

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-483/84-36(DRP)

Docket No. 50-483

License No. NPF-25

Licensee: Union Electric Company
Post Office Box 149
St. Louis, MO 63166

Facility Name: Callaway Plant, Unit 1

Inspection At: Callaway Site, Callaway Co., MO

Inspection Conducted: July 30 - August 3 and
August 13 - 17, 1984

Enforcement Conference: August 20, 1984

Inspector: *P. R. Pelke*
P. R. Pelke

10/19/84
Date

Approved By: *RFWarnick for*
W. L. Forney, Chief
Projects Section 1A

10-19-84
Date

Inspection Summary

Inspection on July 30 - August 3 and August 13 - 17, 1984 (Report No. 50-483/84-36(DRP))

Areas Inspected: Routine, unannounced safety inspection of an event in which both Containment Spray Systems were inoperable while the plant was in operational Mode 4, review of an inadvertent safety injection on August 13, 1984, observation of Reactor Coolant Pump "C" seal removal, review of containment personnel air lock repair activities, verification of Technical Specification requirements, and review of licensee event reports. This inspection involved a total of 67 inspector-hours onsite by one inspector.

Results: Of the six areas inspected, no items of noncompliance or deviations were identified in two areas, three items of noncompliance were identified in the remaining areas (failure to have two independent Containment Spray Systems operable during Mode 4 - Paragraph 2; failure to take timely corrective actions - Paragraph 4; and failure to follow procedures - Paragraphs 5 and 6).

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DETAILS

1. Persons Contacted

Union Electric Company

- *D. F. Schnell, Vice President - Nuclear
- *S. E. Miltenberger, Manager, Callaway Plant
- D. C. Poole, Advisor to Manager, Callaway
- *R. L. Powers, Assistant Manager, QA
- *A. C. Passwater, Superintendent, Licensing
- G. A. Patrissi, Fire Protection Consultant
- C. H. Fuhlage, Assistant Engineer, Compliance
- B. Dampf, Acting Assistant Safety Supervisor
- **S. Petzel, QA Engineer
- **R. H. Leuther, Superintendent, Maintenance
- **J. D. Blosser, Assistant Superintendent, Maintenance
- **J. W. Knaup, Assistant Engineer
- **C. D. Naslund, Superintendent, I&C
- **W. A. Norton, QA Engineer
- **J. T. Patterson, Assistant Superintendent, Operations
- T. A. Baxter, Shaw, Pittman, Potts - Trowbridge

Burns

- B. L. Scott, Site Security Supervisor

USNRC

- *James G. Keppler, Regional Administrator
- A. B. Davis, Deputy Regional Administrator
- *J. A. Hind, Director, DRSS
- *R. F. Warnick, Chief, Projects Branch 1
- *W. F. Forney, Chief, Projects Section 1A
- *J. R. Creed, Chief, Safeguards Section
- *G. L. Pirtle, Physical Protection Specialist
- *B. Berson, Regional Counsel
- *D. S. Morisseau, Training and Assessment Specialist, NRR
- *J. Holonich, Project Manager, NRR

* Denotes those attending the management meeting on August 8, 1984.

**Denotes those attending the exit interview on August 17, 1984.

◦ Denotes those attending the enforcement conference on August 20, 1984.

The inspector also contacted other licensee and contractor personnel during the inspection.

2. Isolation of Both Trains of the Containment Spray System

On August 14, 1984, at 2:43 p.m. (CDT), the NRC was notified by the licensee that both Containment Spray Systems were manually isolated during operational Mode 4. A chronology of events follows:

May 7, 1984 Containment Spray manual isolation valves EN-V014 and EN-V018 were closed, locked and tagged on Workmans Protection Assurance (WPA) Form 84-3252 to prevent inadvertent discharge into containment. A Senior Reactor Operator failed to enter the valves in the Equipment Out-of-Service Log per ODP-ZZ-00002.

May 9, 1984 A Senior Reactor Operator completed the Containment Spray Valve Lineup Procedure OTN-EN-00001 with exceptions annotated for valves EN-V014 and EN-V018 (WPA 84-3252) and valve EN-V097 (WPA 84-3014). All three valves were in the closed position. The Senior Reactor Operator failed to enter the three valves in the Equipment Out-of-Service Log as required by Standing Order 84-24.

August 3, 1984 A Senior Reactor Operator performed a review of the Workman's Protection Assurance log in preparation for entering Mode 4 as required by ODP-ZZ-00014. This review identified containment spray additive tank valve EN-V097 as being closed per WPA 84-3014, which was subsequently released and restored to normal operational lineup and appropriately noted on the valve lineup procedure OTN-EN-00001. The Senior Reactor Operator failed to identify valves EN-V014 and EN-V018 on WPA 84-3252 which were required for Mode 4.

August 5, 1984 A Senior Reactor Operator reviewed the WPA log prior to starting plant heatup. This did not include a review of the WPA's for Mode 4 but only for those required to be cleared prior to heating up the plant to 170°F.

August 5, 1984 A Senior Reactor Operator, while reviewing the status of system lineups for OTG-ZZ-00001, Attachment 1, initially approved the operational condition of the Containment Spray System as required by Step 3.22 of OTG-ZZ-00001. However, after discussion with another Senior Reactor Operator, he decided that due to outstanding WPA's he would withdraw his approval. This was shown as a line-out on OTG-ZZ-00001, Step 3.22.

August 6, 1984 The Operations Supervisor verified that WPA 84-3085 had been cleared and documented this verification on OTN-EN-00001, Checklist 3.

- August 7, 1984 A Senior Reactor Operator reviewed OTG-ZZ-00001, Step 3.22 and OTN-EN-00001 checklists. Based upon properly executed checklists and the verification of the WPA that was done on August 6, 1984, he signed off that step.
- August 8, 1984 Two Senior Reactor Operators executed a Temporary Change (TCN) to ODP-ZZ-00014 which, in part, deleted the sign-off requirement for the review of the Equipment Out-of-Service Log, the WPA Log review, and the Temporary Modifications Log review. The intent was to take credit for other sign-offs in the OTG procedures. The TCN was performed in such a manner that it negated the requirement to perform a separate review prior to making the mode change. Technical Specification 6.5.3.1.a requires that for changes to procedures which may involve a change in intent of the approved procedure, the person authorized to approve the procedure shall approve the change prior to implementation. The use of the TCN to ODP-ZZ-00014 circumvented the review by the required authority.
- August 10, 1984 A Senior Reactor Operator completed Attachment 54 of ODP-ZZ-00014, Operational Mode Change Requirements, and approved changing modes. At 6:30 a.m. on August 10, 1984, the plant entered Mode 4.
- August 14, 1984 A Reactor Operator found WPA sheet 84-3252 showing valves EN-V014 and EN-V018 closed while looking for another WPA. The valves were subsequently opened, locked open, and independently verified.

Failure to have two independent Containment Spray Systems operable during Mode 4 is a violation of Technical Specification LCO 3.6.2.1 (483/84-36-01).

On August 14, 1984, the Plant Manager immediately initiated a review of the WPA log, Equipment Out-of-Service Log, valve lineups, and outstanding Temporary Modifications. Valve lineups were re-verified for the Residual Heat Removal, Safety Injection, Centrifugal Charging Pump, Containment Spray and Auxiliary Feedwater Systems. This review was completed on August 15, 1984. The licensee identified several causes and took corrective actions to prevent recurrence as follows:

- a. Equipment Out-of-Service Log (EOSL) was not current. The licensee reviewed the EOSL against the Surveillance Master Tracking log, outstanding work requests, outstanding Workman's Protection Assurance, and outstanding temporary modifications. This review was completed on August 20, 1984.

- b. Improper application of procedures. Licensee management met with reactor personnel and discussed the necessity for adherence to procedures. This was completed on August 19, 1984.
- c. Personnel errors.
- (1) Review of the WPA log did not identify the problem. The licensee reviewed the events with operations personnel and re-emphasized the necessity for accuracy in performance of activities. This was completed on August 22, 1984.
 - (2) Personnel did not follow Standing Order 84-24. The licensee reinstructed personnel on the requirement for compliance with procedures and orders. This was completed on August 22, 1984. The applicable portions of Standing Order 84-24 were incorporated into Procedures ODP-ZZ-00002 and APA-ZZ-00310 by August 20, 1984. This was accomplished by issuing TCNs 84-1013 and 84-1014 which require that when any Technical Specification related equipment is out of service as a result of WPAs, the equipment shall be entered in the Equipment Out-of-Service Log.
 - (3) Temporary Change 84-945 to Procedure ODP-ZZ-00014 inadvertently removed the requirement for review of WPAs, EOSL, and temporary modifications prior to mode change. Procedure ODP-ZZ-00014 was revised by August 15, 1984 to remove the changes made by TCN 84-945. The individuals involved were counseled on August 17 and 19, 1984. The individuals were aware of the limitations on the use of temporary changes. They had not intended for TCN 84-945 to delete the reviews, but only to delete what they believed to be redundant documentation of the reviews. A letter was issued to operations personnel and contractors on August 18, 1984, re-emphasizing the limitations on the use of temporary changes.

Although the closed valves were identified on August 14, 1984, by an operator while looking through the WPA log for another WPA, the licensee believes the monthly status survey of WPAs per APA-ZZ-00310 would have detected the closed prior to initial criticality. The monthly survey which was started on August 15, 1984, consists of a review of all outstanding WPAs that have been in effect longer than one month. WPA 84-3252 (showing valves EN-V014 and EN-V018 closed) was issued on May 7, 1984, and would have been included in the review.

3. Enforcement Conference

An Enforcement Conference was held in the Region III office on August 20, 1984 as a result of the Callaway Plant being in operational Mode 4 with both Containment Spray Systems inoperable. The purpose of the conference was to (1) discuss the violations, their significance and causes, and the licensee's corrective actions, (2) determine whether there were any aggravating or mitigating circumstances, and (3) obtain other information which would help determine the appropriate enforcement action.

The licensee was informed that the generic concerns raised by the violation needed to be addressed prior to the plant achieving initial criticality. The licensee was requested to have each shift demonstrate its proficiency in operating the plant at low power before Region III recommends operation above 5 percent power. The licensee agreed to develop a program which will give them and Region III confidence that the operating crews are ready to commence power ascension and operate the plant at full power.

4. Inadvertent Safety Injection

At 12:35 p.m. (CDT), August 13, 1984, while the plant was in Mode 4 (hot shutdown), an I&C technician performing a technical specification instrument calibration for Mode 3 inadvertently initiated a safety injection. Approximately 1200 gallons of water from the RWST were injected into the primary system via the Boron Injection Tank. The primary system was not solid at the time and the safety injection was terminated by an operator after two minutes. The licensee declared an Unusual Event at 12:37 p.m. and terminated the Unusual Event at 1:12 p.m. All systems functioned as designed. The licensee held a press conference at 4:30 p.m. to brief the news media on the event.

The I&C technician was performing loop calibration surveillance procedure ISL-BB-OP455 when the event occurred. The procedure required the trip of bistable 455B. Bistable 456B was also tripped due to an incorrect installation per a Bechtel design drawing. The trip status of 456B was unknown because the indicator light for this bistable was burned out on the Partial Trip Status Panel (SB069) located in the control room. Both channels in the tripped condition made up the required logic for permissive P-11 (2 out of 3). P-11 arms the logic for safety injection on low pressurizer pressure. Since a low pressure condition actually existed in the plant, a safety injection was initiated.

The inspector identified the following items that contributed to the inadvertent safety injection:

- a. The Bechtel design drawing, which was deficient, allowed the card associated with bistable 456B to be installed incorrectly. This nonconforming condition existed since November 1983 and was not detected during preoperational testing.
- b. Procedure ISL-BB-OP455 required that Loops BB-OP456, BB-OP457, and BB-OP458 must be operable (not in test) as an initial condition to prevent an inadvertent safety injection. The procedure limited the definition of operable by the phrase "(not in test)" and made no reference to the Partial Trip Status Panel. The licensee is revising Procedure ISL-BB-OP455 and associated procedures. This will remain an open item pending the inspector's review of the revised procedures (483/84-36-02).
- c. The I&C technician relied on the indication of the Partial Trip Status Panel without consideration of a work request sticker attached to the panel.

- d. The Shift Supervisor authorized the surveillance activity without reliable indication of the partial trip status.
- e. Work Request No. 30748 to relamp the Partial Trip Status Panel was authorized on July 28, 1984, with a requested completion date of August 1, 1984. The work was not accomplished until August 13, 1984, after the safety injection.

Failure to promptly identify and correct nonconforming conditions, as described in paragraphs (a) and (e), is an item of noncompliance with 10 CFR 50, Appendix B, Criterion XVI (483/84-36-03).

5. Observation of Reactor Coolant Pump "C" Seal Removal

On August 3, 1984, the inspector observed the removal of the No. 1 seal for RCP "C". The current revision of Procedure MPM-BB-QP001 was being used at the work area. Documentation indicated that required QC hold-points had been witnessed by the QC inspector. During the removal of the seal runner, it was discovered that the extension tray (A-11) was not mounted to the articulated arm assembly. The articulated arm assembly is used to swing the seal runner from the motor stand to the area outside for further removal. The Maintenance Foreman stopped the crew and told them to wait until the extension tray was found and installed. The extension tray could not be located at the work area. A discussion took place between the Westinghouse Pump Representative and the Maintenance Advisor. As a result of the discussion, the Maintenance Advisor directed the Maintenance Foreman to have the seal runner removed from the pump area by hand.

Subsequent review of the controlling procedure by the inspector after leaving the work area, revealed that Steps 5.8.4 and 5.8.5 required the runner to be removed by the extension tray mounted on the articulated arm. The Westinghouse Representative and the Maintenance Advisor did not realize at the time that use of the extension tray was a procedural requirement. Although the Maintenance Foreman had been following the procedural steps and was aware of the requirement to use the extension tray, he did not recognize that removing the seal runner by hand constituted a procedural violation because he felt that the action met the intent of the procedure. Removing the runner by hand is not significant from a safety standpoint (no damage occurred). However, violation of a procedural step which was possibly influenced by a vendor representative is a concern. Failure to follow procedures is an example of noncompliance with 10 CFR 50, Appendix B, Criterion V (483/84-36-04(a)).

The licensee provided the inspector with written results of its investigation into this incident, including corrective action and actions taken to prevent recurrence. The Maintenance Advisor and Maintenance Foreman have been verbally reprimanded for failure to assure verbatim procedure compliance. A meeting was held with QA, QC, the System Engineer, the Maintenance Foreman, the Maintenance Advisor and the Maintenance Superintendent to discuss the incident and identify the cause. During this meeting the necessity to adhere to procedure requirements was reemphasized to all

supervision and staff personnel involved with the activity. Additional training is scheduled for all Maintenance Foremen on procedure requirements. A post-job review of the procedure for seal replacement is scheduled and the procedure will be revised based on the experience learned during the job.

6. Containment Personnel Air Lock Repair Activities

During a plant tour on August 14, the inspector learned from an employee that the drive mechanism for the exterior door to the containment personnel air lock (door 1507A) had been repaired. Through additional discussions with the employee, the inspector became concerned that the work may not have been adequately controlled. The inspector requested the licensee's QA staff to investigate this activity and provide documentation that it was adequately controlled. On August 17, the licensee provided the following information:

- a. WR No. 31386 was written on August 12 to swap the cam follower from the personnel air lock with one from the emergency hatch drive box to allow operation until spare parts arrived. Technical Specification 3.6.1.3(a) requires that "Each containment air lock shall be OPERABLE with both doors closed except when the air lock is being used for normal transit entry and exits..." Procedure APA-ZZ-00320, Revision 3, "Initiating and Processing Work Requests," states, "The approval authority should check the appropriate box if this component could cause an LCO, whether or not the specific work request requires that the component be OOS." Contrary to the above, WR No. 31386, Block (009), "Will outage on this equipment result in an LCO?" was checked "no".
- b. Procedure ODP-ZZ-00002, Revision 1, "Equipment Status Control," paragraph 4.1.1, states in part, "When a...component, or device which is safety related or is otherwise required to be operable to satisfy Technical Specifications...is determined to be out of service the Shift Supervisor shall initiate Attachment 1, Equipment Out-of-Service Log Sheet..." Contrary to above, work was performed on door 1507A which rendered the door inoperable for a period of time on August 13 which placed the plant under the Action Statement of Technical Specification 3.6.1.3. The door was not declared "out-of-service" and the plant was not declared to be under an Action Statement. The requirements of the Action Statement were met in that the door was back in service within 24 hours.

Failure to follow procedures is an example of noncompliance with 10 CFR 50, Appendix B, Criterion V (483/84-36-04(b)). The licensee initiated a Request for Corrective Action (RCA P8408-296) on August 16 to document the noncompliance.

7. Verification of Technical Specification Requirements

During Mode 5 the inspector observed that the following Technical Specification requirements were satisfied:

- . TS 3.5.4: The inspector observed that both safety injection pumps were inoperable in that their motor circuit breakers were secured in the open position.
- . TS 3.7.10.1(a) and (b): The inspector observed that the levels of the fire suppression water supply tanks were greater than 31 feet and the fuel oil day tanks were greater than 3/4 full. Surveillance records documented that the fire pumps had been tested in accordance with Procedure OSP-KC-00001, and the diesel fire pump batteries had been checked for electrolyte level and voltage once per 7 days in accordance with Procedure MSE-KC-FB001, Diesel Battery Check.

8. Licensee Event Report Followup

Through direct observations, discussions with licensee personnel, and review of records, the following event report was reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications.

(Closed) LER 84-01: Missed Hourly Fire Watch. On June 12, 1984, from 1600 to 1700, hourly fire watch patrols for four rooms in the Control Building were missed in violation of Technical Specification Action Statement 3.7.11.a. Door locks had been changed and new keys were not promptly made available to the fire watch personnel, causing the missed patrols. Licensee action to prevent recurrence included instructing the locksmith to coordinate future lock changes with fire watch supervision and key room personnel, and instructing key room and fire watch personnel to utilize the building master key for any further instances of this type.

The inspector interviewed a fire watch supervisor, fire watchmen, and key room personnel and identified a concern that verbal instruction may not be sufficient to prevent recurrence. Subsequently, the Site Security Supervisor issued a memorandum to the Lock and Key Control Supervisor and revised fire watch post orders to address the inspector's concern.

The inspector reviewed Procedure ODP-ZZ-06200, Requirements for and Duties of Tech Spec Fire Watches, reviewed fire watch records for July 22 through July 26, 1984, and observed the continuous fire watch in Auxiliary Building Room 1328. No instances of missed fire watches were identified.

9. Management Meeting

On August 8, 1984, Region III representatives met with licensee representatives (as denoted in Paragraph 1) to discuss Region III's concerns regarding the problems being experienced at Callaway. The following items were discussed:

- a. The licensee presented an overview of all licensee events which had occurred. The frequency of events caused by personnel errors appears to be excessive. The licensee described a number of actions being taken to correct weaknesses in this area.

- b. On August 5, 1984, the licensee implemented an interim work schedule for operations personnel utilizing four crews instead of six. Two 12 hour shifts are used instead of the previous 8 hour shifts. The licensee was requested to submit a letter to NRR describing the new work schedule. The licensee presented the following four crew schedule advantages:
- (1) Increased supervision per shift (6 crew manning distributed over 4 crews).
 - (2) Increased participation in startup activities.
 - (3) Two shift changes per day, improved communications between shifts.
 - (4) Increased personnel on duty to support plant activities.
 - (5) Reduced number of 16 hour shifts.
 - (6) More firmly established days off.
- c. The licensee discussed overtime in general and also the overtime history of the personnel involved in three LERs. The data did not show any obvious correlation between overtime and personnel errors.

10. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. An open item disclosed during the inspection is discussed in Paragraph 4.b.

11. Exit Interview

The inspector met with licensee representatives denoted in Paragraph 1 on August 17, 1984, to discuss the scope and results of the inspection.