

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-454/92009(DRS); No. 50-455/92009(DRS)  
No. 50-456/92009(DRS); No. 50-457/92009(DRS)


Docket Nos. 50-454; 50-455                      Licenses No. NPF-37; NPF-66  
Nos. 50-456; 50-457                              No. NPF-72; NPF-77

Licensee: Commonwealth Edison Company  
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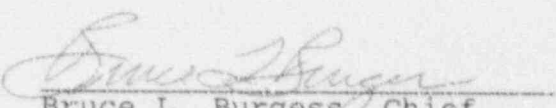
Facility Name: Byron and Braidwood Nuclear Power Stations -  
Units 1 and 2

Inspection At: Byron, IL 61010-9750;  
Braceville, IL 60407

Inspection Conducted: March 22 - June 5, 1992

Inspector:   
Peggy R. Rescheske

04/01/92  
Date

Approved By:   
Bruce L. Burgess, Chief  
Operational Programs Section

2/1/92  
Date

Inspection Summary

Inspection on March 22 - June 5, 1992  
(Reports No. 50-454/92009(DRS); No. 50-455/92009(DRS),  
and Reports No. 50-456/92009(DRS); No. 50-457/92009(DRS))

Areas Inspected: Routine safety inspection focusing on the Byron and Braidwood Emergency Operating Procedures (EOPs) and associated program controls. The scope of the inspection was primarily limited to review of licensee actions to resolve previously identified issues documented in NRC EOP Team Inspection Reports No. 50-456/89011(DRS); No. 50-457/89011(DRS), for the Braidwood Station, and subsequent EOP followup Inspection Reports No. 50-454/89011(DRS); No. 50-455/89013(DRS), for the Byron Station. The inspection was conducted under NRC Inspection Procedure No. 42001.

Results: No violations of NRC requirements were identified, three previously identified open items were closed, and one open item was identified.

All licensee actions taken in response to the three previously identified open items appeared to have been completed satisfactorily, except as follows. The licensee had adequately revised the verification and validation (V&V) program for the EOPs to include the Operating Abnormal procedures (OAs) and other EOP referenced procedures; however, a complete V&V (including walkthroughs) had not yet been conducted for the approximately fifty OAs. This effort, along with a revision of the OAs, was expected to be completed in March 1992.

The licensee's EOP-related equipment labeling program was considered to be a strength. The program reduced the potential for time delays due to difficulty in locating local EOP components, especially in degraded lighting conditions.

## REPORT DETAILS

### 1. Persons Contacted

#### Commonwealth Edison Company (CECo)

##### Braidwood Station

\*D. E. O'Brien, Acting Plant Manager  
\*D. E. Cooper, Assistant Operations Superintendent  
\*A. J. D'Antonio, Nuclear Quality Programs Superintendent  
\*K. Hartje, Operations Staff  
\*M. Hoffman, Procedure Writer  
\*K. Holle, Operations Staff  
\*J. Lewand, Regulatory Assurance Staff  
\*J. Nalewajka, Assistant Administrative Operations Engineer  
\*K. M. Root, Procedure Group Coordinator  
\*R. Yungk, Administrative Operations Engineer

##### Byron Station

\*\*G. K. Schwartz, Production Superintendent  
\*\*G. Bowers, Operations Staff  
\*\*D. Brindle, Regulatory Assurance Supervisor  
\*\*W. Grundmann, Nuclear Quality Programs Superintendent  
# S. Merrell, Operations Staff  
\*\*S. Pierson, Operations Staff  
\*\*J. Schrock, Administrative Operations Engineer  
\*\*E. Zittle, Regulatory Assurance Staff

##### U.S. Nuclear Regulatory Commission (NRC)

S. G. DuPont, Senior Resident Inspector, Braidwood Station  
\*\*C. H. Brown, Resident Inspector, Byron Station  
\*\*J. I. Tapia, Acting Senior Resident Inspector, Byron

\*Denotes those individuals attending the exit meeting held at the Braidwood Station on June 04, 1992.

\*\*Denotes those individuals attending the exit meeting held at the Byron Station on June 05, 1992.

#Denotes those attending both exit meetings.

Other persons were contacted during the inspection including members of the licensee's operations staff.

### 2. Inspection Overview

The inspection focused on the Byron and Braidwood Emergency Operating Procedures (EOPs) and associated program controls.

Since the licensee's Byron and Braidwood Stations are basically identical, plant procedures and programs for the four operating units were generally identical. This was especially the case for the EOPs and supporting procedures, and the associated program controls. A unified approach was necessary when revisions to the procedures and programs were required, and for resolution of issues affecting the EOPs.

The Byron and Braidwood EOPs were generated from the Westinghouse Owners Group (WOG) Emergency Response Guidelines (ERGs), Revision 1A. The EOPs were supported by normal and off-normal operating procedures, which were generally referenced in the EOPs. The program controls for the EOPs were contained in the Procedures Generation Package (PGP). This document included the plant specific technical guidelines, the writers guide for both the EOPs and the operating abnormal procedures (OAs), the verification and validation (V&V) programs, and a program description for operator training on the EOPs.

The inspection focused on the licensee's actions to resolve previously identified issues in this area. Three open items were identified in the NRC EOP Team Inspection Reports No. 50-456/89011(DRS); No. 50-457/89011(DRS), dated June 19, 1989, for the Braidwood Station, and subsequent EOP followup Inspection Reports No. 50-454/89011(DRS); No. 50-455/89013(DRS), dated January 12, 1990, for the Byron Station. Licensee responses to the inspection items were documented in the following correspondence to the NRC: letters to A. Bert Davis from T. J. Kovach dated July 19, August 7, December 29, 1989, and September 17, 1990; and letter to A. Bert Davis from T. K. Schuster dated April 01, 1991. In conjunction with the review of these items, the inspector conducted limited in-plant walkthroughs of selected local actions specified in the EOPs. Based on the inspector's review of representative records and discussions with the licensee, all actions taken in response to the open items appeared to have been completed satisfactorily, except as noted in Paragraph 3.c. Licensee action on this remaining issue will be tracked as an open item.

### 3. Inspection Results

The following discussion constitutes closure of the three open items for the Byron and Braidwood Stations, Units 1 and 2.

- a. (Closed) Open Item (454/89011-01, 455/89013-01, 456/89011-01, 457/89011-01): A number of minor concerns were identified with the EOPs and supporting procedures. Typical of these concerns were: inconsistent component location information for local



actions, action statements appearing in "cautions" and "notes", and minor technical and reference errors or omissions. The licensee had completed the appropriate procedure revisions or temporary changes in March 1992, and this item is considered closed.

- b. (Closed) Open Item (454/89011-02, 455/89013-02, 456/89011-02, 457/89011-02): This open item tracked licensee resolution to four issues resulting from the in-plant walkthroughs of the EOPs during the team inspection. Three of the four issues were specific to a local action performed in the EOPs, such as providing hand pump extenders for the steam generator PORV local operation. The licensee had dispositioned these items appropriately. The remaining issue tracked completion of the licensee's plant component labeling improvement program with respect to EOP-related valves and electrical equipment. The licensee had completed labeling of EOP-related components at both the Byron and Braidwood Stations in March 1992, and this open item is considered closed.

During the in-plant walkthroughs of EOP local actions, the inspector observed the "high-visibility" labels. Previous labels were the standard small metal tags with raised lettering. The new labels were reflective and arrow/information labels were placed at eye level for EOP components located at high elevations. The licensee's EOP-related labeling was considered to be a strength. The labeling reduced the potential for time delays due to difficulty in locating local EOP components, especially in degraded lighting conditions.

- c. (Closed) Open Item (454/89011-03, 455/89013-03, 456/89011-03, 457/89011-03): This item tracked licensee resolution to basically two issues, one was the use of the word "consider" in the EOPs. The licensee had completed the appropriate procedure revisions to change "consider" to a direct action verb, and this portion of the open item is closed. The second issue concerned the following weaknesses identified in the V&V program and implementation for the EOPs and supporting procedures: walkthrough methodology was not used for validating Revision 1 to the EOPs (however, all EOPs had been walked through in 1985 for the initial implementation of the WOG ERGs Revision 1A), the EOP supporting procedures (e.g., the OAs) were not included in the V&V program, and post-accident radiation levels had not been explicitly addressed in the V&V effort for local actions. Based on the Byron/Braidwood UFSAR Chapter 12 description, which detailed the design features that would limit

radiation exposure in both normal and post-accident environments, this last portion of the open item is considered closed.

The remaining issues were programmatic in part, however the concern was also that V&V of the supporting procedures had not been conducted. In response to the concerns, the licensee revised the PGP in 1990 to include OAs and other EOP referenced procedures in the V&V program. Walkthrough methodology continued to be an option described in the PGP. The licensee's response to the NRC, dated July 17, 1989, stated that the V&V of the OAs and other EOP referenced procedures would be performed with the first revision of each of the affected procedures. Further, the licensee stated that the V&V of these procedures would be incorporated into the normal two year procedure review cycle which was expected to be completed by March 31, 1992. The licensee also stated that for the next revision of an EOP, OA, or other EOP referenced procedure, which directed operator action outside the main control room, a walkthrough would be part of the V&V for that affected procedure. This effort would also be incorporated into the normal two year review cycle which was expected to be completed by March 31, 1992. The two year procedure review of the OAs was implemented at the Byron Station, however it had been deleted at Braidwood for no apparent reason. Procedure walkthroughs did not appear to be part of the review effort.

As of the end of this inspection, the licensee had not conducted the walkthroughs or issued permanent revisions to the approximately fifty (50) Byron and Braidwood Operating Abnormal procedures (with the exception of OA PRI-10). The inspector noted that the last revision dates for the OAs ranged from 1986 to 1989. Over 20% of the procedures had temporary procedure changes in effect (several over two years old), and at least one (OA SEC-8) had been "partially, but permanently" revised. According to the licensee, a temporary procedure change (TPC) or a partial revision were not procedure revisions, therefore complete V&V was not conducted for those procedures. The PGP suggested that for partial revisions, V&V should be performed on the specific change only. In response to NRC concerns identified in a recent EOP followup inspection at the Dresden plant, the licensee was planning to revise the PGP to also consider V&V for TPCs. The inspector noted that several of the TPCs were technical changes, e.g, to incorporate a change in vendor technical manual. Further, several of the TPCs

appeared to be changes in the sequence of operator actions. The inspector also noted that substantial "problem files" existed for many of the OAs. These "problem files" were a compilation of information (e.g., minor procedure deficiencies) to be utilized for the next permanent revision of the procedure. The licensee had planned that the next revision to the OAs would be a rewrite of the procedures, incorporating the TCPs, the "problem files", and human factors enhancements.

The inspector conducted in-plant walkthroughs, accompanied by operations representatives, at both Byron and Braidwood for selected local actions specified in several OAs. The inspector identified weaknesses in 1BOA ELEC-5 "Local Emergency Control of Safe Shutdown Equipment," which would have been identified by the licensee if a thorough V&V of the procedure had been performed. In Attachment I of 1BOA ELEC-5, an emergency start of the control room chiller unit was required to be performed. An action in the Response Not Obtained (RNO) column of Attachment I stated, in part, to manually or locally align equipment as necessary. The original intent of this step including the equipment referenced could not be determined. Another problem in the procedure was the statement in the Action column which required starting the chiller unit at the local control panel. This should have been the Response Not Obtained action for failure to manually start the chiller from the control room; however, the manual start was not a required action in this procedure. Though these deficiencies appeared relatively minor, the potential existed for time delays in accomplishing the intent of this procedure.

The purpose of a V&V program is to ensure written correctness, and technical accuracy and useability of the EOPs and supporting procedures. Validation, specifically walkthroughs of local in-plant actions, should provide assurance that these EOP tasks can be accomplished as written with the existing equipment, controls, and instrumentation. The problems with 1BOA ELEC-5 would have been identified and corrected if the licensee had performed a V&V including walkthroughs for this procedure.

Portions of the following procedures were also included in the walkthroughs:

- 1BWOA ELEC-1 "Loss of DC Bus" (Braidwood)

- 1BWOA PRI-6 "Component Cooling Water Malfunction" with TPC No. 4731 (Braidwood)
- 1BWOA PRI-8 "Essential Service Water Malfunction" (Braidwood)
- 1BWOA SEC-4 "Loss of Instrument Air" with TPC No. 5770 (Braidwood)
- 1BOA SEC-3 "Loss of Condenser Vacuum" (Byron)

The licensee's completion of the V&V and revision of the all OAs will be tracked as an open item for the Byron and Braidwood Stations, Units 1 and 2 (Open Item 454, 455, 456, 457/92009-01(DRS)).

4. 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. One open item was identified during this inspection and is described in Paragraph 3.c.

5. Exit Meeting

The inspector met with licensee representatives (denoted in Paragraph 1) on June 4 - 5, 1992. The inspector summarized the purpose, scope, and findings of the inspection and the likely informational content of the inspection report. The licensee acknowledged this information and did not identify any information as proprietary.