

DMB

JUN 21 1985

Docket No. 50-455

Commonwealth Edison Company
ATTN: Mr. Cordell Reed
Vice President
Post Office Box 767
Chicago, IL 60690

Gentlemen:

This refers to the routine safety inspection conducted by Messrs. J. M. Hinds, Jr. and K. A. Connaughton of this office on May 16-June 17, 1985, of activities at Byron Station Unit 2, authorized by NRC Construction Permit No. CPPR-131 and to the discussion of our findings with Mr. G. Sorensen and others of your staff at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

No violations of NRC requirements were identified during the course of this inspection.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room.

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JUN 21 1985

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

original Signed By W. L. Forney

R. F. Warnick, Chief
Reactor Project Branch 1

Enclosure:

1. Inspection Report
No. 50-455/85017(DRP)

cc w/encl:

D. L. Farrar, Director
of Nuclear Licensing
V. I. Schlosser, Project Manager
Gunner Sorensen, Site Project
Superintendent
R. E. Querio, Station
Superintendent
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII Byron
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Phyllis Dunton, Attorney
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Diane Chavez, DAARE/SAFE
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RIII
WLF
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RIII
WLF
Warnick

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-455/85017(DRP)

Docket No. 50-455

License No. CPPR-131

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

Facility Name: Byron Station, Unit 2

Inspection At: Byron Station, Byron, IL

Inspection Conducted: May 16-June 17, 1985

Inspectors: J. M. Hinds, Jr.

K. A. Connaughton

Approved By: *W. L. Forney*
W. L. Forney, Chief
Reactor Projects Section 1A

6/21/85
Date

Inspection Summary

Inspection on May 16-June 17, 1985 (Report No. 50-455/85017(DRP))

Areas Inspected: Routine unannounced safety inspection by the resident inspectors of licensee action on previous inspection findings; 10 CFR 50.55(e) reports; location of manual trip circuit in the solid-state protection system; prevention of equipment problems experienced on Unit 1; flushing procedures; and housekeeping/care and preservation of safety related equipment.

The inspection consisted of 128 inspector-hours onsite by 2 NRC inspectors including 11 inspector-hours during off-shifts.

Results: Of the six areas inspected no violations or deviations were identified, and no issues were identified which might indicate potential public health and safety concerns.

DATE
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DETAILS

1. Persons Contacted

Commonwealth Edison

T. Maiman, Manager of Projects
V. I. Schlosser, Byron Project Manager
R. Tuetken, Byron Startup Superintendent
R. Querio, Byron Station Superintendent
*G. Sorensen, Byron Project Construction Superintendent
*F. Hornbeak, Unit 2 Technical Staff Supervisor
*R. Klingler, Project QC Supervisor
*J. Woldridge, QA Supervisor
J. Binder, Project Electrical Supervisor
D. Pyatt, Project Constructin
D. Kruger, Technical Staff
*J. Langan, Technical Staff
P. Anthony, Technical Staff

Harfield Electric Company

A. Smith, QA/QC Manager

The inspectors also contacted and interviewed other licensee and contractor personnel during the course of this inspection.

*Denotes those present during the exit interview on June 17, 1985.

2. Action on Previous Inspection Findings (92702)

(Closed) Noncompliance Item (455/85006-01(DRP)): Failure to provide adequate instructions, procedures or drawings for Engineered Safety Feature (ESF) battery installation. The licensee's response letter dated May 24, 1985, indicated that subsequent to identification of this item, documentation concerning the battery cell-to-end stringer gap dimensions was provided in the field work instructions. Battery installation was completed with gaps properly established and verified by quality control inspection. All Hatfield Electric Company (HECo) field engineering personnel were advised of the need to keep special work instructions with work packages.

The inspector verified accomplishment of the foregoing corrective actions by review of HECo Rework Requests Nos. 11751, 11752, 11753 and 11754 as well as direct measurements of ESF batteries 211 and 212 battery cell-to-end stringer gaps. The inspector was provided a copy of a HECo Engineering Directive dated May 17, 1985, which provided appropriate guidance concerning incorporation of special instructions into field work instructions. All HECo engineering personnel acknowledged their reviews of the directive by signature.

3. 10 CFR 50.55(e) Reports (92716)

(Closed) 50.55e Report (455/83011-EE): Anaconda flexible conduit split. This item was previously reviewed in NRC Inspection Report No. 454/85013 and remained open pending verification that the onsite electrical contractor's procedures were satisfactory for implementing design drawing and engineering specification requirements. The inspector reviewed Hatfield Electric Company Procedure 20, "Class 1 Exposed Conduit System Installation," Revision 14, dated March 15, 1984. Section 5.1 of this procedure, "Material" stated that materials used in Category I systems shall be as specified in Sargent and Lundy Standard EB-146, Paragraph 5.1 through 5.2.8. Paragraph 5.2.5 of the subject standard specified the use of either Service Air Co. SF65 series/SS63 series or American BOA NB series flexible conduit for installations inside containment.

For equipment supplied by offsite vendors with Anaconda flexible conduit and located inside containment or another harsh environment, electrical drawing 6E-O-3000K, note 3D specified that the conduit would be replaced with those types specified in Sargent and Lundy Standard EB-146. The licensee generated the following Hatfield Electric Company Rework Requests to require replacement of the supplied Anaconda conduit.

<u>ITEM</u>	<u>Hatfield Rework Request Nos.</u>
Instrument Panel 2PL50J	6366
Instrument Panel 2PL52J	6365
Instrument Panel 2PL53J	5400
Instrument Panel 2PL54J	5701
Instrument Panel 2PL55J	5702
Instrument Panel 2PL56J	5724
Instrument Panel 2PL57J	5725
Instrument Panel 2PL60JA	6001
Instrument Panel 2PL60JB	6002
Instrument Panel 2PL60JC	6003
Instrument Panel 2PL60JD	6004
Instrument Panel 2PL61JA	6005
Instrument Panel 2PL61JB	6006
Instrument Panel 2PL61JC	6007
Instrument Panel 2PL61JD	6008
Instrument Panel 2PL66J	6367
Instrument Panel 2PL67J	6368
Instrument Panel 2PL69J	6369
Instrument Panel 2PL70J	5703
Instrument Panel 2PL71J	6009
Instrument Panel 2PL72J	6010
Instrument Panel 2PL74J	5704
Instrument Panel 2PL75J	6370
Instrument Panel 2PL76J	5705
Polar Crane	6033
Manipulator Crane	6032

4. Inspection of the Location of the Manual Trip Circuit in Westinghouse Designed Plants With a Solid State Protection System (SSPS)-TI 2500/14 (25014)

a. Background

The effects of short-circuit failures of the output transistors in the UV output circuit of the Westinghouse SSPS were highlighted in recently issued Information Notice No. 85-18. A short-circuit failure of the type described in the notice would prevent the automatic tripping of the associated reactor trip breaker (RTB) on a valid reactor trip demand.

During NRC review of this matter, another potential deficiency involving the SSPS was discovered. Namely, the use of erroneous controlled schematic diagrams of the SSPS at an operating facility. Except for the drawings being used by the I&C technicians, the controlled schematic diagrams of the SSPS being used at that facility erroneously depicted the manual trip circuit for the RTBs as being upstream of two particular output transistors. If such were the case, and if one of the output transistors was shorted as described in Information Notice 85-18, then the manual trip action associated with the UV portion of the trip circuit would also be ineffective.

Temporary Instruction TI 2500/14 was therefore issued to require NRC inspector verification that the SSPS manual trip circuits were downstream of the undervoltage output transistors and thus the manual undervoltage trip functions were not vulnerable to shorting of the transistors.

b. Inspection

The inspector reviewed electrical drawings GE-2-4030 EF29, "Schematic Diagram, Reactor Protection, Part-2, Train A," Revision B, dated October 13, 1984, and 6E-2-4030 EF73, "Schematic Diagram Reactor Protection Part-2 Train B," Revision B, dated September 19, 1984. These drawings correctly specified that the manual undervoltage trip circuits were downstream of output transistors Q3 and Q4 on the undervoltage driver cards.

To further verify that the foregoing schematics accurately reflected the as-installed SSPS equipment the inspector contacted licensee technical staff personnel and was provided with: an identical schematic (applicable to both trains) from the Byron Station SSPS vendor manual; Westinghouse Electric Corporation Instrumentation and Control Drawings 2379A59 Sheet 6, Revision D and Sheet 9, Revision AC; Drawing 6E-2-4114F, "External Wiring Diagram, Solid State (RX&ESF) Protection System Cabinet, Train A (Logic Section) Part 3 (2PA09J)", Revision C, dated March 5, 1984; Drawing 6E-2-4052AA, "Internal-External Wiring Diagram MCB Reactor and Chemical Volume Control Section B2, Part 11 (2PM05J)," Revision B, dated November 19, 1984; Drawing 6E-2-4054U,

"Internal-External Wiring Diagram MCB Engineered Safety Features Section A2, Part 6 (2PM06J)," Revision C, dated December 12, 1984; Drawing 6E-2-4054P, "Internal-External Wiring Diagram MCB Engineered Safety Features Section A2 Part 2 (2PM06J)," Revision E, dated August 8, 1984 and; Drawing 6E-2-4208B, "Internal-External Wiring Diagram Reactor Trip Switchgear Cabinet 2 2RD05E," Revision F dated March 22, 1985.

The above listed wiring diagrams and drawings traced wiring from the Undervoltage Output Cards, Pins 29 and 30, through the manual reactor trip and manual safety injection control switches to the termination points on the reactor trip switchgear cubical which were connected to the undervoltage trip coil. Based upon review of the foregoing "Approved for Use" design and construction drawings the inspector concluded that the Byron Unit 2 SSPS was configured such that shorting of output transistors Q3 and/or Q4 on the undervoltage output card would not defeat the manual undervoltage reactor trip function.

No violations or deviations were identified.

5. Prevention of Equipment problems Experienced on Byron Unit 1 (92706)

During a management meeting held on May 28, 1985, and documented in NRC Inspection Report (454/85021(DRP)) certain equipment problems encountered during the Byron Unit 1 startup testing program were discussed. One such problem concerned the improper installation of an air-operated non-return check valve in an extraction steam line which was required to function as part of the main turbine overspeed protection system.

While prompt corrective action was taken to address this matter for Unit 1 it was not apparent to NRC personnel present at the May 28, 1985, meeting that actions had been taken or were planned to be taken to assure a similar problem did not exist on Unit 2. Moreover, it appeared that depending upon the circumstances under which Unit 1 equipment problems were identified, as well as the manner in which they were documented and corrected, the problems may or may not have been evaluated for applicability to Unit 2.

Regarding the specific instance involving an improperly installed non-return check valve, the licensee performed a Unit 2 system walkdown on May 20-24, 1985. This walkdown verified that the following check valves were properly installed relative to the direction of flow:

2ES002
2ES005
2ES008
2ES011A
2ES011B
2ES011C
2ES015A
2ES015B
2ES015C
2ES017A
2ES017B
2ES017C
2ES062A
2ES062B

The inspector has no further concerns relative to this specific item.

Regarding the programmatic concern that Unit 1 equipment problems encountered during Unit 1 startup testing and commercial operation are properly evaluated for applicability to Unit 2, the licensee agreed to describe those measures already in place or which will be in place to address this concern during a future scheduled management meeting. Pending inspector review and evaluation of information to be provided by the licensee this matter is considered an open item (455/85017-01(DRP)).

6. System Flushing Procedure Review (92706)

The inspector reviewed Byron Unit 2 Flush Procedure 2.018.52, "Chemical and Volume Control System," Revision 0, dated November 8, 1984, against the requirements of the licensee's quality assurance manual, the Byron Flushing Manual, and ANSI N45.2.1, "Cleaning of Fluid Systems and Associated Components During the Construction Phase of Nuclear Power Plants," dated 1973 as endorsed and supplemented by NRC Regulatory Guide 1.37, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Watercooled Nuclear Power Plants," Revision 0, dated March 7, 1973.

Specifically, the inspector verified that the subject procedure had received required reviews and approvals including reviews against 10 CFR 50.59 considerations; specified prerequisites; properly specified system cleanliness requirements, including influent and effluent water quality; included marked up piping and instrumentation diagrams (P&IDs) to delineate flush paths and sample points and; provided for documented verifications of installation and removal of temporary system alterations.

No violations or deviations were identified.

7. Housekeeping/Care and Preservation of Safety Related Components (92706)

The inspectors conducted plant tours of Unit 2 between May 16 and June 17, 1985. Areas of the Unit 2 plant observed during the tours included the containment, fuel handling and storage areas, auxiliary building areas including the Unit 2 portion of the control room, and the turbine building. Areas were inspected for work in progress, state of cleanliness, overall housekeeping, state of fire protection equipment and methods being employed, and the care and preservation of safety-related components and equipment. The inspectors paid particular attention to areas identified to the licensee during the previous inspection period as requiring increased attention to establish and maintain levels of cleanliness commensurate with the current stage of Unit 2 construction. The inspectors determined that licensee actions continued to be effective in the previously identified areas.

No violations 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 involve some action on the part of the NRC or licensee or both. An open item disclosed during the inspection is discussed in Paragraph 5.

9. Exit Interview (30703)

The inspectors met with licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on June 17, 1985. The inspectors summarized the purpose and scope of the inspection and the findings. 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.