

U. S. Nuclear Regulatory Commission

Region III

Report No. 50-483/84-22(DPRP)

Docket No. 50-483

License No. CPPR-139

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

Facility Name: Callaway Plant, Unit 1

Inspection At: Callaway Site, Reform, MO

Inspection Conducted: March 16 through June 2, 1984

Inspector: *P.R. Pelhe for*
J. H. Neisler

6/14/84
Date

Approved By: *P.R. Pelhe for*
W. L. Forney, Chief
Projects Section 1A

6/14/84
Date

Inspection Summary

Inspection on March 16 through June 2, 1984 (Report No. 50-483/84-22(DPRP))

Areas Inspected: Routine inspection by the Senior Resident Inspector, of licensee action on previously identified items, items reported pursuant to 10 CFR 50.55(e) and 10 CFR 21, IE Bulletins and Circulars, SER confirmatory issues and allegations; review of Vendor Inspection Branch findings; and observation of completed work on pipe supports. The inspection involved a total of 246 inspector-hours on site, including 6 hours on site during non-regular hours.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Principal Licensee Employees

E. K. Dille, Executive Vice President
D. F. Schnell, Vice President - Nuclear
F. Field, Manager, Quality Assurance
*W. H. Weber, Manager, Nuclear Construction
R. Powers, Assistant Manager, Quality Assurance
*R. Veatch, Supv. Engineer, Construction QA
J. Laux, Supv. Engineer, Startup QA
*C. Plows, QA Consultant
D. Bruyer, QA Consultant
L. Kanuckel, QA Engineer
B. DuBois, QA Consultant
*H. Millwood, QA Consultant
J. Marden, Startup Consultant
*L. Cunningham, QA Consultant
G. Shanker, QA Consultant
*D. Zimmerman, Supervisory Engineer, Construction

Contractor and Other Personnel

C. C. Wagoner, Site Manager, Daniel International
*R. Glassner, Compliance Supervisor, DELCON
*R. Pitts, Project Piping Manager, Daniel International
*C. Wilson, Senior QA Engineer, Daniel International

*Denotes those persons attending one or more exit meetings.

During the inspection period, the inspector contacted other persons in the craft, engineering, quality and management areas.

2. Licensee Action on Previously Identified Items

(Closed) Unresolved item (483/83-15-02): Clarification of acceptance criteria for shrinkage cracks in grouted repairs of concrete. The architect/engineer established an acceptance criteria for maximum surface crack widths in grout patches of 0.01 inches. Daniel Quality Control Procedures have been changed to reflect the current acceptance criteria. The grout patches have been reinspected and nonconforming conditions have been resolved. This item is considered to be closed.

3. Items Reported Pursuant to 10 CFR 50.55(e) and 10 CFR 21

The inspector examined the licensee's corrective actions relative to the deficiencies listed below:

82-06-EE: Potential undetectable circuit failure in Westinghouse solid state protection systems. The circuits have been redesigned to provide failure detection. The inspector reviewed FCN SCPM-10643 that has been issued to implement this design change. Rewiring has been completed and the output relay test performed. This item is considered to be closed.

83-18-EE: Rear of Cutler-Hammer contact blocks cracking due to tightening leads on terminal lugs on control switches. All the Cutler-Hammer E-30 switches on the main control board have been inspected. The nine contact blocks identified in the report have been replaced. No other cracked contact blocks have been identified. Craft personnel have been instructed to use 90 degree lugs where required to terminate wires to the contact blocks to prevent recurrence of the cracking. This item is considered to be closed.

83-02-EE: Improperly tightened bolted connections in structural steel. Bolted connections have been inspected and corrective actions implemented where required in the power block and fuel building. The inspector observed the inspection and bolt tightening in the reactor building, auxiliary building, and the diesel and control building. This item is considered to be closed.

81-05-EE: General Electric Service Advice 175-9.6 Type AKR Circuit Breakers. The breaker fails to close as result of deformation of lead teflon bearing sleeve. The teflon bearing sleeves have been replaced with a sleeve of an improved design supplied by General Electric. No problems were identified with the replacement sleeves during preoperational testing. This item is considered to be closed.

84-01-EE: Gould/Rundel three position hand switch mechanisms are binding. This item is same as 83-28-EE. Actions are described in 83-28-EE below. This item is considered to be closed.

84-10-EE: Bettis valve actuators - the key between the actuator and the valve stem comes out of the keyway rendering the valve inoperable. The problem was attributed to the installation of a 5 1/2 inch long key rather than the 7 1/8 inch key required by design. Four valves were affected, two with short keys and two with missing yoke key pins. All valves have been properly modified and inspected. This item is considered to be closed.

83-19-EE: Impeller to shaft key missing in Byron Jackson ESW pump PEF01B. The pump was removed and returned to the manufacturer's facility for inspection and shaft key installation. The other impeller on the pump was inspected and the key was found to be in place. Pump PEF01A was inspected and the impeller to shaft keys were found to be in place. Both pumps were reinstalled and preoperational testing has been completed. This item is considered to be closed.

83-16-EE: Defective brazing of Yarway 1 1/2 inch valves. Twelve throttling valves were reported to have cracked seats determined to be caused by inadequate brazing of the Stellite seat. Valve seats for all 33 installed Yarway 1 1/2 valves have been reinspected and the valves with cracked seats were cut out and replaced. All of the valves have been modified with a permanent stop bushing to prevent over torquing on closure. This item is considered to be closed.

84-04-EE: Exhaust fumes from the plant auxiliary boiler entered the control room through the HVAC intake. This report was withdrawn by the licensee as a result of the architect/engineer's analysis of the event. The ionization type smoke detectors had not been installed in the HVAC intake at the time smoke from the auxiliary boiler entered the control room. The inspector reviewed SNUPPS letter SLU 84-0019, and Union Electric letters ULNRC-815, ULNRC-782, QM-448. The inspector concurs with the withdrawal of this item as a significant deficiency. This item is considered to be closed.

84-14-EE: Failure of spring seat in Chemetron Model No. 1-061-0732 check valve during discharge testing of the Halon fire protection system. The manufacturer has evaluated the seat failure and determined that an upgraded material is required for the spring seats. The seats made of the upgraded material have been successfully tested. The upgraded seats have been installed in the check valves in the Halon systems at Callaway. This item is considered to be closed.

83-14-EE: Westinghouse Model 7300 process control instrumentation deficiencies. The potential failure of the heat sink adhesive bond has been corrected by replacing potentially defective heat sinks with heat sinks of a new design. The circuits have been rewired to bypass the temperature channel test cards per FCN SCPM-10637 during normal operations to eliminate the possibility of saturation of the RTD amplifier cards. This item is considered to be closed.

79-05-EE: Undetectable failure in the engineered safety features actuation system. Tests do not provide for checking the operation of the P-4 permissive contacts or the interconnecting wiring. Test jacks have been installed for checking the P-4 interlocks and the interconnecting wiring. This item is considered to be closed.

83-28-EE: Mechanical interlocks for containment cooling fans are sticking. This failure was attributed to possible dirt contamination during shipping or storage by the manufacturer. The four interlock mechanisms have been replaced by new interlocks. No failures of the replacement interlocks have occurred during subsequent operations. This item is considered closed.

84-02-EE: Seismic positioners missing on reactor switchgear breakers. The seismic positioners have been installed in the reactor trip breakers according to design by the manufacturer, Westinghouse. This item is considered to be closed.

84-06-EE: Design problem with control circuitry for primary system PORVs. This problem resulted from undersized fuses and contactors in the PORV control circuitry. Fuses and dc contactors, sized to meet the loads specified by the valve manufacturer, have been installed in the circuits. This item is considered to be closed.

83-17-EE: Low voltage due to line losses in control circuits. The plant control circuits review to identify deficient control circuits has been completed by the architect-engineer. In the deficient circuits either larger control power transformers for ac control circuits, or interposing auxiliary relays for ac and dc control circuits have been installed. The circuit modifications were completed before preoperational testing involving these circuits was conducted. This item is considered to be closed.

83-22-EE: Westinghouse type SA-1 differential relays with leaking capacitors. The leaking tantalum capacitors have been replaced with hermetically sealed capacitors by Westinghouse. This item is considered to be closed.

83-20-EE: Inconsistencies in implementing the QA program for HVAC instrumentation and safety related valve accessories. Documented inspections of HVAC instrumentation have been performed by Daniel Quality Assurance personnel. No nonconforming conditions were identified during the inspections. Analysis of safety related valve accessories indicate that no deficiency existed for valve installation. The inspector reviewed NCR's, inspection reports, and A/E letters relative to this subject. This item is considered to be closed.

83-26-EE: Some multiple purpose supports designated II/I also support some Class 1E cable trays. Additional lateral and horizontal bracing, larger bracing angles, additional longitudinal bracing, additional welds, and an additional frame around one duct have been installed. Inspections and analysis to permit these supports to be used in a seismic category 1 application have been performed. This item was also reported pursuant to 10 CFR 21 by Bechtel. This item is considered to be closed (both the 10 CFR 21 and the 10 CFR 50.55(e) for Callaway).

83-27-EE: Containment cooling fan starter coil failure. The failure was caused by over voltage on the 130 volt diodes in the coils. The diodes have been replaced with diodes rated at 150 volts. This item is considered to be closed.

84-05-EE: The diesel generator lube oil keep warm pump failed. The failure was broken teeth in the drive gear. The failure was determined to have been caused by improper alignment and operating clearances. New gears have been installed and rotor to casing clearances increased. The pump has been tested and the flow capacity has been shown to meet system requirements. This item is considered to be closed.

83-01-PP: 10 CFR 21 Report - AWV Model 7401 dampers - brackets on the operating blades were not tackwelded to the blades as required to substantiate the seismic report. The dampers have been inspected and dampers without required welding have been identified. The A/E has evaluated the dampers and welding on the blades was performed where the A/E evaluation demonstrated the need for welding. This item is considered to be closed.

83-25-EE: Failure of the Limitorque operator on valves EJ-HV-8811 A and B and BN-HV-8812 A and B. The failure was in the motor pinion/worm shaft clutch gear in the Model SB-2-80 operators. As a result of testing at the manufacturer's facility and on site, Westinghouse and the licensee decided to replace the SB-2-80 valve operators with SB-1-60 operators. The SB-1-60 operators were selected based on their use in similar applications and their interchangeability with the SB-2-80 operators. The SB-1-60 operators have been installed, tested and inspected for damage after testing. No damage was observed after the tests. This item is considered to be closed.

84-08-EE: Essential Service Water pump "B" does not meet pump performance curves. Preliminary testing on site indicated that the pump was not meeting the original shop performance head/capacity curve. The pump was returned to the manufacturer's shop for testing. Subsequent to the manufacturer's test, the pump was field tested in place at the site with results four percent less than the shop test. Test results have been evaluated by the architect/engineer. The A/E concluded that the pump meets system design requirements including margin for long term pump wear. This item is considered to be closed.

83-13-EE: Robertshaw flow control valves improperly controlling flow. This item was closed as 10 CFR 21 Item 82-01-PP in Inspection Report 483/83-26, Paragraph 4.

84-12-EE: Gould/Rundel SS3 switches on containment cooling fan contacts did not make up properly preventing reliable fan operation during preoperational testing. Failure was caused by improper handling during testing by blocking the contact plungers and one instance of ineffective quality control and checkout testing during manufacture as shown by improperly cut cams or burrs on the cam. Each replacement switch has its own QC sheet and instructions provided to preclude blockage that might prevent movement of the contact blocks. This item is considered to be closed.

84-15-EE: Containment air cooling fans do not return to slow speed on safety injection reset thereby reducing long term reliability. The problem resulted from a design change to allow remote speed control of fans upon control room evacuation that inadvertently modified the control function that maintains the fans in slow speed following reset of the safety injection system. An interlock has been placed in the circuit that will block the fans returning to high speed after the safety injection is reset until the operator acts to restore the fans to high speed. This item and the 10 CFR 21 report submitted by the designer are considered to be closed.

84-03-EE: Keep warm jacket water pumps on diesel generators do not have sufficient discharge head to force the check valves open. The manufacturer, Colt Industries, has reviewed the design and determined that lift check valves are not required in this configuration. The valve internals have been removed and the system has been acceptably tested. This item is considered to be closed.

84-13-EE: RHR pump "A" motor bearing seized to the rotor shaft. The motor seized during pump coast down during rotation verification due to interference with the lower bearing cap. The bearing cap was adjusted to prevent rubbing of the motor shaft. The licensee retracted this potential report. The inspector concurs with the retraction. This item is considered to be closed.

83-29-EE: Spring type hangers on pulsation dampener for the positive displacement charging pump may be sized too heavy, in that they are exerting upward forces on the PDP nozzles which exceed the manufacturer's recommended limits. Bechtel, Westinghouse and the dampener vendor have evaluated the additional loads imposed on the dampener by the spring can hangers. Pipe, pump nozzles and snubbers have been inspected and no damage has been identified. The licensee, Westinghouse, Bechtel and the vendor have determined that this item is not reportable per 10 CFR 50.55(e). This item is considered to be closed.

84-07-EE: Body to bonnet leakage on pressurizer PORV. The leakage was caused by apparent inadequate torquing of the body/bonnet bolts. The valves have been disassembled, inspected and rebuilt. These activities were witnessed by the licensee's Quality Assurance personnel and Startup Engineering. The 50.55(e) was retracted by the licensee. This item is considered to be closed.

4. Inspection and Enforcement Bulletins and Circulars

The inspector examined licensee actions relative to the Inspection and Enforcement bulletins and circulars listed below. The examination included review of the licensee's response, documentation showing that the action was completed and, where possible, the completed work to accomplish the requirements identified in the bulletin or circulars.

Bulletin 83-07: Apparently Fraudulent Products Sold By Ray Miller, Inc.: The inspector examined documentation relating to investigations by Bechtel, Westinghouse and Daniel International to determine whether material sold by Ray Miller, Inc. had been used in safety-related systems at Callaway. The documentation indicated that no material sold by Ray Miller, Inc. had been used in safety-related systems. This bulletin is considered to be closed.

Bulletin 83-08: Electrical Circuit Breakers With an Undervoltage Trip Feature in Use in Safety-Related Applications Other Than the Reactor Trip System: The inspector examined documentation supplied by the NSSS, A/E, and SNUPPS showing that their reviews indicated that no circuit breakers with an undervoltage of the type described in Bulletin 83-08 are installed in the SNUPPS power block Class 1E electric systems. This bulletin is considered to be closed.

Circular 81-13: Torque Switch Electrical Bypass Circuit for Safeguard Service Valve Motors: The architect/engineer has performed review of all safety circuits to identify those valves with torque switch bypass. The startup test group has tested the valves and verified that operability of the torque switch bypass is according to design. This circular is considered to be closed.

5. Allegations

- a. (Closed) ATS RIII-84-A-0022: Licensee notification of termination of seven contractor employees involving the use of marijuana and cocaine. The licensee's management notified the Senior Resident Inspector of this event according to their procedures for NRC notification of significant events. The Region III Allegations Coordinator saw the item in a Region III Daily Report and mistakenly classified the event notification as an allegation. This item is considered to be closed.
- b. (Closed) ATS RIII-84-A-0015: Allegation of safety problems at Callaway and Wolf Creek received by the Missouri Public Service Commission. This allegation was previously reviewed in Inspection Report 483/83-33.
 - (1) "Weld 1-W or W-1 on the "B" steam generator is defective, it had been rewelded several times, but never reached NRC QA/QC standards." The inspector performed a 100% review of the radiographs of weld 1-W. No defects were discovered that were not acceptable in accordance with Section III of the ASME Code. In addition, the inspector examined nondestructive examination data relative to the preservice inspection ultrasonic tests, factory testing (magnetic particle, ultrasonic and radiographic), results of charpy V-notch tests, tension tests, and drop weight tests relative to the steam generator welding. In all cases the test results indicated that the ASME Code Section III requirements were met. This item (483/83-33-01) is considered to be closed.
 - (2) "Required documentation had been lost in a number of situations," which he did not specify. The inspector reviewed N-5 Code data packages for five code systems and observed the review by licensee Quality Assurance code specialists of other code data packages during the N-3 code report review. These reviews and observations included more than half the N-5 packages for the Callaway Plant. All required documentation appeared to be included in the packages. This allegation could not be substantiated. This item (483/83-33-02) is considered to be closed.
- c. (Closed) ATS RIII-84-A-0047: Allegation concerning containment liner. A region based inspector was approached by an individual who said he was a former employee and stated that about 1 1/2 years ago he noticed that the steel primary containment structure sounded hollow near the spray ring hangers on which he worked. Although he did not think he could locate the hollow sounding area again, he was concerned whether the concrete was supposed to fill the liner.

It is common to have a slight separation, or no bond, between the liner plate and the concrete. Generally, this separation is only a fraction of an inch and results from a combination of concrete shrinkage and dimensional changes in the liner plate due to temperature. This slight separation is sufficient to give a hollow sound when tapped with a hammer, or similar object, especially when contrasted with the sound emitted when tapping an area backed by a stiffener angle embedded in the concrete.

Hollow sounds in the liner plate have been investigated twice previously. Once as a result of Daniel QC identification and once at the request of the resident inspector. In both instances, the architect/engineer's evaluation indicated that the hollow sounds were not the result of voids behind the liner.

Subsequent to the containment structural integrity test, walkdowns by the resident inspector and a region based inspector did not identify deformations in the liner plate that would indicate unacceptable voids behind the liner plate. This item is considered to be closed.

6. SER Verification Items

- a. Removal of filters in AFWS pumps: The inspector verified removal of filters in the AFWS pumps (483/83-32-32). This item is considered to be closed.
- b. SER Section 3.9.2.1 Pre-service examination and preoperational testing of snubbers are performed as described in the summary for June 9 and 10, 1981, meeting (483/83-32-03). The inspector examined records showing that the required preservice examinations had been performed. In addition, the inspector visually inspected twenty snubbers selected at random for visible signs of damage or impaired operability and correctly installed structural connections. This item is considered to be closed.

7. Bahnson Air Handling Units

Region III informed the inspector of problems identified at the Bahnson Company's Plant by the NRC Vendor Inspection Branch. The resident inspector became aware of these items in 1983. At Callaway the air handling units were reinspected on site, deficiencies identified during the reinspection were evaluated by the architect/engineer and corrective action (weld repairs) was taken to assure that the units met the seismic design requirements for Callaway. The inspector has no further concerns in this area.

8. 10 CFR 21 Report - Colt Industries (483/84-01-PP)

Colt reported deficiencies involving United Electric Controls Company No. J27KB Model 232 differential pressure switches. The Colt-Pielstick diesels use United Electric Controls Model J21K-140 differential pressure switches in the fuel oil system to measure pressure across the fuel filter. Colt supplied the No. J27KB Model 232 pressure switches as spare parts to Callaway. These switches have been tagged and segregated for return to the vendor. The inspector has no further questions regarding this matter at Callaway. This item is considered to be closed.

9. Review of Code Data Reports (N-5)

The inspector reviewed Code Data Reports (N-5) packages for five code piping systems. The review included the examination of stress certifications, NPT-1 reports, NPV-1 reports, Certified Material Test Reports, hydrostatic test reports, NDE reports, inspection reports, weld travelers, and NPP-1 data reports. The systems included were:

- Reactor Water Makeup System
- High Pressure Coolant Injection System
- Main Steam System
- Residual Heat Removal System
- Containment Spray System

In addition, the inspector observed the licensee quality organization's review of N-5 data packages for completion verification of the owner's N-3 Code data report. This review was performed using checklists of N-3 requirements to verify that all required data was in the N-5 packages.

10. Exit Interviews

The inspector met with licensee representatives (denoted under Persons Contacted) at intervals during the inspection period. The inspector summarized the scope and findings of the inspection. The licensee representatives acknowledged the findings as reported herein.