

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/85024

Docket No. 50-454

License No. NPF-37

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

Facility Name: Byron Station, Unit 1

Inspection At: Byron Station, Byron, IL

Inspection Conducted: May 22 through June 28, 1985

Inspector: *C. A. VanDenburg*
C. A. VanDenburg

7/2/85
Date

Approved By: *M. Ring*
M. Ring, Chief
Test Programs Section

7/9/85
Date

Inspection Summary

Inspection on May 22 through June 28, 1985 (Report No. 50-454/85024(DRS))

Areas Inspected: Routine, announced safety inspection to review licensee action on previous inspection findings; licensee action on license conditions; startup test results evaluation; startup test results verification; and startup test witnessing. The inspection involved 75 inspector-hours onsite including 3 inspector-hours onsite during offshifts and 12 inspector-hours in office by one inspector.

Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

- *R. Pleniewicz, Assistant Station Superintendent, Operations
- *D. St.Clair, Technical Staff Supervisor
- *W. Burkamper, Quality Assurance Supervisor Operations
- *A. Chernick, Compliance Supervisor, Licensing
- *J. Langen, Compliance
- *A. Briton, Quality Assurance

*Denotes those personnel present at the exit interview of June 28, 1985.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Open Item (85017-02(DRS)): This item originally concerned AP 05.30, "Loss of Offsite Power Test" in that Project Engineering (PED) had disapproved the results of this test based upon insufficient data to resolve adequate performance of the test. PED has subsequently reevaluated the test results of AP 05.30 and concluded that the test demonstrated satisfactory performance in terms of key objectives and that the data corresponds to what would be expected based upon the operators actions. On June 5, 1985 PED approved the results of AP 05.30. The inspector has reviewed the test results and compared these to the expected performance and the testing requirements of the Final Safety Analysis Report (FSAR) and Regulatory Guide 1.68. The inspector has no further concerns on this test.
- b. (Closed) Open Item (85017-03(DRS)): This item originally concerned the results evaluation of FW 34.30C, "Steam Generator Level Controller Response At 30% Power" in that PED did not approve the test results and required that the test be reperformed. This test and NR 52.37, "Load Swings" were performed in the 50% power level test sequence with unsatisfactory test results. In a letter dated May 24, 1985, PED conditionally approved the results of the 30% and 50% power level performances of FW 34.30C and the 50% power level performance of NR 52.37. These approvals were based upon completed repairs and dynamic tuning of the loop controllers and required that additional data be obtained during the performance of the 75% power level test sequence. Section 5 of this report documents the inspector's verification of the results evaluation of FW 34.30D and NR 52.37 performed in the 75% power level test sequence. This item is closed.
- c. (Closed) Open Item (85017-04(DRS)): This item originally concerned the results verification of startup test RD 64.36, "Pseudo Rod Drop", and the inspector's concern that Regulatory Guide 1.68, item A.5.i would be verified as part of the results evaluation. Item A.5.i requires that testing be performed to verify that the incore and excore nuclear instrumentation is capable of detecting a control rod misalignment equal to or less than the technical specification limits. This requirement was not included as part of the test objectives of RD 64.36. A PED letter dated May 14, 1985, indicates

that although this testing was not included as part of the test objectives an examination of the data indicates that the regulatory guide requirements have been satisfied. Westinghouse letter CAW-8955 dated June 6, 1985, supports this conclusion. This item is closed.

- d. (Closed) Open Item (83-00-14): This item concerned a Safety Evaluation Report (SER) requirement to verify the remote shutdown capability of the plant. SER item 7.4.2.2 required a one-time demonstration of the ability to maintain the plant in a safe shutdown condition from outside the control room following a plant trip from above 10% reactor power. The licensee committed to perform this verification as part of the startup test program. This testing was completed during the 30% power level test sequence. Inspection Report 50-454/85017, Section 4, documented the satisfactory results evaluation of RC 63.35, "Shutdown From Outside the Control Room". This item is closed.

No violations or deviations were identified.

3. Licensee Action On License Conditions

- a. (Closed) License Condition 2.C.1, Attachment 1, Item A: This item required that Preoperational Test VA 84.11, "Auxillary Building Ventilation" be completed, including the resolution of any retest deficiencies, prior to July 1, 1985. On June 17, 1985, PED approved the results and Retests R-287 and R-288 for VA 84.11. This item is closed.
- b. (Closed) License Condition 2.C.1, Attachment 1, Item B: This item required that startup test program tests which have been approved by both the Station and PED be provided to Region III at least 30 calendar days before the start date of the applicable sequence. The inspector has verified that this has been satisfactorily accomplished and that all procedures have been provided for review. This item is closed.
- c. (Closed) License Condition 2.C.1, Attachment 1, Item C: This item required that the licensee complete the integrated testing of the Control Room (VC), Auxillary Building (VA), Miscellaneous Electric Equipment Room (VE), and ESF Switchgear Room (VX) ventilation systems in all modes of operation to demonstrate that the Control Room envelope can be maintained at a positive 1/8 inch water gauge differential pressure with respect to adjacent areas. Retest R-284 was developed and performed to provide this required testing. On June 17, 1985, PED approved the results of this retest. The testing verifies that the Control Room envelope will be maintained at the required pressure. This item is closed.

No violations or deviations were identified.

4. Startup Test Results Evaluation

The inspector reviewed the results of the below listed startup test procedures to verify that 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, and test results were approved by appropriate personnel:

50% Power Level Test Sequence

IT 47.31, "Power Coefficient Determination"

NR 52.36A, "Axial Flux Difference Instrumentation Calibration"

75% Power Level Test Sequence

IC 45.32C, "IC and IT Mapping at Power"

IT 47.31, "Power Coefficient Determination"

IT 47.32D, "Thermal Power Measurement"

NR 52.36A, "Axial Flux Difference Instrumentation Calibration"

90% Power Level Test Sequence

IT 47.31, "Power Coefficient Determination"

IT 47.32C, "Thermal Power Measurement"

- a. With respect to the results evaluation of NR 52.36A performed in the 75% power level sequence, the inspector noted that PED conditionally approved the test results on June 16, 1985. This approval indicated that the comparison basis for determination of acceptable test results is based in part upon the incore computer program. As discussed in section 5 of this report, the test results of CX 20.35, "Process Computer Verification and Flux Mapping" have not been approved for the 50% and 75% power level test sequences. PED's approval is subject to final approval of the incore program results. This item will be followed as an open item subject to this final approval (454/85024-01(DRS)).

No violations or deviations were noted.

5. Startup Test Results Verification

The inspector reviewed the following startup test procedures and verified that the results were reviewed against approved acceptance criteria and an evaluation of the test results has been performed in accordance with Regulatory Guide 1.68 and the licensee's Startup Manual:

50% Power Level Test Sequence

CX 20.35, "Process Computer Verification Flux Mapping"
EM 28.30C, "Pipe Vibration"
FW 34.31, "Calibration of Steam and Feedwater Flow"
FW 34.33B, "Main Feedwater"
NR 52.37, "Load Swing"
RC 63.31B, "Reactor Coolant System Flow Measurement"
TG 80.34, "Test Sequence at 50% Power Level"

75% Power Level Test Sequence

CX 20.35, "Process Computer Verification Flux Mapping"
EM 28.30, "Pipe Vibration"
FW 34.30D, "Steam Generator Level Controller Response"
FW 34.31, "Calibration of Steam and Feedwater Flow"
NR 52.35D, "Operational Alignment of Excore Nuclear Instrumentation - CC# 6, 7 and 8"
NR 52.37, "Load Swing Test"
RC 63.31B, "Reactor Coolant Flow Measurement"
RD 64.39, "Large Load Reduction"
TG 80.30, "Test Sequence at 75% Power"
VE 128.30, "Heat Capacity Verification for Miscellaneous Electric Equipment Room Ventilation System"
LM 133.30, "Reactor Loose Parts Monitor"

90% Power Level Test Sequence

FW 34.31, "Calibration of Steam and Feedwater Flow"
TG 80.31, "Test Sequence at 90% Power Level"
LM 133.30B, "Reactor Loose Parts Monitor"

- a. With respect to the results verification of CX 20.35 performed in the 50% power level test sequence, the inspector noted that the test was required to be reperformed by PED in their letter of June 11, 1985. PED indicated several detector points taken

from the process computer did not agree with the strip chart data within the acceptance criteria tolerance of 1% and concluded that the test results were not acceptable. Following the second performance in the 75% power level test sequence, PED again disapproved the test results because acceptable agreement between the process computer and the strip chart recorders was not achieved. PED stated that there was no technical basis to revise the acceptance criteria, however there was also no requirement in the FSAR to perform the testing. PED did not approve the test results, but allowed that power could be increased above the 75% plateau provided that flux maps are taken using both the process computer and the chart recorders. The most conservative of the two would then be utilized to determine the margin to the technical specification limits. The inspector finds this approach acceptable and will follow this item as an open item pending resolution of the process computer verification (454/85024-02(DRS)).

- b. With respect to the results verification of FW 34.31, the inspector reviewed the performance of this procedure at both the 75% and 90% power level test sequences. In the 75% performance acceptance criteria 4.4 was not met for steam generators 1B and 1C. In a June 18, 1985, letter PED indicated that additional testing was required and submitted by the Station on June 14, 1985, which showed that loops 1B and 1C meet the acceptance criteria. PED indicated that this data is considered to part of the test data. The inspector notes that this data was not provided as part of the test package. The test was performed in the 90% power level test sequence and in this instance acceptance criteria 4.3 and 4.4 were not met for steam generator 1B. The test was reperformed on the 1B and 1D steam generators. This time acceptance criteria 4.1, 4.3 and 4.4 were not met. The station concluded that the 1B loop required calibration and PED determined in a June 22, 1985, letter that since steam flow was not utilized for any safety function and work permits had been initiated to recalibrate the loop that the test could be approved and reperformed in the 100% power level test sequence. The inspector has verified that steam flow is not used for any reactor trip or essential safety features actuation. This item will be followed as an open item pending verification that the second set of test results from the 75% power level test sequence has been retained in the original test package and the satisfactory performance and evaluation of the 100% power level test (454/85024-03(DRS)).

No violations or deviations were identified.

6. Startup Test Witnessing

The inspector witnessed the startup test procedures listed below to verify that the test was conducted in accordance with an approved procedure; test data collected and recorded properly; adequate ability of personnel conducting the test; deficiencies and test problems were documented and that test changes were processed in an approved manner.

75% Power Level Test Sequence

NR 52.37, "Load Swing Test"

RD 64.39, "Large Load Reduction"

- a. With respect to the test witnessing of RD 64.39, the inspector witnessed the performance of this test on June 13, 1985. The inspector was concerned when operators were briefed prior to the performance of the test of the acceptability of tripping one main feed pump following the reactor power decrease in order to assist the steam generator level control system in preventing a overfeed condition. This is considered by the inspector to be manual intervention by the operator in an automatic system and as such would violate the acceptance criteria of the test. Although the feed pump was tripped immediately following the load reduction, the test was considered unsatisfactory because separate operator action was required to prevent a reactor trip due to high steam generator levels. The inspector's concern on tripping the main feed pump was discussed with the licensee's management in a meeting on June 14, 1985. The test was later performed satisfactorily following adjustments to the steam generator level control system. The test results indicate that during this performance the feed pump was not tripped.

No violations or deviations were identified.

7. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraphs 4.a, 5.a and 5.b.

8. Exit interview

The inspectors met with licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on June 21, 1985. The inspectors summarized the purpose and scope of the inspection and the findings. The licensee acknowledged the statements made by the inspector with respect to the open items. The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents/processes as proprietary.