U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-454/84-38(DRS); 50-455/84-33(DRS)

Docket Nos. 50-454; 50-455 Licenses No. CPPR-130; CPPR-131

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

Facility Name: Byron Station, Units 1 and 2

Inspection At: Byron Site, Byron, Illinois

Inspection Conducted: June 5 through July 13, 1984

Inspectors: M. Ring 7/30/84
Date

A. Dunlop 7-30-84
Date

D. Williams 7/27/84
Date

Roger D. Walker for
P. Eng 7/30/84
Date

Roger D. Walker for
D. Butler 7/30/84
Date

Approved By: L. A. Reyes, Chief
Test Programs Section 7/28/84
Date

Inspection Summary

Inspection on June 5 through July 13, 1984 (Report No. 50-454/84-38(DRS); 50-455/84-33(DRS))

Areas Inspected: Routine, announced inspection to review licensee action on previous inspection findings; preoperational test procedures; preoperational test performance; evaluations of preoperational test results; preoperational test results verification; pump and valve inservice testing; and surveillance tracking. The inspection involved 357 inspector-hours onsite and 22 inspector-hours in office by five inspectors including 41 inspector-hours onsite during off-shifts.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

*R. Querio, Station Superintendent
*R. Poche, Technical Staff
*L. Johnson, QA Engineer
*B. Jacobs, Technical Staff
*D. Flowers, Technical Staff
*M. Lohmann, Assistant Construction Superintendent
*P. Nodzenski, QA Engineer
*E. Falb, Shift Overview Superintendent
*R. Ward, Assistant Superintendent, Administrative and Support Services
*D. St. Clair, Technical Staff Superintendent
E. Grennan, Technical Staff
F. Hornbeak, Unit 2 Testing Supervisor
C. Lang, Instrument Foreman

Nuclear Regulatory Commission

*P. Brochman, Resident Inspector, Byron Station
*M. Ring, Test Programs Inspector
*P. Eng, Operations Programs Inspector
*A. Dunlop, Test Programs Inspector
*D. Butler, Operations Programs Inspector
*P. Kaufman, Mechanical Reactor Inspector

*Denotes those personnel present at the exit interview.

Additional station technical and administrative personnel were contacted by the inspectors during the course of the inspection.

2. Licensee Action on Previous Inspection Items

a. (Closed) Unresolved Item (454/84-07-02(DE)): This item addressed the issue of electrical isolation of the trickle charging circuit for battery backup power on safety-related radiation monitors. A review of technical manuals indicates that the LM317 voltage regulator has an internal current limiting device that meets the requirements of associated circuits as defined in IEEE 384-1974. This item is considered closed.

b. (Closed) Open Item (454/84-07-03(DE)): This item involved restoration of the data base for safety-related radiation monitors after a loss of power incident which would require detailed actions by personnel. The inspector reviewed Byron Verification Procedure BVP 300-6, "Safety-Related Monitor Recovery - Lost Data Base," and verified that it addressed the personnel actions required.

c. (Closed) Unresolved Item (454/84-07-04(DE)): This item addressed the potential conflict between the Byron FSAR and installed safety-related radiation monitoring equipment. The Byron FSAR originally stated that all safety-related radiation monitors shall have dedicated readout modules and recorders in the control room. Some of the radiation monitors that are installed to meet commitments to Regulatory Guide 1.97 Rev. 2, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," and designated as safety-related will not have the dedicated readout monitors and recorders. The licensee has revised the commitment in Amendment 45 to the Byron FSAR on page 12.3-40 such that dedicated monitors and recorders in the control room are not required for all radiation monitors. This item is considered closed.

d. (Closed) Open Item (454/84-16-03(DE)): This item involved two concerns related to the results of EF 26.11, "ECCS Full Flow." Item 5.c.i. was previously closed in Inspection Report 454/84-24. Item 5.c.ii. dealt with deficiency AB (9026) regarding Residual Heat Removal (RHR) flow which was closed by referring to deficiency 8820 from the SI 73.12, "Safety Injection-Flow Balance," test. The inspector's concern was that the two deficiencies represented operation under different conditions (sump suction with Charging (CV) and Safety Injection (SI) pumps vs. Refueling Water Storage Tank (RWST) suction). The licensee has subsequently demonstrated that when piping and velocity losses are factored into the pressure readings and the flow to the CV and SI pumps are factored into the flow readings, the original deficiency AB (9026) would have been acceptable. Therefore, this item is considered closed.

3. Preoperational Test Procedure Review

The inspectors reviewed the following preoperational test procedures against the FSAR, SER, proposed Technical Specification, Regulatory Guide 1.68 and NUREG 0554 (HC 39.10 only).

CS 17.10, Retest R-232, "Containment Spray"
AR 6.10, "Area Radiation Monitors - BOP"
PR 60.14, "Process Radiation Monitors - Loop 4"
HC 39.10, "Containment Polar Crane"

No items of noncompliance or deviations were identified.

4. Preoperational Test Performance

The inspectors witnessed the performance of portions of the below listed preoperational test procedures in order to verify that testing is conducted in accordance with approved procedures, independently verify the accepta-

bility of test results and evaluate the performance of licensee personnel conducting the tests.

RP 68.10, Retest R-229, "Reactor Protection - Time Response"
CS 17.10, Retest R-232, "Containment Spray"
SI 73.11, Component Demonstration-79, "Safety Injection"
DO 24.60, "Diesel Fuel Oil - Emergency Diesel 2A and Lube Oil Drain Tank" (Unit 2)

a. During the performance of the Unit 2 diesel fuel oil test, DO 24.60, the inspectors noted that the instrumentation associated with the system had not been "blue taped" indicating turnover for test as required by the Byron Startup Manual. The diesel oil System Status Notice (SSN) was also not updated to reflect the fact that the instrumentation had been turned over for test. This incident is similar to a violation regarding blue tape observed during the Unit 1 test program and documented in Inspection Report No. 50-454/82-02. However, the inspector observed the remaining preoperational test program on Unit 1 without noting any repeat problems in this area. The inspector informed the test engineer who took immediate corrective action to update the SSN and blue tape the appropriate components. The Unit 2 Testing Supervisor also counseled the Unit 2 test personnel regarding system status and Startup Manual requirements. Based on the above discussion, the inspector considers this incident an isolated occurrence with adequate corrective action taken. The inspectors will continue to monitor this area during the performance of the Unit 2 preoperational test program.

No items of noncompliance or deviations were noted.

5. Preoperational Test Results Evaluation

The inspectors reviewed the results of the below listed preoperational test procedures to verify all test changes were identified and approved in accordance with administrative procedures; all test deficiencies were appropriately resolved, reviewed by management and retested as required; test results were evaluated by appropriate engineering personnel and specifically compared with acceptance criteria; data was properly recorded, signed, dated and documented as test deficiencies if out of tolerance, test packages were reviewed by QA for adequacy of contents; and test results were approved by appropriate personnel.

RC 63.10, "Integrated Hot Functional"
VD 86.10, "Diesel Generator Ventilation"
AF 3.10, "Auxiliary Feedwater"
RP 68.12, "Reactor Protection - Turbine Runback"
SX 76.10, "Essential Service Water"
RP 68.11, "Reactor Protection and Engineered Safeguards Logic"

a. Portions of the review of RC 63.10 were documented in Inspection Report No. 50-454/84-24. This report completes the inspector's review of this test. During the results review, the inspector noted questionable results data regarding the lift checking of the primary power operated relief valves (PORV) and the cooldown rate data. The temperature data as recorded in the test indicated that the lift of a PORV caused a cooldown of the line downstream of the valve. This is completely opposite of what would be expected and is probably the result of recording data from the wrong instrument. This problem and other questions raised by the inspector were similar to the noncompliance on inadequate results review noted in Inspection Report 50-454/84-16. The corrective actions for noncompliance 454/84-16-01 were not completely implemented at the time of the review of RC 63.10. These items were discussed with the licensee who then added the "Integrated Hot Functional Test," RC 63.10, to the corrective actions associated with noncompliance 454/84-16-01 via a letter from D. Farrar to J. Keppler dated June 14, 1984. In addition, the licensee intends to reperform some portions of the RC 63.10 test in a "Hot Operations" retest currently scheduled for the last week in July. The inspector will review the corrective actions following their completion.

b. With respect to the results of AF 3.10:

   i. Appendix C on verifying certain Auxiliary Feedwater Byron Operating Procedures was not performed or noted by a deficiency and not detected during the review process. However, the licensee has since verified these procedures per the Auxiliary Feedwater System Turnover Preparation Sheet and the inspector has determined that the required action has been performed.

   ii. During the test, the licensee noted that the 1AF005A-H valves would not throttle reliably down below 50% flow. The licensee is able to throttle flow successfully using downstream valves, 1AF013A-H, and is evaluating the 1AF005A-H valves. This item is considered an open item (454/84-38-01(DRS)) pending additional information from the licensee.

c. The review of results for preoperational test procedures SX 76.10, "Essential Service Water," and RP 68.11, "Reactor Protection and Engineered Safeguards Logic," was not complete at the conclusion of the inspection and will be documented in a later report.

No items of noncompliance or deviations were noted.

6. Preoperational Test Results Verification

The inspectors reviewed the following preoperational test procedures and verified that results were reviewed against approved acceptance criteria

and an evaluation of the test results had been performed in accordance with Regulatory Guide 1.68 and the licensee's Startup Manual:

VQ 94.11, "Hydrogen Recombiners"
AR 6.10, "Area Radiation Monitor"
PR 60.14, "Process Radiation Monitor"
RF 66.10, "Containment Floor Drains"
MS 51.11, "Main Steam - PORVs"
HC 39.10, "Containment Polar Crane"
GW 38.10, "Radioactive Waste Gas"

Regarding the review of the test procedures the inspectors had the following comments.

a. With respect to the results of HC 39.10, there appears to be a conflict between the test procedure and the Byron FSAR. The licensee answer to NRC question Q 10.5, states maximum speeds for the bridge, trolley, main and auxiliary hoists. In HC 39.10 the high end of the expected ranges in all four cases and the recorded speeds in three cases exceeded the maximum allowable speed stated in the answer to NRC Q 10.6. This is considered an unresolved item (454/84-38-02(DRS)) pending additional information from the licensee regarding the basis for each of the speeds.

b. With respect to the results of RF 66.10, the inspectors noted that the method of determining leakage to the containment floor drains tested in RF 66.10 was a temporary bubbler system installed to instrument loops 1RF008, 1RF009 and 1RF010. The licensee has since removed the temporary system in preparation for installation of the permanent system (Construction Work Request RF-0003). This is considered an open item (454/84-38-03(DRS)) pending completion of the installation and retesting of the permanent system.

c. With respect to the results of MS 51.11, Acceptance Criteria 4.3, which tested the ability of the hydraulic accumulator to recharge to 1900-2100 psig after decreasing to 1500-1600 psig, was not met. The licensee documented this problem per Deficiency 5301 which was retested per retest R-208. However, R-208 did not state this as an Acceptance Criteria and only verified the duration of the charging evolution. This is considered an unresolved item (454/84-38-04(DRS)) pending additional information from the licensee.

d. The verification of results for preoperational test GW 38.10, "Radioactive Waste Gas," was not complete at the conclusion of the inspection and will be documented in a later report.

No items of noncompliance or deviations were noted.

7. Pump and Valve Inservice Testing

The inspector reviewed the procedures for and performance of the reference value setting inservice tests for the "Boric Acid Transfer Pumps and Associated Discharge Check Valves," (surveillance procedure BVS 0.5-3.AB.1) and "American Society of Mechanical Engineers (ASME) Surveillance Requirements for Auxiliary Feedwater Pumps," (surveillance procedure BVS 0.5-3.AF.1) for compliance with Section XI of the ASME Boiler and Pressure Vessel Code, 1980 edition and applicable addenda.

a. The inspector had the following comments with respect to the performance of the "Boric Acid Transfer Pumps and Associated Discharge Check Valves" inservice test, Revision 0.

   i. During the test, the inspector noted that the valve lineup did not provide a suction path for the test of pump 0AB03P. In addition, several valves were incorrectly identified or did not exist. A temporary procedure change was written in order to continue the test. The licensee revised BVS 0.5-3.AB.1 to reflect the proper valve lineup on June 30, 1984.

   ii. During the performance of BVS 0.5-3.AB.1, Revision 0, the inspector noted that the permanently installed ultrasonic flowmeter, 1AB011, which was used to qualify discharge check valves 1AB8487 and 0AB8473 was not calibrated. Further investigation revealed that this instruments was not on a calibration schedule and that no calibration data existed for this permanently installed flowmeter. The test was halted pending resolution of flowmeter calibration. Calibration procedures for the permanently installed ultrasonic flowmeter were approved on June 28, 1984 and the flowmeter was calibrated on July 2, 1984.

b. Following the calibration of the permanently installed flowmeter, BVS 0.5-3.AB.1, Revision 1, was performed. The test was witnessed by the inspector and the following comments were made to the licensee:

   i. During the performance of the test, the inspector noted that use of portable radios in the vicinity of the ultrasonic flowmeters caused the flowmeters to exhibit either a faulted condition or an erroneous reading. The licensee agreed to revise those inservice testing procedures using ultrasonic flowmeters to include a caution statement regarding the proximity of portable radios to ultrasonic flowmeters. Incorporation of such a caution statement into the appropriate inservice testing procedures and other procedures utilizing ultrasonic flowmeters will be tracked as an open item (454/84-38-05(DRS)).

   ii. During test performance, the inspector noted that the systems test engineer used the totalizing feature of the ultrasonic flowmeter as agreed to in the licensee's response to open

item 454/82-21-05; however, this was not specified in BVS 0.5-3.AB.1, Revision 1. The licensee has agreed to incorporate instructions for use of the totalizing feature into those inservice testing procedures which utilize an ultrasonic flowmeter to qualify plant equipment. Incorporation of such instructions will be tracked as an open item (454/84-38-06(DRS)).

iii. During test performance, two pressure gages, 1PIAB004 and 1PIAB006, exhibited different suction pressure readings when the boric acid pumps were idle and valved to take suction from the boric acid tank. The systems test engineer agreed that this was unsatisfactory and issued two work requests to resolve this apparent discrepancy. The test will be rerun following resolution of the two different readings.

iv. Section XI of the ASME Code, Subsection IWP-6230, requires that the location and type of measurement for required test quantities be included in the inservice test plan. Currently, instructions for taking vibration data on pumps reads, "record vibration." The Inservice Inspection engineer has agreed to revise station procedure BVP 200-1 to state how, where and by whom vibration data should be taken. Incorporation of vibration data acquisition requirements into BVP 200-1 will be tracked as an open item (454/84-38-07(DRS)).

v. Section XI of the ASME Code, Subsection IWP-4120, limits the full scale range on instrumentation used for obtaining inservice test data to a maximum of three times the reference value. The full scale range on the ultrasonic flowmeter for the boric acid transfer pumps and their associated check valves is approximately 418 gpm. Reference flow for the inservice test is 75 gpm. This flowmeter does not appear to meet Code requirements for inservice testing instrumentation. Resolution of this apparent discrepancy will be tracked as an open item (454/84-38-08(DRS)).

No items of noncompliance or deviations were identified.

8. Surveillance Tracking System

The inspector reviewed the surveillance tracking system which is being used to schedule and monitor the progress of plant surveillances. The licensee informed the inspector that an updated computer program will be in place by September 1984 which will be used to insure that surveillance frequencies are met. This new system will be reviewed during subsequent inspections.

No items of noncompliance or deviations were identified.

9. Open Items

Open items are matters which have been discussed with the licensee which will be reviewed further by the inspector, and which involved some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraphs 5.b.ii., 6.b., 7.b.i., 7.b.ii., 7.b.iv. and 7.b.v.

10. 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 6.a. and 6.c.

11. Exit Interview

The inspectors met with licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on July 13, 1984. The inspectors summarized the scope of the inspection and the findings. The licensee acknowledged the statements made by the inspectors with respect to the open and unresolved items.