



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

May 5, 2006

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

**SUBJECT: CALLAWAY PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000483/2006002**

Dear Mr. Naslund:

On March 24, 2006, the NRC completed an inspection at your Callaway Plant. The enclosed report documents the inspection findings which were discussed on March 23, 2006, with Mr. Adam Heflin, Callaway Plant Vice President, 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.

Based on the results of this inspection, the NRC has determined that one noncited violation of NRC requirements occurred. This issue was evaluated under the risk significance determination process as having very low safety significance (Green). The violation is being treated as a noncited violation (NCV), consistent with Section VI.A of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest this violation or significance of this NCV, 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).

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Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

*/RA/*

William B. Jones, Chief  
Project Branch B  
Division of Reactor Projects

Docket: 50-483  
License: NPF-30

Enclosure:  
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05000483/2006002  
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SUNSI Review Completed:  **\_wbj\_** ADAMS: : Yes  No Initials: **\_wbj\_**  
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R:\ REACTORS\ CW\2006\CW2006-02RP-MSP.wpd

RI:DRP/B	SRI:DRP/B	C:DRS/EB2	C:DRS/EB1	C:DRS/PSB
DEDumbacher	MSPeck	LJSmith	JAClark	MPShannon
<b>E - WBJones</b>	<b>E - WBJones</b>	<b>/RA/</b>	<b>ATGody for</b>	<b>LCCarson for</b>
5/2/06	5/2/06	5/2/06	5/3/06	5/3/06
C:DRS/OB	C:DRP/B			
ATGody	WBJones			
<b>/RA/</b>	<b>/RA/</b>			
5/3/06	5/5/06			

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-483  
License: NPF-30  
Report: 05000483/2006002  
Licensee: Union Electric Company  
Facility: Callaway Plant  
Location: Junction Highway CC and Highway O  
Fulton, Missouri  
Dates: January 1 through March 24, 2006  
Inspectors: M. S. Peck, Senior Resident Inspector  
D. E. Dumbacher, Resident Inspector  
P. J. Elkmann, Emergency Preparedness Inspector  
Approved By: W. B. Jones, Chief, Project Branch B

Enclosure

## SUMMARY OF FINDINGS

IR 05000483/2006002; 1/01-3/24/2006; Callaway Plant: Operability Evaluations.

This report covered a 3-month inspection by resident inspectors and a region based emergency preparedness inspector. One Green noncited violation was 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 for 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 noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," after the licensee failed to promptly identify, evaluate, and correct a degraded control building air conditioning unit compressor. The compressor developed a hole in one of the cylinder head discharge reed valves. The hole allowed the bypass of hot discharge gases and rendered the compressor incapable of completing the safety function for the specified mission time. The hole was caused by cyclic fatigue stress. This issue was entered into the corrective action program as Callaway Action Request 200601177. This finding is associated with the crosscutting area of problem identification and resolution because the issue involved the failure of operations personnel to adequately evaluate degraded plant equipment.

This finding is greater than minor because, if left uncorrected, the degradation would have worsened and become a more significant safety concern. This finding was a qualification deficiency that resulted in loss of operability per "Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment." However, the finding is of very low safety significance because it did not represent a loss of system safety function, did not represent an actual loss of safety function for a single train for greater than the 30-day Technical Specification allowed outage time, did not represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk-significant per 10 CFR 50.65, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event (Section 1R15).

### B. Licensee-Identified Violations

A violation of very low 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 the corrective action tracking numbers are listed in Section 4OA7.

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## REPORT DETAILS

Summary of Plant Status: AmerenUE operated the Callaway Plant at full power throughout the inspection period.

1. REACTOR SAFETY  
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

Readiness for Seasonal Susceptibilities

The inspectors completed a review of the licensee's readiness of seasonal susceptibilities involving high winds. The inspectors: (1) reviewed plant procedures, the Final Safety Analysis Report (FSAR), and Technical Specifications (TS) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) evaluated operator staffing levels to ensure the licensee could maintain the readiness of essential systems required by plant procedures; and (3) reviewed the corrective action program to determine if the licensee identified and corrected problems related to adverse weather conditions.

- March 12, 2006, Site specific response to an actual tornado warning and a tornado drill performed on March 14, 2006

The inspectors completed one sample.

Documents reviewed by the inspectors included:

- Callaway control room log entries for March 12, 2006
- Procedure OTO-ZZ-00012, Severe Weather, Revision 5

b. Findings

No findings of significance were identified.

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 the licensee's FSAR and corrective action program to ensure problems were being identified and corrected.

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- February 9, 2006, Train B emergency diesel generator
- March 7, 2006, Train B turbine-driven auxiliary feedwater and motor-driven auxiliary feedwater

The inspectors completed two samples.

Documents reviewed by the inspectors are listed in the attachment.

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, TSs, and vendor manuals to determine the correct alignment of the essential service water (ESW) system in the auxiliary building, control building, diesel generator buildings, and the ESW pump house and cooling tower; (2) reviewed outstanding design issues, operator workarounds, and FSAR documents to determine if open issues affected the functionality of the ESW system; and (3) verified that the licensee was identifying and resolving equipment alignment problems.

- January 31, 2006, ESW system

The inspectors completed one sample.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors walked down the 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 the licensee identified and corrected fire protection problems.

- January 31, 2006, Fire Area A-9, Residual heat removal (RHR) Heat Exchanger A
- January 31, 2006, Fire Area A-10, RHR Heat Exchanger B
- January 31, 2006, Fire Area A-19, Auxiliary building Level 2047
- February 9, 2006, Fire Area A-16, Component cooling water heat exchanger room
- February 9, 2006, Fire Area D-2, West diesel generator room
- March 7, 2006, Fire Area C-30, Cable chase, 2073 control building
- March 7, 2006, Fire Area C-33, Cable chase, Room 3804
- March 7, 2006, Fire Area C-34, Vertical cable chase, Room 3801

The inspectors completed eight samples

Documents reviewed by the inspectors included:

- Fire impairments 13214 and 13217
- APA-ZZ-00701, Control of Fire Protection Impairments, Revision 12
- APA-ZZ-00741, Control of Combustible Materials, Revision 18
- APA-ZZ-00750, Hazard Barrier Program, Revision 0

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 **two** below listed areas 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.

- March 16, 2006, **Containment spray pump rooms**
- **March 16, 2006, Auxiliary building elevation 1974**

The inspectors completed **two** samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q)

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 postexercise critique. The inspectors observed Licensed Operator Continuing Training Simulator Session 2006-01, February 7, 2006, conducted on February 22, 2006.

The inspectors completed one sample.

Documents reviewed by the inspectors included:

- Procedure APA-ZZ-00152, Emergent Issue Response, Revision 0
- Procedure OTS-NN-00011, NN11 Inverter Outage, Revision 8

b. Findings

No findings of significance were identified

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

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

- February 13, 2006, Callaway Action Request (CAR) 200502093, ESW unavailability
- February 13, 2006, CARs 200401234 and 200406022, Component cooling water, Pump C

The inspectors completed two samples.

Documents reviewed by the inspectors included:

- Expert Panel Meeting Notes #06-00003.

b. Findings

No findings of significance were identified.

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

.1 Risk Assessment and Management of Risk

a. Inspection Scope

The inspectors reviewed the 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.

- February 9, 2006, Train B ESW outage
- February 13, 2006, Train B Motor-driven auxiliary feedwater pump testing
- February 28, 2006, Train A Emergency core cooling outage

The inspectors completed three samples.

Documents reviewed by the inspectors included:

- Procedure EDP-ZZ-01129, Callaway Plant Risk Assessment, Revision 8
- Procedure ODP-ZZ-00001, Operations Department - Code of Conduct, Revision 23
- Drawing M22-EF-02, ESW Piping and Instrumentation Diagram, **Revision 55**

b. Findings

No findings of significance were identified.

.2 Emergent Work Control

a. Inspection Scope

The inspectors: (1) verified that the licensee performed actions to minimize the probability of initiating events and maintained the functional capability of mitigating systems and barrier integrity systems; (2) verified that emergent work-related activities such as troubleshooting, work planning/scheduling, establishing plant conditions, aligning equipment, tagging, temporary modifications, and equipment restoration did not place the plant in an unacceptable configuration; and (3) reviewed the FSAR to determine if the licensee identified and corrected risk assessment and emergent work control problems.

- February 9, 2006, Train B ESW outage, The inspectors walked down the compensatory actions in the control building and completed an in-office review
- February 22, 2006, Train B ESW outage, The inspectors walked down the compensatory actions in the control room and auxiliary building and completed an in-office review

The inspectors completed two samples.

Documents reviewed by the inspectors included:

- Procedure EDP-ZZ-1129, Callaway Plant Risk Assessment, Revision 9

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Nonroutine Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors: (1) reviewed operator logs, plant computer data, and/or strip charts for the below listed evolutions to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; attended and/or reviewed postevent critique meetings; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the nonroutine evolutions sampled.

- February 28, 2006, CAR 200601662, Entry into Secondary Chemistry Action Level 2

The inspectors completed one sample.

Documents reviewed by the inspectors included:

- Event Review Team Meeting, CAR 200601662
- Drawing M-22CG01, Revision 12, Condenser air removal

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 evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on any TSs; (5) used the significance determination process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- OD 200600074, Nonconservative emergency diesel generator fuel storage volumes, January 4, 2006

- CAR 200505908, Degraded containment insulation Valve HB-7150, January 9, 2006
- OD 200600622, Degraded safety-related pneumatic supply auxiliary feedwater level control and steam generator relief valves, January 30, 2006
- OD 2006001177 and CAR 200601302, Degraded control room air conditioning unit Compressor SGK04A on February 15, 2006
- OD 200601622, Degraded seismic qualification of fire protection pipe on control room ventilation Fans FGK01A and FGK01B on February 27, 2006
- OD 200601579, Degraded safety injection recirculation line Check Valve EMV0007 on February 27, 2006

The inspectors completed six samples.

Documents reviewed by the inspectors included:

- Procedure APA-ZZ-00500, Corrective Action Program, Revision 39
- Procedure APA-ZZ-00500, **APP1**, Operability Determinations, Revision 0
- Procedure PDP-ZZ-00023, Work Screening and Processing, Revision 6
- **Postmaintenance Test 05110572.900 and Work Order 06113783**

b. Findings

Failure to Promptly Identify and Correct a Condition Adverse to Quality for Train A Control Building Air Conditioning Unit

Introduction. The inspectors identified a Green noncited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," after the licensee failed to promptly identify, evaluate, and correct a degraded control building air conditioning unit compressor.

Description. On February 13, 2006, a system engineer identified that the Train A control building air conditioning compressor (SGK04A) cylinder head temperature was 300EF. The expected head temperature was 185EF. The system engineer reported the condition to plant operations. Operations personnel evaluated the elevated temperature and concluded the compressor was operable. On February 15, 2006, the inspectors reviewed the AmerenUE operability determination of the compressor. The inspectors were not able to conclude the compressor could meet the design bases functions based on the licensee's evaluation of the elevated temperature. AmerenUE subsequently declared the compressor inoperable and performed a maintenance inspection. The inspection revealed a hole in a cylinder head discharge reed valve. The reed valve was designed to cycle open and closed as the compressor loaded. The elevated temperature was caused by the bypass of hot discharge gases back to the cylinder

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through the hole. AmerenUE had the reed valve examined by a metallurgical laboratory. The laboratory concluded the reed valve hole had propagated from a preexisting crack as the result of cyclic fatigue stress. Based on the metallurgical report, AmerenUE concluded the compressor was not capable of performing the design bases function for the required mission time. AmerenUE had previously replaced the compressor on January 13, 2006. The cracked reed valve was installed with the replacement compressor. The inspectors concluded the degraded reed valve rendered the compressor inoperable about 3 weeks following the installation.

Analysis. The inspectors used the at-power situation significance determination process to analyze this finding. This finding affected the **mitigating** systems cornerstone because the air conditioning safety function was to maintain control room equipment within temperature limits. This finding is greater than minor because, if left uncorrected, the degradation would have become a more significant safety concern. This finding was a qualification deficiency that resulted in loss of operability per “Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment.” However, this finding is of very low safety significance because it did not represent a loss of system safety function, did not represent an actual loss of safety function for a single train for greater than the 30-day TS allowed outage time, did not represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk-significant per 10 CFR 50.65 and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding involved the failure of operations personnel to adequately evaluate degraded plant equipment and was associated with the crosscutting area of problem identification and resolution.

Enforcement. Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion XVI, required measures be established to assure that conditions adverse to quality, such as defective equipment, are promptly identified and corrected. Contrary to the above, on February 13, 2006, AmerenUE did not promptly identify and correct a control building air conditioning unit with a defective compressor reed valve. Because of the very low safety significance and the licensee’s action to place this issue in their corrective action program as CAR 200601177, this violation is being treated as an NCV in accordance with Section VI.A.1 of the Enforcement Policy (NCV 05000483/2006002-01).

1R17 Permanent Plant Modification (71111.17)

Annual Review

a. Inspection Scope

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flowpaths, pressure boundary, ventilation boundary, structure, process medium properties, licensing basis, and failure modes for



the 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, SSC 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.

- February 23, 2006, Modification MP00-1013, Reactor coolant system programmed reference temperature

The inspectors completed one sample.

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 listed postmaintenance test (PMT) 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 realigned, and deficiencies during testing were documented. The inspectors also reviewed the FSAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- January 12, 2006, PMT 05110572.900, Train A control building air conditioning unit Compressor SGK04A. The inspectors completed an in-office review of the test documentation.
- January 13, 2006, PMT 06112893.910, Containment isolation Valve HBHV7150. The inspectors observed a portion of the test from the control room and completed an in-office review of the test documentation.

- March 1, 2006, PMTs P693748/910, P692096/910, P629468/900, and P710032/910, Train A charging pump. The inspectors completed an in-office review of the test documentation.
- March 15, 2006, PMT 06113412/920, Repair of nitrogen supply to Valve ABPV0002. The inspectors completed an in-office review of the test documentation.

The inspectors completed four samples.

Documents reviewed by the inspectors included:

- M-22BG03 Charging and Volume Control System Piping and Instrumentation Diagram, Revision 52
- Procedure MPE-ZZ-QS005, General Electric 4.16KV Breaker PM
- Procedure OSP-AB-V002A,S/G Atmospheric PORV Inservice Test, Revision 25

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the FSAR, procedure requirements, and TSs to ensure that the listed surveillance activities demonstrated that the SSCs 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 TS 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 (PI) data; (13) engineering evaluations, root causes, and bases for returning tested SSCs not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- January 13, 2006, Surveillance 05515548, Train B safety injection system slave relay test. The inspectors completed an in-office review of the completed test documentation on February 23, 2006.

- February 13, 2006, Surveillance 05517423, Train B auxiliary feedwater system slave relay test. The inspectors observed a portion of the surveillance performed in the control building and completed an in-office review of the completed test documentation.
- February 13, 2006, Surveillance 05517477, Train B auxiliary feedwater system valve inservice test. The inspectors completed an in-office review of the completed test documentation.
- February 14, 2006, Surveillance 05517434, Train B RHR valve inservice test. The inspectors completed an in-office review of the completed test documentation.
- February 9, 2006, Surveillance 06520312, Verification of off-site power availability. The inspectors observed a portion of the surveillance performed in the control building and completed an in-office review of the completed test documentation.
- February 3, 2006, Surveillance 05518276, Nitrogen accumulator inservice leak rate test. The inspectors observed a portion of the surveillance performed in the control building and completed an in-office review of the completed test.

The inspectors completed six samples.

Documents reviewed by the inspectors are listed in the attachment.

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 TSs to ensure that the listed temporary modifications were properly implemented. The inspectors: (1) verified that the modifications 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 modifications on permanently installed SSCs were supported by the test; (4) verified that the modifications were 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 modifications.

- December 27, 2006, Temporary modification of Actuator GDTZ0061A of the ultimate heat sink ventilation system
- February 22, 2006, Procedurally controlled temporary modification for moisture carryover test per Procedure CTP-AQ-06022, feedwater chemical addition

The inspectors completed two samples.

Documents reviewed by the inspectors included:

- Procedure APA-ZZ-00605, Temporary system modifications, Revision 18
- Procedure CTP-AQ-06022, Feedwater chemical addition, Revision 16
- CAR 200510396, Temporary alteration not documented

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspectors performed in-office reviews of:

- Revisions 2005-003 and 2005-004 to the Callaway Plant Radiological Emergency Response Plan, submitted October 21, 2005, and January 19, 2006, respectively
- Revisions 34, 35, and 36 to emergency plan implementing Procedure ZZ-00101, "Classification of Emergencies," received December 12, 2005, and February 3, 2006

These revisions:

- Revised emergency classification definitions to be consistent with the terminology of NRC Bulletin 2005-002
- Revised security-based emergency action levels consistent with NRC Bulletin 2005-002
- Added a requirement to conduct security-based exercises in the 6-year biennial exercise cycle

- Added steam generator level with adverse containment to EAL 4O.2 and its basis
- Clarified the starting time for emergency action levels based on 60-minute elevated effluent concentrations

These revisions were compared to its previous revision, 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, to criteria of Nuclear Energy Institute (NEI) 99-01, "Methodology for Development of Emergency Action Levels," Revision 2, to NRC Bulletin 2005-002, and to the requirements of 10 CFR 50.47(b) and 50.54(q) to determine if the licensee adequately implemented 10 CFR 50.54(q).

The inspectors completed one sample during this inspection.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

For the below listed drill and simulator-based training evolution contributing to drill/exercise performance and emergency response organization PIs, the inspectors: (1) observed the training evolution to identify any weaknesses and deficiencies in classification, notification, and protective action requirements development activities; (2) compared 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 NEI 99-02, "Voluntary Submission of Performance Indicator Data," acceptance criteria.

- February 15, 2006, Technical support and emergency operations facility, Expanded Rapid Responder Proficiency Drill 06-01-1A, Cycle 2006-01

The inspectors completed one sample.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES**

Cornerstone: Reactor Safety

4OA1 PI Verification (71151)

a. Inspection Scope

The inspectors sampled licensee submittals for the three PIs listed below for the period from January 2004 through December 2005. The inspectors used the definitions and guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, to verify the accuracy of the PI data reported by the licensee.

- Safety system unavailability - emergency ac power system
- Reactor coolant system specific activity
- Reactor coolant system leak rate

The inspectors reviewed a selection of licensee event reports, portions of operator log entries, daily morning reports, the monthly operating reports, and PI data sheets to determine whether the licensee adequately identified the number of unavailable hours for the emergency ac power system. This number was compared to the number reported for the PI during the current quarter. In addition, the inspectors also interviewed licensee personnel associated with PI data collection, evaluation, and distribution.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

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.

.2 Selected Issue Followup Inspection

In addition to the routine review, the inspectors selected the listed issues for a more in-depth review. The inspectors considered the following during the review of the

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licensee'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.

- December 9, 2005, Root Cause AUCA 05-072, Removal of grating above incore tunnel
- February 27, 2006, Root Cause AUCA 06-014, ESW Leak

The inspectors completed two samples.

.3 Assessment of Training and Operations Department Safety-Conscious Work Environment (SCWE)

a. Inspection Scope

The inspectors conducted 21 interviews of training and operations department personnel to assess the establishment of an SCWE. The inspectors interviewed supervisory, nonsupervisory, licensed, and nonlicensed personnel. The inspectors also interviewed the Employee Concerns Program Superintendent. The inspectors used the guidance provided in Inspection Procedure 71152, Identification and Resolution of Problems, Appendix, "Suggested Questions for use in Discussions with Licensee Individuals Concerning PI&R Issues," when conducting the interviews.

b. Findings

No findings of significance were identified.

The inspectors concluded that AmerenUE established an SCWE within the Operations and Training Departments. All the individuals interviewed indicated that they felt comfortable raising and pursuing safety concerns and did not feel intimidated or discouraged discussing safety concerns with supervision, the Employee Concerns Program, or the NRC. All but four personnel interviewed indicated that they felt no reluctance to initiate a condition adverse to quality record for safety problems. Four personnel indicated some reluctance to initiate a concern into the corrective action program due to the perception that the resulting corrective actions would be reassigned to the initiating individual. None of the personnel interviewed stated they would not raise a nuclear safety issue to either the employee concerns program or the NRC. The inspectors reviewed 36 condition adverse to quality reports associated with either the Training Department Qual Master process, SCWE/ECP, or those corrective action records anonymously submitted.

Documents reviewed by the inspectors are listed in the attachment.

#### 4OA6 Management Meetings

##### Exit Meeting Summary

On February 9, 2006, the emergency preparedness inspector conducted a telephonic exit meeting to present the inspection results to Mr. K. Bruckerhoff, Supervisor, Emergency Planning, who acknowledged the findings.

On March 23, 2006, the resident inspectors presented their inspection results to Mr. A. Heflin, Callaway Plant Vice President, and other members of his staff who acknowledged the findings.

The inspectors verified that no proprietary information was provided during the inspection.

#### 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

TS 3.7.13 required two independent trains of emergency exhaust system to be operable. The emergency exhaust system was required to be capable of maintaining the auxiliary building at less than 1/4 inch water negative pressure during accident conditions. Control building ventilation dampers (**GKD0128 and GKD0129**) must close to ensure auxiliary building ventilation boundary integrity. Contrary to this, on March 9, 2006, AmerenUE identified that these dampers would not close. The dampers failed to close due to dirt accumulation preventing the damper blades from pivoting to the full-closed position. The tack welds connecting the damper linkage to the blades were broken due to force created by the damper operator against accumulated dirt. The licensee had a preventive maintenance task to inspect these dampers with a frequency of 10 years. Previous damper remote position indication tests had provided a false damper position because the limit switches were internal to the actuator and were not affected by the dirt or broken tack welds. This was identified in the licensee's corrective action program as CARs 200601898 and 200601924. This finding is of very low safety significance because the condition only represented a degradation of the auxiliary building radiological barrier function.



## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

K. Bruckerhoff, Supervisor, Emergency Planning  
F. Diya, Manager, Engineering Services  
A. Heflin, Site Vice President  
T. Herrmann, Vice President, Engineering  
L. Kanuckel, Manager, Quality Assurance  
K. Mills, Supervising Engineer, Regional Regulatory Affairs/Safety Analysis  
T. Moser, Manager, Plant Engineering  
C. Naslund, Senior Vice President and Chief Nuclear Officer  
D. Neterer, Manager, Operations  
M. Reidmeyer, Supervisor, Regional Regulatory Affairs  
K. Young, Manager, Regulatory Affairs

### LIST OF ITEMS OPENED AND CLOSED

#### Opened and Closed

05000483/2006002-01      NCV      Failure to promptly identify and correct a condition adverse to quality for Train A control building air conditioning unit

### DOCUMENTS REVIEWED

#### Section 1R04: Equipment Alignment

##### Piping and Instrumentation Diagrams

M-22KJ01-KJ06, Standby Diesel Generator Systems Piping and Instrumentation Diagram  
M-22AL01, Auxiliary Feedwater System Piping and Instrumentation Diagram  
M-22EF01, Essential Service Water System Piping and Instrumentation Diagram  
M-22EF01, ESW Piping and Instrumentation Diagram  
M-22EF02, ESW Piping and Instrumentation Diagram

##### Procedures

OTN-AL-0001A, Auxiliary feedwater system, Revision 21; Checklist 1, valve alignment;  
Checklist 2, switch alignment

OTN-AL-0001A, Auxiliary feedwater system, Addendum 1, Turbine-driven auxiliary feedwater pump trip/throttle valve trip check and reset

OTN-EF-00001, ESW System, Revision 27

OTN-NE-0001A, Addendum 3, Diesel Generator A, Postmaintenance run for fuel system priming, Revision 0

OTN-NE-0001A, Addendum 4, Inoperable diesel room ventilation supply fan, Revision 0

OTN-NE-0001B, Train B Standby Diesel Generation System, Revision 15

OSP-EF-00001, ESW Valve Lineup Verification, Revision 5

OSP-NE-00003, Technical Specifications Action, A.C. Sources, Revision 11

OSP-NE-0001B, Standby Diesel Generator B Periodic Tests, Revision 21

#### Miscellaneous

ESW Performance Monitoring Report, February 1, 2006

### **Section 1R06: Flood Protection Measures**

#### Callaway Action Requests

200503270

200503591

200507878

200509283

#### Piping and Instrumentation Diagrams

M-22LF01, Auxiliary Building Floor and Equipment Drain System

M-22LF02, Auxiliary Building Floor and Equipment Drain System

M-22LF03, Auxiliary Building Floor and Equipment Drain System

#### Procedures

OTN-LF-00001, Floor and Equipment Drain System, Revision 8

OSP-LF-V0001, Floor Drain Valve Inservice Test, Revision 15

#### Flood calculation

M-FL-01 for Room 1325

### **Section 1R17: Permanent Plant Modification**

#### Engineering Records

51-5059162-01, Callaway Replacement Steam Generator scaling manual, Section 8, Turbine first stage pressure markup

51-5059164-01, Callaway Replacement Steam Generator scaling manual, Section 13, Rod speed control and power mismatch markup

51-5059165-01, Callaway Replacement Steam Generator scaling manual, Section 14, Steam dump control markup

51-5059166-01, Callaway Replacement Steam Generator scaling manual, Section 19, setpoints

#### Miscellaneous

10 CFR 50.59, Applicability determination for Modification 00-1013  
Job 05112092, High pressure turbine first stage pressure comparator  
Job 05112087, RP043 Steam dump control circuit, Group 1

### **Section 1R22: Surveillance Testing**

#### Callaway Action Requests

200600332  
200601155

#### Procedures

OSP-AL-V001B, Train B Auxiliary Feedwater Valve Inservice Test, Revision 29  
OSP-EJ-V001A, Train A Residual Heat Removal Valve Inservice Test, Revision 16  
OSP-KA-V003, Nitrogen Accumulator Inservice Leak Rate Test, Revision 15  
OSP-NE-0001B, Standby Diesel Generator B Periodic Tests, Revision 21  
OSP-NE-00003, Technical Specifications Action - A.C. Sources, Revision 11  
OSP-SA-0007B, Train B Auxiliary Feedwater Actuation Slave Relay Test, Revision 16

### **Section 1EP6: Drill Evaluation**

#### Procedures

APA-ZZ-00004, Emergency Preparedness Responsibilities, Revision 13  
EIP-ZZ-00101, Classification of Emergencies, Revision 36  
EIP-ZZ-C0010, Emergency Operations Facility Operations, Revision 30  
EIP-ZZ-SK001, Response to Security Events, Revision 3  
KSP-ZZ-00004, Emergency Response Facilities, Revision 4  
KSP-ZZ-00201, Emergency Augmentation Drill/Test, Revision 0

#### Miscellaneous

Critique Report for the February 15, 2006, Drill  
Surveillance Report SP06-007, Combined EP/Security Pilot Drill

## **Section 4OA2: Identification and Resolution of Problems**

### **Callaway Action Requests**

200500872	200508493	200600091	200601146
200501875	200508590	200600146	200601171
200503268	200508893	200600307	200600430
200503886	200509122	200600600	200600555
200504115	200509495	200600720	200506858
200505275	200509937	200600735	200506918
200505731	200510323	200601142	200508201
200505760	200510390	200601144	200506644
200506893	200600077	200601145	200501953
200508299			

### **Miscellaneous**

Callaway Quality Assurance Performance Report, 3<sup>rd</sup> and 4<sup>th</sup> quarters 2005

## **ACRONYMS**

CAR	Callaway Action Request
ESW	essential service water
FSAR	Final Safety Analysis Report
NCV	noncited violation
NEI	Nuclear Energy Institute
PI	performance indicator
PMT	postmaintenance test
RHR	residual heat removal
SCWE	safety-conscious work environment
SSC	structure, system, and component
TSs	Technical Specifications