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

REGION III

Report No. 50-483/79-12

Docket No. 50-483 License No. CPPR-139

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

Facility Name: Callaway, Unit 1

Inspection At: Callaway Site, Callaway County, MO

Inspection Conducted: November 14-16, 1979

Inspectors: H. M Wescott R C Knop for 12/31/79

P. A. Barrett for E J Gallagher 12/31/79

E. W. K. Lee E W K Lee 12/31/79

K. Naidu K Naidu 12/31/79

Approved By: R. C. Knop, Chief, R C Knop 12/31/79
Projects Section 1

Inspection Summary

Inspection on November 14-16, 1977 (Report No. 50-483/79-12
Areas Inspected: Routine, unannounced inspection: Follow-up of previously identified noncompliances and unresolved items; review of reactor coolant pressure boundary safety related piping observation of work activities; control of welding materials for reactor coolant pressure boundary piping; reactor coolant pressure boundary piping observation welding activities; reactor coolant pressure boundary piping heat treatment; review of NDE activities for reactor coolant pressure boundary piping; review of welder qualifications; reactor coolant pressure boundary special welding applications; review of electrical storage programs; observation of electrical equipment storage; review of calibration records; review of QA implementing procedures; observation of welds on cable tray support attachments; review cable tray support welding records. The inspection involved a total of 80 inspector-hours on site by four (4) NRC inspectors.

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Results: Of the twelve (12) areas inspected one (1) item of noncompliance was identified (Infraction - manufacturers instructions not included in procedures) and three unresolved items.

DETAILS

Persons Contacted

Union Electric Company (UE)

R. Veatch, QA Civil Engineer
*J. E. Davis, QA Supervisor
*S. M. Hogan, QA Assistant Engineer
*J. V. Laux, QA Assistant Engineer
*R. L. Powers, Site QA Group Leader
S. Sargent, Electrical Raceway Coordinator
*W. H. Stahl, QA Engineer
*W. H. Weber, Manager, Nuclear Construction

Daniels International Corporation (DIC)

*J. R. Coolt, QC Manager
*J.A. Holland, PQAM
*E. D. McFarland, Construction Engineering Manager
S. Midgett, QC Inspector
G. Reynolds, QC Inspector
*M. K. Smith, Audit Response Coordinator
*H. J. Starr, Project Manager
G. Stortstron, Area Engineer
*W. L. Sykora, Assistant Project Manager

Bechtel

D. Kohler, Electrical Engineer
C. Plows, Site Liason Group Leader

Hartford Steam Boiler Inspection and Insurance Company

*H. J. Potter, Authorized Nuclear Inspector

U. S. Nuclear Regulatory Co-mission

W. A. Hansen, Resident Inspector

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

*Denotes those personnel attending the exit meeting.

Licensee Action on Previously Identified Items

(Closed) Unresolved Item (483/79-03-04) Weld Procedure Specification (WPS) N-1-3-BA-22, Revision 3, dated November 20, 1978 which was qualified to thickness range 0.624" minimum and 1.942" maximum was being used to weld a flued pipe 2 3/8" thick. Welding was terminated after attaining 1/9"

buildup. WPSN-1-3-BA-22, Revision 5, dated March 28, 1979 was developed which qualified pipe diameter 2 7/8" OD and greater with thickness 0.625" minimum and 2.5" maximum. Procedure Qualification Test (PQT) #149 and 324 dated March 23, 1978 and March 16, 1979 respectively were used to qualify the WPS. No essential variable was changed.

(Closed) Noncompliance (483/79-08-01) Failure to prescribe procedure - The inspector reviewed the revised procedure (AP-IX-05, Revision 7) and established that inspection and surveillance requirements of material storage areas are included. The inspector also reviewed the inspection records and established that procedure requirements were met.

(Closed) Unresolved Item (483/79-08-02) Wall thickness of a formed elbow - The inspector reviewed the Certified Material Test Report (CMTR) of the elbow in question and established that the CMTR is certified in accordance with ASME B & PV Code Section III, paragraph NB-4121.

Section 1

Prepared by: E. W. K. Lee

Reviewed by: D. H. Danielson, Chief
Engineering Support Section 2

1. Reactor Coolant Pressure Boundary and Safety Related Piping - Observation of Work and Work Activities

The inspector toured the piping laydown area 3. It was determined that: (1) spools were identified; (2) spools are resting on dunnage and (3) ends are covered.

No items of noncompliance or deviations were identified.

2. Reactor Coolant Pressure Boundary Piping - Welding Material Control

a. Review of Documentation

The inspector reviewed the following documents:

(1) Daniel International Corporation (DIC) Procedure No. AP-VIII-02, Revision 8, "Requisitioning Materials, Equipment, and Services."

(2) DIC Procedure No. AP-VIII-05, Revision 5, "Issuing Purchase Orders and Change Orders."

(3) DIC Procedure No. AP-VII-03, Revision 3, "Material and Equipment Receiving and Inspection."

(4) DIC Procedure No. WP-503, Revision 8, "Control of Welding Consumables."

(5) Purchase Order, Receiving Inspection Report and Material Certification for ER309 welding rod with heat No. 761691; ER316 welding rod with heat No. 745602 and No. 745601 and ER308 wire with heat No. 464390 and No. 464176.

b. Control of Materials

The inspector toured the weld rod issuing station located at the Power Block and the Turbine Room. It was determined that (1) the welding materials are properly identified and segregated; (2) the temperature of the rod ovens is maintained; (3) records are properly kept and (4) issuance and return of welding materials are controlled in accordance with the approved procedure.

No items of noncompliance or deviations were identified.

3. Reactor Coolant Pressure Boundary Piping - Observation of Welding Activities

The inspector observed the following welding activities:

a. Reactor Coolant System Weld No. 2BB-01-F201 on drawing No. M-03-BB01

b. Reactor Coolant System Weld No. 2BB-01-F304 on drawing No. M-03-BB01

c. Reactor Coolant System Weld No. 2BB-01-F405 on drawing No. M-03-BB01

d. Reactor Coolant System Weld No. 2BB-01-F303 on drawing No. M-03-BB01

It was determined that (1) work was conducted in accordance with traveler; (2) proper welding materials were used; (3) welding procedure requirements were met; (4) work area was free of weld rod-stubs; and (5) physical appearance was acceptable.

No items of noncompliance or deviations were identified.

4. Reactor Coolant Pressure Boundary Piping - Weld Heat Treatment

a. Review of Preheating Procedure

The inspector reviewed DIC procedure No. N-8-8, Revision 16, "Welding of Stainless Steel" and determined that preheating and monitoring methods are specified and acceptable.

b. Observation of Preheating

While observing welding activities for items stated in Paragraph 3 of this report, the inspector determined that preheat met the procedure requirements.

5. Reactor Coolant Pressure Boundary Piping - Observation of NDE Activities

The inspector observed liquid penetrant examination of Component Cooling Water System Weld No. 2-EG-17-F005 on drawing No. M-03-EG17 and Chemical and Volume Control System Weld No. 2BG-21-F025 R-2 on drawing No. M-03-BG-21.

It was determined that: (1) surface condition was acceptable, (2) procedure requirements were met, (3) personnel were properly qualified and (4) the component cooling water system weld was rejected because of linear indication.

No items of noncompliance or deviations were identified.

6. Reactor Coolant Pressure Boundary Piping - Welder Qualification

The inspector reviewed the following documents:

a. DIC Procedure No. WP-502, Revision 8, "Qualification of Welders".

b. Randomly selected the qualification record of nine (9) welders who performed welding on welds stated in paragraph 3 of this report.

No items of noncompliance or deviations were identified.

7. Reactor Coolant Pressure Boundary Piping - Special Welding Applications

The inspector observed grinding of chemical and Volume Control System Weld No. 2-BG-21-F023 on drawing No. M-03-BG21. It was noted that the weld was joining a ASME B & PV Code Section III Class 1 valve and a Class 2 pipe spool and the weld was classified as a Class 2 weld joint. On November 19, 1979, after consultation with NRR staff, RIII telephoned the licensee and stated that the weld in question should be designed and fabricated in accordance with the rule of Class 1. On December 3, 1979, a licensee representative telephoned the inspector and stated that Bechtel had discussed this matter with NRR and no agreement was reached. The licensee also stated that a code interpretation on this matter will be requested. The inspector stated that this matter is considered unresolved pending a review of the code interpretation (483/79-12-01).

Section II

Prepared by: P. A. Barrett

Reviewed by: D. W. Hayes, Chief
Engineering Support Section 1

1. Review of Electrical Storage Program

a. The RIII inspector reviewed the following procedures:

(1) AP-VI-09 Revision 2, Storage and Maintenance

(2) AP-VII-09 Revision 3, Material and Equipment Storage and Handling

(3) WP-306 Revision 2, Meggering And Maintenance of Electrical Motors

The above procedures appeared to provide sufficient instructions to assure that the storage requirements for electrical equipment would be accomplished. The procedure defined The Visible Record Control System which utilized generic form, "VISI record", to specify the inspection criteria for storage surveillance and also serve as the storage inspection record.

b. The RIII inspector reviewed the following manufacturer's documents for applicable storage requirements of the respective equipment:

(1)	4160 volt switchgear	General Electric Metal-Clad Switchgear, Types M26 and M36, Instructions and Recommended Parts for Maintenance Manual (10466-E-009-242-07)
(2)	Motor control centers	Gould, Series 5600 Installation, Operation and Maintenance of Motor Control Centers for SNUPPS, Section 6.10.1.3 dated August, 1974 (10466-E-018-019
(3)	Battery chargers	Power Conversion Product, Inc., Instruction Manual (10466-E-051-0057-02)
(4)	Inverters	Westinghouse Instruction Book 271427 (10466-M-766-1119-01)
(5)	Essential Service Water Pump Motors	General Electric Instruction Book GEK70204 (10466-E-012.2-074-01)

(6)	Component Cooling Water Pump Motors	General Electric Instruction Book GEK-72151 (10466-E-012.2-043-03)
(7)	Auxiliary Feedwater Pump Motors	General Electric Book GEK72150 (10466-E-012.2)
(8)	Motor Operated Valve Actuators	Limitorque Valve Controls Type SMB Instruction and Maintenance Manual (10466-M-235-052-02)
(9)	Electrical Penetration Assemblies	Bunker Ramo Instruction Manual 123-2206 Revision B, Document 123-2214 (10466-E-035-0122-03)

The periodic surveillance criteria identified in the above documents appeared to have been adequately transcribed to the applicable VISI records with only one exception. The exception was a recommendation, by the motor operated valve actuator manufacturer, to check bearing and gear lubrication every six months. The licensee indicated that the lubrication check was added to the VISI record criteria during this inspection.

No items of noncompliance were identified.

2. Observation of Electrical Equipment in Storage

a. The RIII inspector observed the following stored electrical equipment:

(1) 4160 volt switchgear units 2NB0101, 2NB0102, 2NB0103, 2NB0104, and 2NB0105.

(2) Motor control center units 2NG02B, 2NG01T, 2NG02T, 2NG03T, 2NG03C, 2NG05E, 2NG06E, 2NG07F, 2NG08F, 2NG07S, and 2NG08S.

(3) Battery charger units 2NK22 and 2NK23.

(4) Inverter units 2NN01, 2NN02, 2NN03, 2NN11, 2NN12, 2NN13, and 2NN15.

(5) Essential Service Water Pump Motors 2DPEF01A and DPEF01B.

(6) Component Cooling Water Pump Motors 2DPEG01A, 2DPEG01B, 2DPEG01C, and 2DPEG01D

(7) Auxiliary Feedwater Pump Motors 2DPAL01A and 2DPAL01B.

(8) Motor operated valve actuators HV-24, HV-40, and HV-39.

(9) Electrical penetration assemblies 2ZSE-274, -243, -249, -291, -224, -218, -272, -250, -282, -295, -279, -290, and -258.

(10) A thorough inspection of the cable storage yard was performed by the Region III inspector.

During the inspection the RIII inspectors identified an apparently isolated condition in motor control center 2NG03C (stored in the plant) in which some internal wiring had been extensively damaged. The licensee documented the damage on Nonconformance Report 2-SN-1286-E, during the inspection period.

The RIII inspectors observed the in-process insulation resistance testing of auxiliary feedwater pump motors 2DPAL01A and 2DPAL01B. The tests were performed in accordance to Procedure No. WP-306 Revision 2. The tests identified no problems. The test results were properly documented.

At the RIII inspector's request, an electrician checked the electric current to the space heaters of the auxiliary feedwater pump motors. The amp-probe used, indicated that the heaters on both motors were not energized.

The licensee stated the VISI records indicate that the heaters were energized during the last periodic inspection. The licensee also stated that the heaters were re-energized before the conclusion of this inspection.

The above equipment, though stored in various places (i.e., warehouses, plant, cable yard), was being maintained and protected in accordance with ANSI N45.2.2-1972, the applicable VISI record criteria, and the manufacturer's recommendations.

No items of noncompliance were identified.

3. Review of Calibration Records

The RIII inspector reviewed the calibration record for insulation resistance tester #EQ00005, which was used to test the aforementioned auxiliary feedwater pump motors. The record indicated up-to-date calibration.

No items of noncompliance were identified.

Section III

Prepared by: K. R. Naidu

H. M. Wescott

Reviewed by: R. C. Knop, Chief
Projects Section 1

1. Review of QA Implementing Procedures

The inspector reviewed the implementing procedures relative to the procurement and installation of cable trays, supports for cable tray and determined the following:

a. Specification E-034 was used to procure cable trays. The procurement of cable trays was designated non-safety related. NRC:IE Information Notice 79-14 was issued to inform all licensees that cable trays and their supports are considered safety related. In reply to the Notice 79-14, the licensee was advised by Bechtel in their letter BSLE-7526, dated August 20, 1979, that the SNUPPS specifications for cable trays and conduits were not "Q-listed" therefore the general requirements for supplier QA programs were not involved. It further states that combinations of cable trays and conduits were subjected to tests and the results were satisfactory.

The records of the tests were not available at the site for the inspector's review. This matter is considered unresolved pending a review of the relevant records and establishing that representative samples were tested and that a design review had been performed. (483/79-12-02)

b. Supports for cable trays and conduits were procured to Specification 10466-E-037 (Q). Some of the unistruts purchased to this specification are spot welded back-to-back and have not been post galvanized as evidenced by the rust formation at the spot welds. The specification does not address this aspect and does not differentiate those which will be used inside the containment. There is a requirement for cable trays used in the containment to be galvanized. The licensee agreed to obtain clarification whether the untistruts used in the containment should be postgalvanized. This is considered unresolved. (483/79-12-03)

c. Receipt inspections require verification of shipping damage and availability of documentation.

d. Work Procedure (WP) 302 Revision 7 dated March 22, 1979 specifies the requirements to install raceways.

e. Quality Control Procedure (QCP) 302 titled, Raceway Checklist specified the requirements to inspect cable trays after installation.

f. The inspector determined that the requirements in paragraph 2.12 of drawing EOR-8900 Revision 9, which states, "Trays will be joined with splice plates and hardware according to tray manufacturer's recommendations" was not translated in either WP302 or QCP302. For assembly of cable tray sections, P-W Industries, in a letter dated August 14, 1979, recommended, "tapping the bolt head with a hammer, finger threading the nut, then tighten to a maximum of 30 foot pounds of torque." The inspector informed the licensee that failure to translate design specifications to ensure that the cable trays were adequately secured into Work Procedures or Quality Control Procedures was an item of noncompliance contrary to the requirements of 10 CFR 50 Appendix B, Criterion III. The licensee acknowledged the findings. (483/79-12-04)

g. Attribute 5 of ACP302 requires verification that the raceway is free from burrs, sharp edges and that galvanized surfaces are free from damage such as peeling, chipping, etc.

h. A note in attribute 4 of QCP302 states, "The raceway in the Reactor Building shall be galvanized." An unresolved item has been identified in this report inquiring whether the same requirement should exist for conduit and cable tray supports which have been procured to Specification 10466-E-037 (Q).

i. Installation record for electrical raceways included the following information:

(1) Installation drawing

(2) Raceway # and their lengths. The foreman and the electrical superintendent are required to sign this form after entering the actual lengths of the cable trays.

The above is countersigned by the Project Electrical Engineer (PEE) and subsequently the QC inspector after verification.

j. Record for conduit and cable tray support furnish the following information:

(1) Location of the support

(2) Relevant installation drawing

(3) Identification of raceway, type of support and quantity

The above form is signed by the electrical foreman, electrical superintendant and the PEE. A final inspection is performed by the QC inspector.

One item of noncompliance was identified in the above area.

2. Observation of Welds on Cable Tray Support Attachments

The inspector visually inspected the fillet attachment welds attaching the following supports to their respective anchors and determined that the size of the welds met those specified in the relevant drawings and otherwise conformed with the AWSD1.1 requirements:

a. 1J1M 13-3

b. 1J1M 115

c. 1J1H 64-1

d. 1J1H 64-2/8-402

e. 1J1H 6201/80-401

f. 1J1H 60-1

g. 1J1G 38-2

h. 1J1G 38-1

i. 1J1G 36-1

j. 1J1G 34-1

k. 1J1G 34-2

l. 4J1F 87-2

No items of noncompliance were identified.

3. Review of Cable Tray Support Welding Records

a. The inspector reviewed the records pertaining to the inspections performed on the welds attaching supports to the beams on the ceiling. The inspections are documented on surveillance reports. A typical surveillance report documents the following:

(1) Identification of the weldor

(2) Weldor who performed the welding

(3) The Weld Procedure Specification (WPS) used

(4) The cross-reference number of the weldrod withdrawal slip

(5) The hanger number and the corresponding date the weld was inspected

b. The inspector reviewed the following inspection records of hangers in the cable spreading room and determined them acceptable. The hanger number and the corresponding date on which the welds on the hanger were inspected by Daniel QC are given below:

1J1M 13-3	November 13, 1979
1J1M 15	October 26, 1979
1J1H 64	June 19, 1979
1J1H 62-22/8-402	June 15, 1979
1J62-1/10-401	June 27, 1979
1J1H 60-1	June 28, 1979
1J1G 38-2	November 3, 1978
1J1G 38-1	November 3, 1978
1J1G 36-1	November 13, 1978
1J1G 36-2	November 13, 1978
1J1G 34-1	January 12, 1979
1J1G 34-2	January 12, 1979
1J1G 87-2	March 15, 1979

c. The inspector verified the qualifications of two weldors and determined that they were qualified to the WPS during which they performed welding. An Interoffice Communication dated January 19, 1979, PWE #199 (A 37-20) qualifies a weldor who passed WPS #N-1-1-A-3; 4 or 6A to weld to WPS N-1-1-A-16 and 17.

d. The inspector verified the certification on the weldrod by selecting a Field Requisition - Weld Material Slip. The slip indicated that 3/32" diameter electrode with Heat #53119 lot #02-1-B82P Quality System Certificate #N-1224) dated August 21, 1978 indicates that the 3/32" diameter "Atom-Arc" E-7018 type electrode met the requirements of ASME SFA 5.1 Section II, Part C and Section III, 1974 edition through 1975 summer revision; results of the Charpy 'V'-notch impact tests at -20°F were furnished.

e. Periodic surveillances were performed by measuring the current during welding to verify compliance with the respective WPS.

f. The inspector reviewed Receipt Inspection Reports (RIR) #B05129 and B04512 dated July 12, 1979 and April 15, 1979 respectively; no adverse findings were identified.

Unresolved Items

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 this inspection are discussed in Section II, paragraph 7. and Section III, paragraphs 1.a, 1.b, and 1.c.

Exit Interview

The inspectors met with the licensee and contractor representatives (denoted with an asterisk under Persons Contacted) at the conclusion of the inspection on November 16, 1979. The inspectors summarized the purpose and scope of the inspection and the findings, and discussed the items of noncompliance and unresolved items identified during the inspection.