

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-455/85024(DRS)

Docket No. 50-455

License No. CPPR-131

Licensee: Commonwealth Edison Company  
Post Office Box 767  
Chicago, Illinois 60690

Facility Name: Byron Station, Unit 2

Inspection At: Byron Site, Byron, Illinois

Inspection Conducted: July 8 through 12, 1985

Inspector: A. S. Gautam

*A. S. Gautam*

8/15/85

Date

Approved By: C. C. Williams, Chief  
Plant Systems Section

*Cardell C. Williams*

8/15/85

Date

Inspection Summary

Inspection on July 8 through 12, 1985 (Report No. 50-455/85024(DRS))

Areas Inspected: Routine, unannounced safety inspection by a regional inspector of instrumentation and piping work procedures; instrumentation, piping and components work activities; instrumentation and piping records; and an instrument cable pulling procedure. The inspection involved a total of 37 inspector-hours onsite and 2 inspector-hours offsite by one NRC inspector.  
Results: No violations or deviations of NRC requirements were identified.

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## DETAILS

### 1. Persons Contacted

- \*M. E. Lohmann, Assistant Construction Superintendent
- \*J. Bender, Project Electrical Supervisor
- \*R. B. Klingler, Project QC Supervisor
- \*R. J. Moravec, Project Mechanical Supervisor
- \*P. Wicyk, Construction Field Engineer
- \*E. Briette, QA Engineer
- \*E. L. Martin, QA Superintendent
- L. E. Bihlman, QA Engineer
- H. Long, Foreman Instrument Maintenance
- R. James, Engineering Assistant

#### Powers-Azco-Pope (PAP)

- R. P. Larkin, QA Manager
- D. M. Nelson, QC Supervisor
- K. Kohnke, Instrument Engineer
- B. Buck, QC Inspector Foreman

#### Sargent & Lundy (S&L)

- M. Khan, Equipment Qualification Engineer
- G. Contrady, Field Engineer, EQ

\*Denotes those attending the exit interview on July 12, 1985.

### 2. Instrumentation and Piping Work Procedures

This review was performed to verify that field instrumentation receiving and installation work procedures adequately verified requirements of C&L Specification F2906, Amendment 20, dated May 20, 1985, affecting quality of instrumentation and piping, and provided instructions and acceptance criteria to satisfactorily accomplish these activities. Specific requirements examined in specifications and procedures included field activities to verify: Instrument-specifications, environmental qualification, identification/color coding, testing/calibration, mounting on hangers/racks/panels, piping-size, material, routing, heat numbers, separation, slope, bends, supports, associated valves and components.

The following Powers-Azco-Pope (PAP) procedures were reviewed:

- FP2, Revision 9, "Control of Procurement and Requisition of Material, and Services"
- FP3, Revision 13, "Material Receiving Inspection and Control"
- FP5, Revision 11, "Weld Filler Material Control"
- FP7, Revision 10, "Traveller Package and Weld Record Control"
- FP10, Revision 8, "Hydro Test Procedure"
- FP11, Revision 11, "Calibration and Control of M&T Equipment"

FP12, Revision 7, "Cold Bending of 2" Pipe and Tube"  
FP13, Revision 14, "Hanger Installation Control"  
FP15, Revision 14, "Concrete Expansion Anchor Installation"  
FP16, Revision 12, "Identification and Marking of Pipe and  
Components"  
FP19, Revision 3, "As-Built Drawings and Specifications"

QC4, Revision 11, "Nonconformance Control"  
QC6, Revision 7, "QA Documentation"  
QC8, Revision 3, "Vendor and Site Surveillance"  
QC9, Revision 4, "Quality Verification Procedure"

BIS 3.1.1-203, Revision 3, "Surveillance Calibration of Steam  
Generator Narrow Range Level  
Protection Loop 556, 557, 558,  
and 559"

For example, the specific activities reviewed in the above procedures included detailed verification for instrument type/model (FP7, QC9); receiving inspection and release of material (FP2; FP3); material traceability (FP7; QC9); testing and calibration (FP10, FP11, QC8). Station and vendor drawings, instrument data sheets and instrument index requirements for instruments and piping were found to be verified through Procedures FP7 and QC9.

The inspector observed that the PAP QC final review checklist item VIIC of procedure QC9, Revision 3, did not instruct an inspector to verify that the serial number of an instrument in the field was traceable to a Receiving Inspection Report (RIR). The procedure did require verification that an RIR 'was available.' (Verification of the instrument's unique serial number in the field confirms that the correct instrument has been installed in accordance with the approved instrument data sheet.) PAP reported that in all QC9 reviews, serial numbers of instruments were in fact traced to appropriate RIRs. PAP further agreed to revise their procedure QC9 to include these specific requirements. The inspector reviewed QC9, Revision 4, and found the revisions acceptable. During review of instruments, the inspector found no discrepancies between serial numbers on RIRs or CECO MRRs, and those on the instruments in the field.

Surveillance calibration procedure BIS 3.1.1-203, Revision 3, was reviewed for Barton 764 transmitters in the steam generator narrow range level protection loop, to verify if EQ requirements were being implemented. EQ requirements included replacing qualified O rings whenever the cover was removed, applying qualified silicon grease before replacing O rings, torquing cover assembly and inspections for age related degradation. All requirements were found to be identified in the above procedure.

No deviations or violations of NRC requirements were identified.

3. Instrumentation, Piping and Components Work Activities

a. Instrumentation

The inspector examined the following six seismic Category 1, Class IE safety-related instruments in the field for compliance to Specification F2906, instrument data sheets, mounting drawings and appropriate work procedures:

2FT660, Flow Transmitter, Veritak Model 76DP24333, Serial No. N1320029, data sheet 11410, Elevation 412', Containment Building, R23/R24, service-Reactor Coolant Pump 4, rod bearing.

2LT931, Level Transmitter, Barton Model 752, Serial No. 5706, data sheet 01411, refueling water piping tunnel, Elevation 384', 23 and BB, service-safety injection.

2PT935, Pressure Transmitter, Barton Model 752, Serial No. 5741, data sheet 02211, Auxiliary Building, Elevation 455'6", R24 and R25, service-containment pressure.

OFSW0021, Flow Switch, Barton Model 581A, Serial No. 763, data sheet FS20, Auxiliary Building, Elevation 383', Column M and 8, service-control room chiller OA outlet.

2LSD0031, Level Switch, float type, Magnetrol Model 291-X-EP/VP-1.0, Serial No. SIMD4DC, data sheet LS-45, Auxiliary Building, Elevation 383', 20 and M, service-diesel generator day oil tank.

2TE-RC023B, Resistance Temperature Detector (RTD) assembly with temperature element, thermowell and conductors; data sheet RT52, service-reactor coolant wide range loop 2B temperature (reviewed in warehouse)

The inspector reviewed instrument specifications, qualifications and testing, including evidence of seismic and environmental qualification. Instruments were also reviewed for correct identification, traceability, separation, mounting, damage and housekeeping in the field. Instrument specifications were reviewed against approved requirements in purchase orders (PO) and data sheets. Qualifications and traceability was reviewed against Certificates of Compliance (COC), Certified Material Test Reports (CMTR), Functional Test Reports, Receipt Inspection Reports (RIR), Material Receiving Reports (MRR) and Westinghouse Quality Release Reports (QR). Since most vendor test and inspection records are not stored onsite, the licensee agreed to retrieve records of instruments 2LT931 and 2PT935 for a NRC review during a subsequent inspection. Seismic and environmental qualification records for

normal and harsh environments are stored in the CECO downtown office and were reviewed over the phone with the cognizant S&L equipment qualification engineer. For example, the requirements and basis of acceptance for level switch number 2LSD0031 were identified and reviewed on the following documents:

Specification F/L 2906, May 20, 1985  
PO 234688, dated May 1, 1979  
Data sheet LS45, Revision C  
RIR 52, dated June 6, 1980  
COC 234688 to specification, Purchase Order IEEE 323 and  
IEEE 344, dated May 8, 1980  
MRR 8947, dated June 17, 1980  
CMTR SC-790.2, Liquid Penetrant Test  
Chamber ID and Material Listing SC-905  
EQ Binder EQ-BB-067 (temperature, pressure, relative  
humidity and radiation qualification reviewed on phone  
during the inspection with the S&L EQ engineer)

Requirements and basis of acceptance of other listed instruments were reviewed and found similarly identified and acceptable with one exception. The exception was that during review of RTD 2TE-RC023B, the inspector observed that the 'insulation resistance' inspection test record IPS-931, data sheet B, Appendix D, dated December 3, 1984, indicated several RTDs listed on the test record as apparently being rejected ('REJ') in terms of compliance to P8.1.41. The licensee is contacting CONAX to clarify the impact of this test record on the qualification of these RTDs (not yet installed). Pending further review of this test record, this is an open item (455/85024-01).

b. Piping and Components

The inspector traced the following pipes and components in the field for inspection of work activities defined in Specification F2906, associated work procedures, QC procedures, isometric and hanger drawings:

2RC40EB, ½", SCH 160, SA312, Type 304, Heat No. 466789  
from root valve 2RC8060A to five valve manifold, panel  
M816-2FT-445-H223 for Reactor Coolant System, Elevation 377',  
R38. Includes ¼" tubing run from manifold to 2FT415.

2RC405B, ½", SCH 160, SA312, Type 304, Heat No. 467789  
from root valve 2RC8062A to five valve manifold, panel  
M816-2FT-445-H223 for Reactor Coolant System, Elevation 377',  
R38. Includes ¼" tubing run from manifold to 2FT415.

2D063A-2, 2", from top and bottom of 2D010T to 2LSD0031,  
SCH 80, SA106, Gr. B, Heat Code AA

2D0A4AA-1, 1", SCH 80, SA106, Gr. B, part of line 2D063A-2,  
Heat Code HB 2902

Piping and components were examined for applicable specifications and grade of material; heat numbers or heat code; routing; identification/color code; slope; bends; separation; hanger configuration, material welds, anchors and bolts; and associated valves.

All three lines were found installed in accordance with requirements. Materials were verified against RIRs, MRRs, supplemental weld and inspection records and supplemental bill of materials.

No hydro testing was reported by the licensee to have been performed on the lines as they had not reached a final acceptance status.

The following pipe hangers identified on the isometric drawings were examined in the field on appropriate hanger drawings:

Lines 2RC40EB and 2RC40SB

Isometric drawing T977-2FT-415, sheets 1 through 5, Revision 1

Hanger 1	Drawing 2FT-415-H88-1, Revision 10
Hanger 3	Drawing 2FT-415-H133-3, Revision 5
Hanger 6	Drawing 2FT-415-H29A-6, Revision 6
Hanger 8	Drawing 2FT-415-H88-8, Revision 10
Hanger 9	Drawing 2FT-415-H88-9, Revision 10
Hanger 17	Drawing 2FT-415-H153-17, Revision 4
Hanger 20	Drawing 2FT-415-H56-20, Revision 5
Hanger 22	Drawing 2FT-415-H54-22, Revision 5
Hanger 23	Drawing 2FT-415-H119A-23, Revision 12

Lines 2D063A-2 and 2D0A4AA-1

Isometric drawing T825-LLS-D0031, Revision 7

Hanger drawings	M1043-2D032003R, April 22, 1985
	M1044-2D032004G, April 22, 1985
	M1041-2D032001G, April 22, 1985
	M1042-2D032002G, April 22, 1985

Line heat numbers, size and grade were found traceable to RIRs and MRRs.

No violations or deviations of NRC requirements were identified.

4. Instrumentation and Piping Records

The inspector reviewed records for receipt inspection, installation inspection, material qualification and testing for instrumentation, piping and associated components. Records were reviewed to verify evidence of completion of activities, activities inspected, tests

performed, results of reviews, acceptability of work performance by authorized and qualified personnel, and actions taken in connection with deficiencies noted. Records were reviewed for the following equipment.

Instruments

2FT660,  
2LT931,  
2PT935,  
OFSW021,  
2TERC0238 and  
2LSD031

Instrument Piping

2RC40EB,  
2RC40SB,  
2D063A-2 and  
2DOA4AA-1

The following numbers and types of records for the above equipment were reviewed:

- (8) MRRs - CECo checklist for receiving material/QA acceptance.
- (8) RIR - PAP checklist for receiving material and documentation.
- (3) QRs - Westinghouse material release showing acceptance of material, listing of documents and a certificate of compliance for NSSS parts.
- (5) COC - Certificate of compliance for non-NSSS parts.
- (3) CMTR - NDE reports.
- (2) PO - Purchase orders containing specifications and data sheets.
- (5) Form 1A - "Supplemental Bill of Materials" (QC verification of piping and fitting material).
- (5) Form 1D - "Supplemental Weld and Inspection Record" (Records welding activities and QC verification).
- (4) Form 38 - "Hanger Holdpoint" (Identifies QC and ANI holdpoints for hangers).
- (4) Form 81 - "Restraint Calculation Sheet" (Records evaluation of hanger loads).
- (4) Form 103 - "Instrument Attachment Inspection Record" (Inspection for instrument model, serial number, fasteners and mounting on hanger).
- (4) Form 24 - "Field Requisition" (Provides material traceability for primary fasteners).
- (1) QC9 - Final review checklist (Verification of all installation activities and material traceability).
- (23) Piping hanger drawings - QC and ANI signoff for weld record, clean fit up, final visual, NDE examination and finished hanger inspection.
- (14) NCRs - Nonconformance reports on instrument and pipe hanger mounts. Dispositioned and closed.
- (4) Test and Calibration Records - Records reviewed were found adequate and satisfactory.

No violations or deviations of NRC requirements were identified.

5. Instrument Cable Pulling Procedure

The inspector reviewed Hatfield Electric Company Procedure 10, Revision 23, dated March 20, 1985, "Class I Cable Installation," to verify that this procedure identified necessary installation activities affecting the quality of cables, and provided instructions and acceptance criteria to satisfactorily accomplish these activities. Activities reviewed included verification of raceway routings, cable pull tension sheaves, ID, supports, separation, bend radius and cable protection. Inspection checklists for cable raceways and installation were also examined for QA/QC checkpoints indicating acceptability, results and final review by qualified personnel.

No violations or deviations of NRC requirements were identified.

6. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involves some action on the part of the NRC or licensee or both. An open item disclosed during this inspection is discussed in Paragraph 3.a.

7. Exit Interview

The Region III inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on July 12, 1985. The inspector summarized the purpose and findings of the inspection. The licensee acknowledged this information. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.