

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

REPORT NO. 50-483/95010

FACILITY

Callaway Plant, Unit 1

License No. NPF-30

LICENSEE:

Union Electric Company
Post Office Box 149 - Mail Code 400
St. Louis, MO 63166

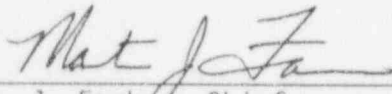
DATES

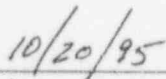
September 3 through September 30, 1995

INSPECTORS:

F. L. Brush
P. L. Louden
J. A. Gavula

APPROVED BY:


M. J. Farber, Chief,
Reactor Projects Branch 6


Date

AREAS INSPECTED:

Routine unannounced safety inspections of plant operations, maintenance/surveillance, onsite engineering, plant support were conducted.

RESULTS:

The inspectors met with licensee representatives, denoted in Paragraph 6.0, on October 11, 1995, to discuss the scope and findings of the inspection. In addition, the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection was also discussed. The licensee did not identify any such documents or processes as proprietary.

Highlights of the exit interview are discussed below:

- Improvements were noted in control room shift turnovers.
- Corrective actions for a problem, first identified five years ago, with chain-fall storage were not completely implemented.
- One Non-cited Violation, for failure to follow a Technical Specification Surveillance procedure, was identified.
- The follow-up investigation and corrective action, subsequent to a reactor trip caused by loss of condenser vacuum, were thorough.
- In the areas examined, the structural engineering section did not demonstrate a strong safety focus and in some cases did not thoroughly understand the plant's licensed bases.
- A Non-cited Violation, for failure to maintain retrievability of a quality assurance record, was identified.

Summary of Open Items

Violations: None identified

Unresolved Items: None identified

Inspector Follow-up Items: None identified

Non-Cited Violations: Two, discussed in Paragraphs 3.1 and 5.1

DETAILS

1. OPERATIONS

NRC Inspection Procedure 71707 was used in the performance of an inspection of ongoing plant operations.

- 1.1 The inspector observed control room shift turnovers to evaluate the licensee's corrective actions in response to violation (483/95008-01(DRP)), Poor Shift Turnovers. Although the quality of turnovers has improved the inspectors will continue to follow this issue.
- 1.2 (Closed) Violation (483/93017-01(DRP)): Failure to notify the NRC of an automatic ESF actuation within the four hour time limit. The licensee's corrective actions included discussing the violation with licensed operators during requalification training. The licensee has not had any additional problems in this area. The inspectors consider this item closed.

2.0 MAINTENANCE/SURVEILLANCE

NRC Inspection Procedures 62703 and 61726 were used to perform an inspection of maintenance and testing activities. No violations or deviations were identified.

- 2.1 Hoists in safety related pump rooms were improperly stored.

During a tour of various safety related pump rooms, the inspector noted that the hooks on some of the hoists were not fully raised. The hoists are permanently installed on trolleys to facilitate maintenance on the equipment. In a seismic event, if the hooks are low enough, they might have struck the oil reservoir bulbs on the pump motors. This could have rendered the pumps inoperable.

The licensee determined that this issue was addressed in a request for resolution (RFR) in 1990. The RFR recommended that a maintenance procedure be changed to provide guidance on the correct storage of the hoists. However, the corrective action recommendations in the RFR were not fully implemented. The procedure was changed to address the storage location of the hoist trolley but not the "safe" location for the hook. The licensee wrote a Suggestion-Occurrence-Solution (SOS) to address the problem. The licensee stated that the procedure would be changed to state the hooks' "safe" storage location.

The inspector discussed the issue with the licensee and has no further concerns.

3.0 ENGINEERING

3.1 Civil, Structural, and Pipe Support

A regional NRC inspector reviewed various pipe support calculations associated with the normal charging pump modification CMP 92-1010. After a request by the inspector, the licensee determined that Calculation BG-45, Revision 2, for support BG01-C021/112 had never been transferred to the document control center and could not be found. Failure to maintain quality assurance records retrievability was considered to be a violation of 10 CFR 50, Appendix B, Criterion XVII. This failure constituted a violation of minor significance and is being treated as a Non-Cited Violation, consistent with Section VI of the NRC Enforcement Policy. The licensee's subsequent audit of other calculations did not identify any comparable deficiency.

During a review of the previous revision to Calculation BG-45, the NRC inspector had several concerns.

- The calculation used a safety factor of 2 instead of the required safety factor of 4 for the anchor bolt evaluation. Engineering personnel indicated that guidance in the anchor bolt installation procedure EDP-ZZ-04050 gave Design Control the option to modify the working loads if a safety factor other than 4 was desired. According to the licensee, Revision 2 of the calculation was initiated after identifying the requirement to use a safety factor of 4 in accordance with IE Bulletin 79-02. Although the subsequent calculation revision demonstrated that the anchor bolts met the required safety factor, the use, review, and approval of the calculation with a safety factor of 2 indicated that some licensing bases were not well understood within the structural engineering area. Also, the procedure was weak in that it allowed the use of a safety factor less than 4.
- The calculation took a less-than-rigorous approach toward evaluating support stiffness and anchor bolt loads. Although the calculation conservatively assumed that the baseplate was attached with only two anchor bolts, the determination of the bolts loads and support stiffness were non-conservative and considered unsupportable by the NRC inspector. The justification provided by the checker in the calculation stated that the support had three anchor bolts instead of two, therefore the non-conservatism in the evaluation were acceptable. The lack of documentation in the calculation made it difficult to determine if these aspects had been appropriately considered.

The NRC inspector also reviewed engineering evaluations associated with past waterhammer events in the accumulator discharge piping. While the root cause of these events eventually was determined and appropriate procedure changes were made to prevent recurrence, several aspects were of concern.

- The anchor bolts on support EP01-C001 had been pulled out of the concrete by 1/4 inch as a result of the waterhammer event. The licensee's corrective action was to re-drive the bolts to the appropriate embedment depth and re-torque them to the specified installation torque. At the time, the licensee's expansion anchor installation procedure stated that if an anchor failure occurred due to slippage or loosening, the bolt should be removed and a larger diameter bolt installed. This guidance was not used, according to the responsible engineer, because after being re-driven the bolt was able to take required installation torque. The NRC inspector questioned this approach because it did not consider damage to the anchor bolt that could result in the applied torque not providing the necessary installation force. Without inspecting the bolt or performing some other in-place testing, the ability of the anchor bolt to take the full design load could no longer be assured. After being pulled out a second time, the licensee concluded this approach did not work and redesigned the baseplate with different anchor bolts. Based on questions by the NRC inspector, the licensee changed their procedure to specifically prescribe repair methods for as-found problems.
- The licensee changed their pipe support inspection guidelines by accepting dislodged spherical bearings in struts and snubbers, provided the bearings were not completely dislodged. The design document and original construction information justifying this change talked specifically about the "operability" of supports with this condition, but did not discuss the Code compliance aspect. When asked to address the Code aspect, the licensee re-created the bases that the vendor potentially used to demonstrate Code compliance through the "load rating" method. Although this was considered acceptable, the licensee did not have the original design basis documents and had not confirmed this aspect prior to changing their inspection guidelines.
- The licensee's evaluation of the waterhammer event did not attempt to quantify the magnitude of the waterhammer loads to determine if the piping had been overstressed and only considered the 1/4 inch displacement of the support. Although additional in-service inspections were conducted on other supports in the system, the licensee did not perform specific inspections of the piping and did not try to quantify the potential waterhammer loads to determine if such inspections would be appropriate.

Based on the above examples, the inspector concluded that structural engineering section did not demonstrate a strong safety focus and in some cases did not thoroughly understand the plant's licensed bases. During discussions, licensee representatives stated that an audit would be performed early next year to determine if these conclusions have broader implications or are limited to the issues discussed above. The results of this audit will be reviewed by the NRC.

4.0 PLANT SUPPORT

NRC Inspection Procedures 71750 and 83750 were used to perform an inspection of plant support activities.

4.1 Radiological Controls

(Closed) Violation (483/93008-02(DRSS)): An equipment operator entered a posted room before radiological surveys were completed. The violation did not require a response from the licensee. The corrective actions were completed prior to the end of the inspection. This violation is administratively closed.

4.2 Security

(Closed) Inspection Followup Item (483/94011-01(DRSS)): Failure to control access to the facility in that an individual entered the protected area without his security badge.

The licensee changed work practices and procedures to preclude personnel entering or leaving through the vehicle gate to retrieve material or packages. There have been no additional problems in this area. The inspector has no further concerns and considers this item closed.

5.0 FOLLOW UP ON NON-ROUTINE EVENTS

NRC Inspection Procedures 90712 and 92700 were used to perform a review of written reports of non-routine events. Items which were closed as a result of the inspection satisfied the criteria established in the inspection procedures.

- 5.1 (Closed) Licensee Event Report (LER) 94-004: "Failure to Properly Perform Surveillance of Technical Specification 4.11.2.6 on the Total Curie Content in "E" Gas Decay Tank Due to Human Error." On August 15, 1994, a Radioactive Waste Supervisor during a routine review of sample data, noticed a decreasing trend in the activity of samples taken from the "E" Gas Decay Tank. The licensee's review into the cause of the decreasing trend revealed that the samples were not properly being taken by the technicians performing the sample collection. The sample line was improperly being isolated during collection thus, not allowing for a representative sample to be collected. The licensee counseled the individuals on the need to ensure that the established procedure is followed to ensure a representative gas sample is collected. No similar sampling problems of this nature have occurred since this incident.

The failure to perform representative sampling of the in-service Gas Decay Tank is a violation of Technical Specification 4.11.2.6. However, this violation will not be cited because the criteria set forth in Section VII of the NRC Enforcement Policy as published in NUREG-1600 were met.

5.2 (Closed) LER 95-001 Manual Reactor Trip When Shutdown Bank A, Group 1, Dropped During Replacement of a Rod Control System Firing Card

During replacement of a rod control firing card for control bank C, group 1, the licensee determined that the bank A, group 1 firing card output voltage was degraded. When the card was pulled, shutdown bank A dropped into the core. The failure to properly restore from the control bank C control card replacement was the cause the event. The licensee's corrective actions included training personnel on the root cause of the event and revising the appropriate procedure to provide additional guidance for this work.

The inspectors have no further concerns on this issue and consider this item closed.

5.3 (Closed) LER 95-005 Reactor Trip Upon Turbine Trip at Greater Than 50 Percent Power Due to the Loss of Condenser Vacuum

The A circulating water pump tripped when its field rheostat failed. The licensee also determined that the turbine trip pressure switches and condenser pressure interlock switches were out of tolerance. This caused the turbine to trip before the main steam dump valves closed. The licensee's corrective actions included replacing the rheostat, recalibration of the pressure switches, evaluation of calibration methods for these switches, and evaluation of the switch design.

The inspectors have no further concerns on this issue and consider this item closed.

6.0 PERSONS CONTACTED

D. F. Schnell, Senior Vice President, Nuclear
*G. L. Randolph, Vice President, Nuclear Operations
*C. D. Naslund, Manager, Nuclear Engineering
*J. V. Laux, Manager, Quality Assurance
J. R. Peevy, Manager, Emergency Preparedness and Organizational Support
R. D. Affolter, Manager, Callaway Plant
M. E. Taylor, Assistant Manager, Work Control
*G. Belchik, Supervisor, Planning
*M. S. Evans, Superintendent, Health Physics
J. D. Schnack, Senior Engineer, Quality Assurance
D. T. Fitzgerald, Superintendent, Security
J. A. McGraw, Superintendent, System Engineering
*C. S. Petzel, Senior Engineer, Quality Assurance
H. D. Bono, Supervising Engineer, Site Licensing
R. T. Lamb, Superintendent, Operations
J. D. Blosser, Manager, Operations Support
*G. A. Hughes, Supervising Engineer, ISEG
*J. A. Clark, Assistant Superintendent, Security
*M. A. Reidmeyer, Engineer, QA
*C. E. Slizowski, Supervising Engineer, QA

- *L. H. Kanuckel, Supervising Engineer, QA
- *K. W. Kuechenmeister, Superintendent, Design Engineering
- *T. Herrmann, Supervising Engineer, Design Engineering
- *M. Henry, Engineer, Design Engineering
- *D. Bettenhausen, Supervising Engineer, Design Engineering
- *R. R. Roselius, Superintendent, Chemistry and Rad Waste

*Denotes those present at one or more exit interviews.

In addition, a number of equipment operators, reactor operators, senior reactor operators, and other members of the quality control, operations, maintenance, health physics, and engineering staffs were contacted.