

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-483/80-06

Docket No. 50-483

License No. CPPR-139

Licensee: Union Electric Company  
P.O. Box 149  
St. Louis, MO 63166

Facility: Callaway, Unit 1

Inspection At: Callaway Site, Callaway County, Missouri

Inspection Conducted: February 27-29, 1980

Inspectors: *D. W. Hayes* / *for*  
R. B. Landsman

3/12/80

*J. F. Schapker* / *for*  
J. F. Schapker

3/12/80

Approved By: *D. W. Hayes*  
D. W. Hayes, Chief,  
Engineering Support Section 1

3/12/80

Inspection Summary

Inspection on February 27-29, 1980 (Report No. 50-483/80-06)

Areas Inspected: Safety related structural concrete work; safety related piping systems NDE review. The inspection involved a total of 38 inspector-hours on site by two NRC inspectors.

Results: One item of noncompliance was identified (Infraction-failure to follow site procedures, paragraph 2).

8004040079

## DETAILS

### Persons Contacted

#### Union Electric Company (UE)

- \*W. H. Weber, Manager, Nuclear Construction
- \*R. L. Powers, Site Quality Assurance Group Leader
- \*J. Laux, Quality Assurance Assistant Engineer
- \*R. Veatch, Quality Assurance Engineer
- \*J. Baker, Supervising Engineer

#### Daniel International Corporation (Daniel)

- \*H. J. Starr, Project Manager
- \*E. D. McFarland, Construction Engineering Manager
- \*A. D. Arnold, Assistant Quality Control Manager
- \*W. L. Sykora, Assistant Project Manager
- \*W. L. Petric, Quality Assurance Engineer
- R. A. Sommers, Quality Assurance Engineer
- D. Jasper, Project Civil Engineer
- D. Letterman, Area Engineer
- D. Rollins, Quality Control Inspector

#### Hartford Steam Boiler

- \*H. J. Pottier, Authorized Nuclear Inspector

The inspectors also contacted and interviewed other licensee and contractor personnel, including craftsmen, QA/QC, technical and engineering staff members.

\*Denotes those attending the exit meeting.

#### 1. Plant Tour

A plant tour was conducted following the entrance interview on February 27, 1980. The inspectors observed the curing of exterior dome lift No. 7 on the containment building, which was poured the preceeding day. Water cover and ambient temperatures were being adequately controlled.

The inspectors observed that the bottom layer of rebar for lift No. 8 appeared to be very close to the dome stiffeners. Upon examination of the dome rebar drawings, it was determined that only 1/16 of an inch clearance was provided for between the stiffeners and the bottom layer of reinforcement. The inspector questioned whether enough bond could be developed with only 1/16" of an inch

clearance. The licensee indicated that he would have engineering look at it. This item remains unresolved pending NRC review of the engineering study. (483/80-06-01)

2. Concrete Placement

Portions of concrete pour No. UC306W35 in the ESWS Pump House were observed. The general condition of the forms and layout of rebar appeared satisfactory. Two crews were used to make the placement; each crew had adequate placement equipment and personnel. Quality control inspectors were assigned to each placement crew. Rubber elephant trunks were utilized to control free fall and lateral flow. Distances were not excessive. Concrete testing met procedural requirements. However, the following items of concern were observed during the placement.

The general lighting on this pour was inadequate, requiring QC inspectors to use flash lights to see the concrete being placed on the lower lifts of the pour. Since the day was overcast and the pour was protected by a weather enclosure, special lighting should have been provided to enable QC and placement personnel to easily verify by visual observation if proper vibration of the concrete was accomplished per ACI 309.

Poor vibration practices were observed including vibrators not being placed in a uniform pattern as specified in ACI 309 and on one occasion a vibrator was left in the concrete for two to three minutes in the center of the west wall to facilitate concrete movements under two blockouts in the wall. Paragraph 10.1 of Specification 10466-C103(Q) states, "Vibrators shall not be used to move or spread concrete", and Paragraph 7.1 of ACI 309 states, "The layers should be as level as possible so that the vibrator does not need to move the concrete laterally, since this might cause segregation." Better planning could have eliminated this bottleneck by placing concrete in the bottom of the blockouts.

This failure to follow site procedures is in noncompliance with the requirements of Criterion V of 10 CFR 50, Appendix B as discussed in Appendix A of the transmittal letter. (483/80-06-02)

Vertical reinforcing bars were untied and moved in the west wall corners to facilitate placing concrete. The rebar was replaced and retied when the pour reached the required elevation. The concrete was revibrated with extra QC rebar personnel present to make sure the bars were reassembled at the proper location. Paragraph 4.2.4 of Construction Procedure QCP-106, Revision 8 states, "Verify Reinforcing Steel or securely tied to prevent displacement during construction and concrete placement ..." and Paragraph 7.7 of Specification 10466-C112(Q) states, "Special care shall be exercised to prevent any disturbance of the reinforcing bars in

concrete that has been recently been placed." Displacement during the pour can result in breaking of the bond previously obtained on lower lifts of the pour. This is another example of the licensee's failure to follow site procedures and is in noncompliance with the requirements of Criterion V of Appendix B to 10 CFR 50 as discussed in Appendix A of the transmittal letter. (483/80-06-02)

Based on these observations and discussions with licensee personnel, it was determined that there are no formal procedures for having a preplacement meeting on difficult pours. In addition, the contractor is having meetings before difficult pours, but is not documenting them. It was recommended and agreed on by the licensee to formalize the preplacement meetings and make them part of the site QA documentation. Items such as identified on the "pre-pour checklist" and "concrete placement preparation checklist" will be discussed and documented.

### 3. Radiographs Film Review of Primary Piping

Surge line and primary coolant piping welds were radiographed by Technical Service Laboratory. The radiographs were reviewed along with supporting documentation. No items of noncompliance or deviations were noted.

<u>Radiograph Number</u>	<u>Seam Number</u>	<u>Pipe Size</u>
RT03418	2BB01-F101	32.19" Diameter
RT03365	2BB01-F105	36.73" Diameter
RT03380	2BB01-F104	33.93" Diameter
RT03855	2BB01-F001	14" Diameter

Radiograph Procedure No. NDE 7.5 N2 of Daniel International, Technical Service Laboratory complies with ASME Code Section V, Article 2 through Summer 1975 Addenda.

### Unresolved Matters

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in Section 1, Paragraph 1.

### Exit Meeting

The inspectors met with licensee representatives (denoted in the Persons Contacted paragraph) at the conclusion of the inspection on February 29, 1980. The inspectors summarized the scope and findings of the inspection, and discussed the item of noncompliance and unresolved item identified during the inspection.