

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/82-27(DPRP); 50-455/82-21(DPRP)

Docket No. 50-454; 50-455

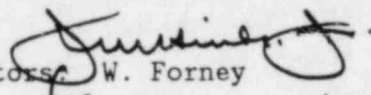
License No. CPPR-130; CPPR-131

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

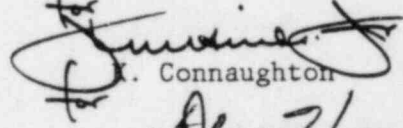
Facility Name: Byron Station, Units 1 and 2

Inspection At: Byron Station, Byron, IL

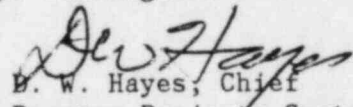
Inspection Conducted: November 1 through December 31, 1982

Inspectors: 
W. Forney

1-19-83


P. Connaughton

1-19-83

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

1/19/83

Inspection Summary

Inspection on November 1 through December 31, 1982 (Report No. 50-454/82-27(DPRP); 50-455/82-21(DPRP))

Areas Inspected: Routine, unannounced safety inspection to review preoperational testing; IE Circular file responses; implementation of housekeeping requirements/care and preservation of safety-related components; lifting of the Unit 1 reactor pressure vessel upper head; adequacy of specifications for structural bolted connections; licensee actions on previously identified items; and other activities. The inspection consisted of 251 inspector-hours onsite by two NRC inspectors including 30 inspector-hours during off-shifts.

Results: Of the six areas inspected, two items of noncompliance were identified in two areas: (1) lifting of Unit 1 and Unit 2 reactor components without a procedure - Paragraph 3; (2) failure to include specifications for structural bolted connections in drawings, instructions or procedures.

DETAILS

1. Persons Contacted

Commonwealth Edison Company

- *V. I. Schlosser, Project Manager
- *G. Sorensen, Project Construction Superintendent
- *R. Tuetken, Assistant Project Superintendent
 - R. B. Klingler, Quality Control Supervisor
- *C. Tomashek, Lead Startup Engineer
 - M. Stanish, Construction Quality Assurance Manager
- *R. Querio, Station Superintendent
- *R. Ward, Station Assistant Superintendent for Administration and Support
 - K. Pleniewicz, Station Assistant Superintendent for Operations
- *D. St. Clair, Technical Staff Supervisor
 - A. C. Chomacke, Assistant Technical Staff Supervisor
 - T. P. Joyce, Operating Engineer
- *T. Schuster, Technical Staff
 - J. Buchaman, Hatfield Electric Quality Assurance Manager
 - M. Somsag, Hunter
 - M. Weier, NISCO Quality Control Field Engineer
- *K. Hansing, QA Supervisor
- *R. Westburg, QA Staff
- *J. Kaczmarek, QA Engineering-Operating

*Denotes personnel at exit interview.

2. Preoperational Test Witnessing

a. General

The inspectors witnessed portions of preoperational tests 2.010.10 "Component Cooling", 2.008.10 "Boron Thermal Regeneration", 2.017.10 "Containment Spray", 2.067.10 "Residual Heat Removal" (retest), 2.018.11 "Chemical and Volume Control", 2.063.11 "Reactor Coolant (AOV, MOV, RCP)", to determine whether or not: operating and maintenance personnel were briefed on the scope and objectives of testing to be performed; prerequisites and initial conditions, as applicable, were met; precautions were observed; test procedures were adhered to; test procedures were current and in use at each test station; communication between test stations were adequate and; deficiencies were documented, evaluated and corrected in accordance with applicable program requirements. Observations and findings pertaining to the conduct of individual tests are discussed in paragraphs 2b through 2g.

b. Preoperational Test 2.010.10 "Component Cooling"

No items of noncompliance were identified.

c. Preoperational Test 2.008.10 "Boron Thermal Regeneration"

During the conduct of this test the inspector noted a deficient condition which had been generated by actions taken in the course of troubleshooting a previously identified deficiency. Apparently restoration following troubleshooting was incomplete. Discussions with test personnel revealed that it was neither required nor common practice to document every operation (i.e., manipulation of a component) performed in the course of troubleshooting. The inspector stated that these operations should be documented to assure that the system is properly restored prior to re-entering the test not only to avoid unnecessary test interruptions but to insure validity of subsequent test results and post test review.

No items of noncompliance were identified.

d. Preoperational Test 2.017.10 "Containment Spray"

No items of noncompliance were identified.

e. Preoperational Test 2.067.10 "Residual Heat Removal"

No items of noncompliance were identified.

f. Preoperational Test 2.018.11 "CVCS"

No items of noncompliance were identified.

g. Preoperational Test 2.063.11 "Reactor Coolant (AOV's, MOV's, RCP's)"

No items of noncompliance were identified.

3. Use of Jam Nuts on Bolted Connections

The inspector observed that design specifications were not adequately prescribed on drawings, procedures or instructions for installation of bolted connections. Examples of inadequate translation of these requirements are:

a. Use of Jam Nuts on Structural Steel Bolted Connections

- (1) S&L drawing S-1097, Revision U/10-15-82 requires the strength nut to be torqued to 50-100 ft-lbs and to install a jam nut snug-tight. The drawing does not provide a definition of snug-tight, nor does it reference the appropriate code (AISC) where the definition of snug-tight could be obtained. Previous revisions did not require the use of a jam nut.
- (2) The inspector noted that Blount Brothers Corporation QA/QC procedure Twenty One "Structural Steel Erection" provides guidelines for bolted connections which includes clarification of "snug-tight" requirements.

b. Use of Jam Nuts on Cable Tray Hanger and Conduit Hangers

(1) S&L drawing 6E-0-3393H, Revision R/8-9-82 for Category I conduit supports support steel types and details 3A & 3B which require through bolts with a strength nut "hand-tight" and the installation of a jam nut. The drawing does not provide guidance for jam nut installation. Detail S6 (AH) shows the use of two nuts, however, the drawing does not specify any installation criteria for either nut making it difficult to determine if the connection is to be "PIN" or "SLIP". CECO has committed to obtaining clarification of this application from S&L.

(2) Other examples of inadequate translation of design criteria are:

<u>Drawing Number</u>	<u>Drawing Detail</u>	<u>Drawing Requirement</u>
3393H	53A,B	First nut snug tight or less, and second nut touching first
3393C	ST	First nut snug tight or less, and second nut touching first
3393D	AT, ET	First nut snug tight or less, and second nut touching first
3282	DU100, 101	One nut hand tight (no more than snug tight)
3289	DU129	One nut hand tight (no more than snug tight)
3289	DU130, 131	One nut snug tight minimum
3294	DU190	First nut snug or less, second nut touching first
33915	A	One nut no less than hand-tight, no more than snug

c. Use of Jam Nuts for Mechanical Component Supports

S&L drawings that show the use of U-bolts installation show the installation of 2 nuts; however, there is no guidance provided for installation of either the strength nor the jam nut. The number of hanger drawings number in the thousands and are too numerous to review in total; however, a random review indicates the guidance to be applied generically in this manner.

d. Use of Jam Nuts for HVAC Duct Hanger Auxiliary Structural Components

(1) S&L drawing M-1261 Rev. L Sheet 7 of 9 is for installation of Attachment A7 application using bolted connections. The detail requires the use of 314A-325 high strength bolts. There is

no reference to the use of one nut or two nuts nor is there any reference to the applicable code required by the FSAR. This type attachment was required for support of ventilation in the Emergency Diesel Generator (EDG) ventilation room, EDG room for Units 1 and 2 and for ventilation in Unit 1 battery rooms.

- (2) Inspection of the hangers in the Unit 1 EDG room (1319, 1329) and EDG ventilation room (S-1847, 1848) determined the installation to be single nut. There was no evidence indicating turn-of-the-nut method.
- (3) The inspector determined that the contractor Reliable Sheetmetal, an installer of HVAC equipment, did not have an approved procedure for the control and installation of bolted connections, had not been provided technical guidance from S&L for the control and installation of bolted connections, did not have quality control records verifying proper installation of hangers S-1847, 1848, 1319, and 1329.
- (4) The contractor personnel provided the inspector a S&L letter RSM-188 dated February 8, 1979 - Project No. 4391-00 which directed installation of hangers S-1847 and S-1848 located in the Unit 1 Battery Room to be installed as bolted connections in accordance with sketch SK-0207. The contractor personnel stated the work had been accomplished as required. The letter stated the reason for a bolted hanger in lieu of the original welded hanger was "to eliminate the welding required in the Battery Rooms due to the presently energized batteries".
- (5) The inspector determined by visual examination that actual installation was welded instead of bolted as required by Sketch-0207

e. Use of Jam Nuts for Miscellaneous Components

S&L drawing M1212 "Equipment Foundation Anchor Bolts" was reviewed and found to be inadequate in that it did not provide torque values for proper installation of equipment (e.g.....chiller pumps, containment spray pumps, RHR pumps, positive displacement charging pumps, component cooling pumps etc....). Revision U/12-14-82 was subsequently issued and will require verification of proper torque values.

f. Summary

- (1) The examples of failure of the licensee to properly translate design requirements to installation design drawings and procedures as identified in Paragraphs b, c, d and e above is an item of noncompliance identified in the Appendix to the report transmittal letter (454/82-27-01; 455/82-21-01).
- (2) The examples in paragraph d above of the HVAC installation contractor failure to install hangers in accordance with design

requirements and failure to provide quality control inspection, and failure to have written procedures for installation of bolted connections is an item of noncompliance identified in the Appendix to the report transmittal letter (454/82-27-02; 455/82-21-02).

- (3) On December 16, 1982, the inspector informed the Assistant Construction Superintendent that failure of S&L to properly translate design requirements to installation drawings and procedures appears to be reportable under 10 CFR 50.55(e) since this failure covers a broad spectrum of application (i.e....structural support, electrical, HVAC and miscellaneous safety related motor installation) and has applicability to equipment that has been previously installed and certified and may affect installation at the Byron and LaSalle Sites.
- (4) To date, January 5, 1983, neither the Resident Inspector's Office or the Region III office has been informed by CECO of their intent to issue a 10 CFR 50.55(e) report. This is an unresolved item (454/82-27-03; 455/82-21-03).

4. Removal of Reactor Vessel Closure Head and Internals

On the afternoon of December 20, 1982, the inspector observed workers preparing to remove the Unit 1 Reactor Vessel Closure Head. The crane lifting assembly was being attached to closure head lifting rig and the lift appeared to be imminent. The inspector observed that the general cleanliness of the area was not acceptable for removal of the closure head, that the personnel involved did not have a current authorized handling procedure, that the quality control inspector had not performed an inspection of lifting and handling equipment, and the inspector could not identify the last time required nondestructive testing of rigging and/or handling equipment had been performed. The removal of the closure head was terminated. The inspector noted that the Unit 2 closure head had already been installed on the reactor vessel on the morning of December 20, 1982.

Subsequent review of records indicates that Unit 1 reactor vessel closure head and/or internals had been handled once previously and Unit 2 reactor vessel closure head and/or internals had been previously handled four times without proper planning, inspections, current authorized procedures and appropriate nondestructive testing of lifting and handling equipment.

NISCO procedure ES-3004-40, Revision A, was subsequently issued on December 21, 1982 and was used for removal of the reactor vessel closure head on December 22, 1982.

This is an item of noncompliance identified in the Appendix to the report transmittal letter (454/82-27-04; 455/82-21-04).

5. Inspection and Enforcement Circulars

(Closed) IEC 81-10 "Steam voiding in the Reactor Coolant System During Decay Heat Removal Cooldown"

The licensee's file response indicated that the circular had been reviewed and that the information contained therein would be incorporated into appropriate operating procedures. The inspector reviewed Event Specific Procedure BEP-ES-0.2 which provided guidance for recognition of void formation in the reactor coolant system and specified appropriate operator response. This circular is closed.

(Closed) IEC 76-03 "Radiation Exposure in Reactor Cavities"

The licensee's file response indicated that the circular had been reviewed and that the licensee will, among other things, post the entrance to the reactor cavity and require authorization of the Radiation Chemistry Supervisor or his designee based on an ALARA review prior to entry. Byron Administrative Procedure BAP 700-2 will require an ALARA review prior to an entry into the reactor cavity. This circular is closed.

6. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance 454/82-07-01 - Personnel not briefed, procedures not followed, procedures not maintained at test control stations, watch and reliefs inadequate, data not properly recorded.

The inspectors verified implementation of corrective measures described in the licensee's response to this item in the course of witnessing the conduct of preoperational testing described in paragraph 2a. This item is considered closed.

(Closed) Noncompliance 454/82-10-01 - Changes not incorporated in test procedures and properly marked and updated copies not used for testing.

The inspectors verified that test procedures in use for preoperational testing witnessed (see Paragraph 2a) were current and that all procedure changes were included and appropriately annotated in the body of the procedures. Licensee corrective actions for this item have been effective to date. This item is considered closed.

(Closed) Noncompliance 454/81-12-01 - Scrap pipe and welding equipment stored on RPS instruments.

Licensee corrective actions to protect the subject instruments were verified as having been performed. Concerns regarding housekeeping and care and preservation of safety related equipment, including the licensee's ongoing efforts to preclude repetition of this item are being addressed by the licensee in response to item of noncompliance (454/82-22-05; 455/82-16-03). The inspectors will continue to monitor licensee efforts as part of their routine followup of noncompliance (454/82-22-05; 455/82-16-03). This item is considered closed.

(Closed) Noncompliance 454/82-16-01; 455/82-11-01 - Failure to assure that the Hatfield Electric Company Quality Assurance Manual copies distributed for use are current and properly approved.

The inspectors reviewed a December 9, 1982 memorandum from W. A. Brock, President, Hatfield Electric Company, which established management policy with regard to the control of Quality Assurance Manual Revisions. The Byron Site Quality Assurance Manager (Site Manager) was charged with maintaining status information on all revisions, proposed or approved by the Site Manager and reviewing this information at least once a month. Additionally, the Site Manager was required to document all communications expediting the review and approval process until such time as the Quality Assurance Manual amendment is approved or rejected. The inspectors believe this commitment will assure that current, approved Quality Assurance Manual Revisions will be issued for use by field personnel in a timely manner. This item is considered closed.

(Open) Open Item 454/82-05-18; 455/82-04-18 - Lack of Quality Control Inspector awareness of stop-work responsibility.

The inspectors conducted interviews with several licensee and contractor quality control personnel to determine whether or not Quality Control inspectors had been informed of their "stop-work" responsibility when they observe unacceptable safety-related work in progress. The inspectors determined that the licensee had directed contractors, in writing, to do so. Based on the discussions with personnel from two contractors, the inspectors were not satisfied that actions taken by the contractors adequately addressed the inspectors concerns. This item remain open pending inspector review of additional measures to be taken to assure all contractor quality control personnel are cognizant of their "stop-work" responsibility.

(Open) Unresolved Item 454/82-22-03; 455/82-16-01 - Inability to evaluate safety related equipment damage potential of misplaced jumper due to inadequate documentation of the occurrence.

The inspectors reviewed Technical Staff Memorandum 82-34 which instructed System Test Engineers to document by deficiency report, improper or incorrect actions performed during testing and evaluations of the potential consequences of these actions. The inspectors feel that these instructions address their concerns but will further review implementation of these instructions to determine whether or not additional actions and/or commitments are warranted.

(Open) Open Item 454/82-22-04; 455/82-16-02 - No time limit placed on Pretest Reviews.

The inspectors reviewed Revision 12 to the Byron Startup Manual effective December 1, 1982, which clarified the phrase, "shortly before a test is executed the procedure will be reviewed....." by adding, ".....but in no case more than one month prior to test start.....". The inspectors find this to be an acceptable commitment, however, the inspectors' concern

was presented to and acknowledged by the licensee as early as October 29, 1982. From October 29, 1982 to December 1, 1982, approximately eight preoperational tests were begun. Several of these tests had not received timely Pretest Reviews, as defined by the current commitment. This situation was addressed by Technical Staff Memorandum 82-33, dated October 8, 1982, which instructed System Test Engineers to: review drawings referenced in the test to determine what changes to the system, if any, have occurred since the Pretest Review was performed; determine their effect on the test and, where applicable, generate a Major Test Change Request. Major Test Change Requests are reviewed by the Test Review Board (the same body performing Pretest Reviews) prior to test execution. The inspectors will review the effectiveness of these measures employed in lieu of the December 1, 1982 commitment to determine whether or not corrective measures were timely and adequate. This item remains open.

7. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of non-compliance or deviations. A previous unresolved item disclosed during the inspection report is discussed in Paragraph 6.

8. Exit Interview

The inspector met with licensee representative in Paragraph 1 at the conclusion of the inspection on January 5, 1983. The inspector summarized the purpose and the scope of the inspection and the findings.