

July 15, 1985

Dear [ ]

On February 5, 1985, you provided the U. S. Nuclear Regulatory Commission with information concerning the certification of Level III inspectors at the Callaway Nuclear Plant. Our inspection into your concerns has been completed and documented in Paragraph 4 of the enclosed Inspection Report.

Your cooperation with the U. S. Nuclear Regulatory Commission was greatly appreciated.

Sincerely,  
Original signed by  
Charles H. Weil

Charles H. Weil  
Investigation and  
Compliance Specialist

Enclosure: Inspection Report  
No. 50-483/85002

AN 8504080524  
8504080520

AMS No. RIII-85-A-0021

Docket No. 50-483

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

PDR

APR 1 - 1985

Docket No. 50-483

Union Electric Company  
ATTN: Mr. Donald F. Schnell  
Vice President - Nuclear  
Post Office Box 149 - Mail Code 400  
St. Louis, MO 63166

Gentlemen:

This refers to the routine inspection conducted by Messrs. B. H. Little and C. H. Brown of this office on January 20 through March 9, 1985, of activities at Callaway Nuclear Plant authorized by NRC Operating License No. NFP-30 and to the discussion of our findings with Mr. Steve E. Miltenberger at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

No items of noncompliance with NRC requirements were identified during the course of this inspection.

In accordance with 10 CFR 2.790, a copy of this letter and the enclosure will be placed in the NRC Public Document Room.

~~SECRET~~  
JRP

APR 1 - 1985

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

"Original signed, R. F. Warnick"

R. F. Warnick, Chief  
Reactor Projects Branch 1

Enclosure: Inspection Report  
No. 50-483/65002(DRP)

cc w/encl:

W. H. Weber, Manager, Nuclear  
Construction

S. E. Miltenberger, Plant Manager

R. L. Powers, Assistant Manager  
Quality Assurance

DME/Document Control Desk (RIDS)

Resident Inspector, RIII

Region IV

K. Drey

Chris R. Rogers, P.E.

Utility Division, Missouri

Public Service Commission

SNUPPS

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-483/85002(DRP)

Docket No. 50-483

License No. NPF-30

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, Steedman, MO 65077

Inspection Conducted: January 20 through March 9, 1985

Inspectors: B. H. Little

C. H. Brown

Approved By: *P.F. Pelke for*  
W. L. Forney, Chief  
Reactor Projects Section 1A

*4/1/85*  
Date

Inspection Summary

Inspection on January 20 through March 9, 1985  
(Report No. 50-483/85002(DRP))

Areas Inspected: Routine unannounced safety inspection by the resident inspectors of licensee event reports, SER and open items, allegations, regional requests, licensee events, cold weather protection, compliance with Technical Specifications, routine licensee activities and plant tours. The inspection involved a total of 196 inspector-hours by two NRC inspectors including 58 inspector-hours onsite during off-shifts.

Results: No items of noncompliance or deviations were identified.

*50-483/85002*  
*12pp*

## DETAILS

### 1. Persons Contacted

- \*S. E. Miltenberger, Manager, Callaway Plant
- D. F. Schnell, Vice President - Nuclear
- \*D. C. Poole, Assistant Manager Operations and Maintenance
- \*R. L. Powers, Assistant Manager - Quality Assurance
- M. E. Taylor, Operations Superintendent
- R. E. Leuther, Maintenance Superintendent
- J. E. Davis, Compliance Superintendent
- K. L. Wickes, Instrumentation and Control Supervisor
- J. C. Gearhart, Supervisory Engineer - QA
- \*P. T. Appleby, Assistant Manager (SS)
- J. R. Veatch, Supervisor Engineering - QA
- J. T. Patterson, Assistant Superintendent Operations
- C. D. Naslund, Superintendent, Instrumentation and Control
- \*J. V. Laux, Supervisor - QA
- \*W. A. Norton, Engineer - QA
- \*A. P. Neuhalfen, Assistant Manager - Administrative
- \*O. E. DuBois, Engineer Consultant - QA
- \*W. R. Robinson, Compliance Supervisor

\*Denotes those present at one or more exit interviews.

In addition, a number of equipment operators, Reactor Operators and Senior Reactor Operators, and other members of the QC and Operations and Maintenance staffs were contacted.

### 2. Licensee Event Report Followup

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

(Closed) LER 84-046 - Inadvertent Engineered Safety Features Actuation:  
On October 5, 1984, a reactor trip was initiated by low level signals from the "F" steam generator (S/G). The trip was due to one channel being in

(Closed) LER 84-047 - Unplanned Reactor Trip: On October 6, 1984, an I&C technician was performing maintenance on the Source Range Nuclear Instrumentation power supply cables and removed both instrument and control power fuses to the Source Range high voltage power supply. This caused a trip as the plant had just changed modes. Procedure APA-ZZ-00320, "Initiating and Processing Work Requests", has been revised effective November 16, 1984, to provide an attachment to the work documents to better inform work groups and operations personnel of the consequences of a work activity.

(Closed) LER 84-051 - Unexpected Steam Dump Operation Causing a Feedwater Isolation Signal (FWIS): On October 14, 1984, (plant at 3% in Mode 3) a FWIS was generated by level "swell" in the S/G (hi-hi level) due to the steam dump valves going from 20% to 40% flow. The FWIS did not actually occur as the plant was in Mode 2 at 3% power and auxiliary feed was supplying the S/G at the time. A dynamic steam dump control test was performed satisfactorily and the problem has not reoccurred.

(Closed) LER 84-053 - Technical Specifications Violations: The Technical Specification 3.3.3.10(b), Action 42, requires a grab sample to be taken from the Water Gas Holdup System every 24 hours if the outlet oxygen monitor on a hydrogen recombiner is inoperable. On October 17, 1984, the sample was taken outside the required time period. The oxygen concentration of the sample was found within specifications. The chemistry technicians were retrained on the required samples, and the use of the status board has been clarified.

(Closed) LER 84-054 - Inadvertent Engineered Safety Features Actuation: Two similar events caused actuation of these features from fluctuations in the S/G water levels due to adjustment on the Power Range Nuclear Instrumentation made on October 19, 1984, and October 21, 1984. One adjustment was an increase in gain and the other was when the gain was reduced. The procedure was revised to allow putting the level controllers in manual while the gain of power range instrumentation was being adjusted. Additional training was provided to the operators on the S/G level controller system.

(Closed) LER 84-055 - Unplanned Actuation of Engineered Safety Features: On October 21, 1984, a hi-hi level on S/G "A" actuated the engineered safety features. The hi-hi level resulted from incomplete review of the consequences of calibrating the level control system without taking the feedwater controller out of automatic control. The work control procedures have been revised to make the consequence of maintenance activities one of the points of consideration prior to initiating the work activity.

(Closed) LER 84-056 - Inadvertent Engineered Safety Features Actuation:

Licensee action to prevent recurrence included revising plant procedures OTN-AC-00001 (Main Turbine and Generator Systems) and OTG-ZZ-00003 (Plant Startup Less Than or Equal to 5% to 20% Power). The revised procedures restrict rolling of the main turbine for periods of longer than one hour and at power levels greater than 10% reactor power.

(Closed) LER 84-057 - Inadvertent Engineered Safety Features Actuations: On October 27, 1984, a reactor trip and ESF actuation occurred as a result of a low level in S/G "A". The event occurred during the transfer of feedwater flow control from the bypass valve to the main control valve. The main feedwater control valve failed due to a blown fuse.

Although considered to be a single random failure, the licensee revised plant procedure OTN-AE-00001 (Feedwater System) which specifies that during valve transfer the main control valves be opened manually permitting the bypass valves, in automatic, to close maintaining S/G level.

(Closed) LER 84-058 - Inadvertent Engineered Safety Features Actuation: On October 30, 1984, with the plant in Mode 1 at 30% power, an ESF actuation was initiated by a high level on S/G "B". The event resulted from S/G level oscillations following a spurious (vibration) trip of the main turbine and faulty operation of the steam dump valves (T-ave Mode).

The licensee's review of this matter, identified a wiring termination deficiency which disabled the steam dump permissive (C-7) and prevented automatic operation of the steam dump valves. Work Request No. 035944 was issued to correct the wiring deficiency and to perform a functional test of the steam dump valve operation. This work was completed on October 31, 1984.

(Closed) LER 84-061 - Reactor Trip and Turbine Trip: On November 29, 1984, a reactor trip occurred while in Mode 1 at 80% reactor power as a result of a main turbine trip. The event occurred when a nonsafety-related transformer tripped on overcurrent due to excessive loading of two electrical buses, which were supplying power to the main turbine Electro-hydraulic Control (EHC) oil pumps.

The licensee has completed a review of bus loading on systems with the tie breaker in use. Based on that review, plant procedures OTN-NG-00001, OTN-PB-00001 and OTN-PG-00001 were revised to provide loading restrictions when tie breakers are to be closed.

(Closed) LER 84-062 and 84-067 - Inadvertent Engineered Safety Features Actuations: On December 7 and 30, 1984, and on January 9, 1985, Containment Purge Isolations and Control Room Ventilation Isolations occurred as



I&C technicians found a loose fuse clip to RM-80. This condition could have caused the initial blown fuse and the following event on December 30, 1984. The fuse clip was tightened and the unit returned to service.

(Closed) LER 84-064 - Reactor Trip During a 50% Load Reduction Test: On December 17, 1984, a reactor trip was received on rapidly decreasing pressurizer pressure (rate sensitive). At the time of the event, a 50% load reduction test (ETT-ZZ-07120) was in progress. The test was being performed with the PORV block valve closed due to excessive PORV leakage. The load reduction resulted in an increase in plant pressure. When pressure approached the PORV setpoint, the reactor operator opened the PORV block valves. This action in conjunction with the pressurizer spray valves being fully open caused a rapid decrease in pressure and reactor trip.

Examination of the high speed recorder trace for pressurizer pressure showed that, although the RO acted correctly by unblocking the PORV's when it became obvious they would be challenged, the pressure had already peaked at approximately 2340 psig and had started decreasing. The total elapsed time from initiation of transient to reactor trip was 28.5 seconds and the minimum pressure encountered was approximately 2220 psig.

The licensee revised test procedure ETT-ZZ-07120 to require the PORV block valves to be open prior to initiation of the load reduction. The test was completed successfully on December 19, 1984.

(Closed) LER's 84-065 and 85-001 - Reactor Trips Due to Feedwater Valve Deficiencies: On December 17 and 18, 1984, and January 2, 1985, reactor trips were initiated by lo-lo S/G levels. The first event resulted from a failed current-pressure (I/P) converter, the second event was caused by steam generator level oscillations which operators were unable to control due to a partially open main feed regulating valve (AE-FCV-530). The third event occurred when a failed solenoid in the valve control circuit caused a feedwater isolation valve to fast close.

The failed components, (I/P) converter, and solenoid were replaced. Plant procedure ITG-ZZ-FX023 was revised which specifies that feedwater isolation valves be correctly positioned during converter calibration.

(Closed) LER 85-008 - Inadvertent Control Room Ventilation Isolation: On January 25, 1985, a Containment Purge Isolation and Control Room Ventilation were actuated from a signal on the containment process monitor GT-RE-31. The containment was not being purged at the time of the event and did not result in a release of radioactivity.

Licensee review of the event determined that a small increase in gaseous activity may have occurred when the PORV block valves were stroke tested.



Operations Department Night Orders issued January 25, 1985, directed that the containment process monitors GT-RE-31 and GT-RE-32 be placed in "bypass" when not purging the containment. This action was taken to reduce the number of engineered safety features actuations which have occurred from spurious signals from the process monitors.

The inspector reviewed Technical Specification 3.3.3.1, Table 3.3-6 and Action Statement 26. The Technical Specification permits continued operations with the above monitors bypassed (inoperable) provided that the containment purge valves are maintained closed.

No items of noncompliance or deviations were identified.

3. Inspection of SER/Open Items

(Closed) Open Item (483/84-32-07): Install correctly scaled paper for recorders GN-PR-934 and GN-PR-938 (GN-PR-938 was incorrectly identified in Inspection Report 84-32 as GN-PR-936). The lack of correctly scaled paper for the control room recorders was identified as a human engineering discrepancy during the NRC onsite audit on February 28 and 29, 1984. The inspector performed a control room walkdown and verified that the licensee has installed correctly scaled paper in the containment pressure recorders GN-PR-934 and GN-PR-938.

(Closed) SER Item (483/83-32-34): The Radiation Protection Manager (RPM) has participated in at least one refueling at another plant prior to fuel load.

The RPM training commitment to NRR was documented by a letter to NRR from the licensee dated September 9, 1983, and a letter to the licensee from NRR dated November 23, 1983. The resulting new commitment required the Health Physics Superintendent (RPM) and the Health Physics Operations Supervisor to participate in only one refueling outage. To satisfy this commitment, the Health Physics Superintendent and the Health Physics Operations Supervisor participated in a refueling outage at the McGuire Nuclear Station. From discussions with the Health Physics Superintendent, the inspector determined that this on-the-job experience satisfied the commitment.

No items of noncompliance or deviations were identified.

4. Followup on Allegations

(Closed) Allegation RIII-85-A-0021: Procedures Not Followed in the Certification of Quality Control (QC) Inspectors (Level III). On February 5,

pressing work assignment the inspector would meet with the resident inspector the following day for further discussion. During the next meeting (February 6, 1985), the QC inspector, in response to the resident inspector's questions, stated that the inspector had not documented the above procedure violation nor had the inspector discussed this matter with the Quality Assurance (QA) Department; however, the inspector knew that other QC inspectors had contacted QA personnel regarding this matter. With the QC inspector present and with his concurrence, the resident inspector contacted (by phone) the QC inspectors identified as having contacted QA. These inspectors confirmed that they had discussed the procedure violation and the qualification concern of those recently certified.

On February 6, following the above meeting, the resident inspector interviewed members of the licensee's QA Department to assess QA response in this matter. The inspector was advised that on February 4, 1985, QC inspectors had informed QA of the specific procedure violation and had expressed concerns regarding the qualifications of the QC Level III inspectors that had been recently certified. On February 5, 1985, the QA Supervisor (Operations) had initiated a QA surveillance in this matter. The scope of the surveillance included not only QC inspectors' concerns but also a review of each QC inspector's qualifications and certifications and UENO-QC program administrative matters.

On February 8, 1985, QA issued a Request for Corrective Action (RCA) No. P85-02-028 which documented the procedure violation and substantiates the QC inspector's allegation which was made to the NRC.

On February 22, 1985, QA issued Surveillance Report No. 850209 (Review of Certifications of UENO Quality Control Inspectors). This report identified additional deficiencies which have been documented on the following RCAs:

<u>RCA No.</u>	<u>Description</u>
P-8502-034	Insufficient Records to Support QC Certifications
P-8502-035	QC Inspectors Don't Have Needed Experience
P-8502-039	Certification/Qualification Program Deficiencies

The inspector interviewed QA engineers during the performance of the QC surveillance, reviewed the QA surveillance report, and the associated RCAs. The inspector is satisfied that the QA department's response to the QC inspectors' allegation and concerns was both prompt and thorough.

No items of noncompliance or deviations were identified.

5. Followup on Regional Requests

a. Licensee Event Reports (LERs)

An inspection in this area was performed to assess the licensee's overall performance and threshold of documenting and reporting LERs, and to ascertain licensee compliance with NRC requirements (10 CFR 50.72 and 50.73) regarding notifications to the NRC Operations Center and reporting of events in LERs. The inspection included a review of 45 Incident Reports (IRs) selected from IR Nos. 84-894 through 85-112, a review of operating logs and LERs, and interviews with operations and compliance department personnel.

In review of this matter the inspector found that 24 of the 45 IRs resulted in LERs or were declared potential LERs by the licensee. The remaining 21 IRs documented minor procedure and/or hardware deficiencies. "Multiple failures" were not identified during this review; however, the inspector found that the nature of deficiencies documented on IRs indicate a low threshold of deficiency reporting and that reports to the NRC Operations Center included safety system response/performance.

This matter was discussed with the licensee during a routine exit meeting on March 1, 1985. The inspector stressed the intent of both 10 CFR 50.72 and 50.73 relating to the reporting requirements of multiple failures in safety systems.

b. Failure of Rockwell International Globe Valves (IE Information Notice 84-48)

IE Information Notice 84-48 alerted licensees of a potential deficiency (separation of valve disc from valve stem) of valves used in loop RTD bypass lines. The inspector reviewed this matter to ascertain the status of licensee's review of the subject Information Notice.

The licensee's review determined that Rockwell Globe valves were not installed in the loop RTD bypass lines at Callaway; however, the valves are installed in the reactor vessel level indicator system (RVLIS) and in nonsafety system applications. This is not a concern for the RVLIS since it is a static (no flow system).

No items of noncompliance or deviations were identified.

found that a discrepancy existed between the flow rates specified in the Technical Specification Section 3.7.6 (2000 cubic feet per minute (cfm) +/- 10%) and the system design flow (2200 cfm + 10% -0%). Work Requests (WRs) Nos. 36553 and 36554 were issued to measure the CREVS flow rates of the "A" and "B" trains and, if required, establish system total flow rate between 1980 and 2200 cfm.

The HVAC technicians, during the performance of the WRs, noted that flow restricting plates thought to be required on both trains were missing. Based on this belief, plant Incident Report (IR) No. 85-083 was issued. At 1645 on February 15, 1985, upon receipt of the IR, the shift supervisor declared both trains of the CREVS inoperable, placing the plant in the Technical Specification 3.0.3 Action Statement. Subsequent system flow tests determined that the "B" train flow rates were within Technical Specification requirements, and the "A" train flow rates exceeded Technical Specification requirements.

The "as found" data is as follows:

A Train - Fan Speed	4150 rpm
Filter Flow	624 cfm
Cleanup Flow	2150 cfm
Total System Flow	2774 cfm

B Train - Fan Speed	3800 rpm
Filter Flow	509 cfm
Cleanup Flow	1506 cfm
Total System Flow	2015 cfm

WR No. 36553 was performed on the "A" train which reestablished the flow rates as required by the Technical Specification and the system was declared operable at 1830 on February 15, 1985.

The licensee's review determined that the excessive "A" train flows resulted from the removal of a flow restricting orifice plate which had been installed during system acceptance testing (completed on April 6, 1984). The orifice plate was not documented on the controlled drawing (Bechtel Drawing No. M-618.3-0005) and subsequent system walkdowns and acceptance reviews did not detect the missing plate.

The licensee issued a Request for Resolution (RFR) No. 00743 to Bechtel to evaluate if the excessive system flows resulted in an unreviewed safety question. Bechtel evaluated various system flow rates up to 3000 cfm total flow and 1000 cfm filter flow. The safety

- Walkdown of all "Q" HVAC systems to verify placement of flow restricting plates and diffuser plates and that no unauthorized plates/orifices were installed.
- Reverified all preoperational test data used to satisfy Technical Specification Surveillance requirements which have not been previously verified by performance of a plant surveillance procedure.
- Reverified all Technical Specification ventilation system flow rates by performance of the appropriate sections of permanent plant surveillance procedures.

The above action was completed on March 1, 1985. No additional system deficiencies were identified.

The inspector reviewed the plant operating logs and Incident Reports Nos. 85-082 and 85-083 which document the event and the Technical Specification violation and interviewed operations, compliance and site engineering personnel. The inspector verified that the violation as identified by the licensee was appropriately documented and reported to the NRC and that the licensee had taken prompt corrective action to prevent recurrence.

b. Unusual Event - Loss of Power (Electrical Busses PA01 and PA02)

On February 22, 1985, the plant experienced a loss of electrical power to busses PA01 and PA02. This resulted in a loss of power to the reactor coolant pumps and rod drive motor generator sets. At the time of the event, the reactor was at 0.3% power. In response to the reactor operator's inability to move control rods, the unit was manually tripped and the licensee declared an unusual event.

The loss of power to the two PA busses was the result of the startup transformer tripping on a deluge system actuation. The deluge system actuation was caused by water entering the outside hand pull switch. The licensee is processing a Callaway Modification Package (CMP) which will modify the deluge actuation scheme such that the main and startup transformers would have to be off line before the deluge system would activate. The licensee plans to implement the CMP during the next scheduled shutdown.

The resident inspector was in the control room at the time of the event and observed plant system and operator performance until the event was terminated. The inspector verified that safety

7. Cold Weather Protection

In January 1985, an inspection was performed to ascertain that the licensee's cold weather protection program had been implemented and maintained. The inspection included a review of IE Bulletin No. 79-24 (Frozen Lines), Callaway Plant Procedure APA-ZZ-00302 (Cold Weather Preparation), and cold weather inspection checklists. The inspector performed in-plant and out-plant walkdowns to determine that adequate protective measures were in place for safety-related process instrument and sampling lines. Areas inspected included the essential service pump rooms, condensate storage and refueling water storage tank areas, RHR, emergency diesel generators and radwaste areas. The inspector found that line and tank insulation, heat tracing and space heating were being maintained.

No items of noncompliance or deviations were identified.

8. Compliance with Callaway Plant Technical Specifications

Through in-plant inspections of system line-ups, control room valve and breaker indications, the review of chemistry logs, calibration data and plant records, the inspector verified compliance with the following Technical Specifications.

Technical Specifications:

- 3.1.1 Boration Control Shutdown  
Margin - T-AVG More Than 200 degree F
- 3.2.1 Axial Flux Difference
- 3.2.4 Quadrant Power Tilt Ratio
- 3.3.3.5 Remote Shutdown Instrumentation
- 3.4.7 Reactor Coolant System Chemistry
- 3.5.1 ECCS Accumulators
- 3.5.2 ECCS Subsystems Average Temperature  
Above 350 degree F
- 3.7.3 Component Cooling Water System
- 3.7.5 Ultimate Heat Sink
- 3.8.1.1 AC Sources

The inspector reviewed Technical Specification 3/4.1 (Reactivity Control Systems Surveillance Requirements), 4.1.1.1.1, 4.1.1.1.2, the licensee's supporting documents, and operating logs. This included a review of Surveillance Task Sheet No. 0004270 and the supporting engineering evaluation which were done based on the overall core reactivity balance. The predicted reactivity values were normalized to correspond to the actual core condition prior to exceeding 60 EFPD.



- a. Fire team response to a fire alarm (2000 ft. level reactor auxiliary building). There was no fire - grinding in area had set off a smoke detector.
- b. Preventive maintenance of the "B" Emergency Diesel Generator (NE02). Operability checks on NE01 and the operability surveillance performed on NE02 prior to declaring the unit in service were observed.
- c. I&C Surveillance ISF-BB-OP458 (Functional Test; Pressurizer Pressure).
- d. Radiological Emergency Response Drill (January 30, 1985).
- e. Removal of Temporary Modification No. 84-3-167 Work Request No. 4899 (Install Parts in NE107). Operability checks on Emergency Diesel Generator (NE02) were observed.

The inspector reviewed associated work documents and procedures and verified that the Technical Specifications were met and/or licensee administrative controls were adhered to.

No items of noncompliance or deviations were identified.

#### 10. Plant Tours

The inspector toured site and plant areas frequently during this inspection period to observe housekeeping conditions and practices, plant operations, control room activities, and maintenance and surveillance testing activities. The inspector reviewed control room logs and observed shift turnovers.

No items of noncompliance or deviations were identified.

#### -- 11. 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.

#### 12. Exit Interview

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. The inspector