

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-456/86010(DRS)

Docket No. 50-456

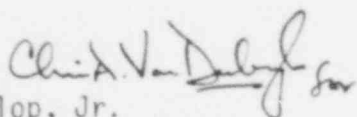
License No. CPPR-132

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

Facility Name: Braidwood Station, Unit 1

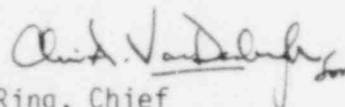
Inspection Conducted: February 24 through April 17, 1986

Inspector: A. Dunlop, Jr.



5-1-86
Date

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



5-1-86
Date

Inspection Summary

Inspection on February 24 through April 17, 1986 (Report No. 50-456/86010(DRS))

Areas Inspected: Routine announced inspection to review preoperational test program implementation (70302), preoperational test procedures review (70308, 70304, 70341), preoperational test procedure verification (70311) and preoperational test performances (70314, 70312, 70315, 70438, 70447, 70316).

Results: Of the four areas inspected, no violations or deviations were identified.

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DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- *M. J. Wallace, Project Manager
- *C. W. Schroeder, Station Services Superintendent
- *D. J. Tomaschek, Project Startup Superintendent
 - B. Poirier, Unit 1 Startup Supervisor
- *P. L. Barnes, Regulatory Assurance Supervisor
 - E. M. Nagy, Integrated Hot Functional (IHF) Test Coordinator
 - M. Montes, IHF Test Coordinator
 - J. Gosnell, IHF Test Coordinator
 - M. Paul, IHF Test Coordinator
 - P. C. Fay, IHF Test Director
- *A. J. D'Antonio, Regulatory Assurance
- *J. K. Jasnosz, Regulatory Assurance
- *D. E. O'Brien, Operating Assistant Superintendent
- *R. D. Kyrouac, Station Quality Assurance (QA) Supervisor
- *L. E. Davis, Assistant Superintendent, Technical Services
- *A. D. Miosi, Nuclear Licensing Administration, General Office
- *T. W. Simpkin, Regulatory Assurance
- *D. L. Cecchett, Regulatory Assurance
- *L. M. Kline, Regulatory Assurance

Additional station technical, operational, and administrative personnel were contacted by the inspector during the course of the inspection.

*Denotes those personnel present at the exit meeting on April 17, 1986.

2. Preoperational Test Program Implementation

This review consisted of a determination if administrative controls had been developed and implemented to support FSAR commitments, and regulatory requirements. The inspector had the following comment:

The inspector received Revisions 14 and 15 to the Braidwood Startup Manual (BWSUM) which was revised to parallel the Byron/Braidwood Startup Manuals. The inspector has commenced the review of the revised BWSUM and has no comments at this time. Completion of the review will be documented in a subsequent inspection report.

No violations or deviations were identified.

3. Preoperational Test Procedure Review

The inspector reviewed the following preoperational test procedures against the FSAR, Safety Evaluation Report (SER), proposed Technical Specifications, and Regulatory Guides 1.68, 1.20, and 1.79:

BWPT RC-10, Revision 1, "Integrated Hot Functional"

BWPT SI-13, Revision 0, "Valve Operability and Leakage Test"

BWPT DG-10, Revision 0, "Diesel Generator"

a. With respect to BWPT DG-10, the inspector has the following comments:

(1) BWPT DG-10 has been revised to separate the Unit 1 diesel generators (DGs) into two procedures:

(a) BWPT DG-10, Revision 1, "Diesel Generator 1A"

(b) BWPT DG-11, Revision 0, "Diesel Generator 1B"

The inspector will review the revised procedures and document the results in a subsequent inspection report.

(2) The air start system test to verify that a DG can start four times (as required by SER 9.5.6) from a single air receiver without being recharged has an initial air receiver pressure of 250 psig. The inspector questioned the choice of this initial pressure due to the following:

(a) 250 psig is not the lowest pressure the air receivers would see before the compressor starts (expected value for compressor start 235-245 psig) or when the control room operator would receive an alarm (air receiver low pressure alarm 170-180 psig).

(b) The licensee could not identify to the inspector an air receiver pressure for which a DG would be declared inoperable. This value could not be found in the proposed technical specifications or the BWOPs for the DG.

The revision to BWPT DG-10, discussed in Section 3.a.(1), changed the starting air receiver test pressure to 240 psig, compressor start pressure to 230-250 psig and low air pressure alarm to 165-185 psig. The testing of starting a DG four times with a single air receiver at its lowest operating pressure limit is not apparent. This is considered an unresolved item (456/86010-01) pending licensee identification of the DG operability pressure limit and evaluation by the inspector.

Due to the generic implication, the adequate testing of the DGs' (air start system) will be reviewed at Byron by Region III. This concern is discussed in the Byron residents' inspection report (50-454/86018 and 50-455/86010).

b. The inspector's comments on BWPT RC-10 have been satisfactorily resolved during the performance of the Integrated Hot Function (IHF).

c. The review of BWPT SI-13 is not complete at this time and will be documented in a subsequent inspection report.

No violations or deviations were identified. However, a portion of this area requires further review and evaluation and is considered to be an unresolved item.

4. Preoperational Test Procedures Verification

The inspector reviewed the following preoperational test procedures and verified that they were written, reviewed, and approved by licensee management in accordance with the requirements of Regulatory Guide 1.68, BWSUM, and the licensee's QA Manual:

BWPT IT-10, Revision 0, "RTD Cross Calibration"

BWPT VP-11, Revision 2, "Containment Ventilation"

BWPT LM-17, Revision 0, "Reactor Loose Parts Monitor for IHF"

BWPT FW-17, Revision 0, "Tempering Flow Test"

BWPT MS-17, Revision 1, "Main Steam Safety-Related"

The review of BWPT MS-17 is not complete at this time and will be documented in a subsequent report.

No violations or deviations were identified.

5. Preoperational Test Performance

The inspector witnessed the performance of portions of the below listed preoperational test procedures in order to verify that testing was conducted in accordance with approved procedures, independently verified the acceptability of test results, and evaluated the performance of licensee personnel conducting the tests.

BWPT RC-10, Revision 1, "Integrated Ho: Functional"

BWPT RC-17, Revision 1, "Loop Stop Valve Timing, RCP and Relief Line Flow Verification"

BWPT AP-16, Revision 1, "Bus Loading and Independency"

BWPT FW-17, Revision 0, "Tempering Flow Test"

BWPT RY-17, Revision 1, "Pressurizer"

BWPT SI-13, Revision 0, "Valve Operability and Leakage Test"

BWPT MS-17, Revision 1, "Main Steam Safety-Related"

BWPT LM-17, Revision 0, "Reactor Loose Parts Monitor for IHF"

BWPT IT-10, Revision 0, "RTD Cross Calibration"

BWPT AF-10, Retest No. 75, Revision 2, "Auxiliary Feedwater"

BWPT TG-27, Revision 0, "Turbine Roll and Synchronization"

a. With respect to BWPT RC-10, the inspector witnessed the following:

This procedure is the sequence document for IHF testing and controlled by the IHF Test Coordinators. The inspector witnessed shift turnovers of the operators, IHF Test Coordinators and other testing personnel, along with reviewing Test Change Requests (TCRs), deficiencies, procedure prerequisites and sequencing, briefings, and coordination of personnel involved with IHF.

Turnovers appeared to be adequate for informing the oncoming personnel of plant status, evolutions in progress, problems, and upcoming events. However, the inspector did note the following two isolated deficiencies: TCR No. 19 was not signed as being initiated although it was implemented into the test and Prerequisite 7.2.1.11, which verified the 1A DG electrical and mechanical lineups was not signed prior to starting Step 9.7.3 as sequenced by the procedure. All other TCRs reviewed by the inspector were properly initiated. The DG lineups had been completed except for one breaker which was not installed (temporary power installed) prior to Step 9.7.3 such that the 1A DG was available as a backup power supply. These situations were then addressed in the Sequence of Events Log (SEL).

Briefings by the licensee were held with all personnel involved in the test or evolution for explaining the objective, sequencing of events, assigning specific stations and duties, and answering questions as required. The coordination between operations and the testing section improved as IHF progressed. The testing section worked through the Unit 1 Supervisor in order to properly assign operators specific jobs so they would not be overloaded. The sequencing of evolutions and problem resolution were a joint effort. Access to Unit 1 control panels was maintained throughout IHF to limit personnel in the area.

In general, IHF testing appeared to be handled by qualified personnel in a professional manner. Additional comments, including the Main Steam Line Water Hammer, are addressed in the resident inspection report (50-456/86007; 50-457/86006).

During the Remote Shutdown Panel (RSP) verification test, Valve IAF005E would not operate when local control was taken. An operator was sent to investigate and found that the air to the valve was isolated. The licensee had performed maintenance on the valve during the previous week and the valve was not properly restored (i.e. air isolated) when the work was completed. The inspector informed the IHF Test Coordinator and Shift Engineer that when returning equipment to service after maintenance all components (e.g. breakers, fuses, valves, air) are required to be properly aligned and the equipment retested if required. The inspector was unable to complete the inspection on

the restoration of the maintenance request on the valve and as such, this will be considered an unresolved item (456/86010-02) pending further evaluation. In addition, operators had problems with indicators not functioning (deficiencies written), sticking indicators (indicators tapped with a flashlight to obtain identification), and burned out or missing light bulbs. The inspector indicated the concern that cleaning of indicators and verification of equipment status (light bulbs) at the RSP should be performed.

- b. With respect to BWPT RC-17, the inspector witnessed the starting of Reactor Coolant Pumps and valve timing of reactor coolant (RC) loop stop and bypass valves. The licensee found some of RC loop bypass flow indicators piped backwards. This item is further discussed in Section 5.f.(1).
- c. With respect to BWPT AP-16, the inspector witnessed portions of SAT 142-1 under startup loop conditions.
- d. With respect to BWPT FW-17, the inspector witnessed the verification of minimum flow to the steam generator through the flow tempering at various temperature plateaus. During times when there was no flow through the tempering lines, some back leakage was evident by rising temperatures on the auxiliary feedwater nozzles. The operators performed the applicable Braidwood Operating Abnormal Procedure (BWOA) as called for in the test procedure in order to correct the situation.
- e. With respect to BWPT RY-17, the inspector witnessed the operation of the pressurizer power operated relief valve (PORV) RY455A, to ensure the valve opened and closed at its pressure setpoints and close in the required time frame.
- f. With respect to BWPT SI-13, the inspector witnessed the seat leak tests of several Safety Injection (SI) check valves.
 - (1) During the performance of this test, the SI test flow indicators were found to be piped in backwards. The test was stopped while the instrument mechanics (IMs) repiped the instruments. Due to numerous indicators being found piped backwards during the performance of IHF testing in the SI, RC, and Feedwater Systems, the inspector requested a list of all instruments found to be piped backwards. This is considered an unresolved item (456/86010-03) pending receipt of the list from the licensee and evaluation by the inspector.
 - (2) When the leak rate on the test flow indicators is less than 0.2 gpm, the test procedure directs the System Test Engineer (STE) to collect a sample in a graduated cylinder to obtain an accurate leak rate. During one of these samples, the inspector observed a 50 foot hose attached to the sample connection five feet above floor level, with the hose running along the floor to a drain.

When time came to collect a sample, the hose was lifted out of the drain and placed into the graduated cylinder (one foot tall) and the one minute sample period began. Water would have to fill the entire line prior to being able to collect a sample. With a one minute sample period, a minimum amount of water would be collected. When the inspector explained his concern to the IHF Test Coordinator, the test method was immediately corrected by removing the long hose and attaching a short line which would go directly into the graduated cylinder. Data was recollected using the acceptable method. The inspector has no further concerns in this area.

- (3) When the STE reentered the test procedure at Step 9.2.5, the valve lineups required for that section were not reverified in sufficient detail. The inspector informed the STE of a valve that Operations had out-of-position in order to fill an accumulator. The valve did not have a bearing on the section of test being performed, and the STE stated such in the SEL. The STE reviewed his valve lineups for this section and during the reentry into subsequent sections prior to continuing testing. The inspector has no concerns in these areas.

Additional comments to this test were documented in the resident inspection report (50-456/86007; 50-457/86006).

- g. With respect to BWPT MS-17, the inspector witnessed the setting of main steam (MS) safety valves and timing of MS isolation and bypass valves.
- h. With respect to BWPT LM-17, the inspector witnessed the establishing of prerequisites and baseline data recording.
- i. With respect to BWPT IT-10, the inspector witnessed RTD and thermocouple calibration at various temperature plateaus. A computer software problem was identified and new software was obtained from the vendor. Since the licensee has identified the same software problem in Braidwood, Unit 2, the licensee indicated that the Byron facility will be reviewed for applicability. This item is discussed in the Byron residents' inspection report (50-454/86018 and 50-455/86010).
- j. With respect to BWPT AF-10, the inspector witnessed portions of the 48 hour 1B auxiliary feed (AF) pump endurance run and the ability of the AF pumps to provide full flow to each SG at hot-zero power conditions.
- k. With respect to BWPT TG-10, the inspector witnessed the initial turbine roll.

No violations or deviations were identified. However, portions of this area including coordination of testing requires further review and evaluation and are considered to be unresolved items.

6. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Unresolved items disclosed during the inspection are discussed in Section 3.a.(2), 5.a, and 5.f.

7. Exit Interview

The inspector met with licensee and contractor representatives denoted in Section 1 during and at the conclusion of the inspection on April 17, 1986. The inspector summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.