

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/84-62(DRP)

Docket No. 50-454

License No. CPPR-130

Licensee: Commonwealth Edison Company  
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Chicago, IL 60690

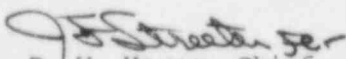
Facility Name: Byron Station, Unit 1

Inspection At: Byron Station, Byron, IL

Inspection Conducted: July 9-13 and 23-27, 1984

Inspector: J. M. Hinds, Jr.

Other Participating  
Personnel: F. Cifuentes

Approved By:  D. W. Hayes, Chief  
Projects Section 1B

9/15/84  
Date

Inspection Summary

Inspection on July 9-13 and 23-27, 1984 (Report No. 50-454/84-62(DRP))

Areas Inspected: Routine, unannounced safety inspection of comparison of as-built plant to Final Safety Analysis Report description. The inspection consisted of 80 inspector-hours onsite by one NRC inspector and one NRC consultant including zero hours during off-shifts.

Results: No items of noncompliance or deviations were identified.

## DETAILS

### 1. Persons Contacted

#### Commonwealth Edison Company

- \*P. Anthony, Technical Staff
- \*W. Burkamper, Station QA Supervisor
  - R. Groves, Technical Staff
- \*K. Hansing, Site QA Superintendent
  - M. Lohmann, Assistant Construction Superintendent
  - R. J. Moravec, Project Mechanical Supervisor
- \*B. B. Milner, Technical Staff
  - P. T. Myrda, QA Supervisor
- \*R. Querio, Station Superintendent

#### U. S. Nuclear Regulatory Commission

- \*P. G. Brochman, Resident Inspector

The inspector and NRC consultant also contacted and interviewed other licensee and contractor personnel during the course of this inspection.

\*Denotes those present during the exit interview on July 27, 1984.

### 2. As-Built Inspection

The physical installation of the Residual Heat Removal (RHR) and the Intermediate Coolant Safety Injection (Accumulators) systems were inspected by direct observation and compared to the FSAR and to P&IDs, Control and Instrument Diagrams (C&IDs), Logic Block Diagrams, Electrical one-line diagrams, construction drawings, and other design and engineering information. Some portions of other plant systems which interface with these two systems in normal and emergency operations were also inspected. The attached checklists (Appendix A) enumerate the items reviewed during the inspection.

The as-built conditions of the systems and those portions of support systems inspected were generally as described by drawings and specifications. A few minor discrepancies between drawings and actual piping were identified as follows:

#### a. FSAR Drawing Discrepancy

FSAR Figure 6.3-2, Amendment 37 depicts valves MO-1RH-610-1 and MO-1RH-611-2 as motor-operated globe valves. However, the field inspection along with Design Review Notice (DRN) No. 1464 show that they are motor-operated gate valves. In addition to correcting the FSAR figure, the licensee should determine why this DRN was not factored into the FSAR revision program and correct any generic implications of the problem. This is an unresolved item pending completion of the licensee's corrective action (454/84-62-01 (DRP)).

b. Pipe Capping

There does not appear to be a well-defined program for determining the appropriate capping requirements for test, vent, and drain connections and for ensuring that these requirements are implemented. For example, during the inspection it was noted that:

- (1) P&ID M-62, Revision AF, shows the pipe from drain valve 1ZZ291V as capped, but the field inspection revealed that the pipe was not capped.
- (2) P&ID M-62, Revision AF, shows the pipe from test/vent valve 1RH014A as capped but the field inspection revealed that the pipe was blocked with a blind flange.

These items constitute an unresolved item pending the licensee defining and implementing a program for capping requirements (454/84-62-02(DRP)).

c. Loose Pipe

While tracing the RHR piping on elevation 364'0" between lines V13 and B13, about 10 feet up from the floor a loose 2" fire protection line was encountered without hangers or supports. This is an unresolved item pending completion of licensee corrective action (454/84-62-03(DRP)).

3. 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 the inspection are discussed in Paragraphs 2.a, b, and c.

4. Exit Interview

The inspector and NRC consultant met with licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on July 27, 1984, and summarized the purpose and the scope of the inspection and the findings.

Attachment: Appendix A

APPENDIX A

SYSTEM REVIEW CHECKLISTS

I. LOW PRESSURE COOLANT INJECTION  
(Residual Heat Removal)

<u>Review Items</u>	<u>Documents Utilized</u>
A. <u>System Components &amp; Locations</u>	
1. Two loops	Dwg. M-62, Rev. AF
2. A refueling Water Storage Tank (RWST) - located in the west side of the yard	Dwg. M-61, SH.1 LSI-01T
3. Two RWST motor operated Isolation valves - located in the aux. bldg. elev. 383'0"	Dwg. M-61, SH.4 LSI-8812A-1 & B-2 FSAR table 6.3-3
4. Two protecting RHRS relief valves - located in the aux. bldg. elev. 383'0"	Dwg. M-62, SH.1 1RH8708A & B
5. Two motor operated gate inlet isolation valves on each loop - located, two inside and two outside the aux. bldg. elev. 377'-0"	Dwg. M-62, SH.1 1RH8701A & B-2 1RH8702A-1 & B-2
6. Two main System RHR pumps - located in the aux. bldg. elev. 346'0"	Dwg. M-62, SH.1 1RH01PA-1 & PB-2
7. Two one direction check valves - located in the aux. bldg. elev. 346'0"	Dwg. M-62, SH.1 1RH8730A & B
8. Two manual-operated gates valves (locked open) - located in the aux. bldg. elev. 346'0"	Dwg. M-62, SH.1 1RH-8724A & B
9. Two Residual Heat Exchangers - located in the aux. bldg. elev. 364'0"	Dwg. M-62, SH.1 1RH02AA-1A 1RH02AB-1B FSAR Sect. 5.4.7
10. A miniflow motor-operated stop gate valve on each loop - located in the residual heat removal miniflow line in the aux. bldg. elev. 364'0"	Dwg. M-62, SH.1 1RH-610-1 & 611-2
11. Each RHR exchanger provided with a bypass line containing an air-operated butterfly valve - located in the aux. bldg. elev. 364'0"	Dwg. M-62, SH.1 1RH-0618 & -0619

- |                                 |   |  |
|---------------------------------|---|--|
| 12.                             | A flow control air-operated butterfly valve downstream of each heat exchanger<br>- located in the aux. bldg. elev. 364'0"   | Dwg. M-61, SH.1<br>LRH-0606 & -0607  |
| 13.                             | Two crosstie motor-operated valves<br>-located in the piping downstream of the residual heat exchangers in the aux. bldg. elev. 364'0"  | Dwg. M-62, SH.1<br>LRH 8716A-1 &<br>8716B-2  |
| 14.                             | Two sump line isolation valves<br>- located in the penetration area, elev. 364'0"   | Dwg. M-61, SH.4<br>LSI-8811A-1 &<br>8811B-2  |
| 15.                             | Two recycle holdup tanks<br>- located in the aux. bldg. elev. 383'0"  | Dwg. M-65, SH.2<br>OAB01TA & B   |
| 16.                             | Piping & Valves<br>- located within containment<br>- located within aux. bldg.<br>- located in the yard   | Dwgs. M-62, SH.1<br>M-61, SH.4   |
| 17.                             | Interlocks with redundant Reactor Cooling System pressure transmitters<br>- located inside the containment  | Dwg. M-61, SH.1<br>LRH8701A-1 & B-2<br>LRH8702A-1 & B-2  |
| 18.                             | RHR Pump Data   | FSAR Table 6.3-1   |
| 19.                             | Relief Valve Data   | FSAR Table 6.3-2   |
| <b>B. <u>Separation</u></b>     |   |  |
| 1.                              | System<br>- Redundant piping & equipment<br>- Redundant containment penetrations  | Dwg. M-62, SH.1<br>FSAR Sect. 6.2.4.1.3.2<br>& 8.1.12<br>FSAR Table 6.2-58                         |
| 2.                              | Physical<br>- Mechanical Equipment and Piping   | Dwg. M-61, SH.4<br>M-62, SH.1, M-65, SH.2  |
| 3.                              | Electrical<br>- Equipment supplied by Division 11 (A)<br>- Equipment supplied by Division 12 (B)<br>- Equipment supplied by Division 11 or 12 (C & D)<br>- Equipment supplied by Class 1E Diesel generators | Sargent & Lundy Dwgs.<br>6E-4001 & 6E-4001A<br>FSAR Sects. 8.1, 8.1.1 &<br>8.1.2, FSAR Table 8.3-1 |
| <b>C. <u>Power Supplies</u></b> |   |  |
| 1.                              | Normally - auxiliary a-c power bus  | FSAR Sect. 8.1   |
| 2.                              | Back-up standby a-c power bus   | FSAR Sect. 8.1   |

- 3. Back-up standby d-c batteries FSAR Sect. 8.1
- D. System Operation
  - 1. Three modes of operation FSAR Sect. 8.1
- E. Missile Protection
  - 1. External Missiles FSAR Sect. 3.3.2, 3.5
    - a - Component arrangement FSAR Tables 3.2-1, 3.2-2,
    - b - Missile barrier 3.5-3 thru 10
  - 2. Internal Missiles FSAR Sect. 3.2, 3.5.1.3
    - a - Component arrangement FSAR Tables 3.5-1
    - b - Missile barrier 3.5-2a/b/c
- F. Flood Protection
  - 1. Equipment & piping location FSAR Sect. 3.2, 3.4
- G. Industry Code Compliance FSAR Tables 3.2-1, 3.2-2

<u>Components</u>	<u>Principle Code</u>	<u>Verification</u>
1. Residual Heat Exchangers	ASME III-2 & 3	FSAR Tables 3.2-1, & 2-2, Westinghouse Dwg. No. 5617, Rev. 3
2. Piping Connected to RCS within outermost isolation valves	ASME III-2	Dwg. 2538-C 1 thru 4
3. Piping beyond outermost isolation valves	ASME III-2	Dwgs. M-2535A, No. 1, 3, 6, 7, 13-16, ISO Spool No. CS-5 - CS-23
4. Pumps	ASME III-3	FSAR Tables 3.2-1, 2-2
5. Valves, isolation, LPCI and shutdown lines	ASME III-3	FSAR Tables 3.2-1, 2-2

II. INTERMEDIATE COOLANT SAFETY INJECTION  
(Accumulators)

A. System Components & Locations

<u>Review Items</u>	<u>Documents Utilized</u>
1. Four accumulators. One attached to each of the cold legs of the RCS - located within the containment outside of the secondary shield. elev. 426'0"	Dwg. M-61, SHS.5&6 LSI-04TALA -04TB1B -04TC1C -04TC1D
2. Four normally open accumulator motor-operated gate isolation valves - located within the containment outside the secondary shield. elev. 412'0"	Dwg. M-61, SHS.5&6 LSI-8808A/B/C/D FSAR Table 6.3-3
3. Two normally closed swing check valves per accumulator - located between the motor operated gate isolation valve and the RCS cold leg, within the containment inside the secondary shield. elevs. 404'0" & 387'0"	Dwg. M-61, SHS.5&6 LSI-89484A/B/C/D LSI-8956A/B/C/D
4. Two residual heat removal pumps - located in the aux. bldg. elev. 346'0"	Dwg. M-62, SH.1 LRH01PA-1 & PB-2
5. Water supply from the Refueling Water Tank (RWST)	FSAR, Fig. 6.3-2, SH.3
6. Nitrogen gas supply	Dwg. M-59, Rev. R & M-69, Rev. Z, SH.3 FSAR Table 6.3-2

B. Separation

1. System - Redundant piping & equipment - Redundant containment penetrations	Dwgs. M-61-6 & M-61-6 FSAR Sect. 6.2.4.1.3.2 & Table 6.2.58
2. Physical - Mechanical equipment & piping	Dwg. M-61, SHS.5&6
3. Electrical - Equipment supplied by Division II (A) - Equipment supplied by Division (B) - Equipment supplied by Division 11 or 12 (C&D) - Equipment supplied by Class 1E diesel generators	Sargent & Lundy Dwg. 6E-4001 & 6E-401A FSAR Sect. 8.1 FSAR Table 8.3-1 FSAR Sect. 8.1.1 & 8.1.2

C. Power Supplies

- 1. Normally auxiliary a-c power bus FSAR Sect. 8.1
- 2. Back-up standby a-c power bus FSAR Sect. 8.1
- 3. Back-up standby d-c Batteries FSAR Sect. 8.1

D. System Operation

- 1. One mode of operation FSAR Sect. 6.3.2.2

E. Missile Protection

- 1. External Missiles FSAR Sect. 3.3.2, 3.3.5
  - a - Component arrangement FSAR Tables 3.2-1, -2,
  - b - Missile barrier 3.5.4, FSAR Table 3.5.3 thru 10
- 2. Internal Missiles FSAR Sect. 3.2, 3.5.1.3
  - a - Component arrangement FSAR Tables 3.5-1,
  - b - Missile barrier 3.5-2a/b/c

F. Flood Protection

- 1. Equipment and piping location FSAR Sect. 3.2, 3.4 & FSAR Table 3.2-1, -2

G. Instrumentation

- 1. Two pressure transmitters per accumulator
- 2. Two level measurement instruments per accumulators LRY21MA, B, C, D  
LSI8808A, B, C, D

H. Industry Code Compliance

<u>Components</u>	<u>Principle Code</u>	<u>Verifications</u>
1. Accumulators	ASME III-2	Westinghouse Electric Corp. Dwgs. No. 1190E21 1 & 2
2. Residual Heat Exchangers	ASME III-2, -3	Westinghouse Electric Corp., Dwg. No. 5617 Rev. 3
3. Motor-operated gate valves	ASME III-1	Westinghouse Electric Corp., Dwgs. No. 9748D60 & 116ZE66 & 115E623/428
4. Swing check valves	ASME III-2	Westinghouse Electric Corp., Dwg. No. 934D209