

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-295/85023(DRSS); 50-304/85024(DRSS)

Docket Nos. 50-295; 50-304

Licenses No. DPR-39; DPR-48

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

Facility Name: Zion Nuclear Generating Station, Units 1 and 2

Inspection At: Zion Site, Zion, IL

Inspection Conducted: August 12-16, 1985

Inspector: *GA Brown*  
G. A. Brown  
Team Leader

*9/3/85*  
Date

Approved By: *M. P. Phillips*  
M. P. Phillips, Chief  
Emergency Preparedness Section

*9/3/85*  
Date

Inspection Summary

Inspection on August 12-16, 1985 (Report No. 50-295/85023(DRSS);  
No. 50-304/85024(DRSS))

Areas Inspected: Routine announced inspection of the following areas of the emergency preparedness program: licensee actions on previously-identified items; activation of the emergency plan; emergency detection and classification; protective action decisionmaking; notification and communication; changes to the emergency preparedness program; shift staffing and augmentation; knowledge and performance of duties (training); licensee audits; and maintenance of emergency preparedness. The inspection involved 150 inspector-hours onsite by two NRC inspectors and two contractors.

Results: Of eight areas inspected, no apparent items of noncompliance or deviations were identified.

## DETAILS

### 1. Persons Contacted

- \*K. Graesser, Station Manager
- \*R. Landrum, Acting Training Supervisor
- \*C. Schultz, Assistant Superintendent Services
- \*G. Pliml, Superintendent, Operations
- \*G. Wagner, PWR Operations Manager-NSD GO
- \*A. Nykiel, GSEP Coordinator
- \*E. Fuerst, Assistant Superintendent Operations
- \*W. Stone, Quality Assurance Supervisor
- \*M. Hansen, Quality Control
  - L. Minejevs, Office Supervisor
  - G. Tryzma, Radiation-Chemistry Supervisor
  - B. Kurth, Assistant Superintendent for Technical Services
  - R. Cascavano, Technical Services Supervisor
  - A. Ockert, Assistant Technical Services Supervisor
  - D. Nielson, Procedures Change Clerk
  - R. Aker, Radiation Protection Manager
  - R. Johnson, Master Mechanic
  - W. Demo, Shift Engineer
  - T. Flower, Shift Engineer
  - G. Armstrong, Shift Engineer
  - G. Harbin, Shift Engineer
  - W. Otterson, Training Instructor
  - H. Logaras, General Instructor, Training
  - T. Blake, General Instructor, Training
  - W. Cramer, General Instructor, Training
  - D. McMenamin, Quality Assurance Inspector

\*Indicates those attending the June 28, 1985, exit interview.

### 2. Licensee Actions on Previously-Identified Items

(Closed) Open Item No. 295/83-09-08; No. 304/83-09-08: Describe the current EOF and its new communications systems in the Zion Annex. Section 7.1.5 and 7.2, Revision 4 of the Zion Station Annex now adequately describes the EOF and communications systems. This item is considered closed.

(Closed) Open Item No. 295/83-09-09; No. 304/83-09-09: Reinstitute a tracking system to ensure completion of corrective actions to resolve deficiencies identified during drills and exercises. The licensee has implemented a program to ensure that corrective action is taken to resolve drill and exercise deficiencies. GSEP 1 9-84 GSEP Critique and Response Form, is a three part form which provides for the tracking of response and follow-up actions. This item is considered closed.

(Closed) Open Item No. 295/84-04-01; No. 304/84-04-01: The Zion Annex must be revised to properly describe all segments of the OSC. Section 7.1.3, Revision 4 of the Zion Station Annex now adequately describes all segments of the Operational Support Center (OSC). This item is considered closed.

(Closed) Open Item No. 295/84-10-02; No. 304/84-10-02: Revise EPIP 110-1 to conform with revised protective action guidance found in GSEP Revision 4A. The inspector reviewed Revision 18 to EPIP 110-1 and determined that the procedure had been revised to incorporate all of the protective action decisionmaking guidance contained in Revision 4A of the GSEP. However, it was noted that the actual pages found in the procedure are labeled "EPIP 100-1." This guidance is also contained in EPIP 100-1, Acting Station Director Implementing Procedure. Although the revision was dated November 26, 1984, the procedure change was never included in the required reading packages which have subsequently been issued. This was because the changes made were not considered significant by the Training Supervisor at the time of the change, although the text of the previous version of the procedure contradicted the requirements of the GSEP. The revised procedure has been used during the 1985 operator requalification training and five of the six Acting Station Directors have received this training, with the sixth scheduled for November 1985. Walkthroughs with this sixth individual indicated that with some difficulty he could use the guidance provided in the procedures to make an appropriate protective action recommendation. This item is considered closed.

(Closed) Open Item No. 295/84-10-03; No. 304/84-10-03: Licensee failed to conduct an assembly/accountability drill since the January 1983 exercise. The licensee conducted assembly/accountability drills on August 9, 1984 and July 20, 1985. The licensee has also included all required drills and exercises into the Station Commitment Tracking System. This will ensure that all emergency preparedness drills will be conducted within the required time period. This item is considered closed.

(Closed) Open Item No. 295/84-10-04; No. 304/84-10-04: GSEP drill records were inadequately detailed. The inspectors examined the drill records for all drills conducted during the period June 1984 to July 1985. Drill records included a copy of the drill scenario, listing of personnel involved, critique comments, and the forms used to track corrective actions proposed and the status of those corrective actions. Goals and objectives were provided when not clear from the scenario. This item is considered closed.

(Open) Open Item No. 295/84-10-01; No. 295/85008-01; No. 304/84-84-10-01; and No. 304/85009-01: Emergency Action Levels (EALS) need to be revised to provide adequate guidance regarding what initiating conditions warrant emergency declarations. The licensee has not revised the EALS since this item was first identified. A task force was developed which included representation from all of the licensee's PWR stations. This task force was formed to review and revise the EALS at all sites and try to make them consistent for all sites. The task force had completed preliminary work on the revised EALS, and these EALS were being circulated among the

PWR stations for review and comment. By letter dated June 12, 1985, to NRC Region III, Zion Station committed to complete this review of the EALs by August 15, 1985, after which time the EALs would be submitted to the NRC for review and approval. Pending approval of the revised EALs and incorporation in the Zion Annex and the Emergency Plan Implementing Procedures (EPIPs), this item remains open.

(Open) Open Item No. 295/83-09-10; No. 304/83-09-10: Develop a training program for Shift Engineers similar to that of Dresden to ensure periodic training in classification of emergencies, etc. Initially, the licensee reported that a letter pertaining to this subject had been sent to Region III NRC. However, no copy of the letter could be located during the inspection. This item remains open pending action by the licensee.

### 3. Activation of the GSEP

(Closed) Open Item No. 295/85001-XX; No. 295/85002-XX; No. 304/84008-XX; No. 304/850XX-01; No. 304/850XX-02; No. 304/850XX-03; and No. 304/850XX-04: Activations of the GSEP. During the period August 14, 1984 through July 18, 1985, the on-duty Shift Engineer (SE) activated the Generating Station Emergency Plan (GSEP) on eleven occasions. All of these activations were classified as Unusual Events. The inspectors reviewed the associated SE's logs and copies of the Station's Nuclear Accident Reporting System (NARS) forms. The Illinois Emergency Services and Disaster Agency (IESDA) and the Wisconsin Department of Emergency Government (WDEG) were also contacted to determine their recorded notification times for these events for comparison with the licensee's reporting times indicated on the NARS forms. All notifications were made by the licensee within the required time.

It was noted that the average reporting time of 6.1 minutes for the eleven notifications in 1984-85 was a significant improvement over the 11.2-minute average notification time for 1983-84.

Based on the above findings, this portion of the licensee's program is acceptable.

### 4. Emergency Detection and Classification

Pursuant to 10 CFR 50.47(b)(4) and 10 CFR Part 50, Appendix E, Sections IV.B and IV.C, this program area was inspected to determine whether the licensee used and understood a standard emergency classification and action level scheme.

The inspectors reviewed the licensee's classification procedures. The event classifications in the procedures were consistent with those required by regulation. The classification procedures did not appear to contain impediments or errors which could lead to incorrect or untimely classification. However, Table ZA 5-1 Zion EALs Class Description Item 22, Loss of Fission Product Barriers, indicates units for "Failed Fuel Instrument (PR-19)" in "R/hr." The actual meter providing the data reads in units of "mR/hr." This could lead to confusion during the stress created by an emergency situation.



Walkthroughs with four Shift Engineers (SEs) and one Station Director (SD) were conducted to determine each individuals ability to detect and classify emergencies, to make onsite and offsite notifications, and to provide protective action recommendations. All were able to adequately detect and classify emergencies.

No violations or deviations were identified in this area.

#### 5. Protective Action Decisionmaking

Pursuant to 10 CFR 50.47(b)(9) and (10) and 10 CFR Part 50, Appendix E, Section IV.D.3, this area was inspected to determine whether the licensee had 24-hour-per-day capability to assess and analyze emergency conditions and make recommendations to protect the public and onsite workers.

Walkthroughs involving protective action decisionmaking were conducted with four shift engineers (SE's) and one Station Director to determine their cognizance of appropriate onsite protective measures and their level of awareness of the range of protective action recommendations appropriate to offsite protection.

On activation of the Generating Station Emergency Plan (GSEP), the SE becomes the Acting Station Director. The SD has the authority and responsibility to make protective action recommendations (PARS) to offsite agencies. All SE's demonstrated the ability to make appropriate PARS during walkthroughs. However, two SE's had difficulty finding the PAR Guide (Table 6.3-1 and Figures 6.3-1) in the EIPs. All SE's were confused by the footnote on the table regarding evacuation time analysis. The footnote states in part, "Evacuation, when noted, is the recommended protective action only when weather conditions permit and an evacuation time analysis confirms it as the preferred choice..." The SE's were not knowledgeable about the time analysis or that a procedure provided a method to perform a time analysis. The matter was discussed with the Commonwealth Edison Corporate Emergency Director who stated that the SE's were not expected to use the procedure.

During the walkthroughs, it was noted that the SE's obtained wind direction from a gauge located on the ventilation panel in the Control Room. Input for this meter is from a vane located on top of the mast of Unit 1 containment where the wind direction is significantly influenced by deflection from the tall buildings in close proximity to the detector. The licensee has a meteorological tower in another area which measures the same parameters and is not subjected to false reading from spurious wind patterns. This was identified as Appendix B Improvement Item No. 10 in the Emergency Preparedness Implementation Appraisal Report dated August 24, 1981. The licensee must take action to ensure that personnel do not use the Control Room instrumentation located on the ventilation panel for primary data in making PARS. This is Open Item No. 295/65023-01 and No. 304/85024-01.

No violations or deviations were identified in this area; however, the following items should be considered for improvement:

- ° The footnote on Table 6.3-1 and Figure 6.3-1 should be revised to clearly reflect what is expected of the SD/Se's when making an evacuation recommendation to offsite agencies.
- ° Tab locations should be provided for PAR Tables 6.3-1 and Figure 6.3-1.

6. Notification and Communications

Pursuant to 10 CFR 50.47(b)(5) and (6) and 10 CFR Part 50, Appendix E, Section IV.D, this area was inspected to determine whether the licensee was maintaining a capability for notifying and communicating (in the event of an emergency) among its own personnel, offsite supporting agencies and authorities and the population with the EPZ.

The inspector reviewed the licensee's notification procedures. The procedures were consistent with the emergency classification and EAL scheme used by the licensee.

The inspector determined by review of applicable procedures and by discussion with licensee representatives that adequate procedural means existed for alerting, notifying, and activating emergency response personnel. The licensee's provisions for accomplishing initial notifications to their personnel and to off-site support organizations were described in GSEP and Zion Annex, Sections 6 and 7 and in EIPs 100-1 and 110-1. The dedicated NARS is the primary means of notifying the IESDA, Illinois Department of Nuclear Safety (IDNS), and WDEG. In addition, the station utilized the dedicated National Warning System (NAWAS) to similarly notify appropriate other State and local governmental agencies in Wisconsin. In the event of failure of these systems, the licensee provides back-up telephone numbers for all appropriate offsite agencies in the GSEP telephone directory and EIPs. The inspector determined that NARS, NAWAS and other dedicated telephone equipment had been installed in the onsite emergency response facilities as described in the GSEP, Zion Annex and EIPs.

The inspector reviewed the monthly communication test reports since the last inspection. The NRC Emergency Notification System (ENS)/Health Physics Network (HPN) phones, the NARS phone system and the NAWAS system are checked during these tests. With the exception of the HPN phone located in the Emergency Operations Facility (EOF), all phones were reported as being operational.

No violations or deviations were identified in this area.

7. Changes to the Emergency Preparedness Program

Pursuant to 10 CFR 50.47(b)(16), 10 CFR 50.54(q) and 10 CFR Part 50, Appendix E Section IV and V, this area was reviewed to determine whether changes were made to the program since the last routine inspection of

August 1984, and to note how these changes affected the overall state of emergency preparedness.

The inspector discussed the licensee's program for making changes to the emergency plan and implementing procedures. The inspector reviewed the licensee's Zion Administrative Procedure ZAP 5-51-4, Revision 4 "Procedure Control and Approval." This procedure governs the review and approval of changes to the plan and procedures. The inspector verified that changes to the plan and procedures were reviewed and approved by management. It was also noted that all such changes were submitted to NRC within 30 days of the effective date, as required.

Discussions were held with licensee representatives concerning recent modifications to facilities, equipment and instrumentation and verified that changes had no significant impact on the emergency program.

The organization and management of the emergency preparedness program were reviewed. The inspector's discussion with licensee representatives disclosed that some changes in the organization and staffing of the emergency organization had occurred, but they had no significant impact on the emergency program.

The inspector reviewed the licensee's program for distribution of changes to the emergency plan and procedures. Document control records for the period August 28, 1984 to August 1, 1985, showed that appropriate personnel and organizations were sent copies of plan and procedural changes, as required. Additionally, random EPIP manuals were reviewed to verify that they contained all procedures and that they were current.

No violations or deviations were identified in this area.

#### 8. Shift Staffing and Augmentation

Pursuant to 10 CFR 50.47(b)(2) and 10 CFR Part 50, Appendix E, Sections IV.A and IV.C, this area was inspected to determine whether shift staffing for emergencies was adequate both in numbers and in functional capability, and whether administrative and physical means were available and maintained to augment the emergency organization in a timely manner.

Shift staffing levels and functional capabilities of all shifts were reviewed and found to be consistent with the guidance of Table B-1 of NUREG-0654. The licensee has established an on-call duty officer system so that essential off-shift personnel are available if needed.

The inspector noted that a Communications Director had been added to the staff of the Technical Support Center and that call-in phone numbers for this position appear at the end of the call-in list. The the call-in phone numbers for the Radiation/Chemistry Director appear near the end of the list with several less important positions in the GSEP having priority. Since the procedure is accomplished sequentially from first to last, the Communication and Radiation/Chemistry Directors should appear nearer the top of the order.

Shift staffing records for the three shifts over the period August 13, 1984 to August 14, 1985, were reviewed. The inspector verified that each shift was adequately staffed.

The inspector reviewed records of two drills conducted January 25, 1985 and July 12, 1985. These records indicated that the January 1985 drill met the Table B-1 augmentation times while the July 1985 drill failed to meet the goal. It was noted that the results of these drills were not formally evaluated by the licensee as satisfactory or unsatisfactory.

The July 1985 drill must be repeated and the results must be evaluated by the licensee. This is Open Item No. 295/85023-02 and No. 304/85024-02.

No violations or deviations were identified in this area; however, the following should be considered for improvement:

- ° Relocate the Radiation Chemistry and Communication Director's numbers nearer to the beginning of the list.

9. Knowledge and Performance of Duties (Training)

Pursuant to 10 CFR 50.47(b)(15) and 10 CFR Part 50, Appendix E, Section IV.F, this area was inspected to determine whether emergency response personnel understood their emergency response roles and could perform their assigned functions.

The inspectors reviewed the description (in the emergency plan) of the training program, training procedures and selected lesson plans, and interviewed members of the instructional staff. Based on these reviews and interviews, the inspector determined that the licensee had established an effective emergency training program.

Records of training for key members of the emergency organization were reviewed. The training records revealed that personnel designated as alternates or given interim responsibilities in the emergency organization were provided with appropriate training. According to the training records, the type, amount, and frequency of training were consistent with approved procedures.

The inspector conducted walkthrough evaluations with selected key members of the emergency organization. During these walkthroughs, individuals were given various hypothetical sets of emergency conditions and data and asked to respond as if an emergency actually existed. The individuals demonstrated familiarity with emergency procedures and equipment.

No violations or deviations were identified in this area.



#### 10. Licensee Audits

Pursuant to 10 CFR 50.47(b)(14) and (16) and 10 CFR 50.54(t), this area was inspected to determine whether the licensee had performed an independent review or audit of the emergency preparedness program.

The inspector reviewed the 1984-1985 Quality Assurance (QA) Department records relating to the Station's emergency preparedness program. The records showed that an independent audit of the program was conducted by "offsite" QA personnel not based at the Zion Station. The audit was conducted September 28, 1984 and reported in Audit Report No. 22-84-II. This audit fulfilled the 12-month frequency requirement for such audits. The audit showed that State and local government interfaces were evaluated, and that findings concerning the interfaces were made available to these agencies. Audit findings and recommendations were presented to plant and corporate management.

No violations or deviations were identified in this area.

#### 11. Maintaining Emergency Preparedness

The inspectors examined records of 1984 and 1985 emergency preparedness related drills, inventories and letters of agreement that were maintained by the GSEP Coordinator. Recordkeeping for all drills included a copy of the drill scenario, scope and objectives, drill critique, list of participants, and, when appropriate, corrective action accomplishment status. All drills and the annual exercise had taken place in accordance with GSEP requirements, however, the annual exercise was used to satisfy the Health Physics drill requirements. These drills were held on June 27 and July 12, 1984 and May 30, 1985. Although a drill may be conducted as part of an exercise, the ability to provide on-the-spot correction and training are lost when this is done. Therefore, drills should be conducted separate from the exercise to allow for maximum training effectiveness. A liquid HRSS sample collection was also demonstrated during the March 1985 exercise.

The 1985 assembly/accountability drill was conducted on a Saturday when few people were onsite compared with a normal day shift. This was done because an off-shift drill had never been conducted. Although accountability was completed in a timely manner, the small number of personnel involved may not provide a good demonstration of the procedure.

All inventories required by the EIPs had been conducted at the appropriate frequencies. Several instances of poor recordkeeping were noted. Not all columns on the inventory forms were filled out; some "quantity" columns only contained checkmarks; some inventory sheets did not indicate when missing supplies were replaced, and, as identified by the licensee, the January 1985 Monthly Radiation Equipment Test and Check form was lost (although a memo documenting the conducting of the inventory had been placed in the file).

Current letters of agreement were on file for the following organizations: Victory Memorial Hospital; Department of Energy; Coast Guard; Kenosha County Division of Emergency Government; Waukegan Emergency Services and Disaster Agency (ESDA); Murray and Trettle; Radiation Management Corporation; Lake County ESDA; Teledyne; Illinois State Police; and City of Zion (Fire, Police, and Ambulance support). Letters of Agreement were not sent to Illinois ESDA, Illinois Department of Nuclear Safety or Wisconsin Division of Emergency Government. These agencies, along with the licensee, are all signatories to either the Illinois Plan for Radiological Accidents (IPRA) and Zion volume of IPRA, or the State of Wisconsin Radiological Emergency Response Plan.

No violations or deviations were identified in this area; however, the following items should be considered for improvement:

- ° Credit should not be taken for drills conducted as part of the annual exercise when the training benefits of a drill will be lost.
- ° Assembly/accountability drills should be conducted with sufficient personnel onsite to provide a good demonstration of the procedure.
- ° Recordkeeping for inventories should be improved to ensure that all information is provided as described on the inventory form and the form is annotated to indicate when missing or deficient supplies are replenished.

## 12. Exit Interview

On August 16, 1985, an exit interview with licensee representatives denoted in Section 1 was held to present the NRC's preliminary findings. The inspector discussed the likely content of the inspection report. The licensee did not identify any of the material as proprietary or safeguards.