

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-454/84-49(DRS); 50-455/84-32(DRS)

Docket Nos. 50-454; 50-455

Licenses No. CPPR-130; CPPR-131

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

Facility Name: Byron Station, Units 1 and 2

Inspection At: Byron Site, Byron, Illinois

Inspection Conducted: July 17 through August 24, 1984

Inspectors: <i>M. Ring</i> M. Ring	<u>8/31/84</u> Date
<i>A. Dunlop</i> A. Dunlop	<u>8/31/84</u> Date
<i>Mary L M McCormick-Barger</i> M. McCormick-Barger	<u>8-31-84</u> Date
<i>Christ. VanDerburgh</i> C. VanDerburgh	<u>8-31-84</u> Date
<i>D. Williams</i> D. Williams	<u>8/31/84</u> Date
<i>R. L. Sperrard</i> Approved By: L. A. Reyes, Chief for Test Programs Section	<u>8/31/84</u> Date

Inspection Summary

Inspection on July 17 through August 24, 1984 (Report Nos. 50-454/84-49(DRS); 50-455/84-32(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 and startup test procedures. The inspection involved 364 inspector-hours onsite and 29 inspector-hours in office by five inspector including 59 inspector-hours onsite during off-shifts.

Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

- *R. Querio, Station Superintendent
- *D. Sible, QA Engineer
- *R. Gruber, QA Engineer
- *P. Anthony, Technical Staff
- *G. Stauffer, Technical Staff
- *M. Smith, Unit-2 Testing Staff
- *R. Pleniewicz, Assistant Superintendent, Operations
- *R. Ward, Assistant Superintendent, Administrative and Support Services
- *L. Sues, Assistant Superintendent, Maintenance

*Denotes 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

(Closed) Noncompliance (454/83-12-01(DE); 455/83-10-01(DE)): This item involved failure to ensure the regulatory requirements and the design basis of a system are correctly translated into procedures for the Reactor Coolant Leak Detection System. This item was previously discussed in inspection report 50-454/84-16(DE). The remaining issue involved a change to the Technical Specifications to include a surveillance to ensure the oil separator stays full. The licensee has submitted such a change for inclusion into the Technical Specifications. The inspector contacted the NRR Licensing Project Manager on this issue and was informed that the oil separator surveillance would be approved as requested. Based on the above discussion, the inspector considers this item closed.

(Closed) Noncompliance (454/83-12-02(DE)): This item involved two examples of failure to confirm the design requirements of the reactor coolant leak detection system in the preoperational test. This item was previously discussed in inspection report 50-454/84-16(DE). The remaining issue involved performance of the mass inventory balance surveillance for detection of reactor coolant system leakage. The mass balance surveillance, BOS 4.6.2.1.d-1, has now been performed and reviewed by the NRC. Observations related to this surveillance procedure are documented in inspection report 50-454/84-57(DE). Based on the above discussion, this item is considered closed.

(Closed) Unresolved Item (454/83-47-08(DE)): Inspector comment concerning preoperational test VE 128.10, "Miscellaneous Electric Equipment Room Ventilation," involving the verification of fan motor speeds as required by the FSAR. Amendment 49 to the FSAR has been issued to revise Table 14.2.38a to delete this requirement. This item is considered closed.

(Open) Unresolved Item (454/83-47-06(DE)): This item involved two concerns identified during the review of preoperational test VE 128.10, "Miscellaneous Electric Equipment Room Ventilation Test." The first concern was that Amendment 43 to the FSAR did not correctly identify that a differential pressure control was required for each of the four equipment rooms to prevent the leakage of contamination into the control room envelope. This concern has been resolved by the incorporation of Amendment 45 to Table 14.2.38a. The second concern involved whether sufficient testing was performed to ensure that the required differential pressure could be maintained. Based upon these inspector concerns changes were written to VC 85.10 to monitor the differential pressure with respect to the control room during integrated system operation. Subsequent unsatisfactory completion of this testing has resulted in the development of retest procedures. This item will remain open pending performance and review of these retest procedures.

(Closed) Open Item (454/84-07-05(DRS)): This item involved six inspector comments with respect to the results of preoperational test CC #10.10, "Component Cooling". Sub-items 6.a.i, ii, iii and iv were closed in inspection reports 50-454/84-16(DE) and 50-454/84-24(DE). Of the remaining two items, subitem 6.a.v involved completion and results review of retest R-72. Retest R-72, as well as R-135 and R-125 have now been completed and their results reviewed by the Station and Project Engineering (PED). The inspector has no further concerns on this portion of the item. Sub-item 6.2.vi involved development of a method for determining valve positions for the component cooling system. Byron Operating Procedure, BOP CC-T2, has now been developed and approved which specifies throttle positions for the component cooling throttle valves. The entire item is now considered closed.

(Closed) Noncompliance (454/84-07-06(DRS)): Failure to properly evaluate 3 instances in the results of preoperational test CC #10.10, "Component Cooling", where deficient conditions were recorded yet no deficiency was written. The inspector reviewed the licensee's response contained in a letter dated April 27, 1984 from D. Farrar to J. Keppler. It was noted by the inspector that the date of full compliance listed in the letter, August 30, 1984, actually refers to the actions taken to prevent further noncompliance. The correct date for full compliance including the writing of deficiencies for the noted conditions should have been April 5, 1984. The licensee's files reflected the correct date. While there have been other violations related to results reviews documented in subsequent reports, the inspectors have subsequently reviewed the results of several preoperational tests and believe the licensee's actions to be adequate on a programmatic basis. Further, as corrective action for noncompliance 454/84-16-01(DRS), the licensee's Project Engineering Department has rereviewed thirteen tests which had been reviewed prior to the implementation of some of the corrective actions for 454/84-07-06(DRS). Based on the above discussion this item is considered closed.

(Open) Open Item (454/84-07-07(DRS)): This item concerned the potential for an unmonitored failure in the power circuit of the Residual Heat Removal (RHR) suction isolation valves. The inspector has received a response from the licensee and will document the review of this material in a future inspection report. This item is still considered open.

(Closed) Open Item (454/84-16-06(DE)): This item involved three inspector comments noted during the review of the results of preoperational test SI 73.12, "Safety Injection". Comments 5.e.i and 5.e.ii were previously closed in inspection report 454/84-24(DE). The remaining issue, 5.e.iii involved Project Engineering approval of the results of SI 73.12. Project Engineering has now approved the test results. The inspector reviewed the correspondence relating to the results approval and has no further concerns in this area.

(Closed) Open Item (454/84-16-07(DE)): This item dealt with adequacy of margin for degradation at high flow rates for the charging (CV) and safety injection (SI) pumps. This item was forwarded to NRR for assistance. In a letter dated July 23, 1984 for B. W. Sheron, Chief, Reactor Systems Branch to B. J. Youngblood, Chief, Licensing Branch 1, NRR indicated that the flows measured in the test program are adequate for accident analysis. Because the flows are close to the acceptance values, however, NRR recommends that at the end of the first cycle for Byron Unit 1, adequate margin for the SI and CV pumps be justified before restart is permitted. Based on the above discussion this item is closed, however, a new open item (454/84-49-01(DRS)) is opened regarding adequate margin for the SI and CV pumps following the first cycle for Unit 1.

(Closed) Unresolved Item (454/84-39-04(DRS)): This item involved inspector concerns involving preoperational test procedure MS 51.11, "Main Steam - PORV's". The item involved a retest which did not verify the original acceptance criteria concerning the MSIV accumulator recharging to a specified pressure, but only the timing of the recharge cycle. Due to further investigations it has been determined that proper operation of the PORV's in emergency close was tested and the accumulator will recharge in the specified time per Retest R-208. This item is considered closed.

3. Preoperational Test Procedure Review

The inspectors reviewed the following preoperational test procedures against the FSAR, SER, proposed Technical Specifications, Regulatory Guides 1.68 and 1.108 (DG).

PS 61.11, "Process Sampling - Hydrogen Monitors"
PS 61.10, "Process Sampling - Primary"
VA 84.10, "Auxiliary Building Ventilation - "
DG 22.60, "Diesel Generator (2A)" - Unit 2
DC 4.60, "Diesel Fuel Oil - Emergency Diesel 2A and Fuel Oil Drain Tank" - Unit 2

With respect to DG 22.60 the inspector had the following comments which have been satisfactorily resolved by the licensee.

- a. Position C.2.b of RG 1.108 requires that during preoperational testing a test should be conducted in which redundant units are started simultaneously. The licensee has indicated that this testing will be performed in DG 22.61, "2B Diesel Generator".
- b. Position C.2.a.(2) of RG 1.128 requires that the diesel generator be capable of starting and accelerating to rated speed and accepting in required sequence all needed ESF and emergency shutdown loads while maintaining voltage and frequency in limits. The licensee has indicated that this testing will be accomplished in EF 26.61, "ECCS Full Flow".
- c. Acceptance criterion 4.1 didn't have sufficient detail to evaluate acceptable voltage/frequency on an automatic Diesel Generator start. The licensee has taken action to provide this detail in a test change.

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

DG 22.60, "Diesel Generator (2A)" - Unit 2
DO 24.60, "Diesel Fuel Oil - Emergency Diesel 2A and Fuel Oil Drain Tank" - Unit 2
Hot Operational Sequence
Retest R-241, "Pressurizer PORV Leak Check"
Retest R-248, "ECCS Check Valve Leak Check"
Retest R-233, "S/G's PORV Operability"
Retest R-203, "MSIV Operability"

With respect to DG 22.60 the inspector noted during the performance on August 2, 1984 that the system cleanliness was unsatisfactory as evidenced by loose bolts and pipes on the lube oil skid, a ladder chained to equipment undergoing testing, duct tape and foam located on the exhaust of the turning gear vent completely blocking exhaust and general excessive levels of dust and debris on all diesel generator components. These concerns were discussed with the Unit 2 Assistant Testing Supervisor who took adequate immediate corrective actions to restore the general area cleanliness to that appropriate for preoperational testing. Based upon this action the inspector considers this to be an isolated case of inadequate cleanliness control. This will be verified in future preoperational test performance witnessing.

No items of noncompliance or deviations were identified.

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.

RP 68.11, "Reactor Protection and Engineered Safeguards Logic"

RP 68.13, "Reactor Protection - Logic Checks"

CV 18.11, "Chemical and Volume Control - Charging, Letdown and RCP Seal Injection Logic"

SX 76.10, "Essential Service Water"

RP 68.10, "Reactor Protection - Time Response"

- a. With respect to the results of RP 68.13, the inspector noted that the test did not clearly verify closing of either of the reactor trip bypass breakers would produce a general warning alarm. The test did verify that opening of the bypass breakers cleared the general warning alarm, however, other operations which would cause or clear the alarm were being restored at the same time. In order to clearly demonstrate this attribute of the system, the licensee has agreed to perform a Component Demonstration test of the reactor trip bypass breakers. This item will be followed as an open item (454/84-49-02(DRS)) pending completion of the test.
- b. During the review of SX 76.10 it was noted by the inspector that acceptance criteria 4.1 required a minimum capacity of 24,000 gpm at a discharge head of 180 feet \pm 10%. The Byron FSAR states that the minimum flow rate will be at a Total Developed Head of 180 feet. The pump performance curve supplied by Bingham-Willamette company uses Total Dynamic Head. Because of the variation in terms used to evaluate the pump performance vice specified performance a discussion was initiated with the System Test Engineer (STE). The STE provided information showing that Total Developed Head was plotted for the pump performance curve and the pump met the design requirements within acceptable tolerances. However the use of confusing terms to measure pump performance for acceptance criteria and the potential for misinterpretation is of concern to the inspector. The development of instructions and definitions for the use of such terms as "pump head" is considered an open item (454/84-49-03(DRS)).
- c. With respect to the results of CV 18.11, the inspector noted that section 10.0, "Restoration", and Appendix C, "Operating Procedures," had not been signed and dated as required by administrative procedures. The inspector informed the licensee of this potential problem on the last day of the inspection and the licensee is still investigating the issue. The item is considered an unresolved item (454/84-49-04(DRS)) pending further investigation.

- d. With respect to the results of RP 68.10, the inspector had not completed the review at the time of the exit and this review will be documented in a later inspection report.

No items of noncompliance or deviations were identified.

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:

- VA 84.10, "Auxiliary Building Ventilation - Cubicle Coolers"
- PS 61.10, "Process Sampling - Primary"
- VP 93.10, "Containment Ventilation"
- PS 61.11, "Process Sampling - Hydrogen Monitors"
- GW 38.10, "Radioactive Waste Gas"

- a. With respect to the results of VP 93.10:

During the inspectors review, it was determined that the running currents recorded in data table 11.30.70 in nineteen instances are below the expected ranges without STE, Test Review Board (TRB) or PED documentation or evaluation. This item was brought to the STE's attention by the inspector and subsequent action has been taken by the licensee to have TRB review and accept these undocumented deficiencies. This item is similar in nature to a previous noncompliance which was identified in report 50-454/84-07(DE) which concerned inadequate results evaluation. Since this item occurred prior to the identified noncompliance which has had corrective actions implemented which could be expected to prevent the recurrence of this problem and since satisfactory immediate corrective actions have been taken to resolve this present occurrence, this item is considered closed.

- b. With respect to the results of PS 61.11 there appears to be a conflict between the test procedure and the Byron FSAR. Appendix E of the Byron FSAR states that Teledyne Analytical Instruments hydrogen analysis will provide a higher hydrogen concentration than actual. Test results showed that the actual hydrogen concentration was higher than the measured. The licensee intends to propose an FSAR change for accuracy of the analysis. This is considered an open item (454/84-49-05(DRS)) pending additional information from the licensee.

No items of noncompliance or deviations were identified.

7. Startup Test Procedure Review

The inspectors began review of the following startup test procedures:

- 2.32.30, Revision 2, "Initial Core Loading Sequence"
- 2.32.32, Revision 2, "Initial Core Loading"
- 2.61.30, Revision 2, Reactor Chemistry Sampling Systems for Initial Core Loading"

Comments relative to the above procedures will be documented in a future inspection report, with the exception of the comments below.

The inspectors had the following comments with respect to the review of 2.32.32:

- a. Correspondence between the Project Engineering Department (PED) and Byron startup staff implied that the Initial Core Loading Procedure might not be reviewed against the approved Technical Specifications. In response to this concern, a letter was issued (letter # Byron 84-1063, from R. E. Querio, Byron Station Superintendent, to J. D. Deress, dated 8-24-84) stating that the Initial Core Loading Procedure will be reviewed against the approved Technical Specifications prior to core load.
- b. On a generic basis, it appears that the potential exists for using Startup Procedures that have not been reviewed against the approved Technical Specifications. To eliminate this concern, the licensee was asked to ensure that:
 - (1) Byron's program doesn't allow Startup Procedures to be performed that have not been reviewed against the approved Technical Specifications.
 - (2) When the Startup Procedures are reviewed against the approved Technical Specifications, documentation is provided which can be verified by an independent audit.

This is considered an unresolved item pending licensee action (454/84-49-06(DRS)).

No items of noncompliance or deviations were identified.

8. 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 2, 5.a, 5.b, and 6.b.

9. 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 5.c and 7.b.

10. Exit Interview

The inspectors met with licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on August 24, 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.