrical maintenance work contributed to a loss of Inverter NN12 feed to instrument Bus NN02. CAR 200705263 described that the electrical maintenance and instrument maintenance work groups had been authorized to work on equipment associated with separate reactor trip logic channels concurrently. Instrument and maintenance technicians restored Loop 3 from test conditions approximately 10 minutes prior to electrical work deenergizing Loop 2. This finding is of very low safety significance because it did not represent an actual loss of safety function of a single train for greater than its allowed outage time and was not risk significant due to seismic, flooding, or a severe weather event. Corrective actions to address the maintenance program deficiency are included in CAR 200705263.
- Technical Specification 3.2.4 required that power range neutron flux channels be maintained operable. Contrary to this, on June 9, 2007, power range Channel N42 was made inoperable for 21 days when use of an alternate power

supply test cart to calibrate reactor coolant system temperature Loop 2 introduced an error in the over temperature delta temperature reactor trip setpoint logic circuitry. This was discovered on June 29, 2007, using the normal Westinghouse 7300 system test cart. This finding is of very low safety significance because it does not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions will not be available. Licensee corrective actions were recorded in CARs 200706365 and 200706740. This finding was discussed in Section 4OA3 for LER closure.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Abel, Assistant Manager, Engineering Services
R. Barton, Manager, Training
K. Bruckerhoff, Supervisor, Emergency Preparedness
F. Diya, Plant Director
T. Elwood, Supervising Engineer, Licensing
B. Farnam, Manager, Radiation Protection
J. Garlington, Engineering Contractor
L. Graessle, Manager, Regulatory Affairs
A. Heflin, Vice President, Nuclear
T. Herrmann, Vice President, Engineering
J. Hiller, Engineer, Regulatory Affairs
G. Hughes, Supervising Engineer, Quality Assurance
L. Kanuckel, Manager, Quality Assurance
R. Lamb, Manager, Maintenance
D. Lantz, Superintendent, Operations Training
S. Maglio, Assistant Manager, Regulatory Affairs
K. Mills, Manager, Engineering
R. D. Myatt, Supervisor, Engineering
D. Neterer, Manager, Nuclear Operations
S. Petzel, Engineer, Regulatory Affairs
S. Reed, Supervisor, Engineering
T. Stotlar, Supervising Engineer, Engineering Services

NRC

A. Bartholomew, Engineering Associate
C. Speer, Engineering Associate

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000483/2007004-01 URI Licensee Practices Allow Protective Action
Recommendations for Areas Where Protective Action
Guides Are Not Exceeded (Section 1EP1)

Opened and Closed

05000483/2007004-02 NCV Failure to Promptly Correct a Condition Adverse to Quality
for Train B Motor-driven Auxiliary Feedwater Pump
(Section 4OA2)

05000483/2007004-03 NCV Failure to Follow Maintenance Instructions Affecting the
Letdown Backpressure Control Valve (Section 4OA3)

Closed

05000483/2007-003-00 LER Over Temperature Delta Temperature Channel Inoperable
for Greater than Technical Specification Allowable Time
(Section 4OA3)

DOCUMENTS REVIEWED

Section 1R02: Evaluations of Changes, Tests, or Experiments

10 CFR 50.59 Evaluations

05-01	06-02	06-04
06-05	06-06	07-01
07-02	07-03	

Procedures

APA-ZZ-00143, Radiation Monitor Control Panel RM, Revision 4
OTA-SP-RM011, Radiation Monitor Control Panel RM-11, Revision 30

10 CFR 50.59 Screens

MP-06-0119, Raise Spent Fuel Pool (SFP) High Temperature Alarm Setpoint, Revision 0

MP 07-0004, Replace EFV0093 and EFV0094 with Stainless Steel Valves, Revision 0

MP 07-0030, This modification will evaluate and approve the use of external weld overlays as a repair option for Essential Service Water (ESW) piping that has experienced internal wall thinning from localized erosion. Revision 0

RFR 200509356, PA01 225 Synchro-Verifier Relay Needs Correction, November 21, 2005

RFR 200600975, Evaluate p/n changes for Thermal Cutouts/correct Errors from RFR
08778C/D, April 27, 2006

Curve Book Table 8-8v, Maximum Allowable Number of Fuel Assemblies Offloaded to the SFP
vs. Time After Shutdown - Refuel Outage 16 and SFP Water Temperature Limit for Fuel
Handling Operations, April 2006

MP 04-1017, Reactor Cavity Handrail Upgrade

OTA-PB-XPB03, Station Service XFMR 3 Panel, January 2006

TM 07-0006, H2 Supply Mechanical Jumper to Bypass KHV0118, Revision 0

OSP-AL-PV04B, Train B Motor Driven Auxiliary Feedwater Comprehensive Pump and Check Valve Test - IPTE, Revision 0

ES 3.3, Post SGTR Cooldown Using Steam Dump, Revision 7

OTN-EM-00001, Safety Injection System, Revision 26

RFR 200508338, Flowserv Submits New Revision of Drawing and Design Report

Callaway Action Requests

200407713	200500713	200501324
200501927	200504778	200506003
200507060		

Section 1R11: Licensed Operator Requalification Program

Procedures

OTN-NK-00001, Addendum 1, 125 VDC Bus NK01 and Distribution System

E-0, Reactor Trip or Safety Injection

E-1, Loss of Reactor or Secondary Coolant

E-3, Response to Steam Generator Tube Rupture

ES-1.2, Post LOCA Cooldown and Depressurization

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

Dynamic Simulator Exam Scenario

DS-15, Revision 20070905

Section 1R12: Maintenance Effectiveness

Procedures

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

OTS-ZZ-00003, Emergency Operating Facility Diesel Generator Operability Test, Revision 10

Expert Panel Meeting Minutes

NET 07-00103
NET 07-00108
NET 07-00112

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 1R15: Operability Evaluation

Callaway Action Requests

200402163	200505725	200603662
200605314	200706268	200706453
200707337	200706742	200706453
200708094	200707790	

Miscellaneous

Westinghouse/AmerenUE Callaway Plant Accident Analysis Basis Document, Module 6.0, Revision 2, Main Steam Line Pipe Break

Westinghouse/AmerenUE Callaway Plant Accident Analysis Basis Document, Module 6.0, Revision 2, Feedwater System Pipe Break

Section 1R17: Permanent Plant Modifications

Modification Packages

MP 06-0016, Change N-16 Temperature Controller Setpoints to 120°F and 130°F, Revision 0

MP 06-0119, Raise Spent Fuel Pool High Temperature Alarm Setpoint, Revision 0

MP 07-0004, Replace EFV0093 and EFV0094 with Stainless Steel Valves, Revision 0

MP 07-0010, Modify MCB Switches fro ECHV011, 12, EGHV0101, & 102, Revision 0

MP 07-0030, Evaluate and approve the use of external weld overlays as a repair option for Essential Service Water piping, Revision 0

MP 07-0037, Modification request to repair the leakage on line EF-007-HBC-30", Revision 1

MP 07-0040, Evaluate Indication in Reactor Vessel Cladding, Revision 0

Procedures

APA-ZZ-00500, Corrective Action Program, Revision 44

APA-ZZ-00600, Design Change Control, Revision 27

EDP-ZZ-04015, Evaluating and Processing Requests for Resolution, Revision 45

OTL-EC-00002, Spent Fuel Pool High Temperature, Revision 5
OTN-EC-00001, Fuel Pool Cooling and Cleanup System, Revision 27

Calculations

EF-108, Design and Evaluation of a Leak Repair for Line EF-003-HBC-30", Revision 0
EG-14, Component Cooling Water System Calculation, Revision 0

Miscellaneous

W229547/500, Replace Valve with SS, Revision 1

A193/A 193M, Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service, July 2003

Letter from H. N. Berkow (NRC) to G. Bischoff (WEC), Final Safety Evaluation for Topical Report WCAP-14040, Revision 3, "Methodology used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves" (TAC No. MB5754), February 27, 2004

PRAER 04-231, PRA Evaluation Request, CMP 00-1009B - MSIV Actuator Replacement, August 2004

Callaway Action Requests

200400795	200501385	200601545
200602565	200606366	200607313
200703254		

Section 1R22: Surveillance Testing

Procedures

ISL-NF-NB01C, NB01 Degraded and Undervoltage to Load Shedding Emergency Load Sequencing Channel III, Revision 17

KSP-ZZ-00110, Siren Alerting System Testing, Revision 2

ODP-ZZ-00016, Reactor Operator Watchstation Practices and Logs, Revision 58

OSP-AL-P001A, Motor-driven Auxiliary Feedwater Pump A Inservice Test-Group A, Revision 4

OSP-AL-P0002, Turbine-driven Auxiliary Feedwater Pump Inservice Test, Revision 55

OSP-BB-VL006, Reactor Coolant System Pressure Isolation Valves Leak Rate Test, Revision 32

OSP-EG-V002B, Component Cooling Water B Train Containment Isolation Valve Test, Revision 9

OSP-EJ-P001A Residual Heat Removal Train A Inservice Test - Group A, Revision 42

OSP-EM-P001B, Safety Injection Train B Inservice Test – Group B, Revision 34

OSP-SA-0007A, Train A Auxiliary Feedwater Actuating Sequence Slave Relay Test, Revision 18

Section 1EP1: Exercise Evaluation

Procedures

EIP-ZZ-00101, Classification of Emergencies, Revision 42

EIP-ZZ-00102, Emergency Implementing Actions, Revision 36

EIP-ZZ-00200, Augmentation of the Emergency Organization, Revision 11

EIP-ZZ-00201, Notifications, Revision 39A

EIP-ZZ-00212, Protective Action Recommendations, Revision 21

EIP-ZZ-00213, Technical Assessment, Revision 20

EIP-ZZ-00220, Emergency Team Formation, Revision 16

EIP-ZZ-00230, Accountability, Revision 28

EIP-ZZ-00240, TSC Operations, Revision 35

Miscellaneous Documents

Callaway Plant Radiological Emergency Response Plan, Revision 30