

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-295/94004(DRSS); 50-304/94004(DRSS)

Docket No. 50-295; 50-304

License No. DPR-39; DPR-48

Licensee: Commonwealth Edison Company
Opus Place West III
1400 Opus Place
Downers Grove, IL 60515

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

Inspection At: Zion Site, Zion, Illinois

Inspection Conducted: February 14-18, 1994

Inspector:

J. E. Foster
J. E. Foster

Date

3/11/94

Approved By:

William G. Snell
William G. Snell, Chief
Radiological Programs Section 2

Date

3/15/94

Inspection Summary

Inspection on February 14-18, 1994 (Reports No. 50-255/94004(DRSS); No. 50-304/94004(DRSS))

Areas Inspected: Routine, announced inspection of the Zion Plant's emergency preparedness program. Maintenance and operational status of the EP program (IP 82701) were reviewed by an inspector.

Results: No violations or deviations were identified. Maintenance and operational status of the EP program were generally excellent. The station organization for the EP function was a strength. Emergency lighting in the Emergency Operations Facility was deficient. The 1993 audits and surveillances of the program satisfied the requirements of 10 CFR 50.54(t).

DETAILS

1. Persons Contacted

- *A. Broccolo, Station Manager
- *S. Kaplan, Regulatory Assurance Supervisor
- *K. Dickerson, Regulatory Assurance - NRC Coordinator
- *L. Lanes, Emergency Preparedness Coordinator
- *M. Wiesneth, Regulatory Assurance
- *F. Swan, Emergency Preparedness Trainer
- *R. Link, Technical Superintendent
- *M. Madigan, SQV Supervisor
- *K. Hawsing, SQV Director
- R. Cascarano, Services Director
- W. Stone, Performance Improvement Director
- D. Combs, Assistant SSA
- K. Glasure, Burns Security
- C. Claiborn, Burns Security Force Manager

* Indicates persons present at the exit interview on February 18, 1994.

The inspector also contacted other licensee personnel during the inspection.

2. Licensee Action on Previously Identified Items (IP 82301)

(Open) Inspection Followup Item No. 50-295/93012-01; 50-304/93012-01(DRSS): During the 1993 exercise, several problems were noted in plant-wide announcements. The Alert announcement did not include the reason for the declaration or the need to activate onsite emergency facilities. The Site Area Emergency announcement was premature. The assembly siren was not followed by a statement indicating that personnel should report to assembly areas. These incomplete announcements caused some confusion or had the potential to delay responses. Discussion with plant personnel indicated that revisions to procedures and additional training are planned to address these problems. This item will remain open.

(Open) Inspection Followup Item No. 50-295/93012-02; 50-304/93012-02: During the 1993 exercise, the protective measures group exhibited problems utilizing plant status information to develop or validate dose calculations. An example of this was not using plant chemistry results to invalidate a miscalculated iodine release rate of 1.5 E18 microcuries per second. The group exhibited uncertainty in determining a release duration following the steam generator tube rupture event. Increasing nearby dose rate readings were not recognized as indicating further steam generator degradation. Discussions with plant personnel indicated that additional training is planned to address this item. This item will remain open.

3. Operational Status of the Emergency Preparedness (EP) Program (IP 82701)

a. Actual Emergency Plan Activations

Since July 30, 1993, the licensee activated its emergency plan on one occasion. On October 21, 1993, at approximately 2130 hours, Control Room personnel were notified that a contractor employee had fallen into the Unit 2 refueling cavity. The worker was contaminated, but a prudent decision was made to transport the individual for medical treatment without decontamination. Per the appropriate Emergency Action Level, a Unusual Event was declared at approximately 2135 hours and terminated at 0035 hours the following day. The individual was transported to a nearby hospital, examined, and found to have no major injuries. He was subsequently returned to the plant and successfully decontaminated.

Records indicated that the emergency declaration was correct and timely. Comparisons of licensee records with the event report prepared by the NRC duty officer indicated that the licensee's event description was adequately detailed. NRC was initially notified in a timely manner following the emergency declaration and event termination. The licensee's self-assessment of the event was very good, utilizing an "Actual Emergency Event Review Checklist". File information was very complete, including shift logs and decontamination information.

No violations or deviations were identified.

b. Emergency Plan and Implementing Procedures

A number of Emergency Plan Implementing procedures have been changed to accommodate the new TSC, NUMARC EALS, EPA-400, new 10 CFR Part 20 radiation exposure standards, the movement of backup EOF responsibilities to the Downers Grove office and the latest revision (7C) to the Generating Stations Emergency Plan (GSEP). A review of a sample of revised procedures indicated that revisions had been properly made.

Discussion with licensee personnel indicated that inclusion of the NRC on the standardized distribution for Emergency Plan and Emergency Plan Implementing procedure changes ensures that NRC will receive changes in a timely manner. No problems have been experienced in the timely transmittal of Plan or procedure changes.

The inspector reviewed Procedure SAF-1.4 "Reportability Manual." This document provides guidance to Control Room personnel and others as to the reportability of events per the requirements of 10 CFR 50.72, the GSEP and EIPs. A Unit shutdown in compliance with plant technical specifications is still considered as a reportable event, although this no longer required a declaration

of an Unusual Event, per the approved plant EALS, which are patterned after the NUMARC EALs. The document provided excellent guidance.

Discussion with licensee personnel indicated that plant staff had begun the development of Severe Accident Management Guidelines (SAMG), based on their understanding of a Westinghouse group developing these guidelines. Official issuance of these guidelines is scheduled for the second half of 1994.

Instructions for the activation of the Emergency Response Data System (ERDS) were contained in EPIP 100-1 as a portion of a checklist which referenced EPIP 100-2, the activation procedure itself. Discussion with licensee personnel indicated that the ERDS data point library will be removed from EPIP 100-2 Revision 1. Review of the activation procedure indicated that it is easy to follow and adequately detailed. Subsequent interviews with station personnel indicated that they could implement this procedure.

The inspector reviewed EPIP 100-3, "Recovery, Reentry, and Termination". While this procedure is adequate for determination of termination of an emergency class and some station internal needs in the post-accident environment, it does not address the organization or the needs which would exist at that point in time. A procedure is needed which would provide guidance as to post-accident organization, liaisons to such facilities as the Federal Radiological Monitoring and Assessment Center (FRMAC), and the special post-accident interests of the NRC (document preservation, failed equipment analysis, personnel interviews, space for a considerable site contingent).

Discussion with the Emergency Preparedness Coordinator (EPC) and Emergency Preparedness Instruction (EPI) indicated that they were not familiar with the latest revisions to the Region III Incident Response Supplement to NUREG-0845, which details the NRC response plans for an accident. Current guidance in NUREG-0845 provides for an Initial Site Team, and a subsequent Full Activation Site Team with a considerable number of new positions, including a Deputy Director of Site Operations for Onsite activities, a Deputy Director of Site Operations for Offsite Operations, liaisons to the FRMAC, and an expanded number of media liaisons/briefing staff. While revisions to the RIII Supplement to NUREG-0845 had been provided to the utility, these changes were not highlighted.

No violations or deviations were identified.

c. Emergency Response Facilities, Equipment, Instrumentation and Supplies

Tours were conducted through the Control Room, Technical Support Center (TSC), Operational Support Center (OSC), and Emergency

Operations Facility (EOF). Each facility was well maintained and in an operational state of readiness. It was verified that adequate numbers of current copies of the Emergency Plan and Emergency Plan Implementing Procedures and appropriate forms were present in each emergency response facility.

The new TSC is spacious, well laid out and well-equipped. Four Safety Parameter Display System (SPDS) terminals were available, two for each unit.

The TSC heating, ventilating and air conditioning (HVAC) system was inspected. The former TSC's ventilation system was a part of the Control Room air envelope (covered by Technical Specifications), and the present TSC's radiation monitoring and HVAC systems provide equivalent protection to the Control Room air envelope. The system includes an automatic shift to HEPA and charcoal filtration on detection of elevated radiation levels.

One RO-02 survey meter was not functional, but was immediately examined and found to have bent battery pins and promptly repaired. One emergency lighting lamp was not functional due to a filament problem and was noted for service. Other emergency lighting units in the TSC functioned as designed. It was noted that no emergency lighting units were provided in the NRC office space in the TSC.

Three of four equipment cabinets in the OSC were unlocked due to inoperative or broken locks. It was indicated that new AK-3 locks were to be placed on these cabinets in the near future. Following discussion, licensee personnel committed to providing these cabinets with tamper-indicating tabs following lock upgrading.

Four accountability readers were in place in the machine shop area, and licensee personnel indicated that four more such readers are to be installed to facilitate accounting for the considerable number of personnel who report to the machine shop during accountability.

The "GSEP" van was stored in a shelter near the plant entrance. It was indicated that a new van has been procured and the interior design was to accommodate power supplies, communications equipment survey instrumentation and tools was underway. This work was expected to be completed by summer, 1994. Backup van kits "A" and "B" were available, in addition to the kit in the van itself. A sample of van kits containing instrumentation and supplies did not indicate any problems.

The EOF appeared in a state of operational readiness, with two new faximile machines and a new copier.

The EOF was deficient in the area of emergency lighting. Emergency lighting was absent in the Director's area, MEO area,

and NRC area. A single emergency lighting unit was present in the EOF, and this unit failed to light when tested. Inspection and discussion with licensee personnel indicated that older style emergency lighting units were still in boxes in an adjacent storeroom, but it had been planned to dispose of these (lead-acid) units in favor of newer units. A commitment was made to expeditiously purchase and install emergency lighting units in appropriate areas of the EOF. This is an Inspection Followup Item 50-295/94004-01; 50-304/94004-01.

The "B" model dose projection calculation model (MESOREM) was in place on the TSC and other computer systems, with portions of the older "A" model still available to allow back-calculation of field data to release rates (not provided for by the "B" model).

Inspection of a small, random sample of essential equipment, instrumentation, and supplies in the TSC, OSC, and EOF did not reveal any problem areas.

Documentation associated with Emergency Preparedness Implementing Procedure (EPIP) 450-2, Attachment "A", "EOF PING Operability Check" was reviewed. These tests were performed on a routine basis. A part of the test guidance (section 1.b.1.c) indicates that a vacuum gage reading between 5-25 inches of mercury should be obtained. It was noted that for tests performed November 19, 1993, December 16, 1993, and January 17, 1994, readings were 3.0, 4.5, and 4.0 inches of mercury, respectively. These readings should have been noted as outside of the recommended range in the test procedure, yet the test summary noted "no discrepancies." Discussion with cognizant personnel indicated that readings in this range should be marginally acceptable, and that the procedure would be reviewed for technical adequacy.

No violations or deviations were identified; however, one Inspection Followup Item was identified.

d. Organization and Management Control

The individuals filling the positions of Emergency Preparedness Coordinator (EPC) and EP Instructor (EPI) were unchanged since the last inspection. The full-time EPI was also the assistant EPC. The EPC also had very limited responsibilities to the Radiological Environmental Monitoring Program (REMP)

The EP Instructor reports to the EP Coordinator, who reports to the Director of Technical Services. The Technical Services Director reports to the Station Manager, who, in turn, reports to the Site Vice-President. The station experience with this organization of the EP function has been very positive.

No violations or deviations were identified.

e. Training

Training is covered in the Generating Stations Emergency Plan (GSEP) in Section 8. Section 8.2 of the GSEP details the handling of initial and annual training, changes, and exercises. Section 8.2.1 provides a matrix for the training of Directors, Control Room personnel, accident assessment personnel, and radiation monitoring teams. Some of this training is not the responsibility of the EP group, and is coordinated via memo.

EP GR-TR-0201, "Guidance Recommendations for Nuclear Station EP Programs Training", provides for station specific lesson plans 1-25 (S1-S25) and their applicability to Emergency Response Organization (ERO) positions.

As noted above, The EP Instructor reports to the EP Coordinator at the Zion Station. Discussion with licensee personnel indicated that this organization had considerably strengthened the stations' EP training program, allowing this instructor to concentrate on EP training and providing for a backup to the EPC in his absence.

EPIP 600-1, "GSEP Responder Training Program" covers Zion site training. Section 8.2.2 of this procedure provides responsibilities for training, and the station emergency response organization minimum topics for training, while section 8.3 provides for exercises and drills. Included in the program is the provision that if an individual is not trained within the specified qualification period the individual is removed from the ERO Callout List. An individual removed from the Callout List is still considered as a "candidate" for the ERO position should currently qualified personnel be unavailable. Categories of responders are: (1) Candidate, (2) Trained, (3) Experienced.

Training is tracked via a computerized training database which includes information relative to estimated time of travel to respond to the plant, level of qualification, licenses held, participation due (exercise, tabletop, or drill), and dates of various types of training, including reading packages. The database can provide reports in varying formats, including training, completion of reading packages, or participations due per quarter. A current printout from the system was reviewed; no problems were identified.

Lesson Plan S-3, "Emergency Teams Annual Training", revision 1, dated January 1, 1992, was reviewed. The lesson plan was complete and well detailed, with sections II.B and VII.I.3 properly cautioning personnel from accepting control room assignments after activation of the OSC. The lesson plan also covered the backup OSC (Shift Engineers area), types of OSC teams and the recommended composition per type of team. While the lesson plan specified that Equipment Attendants and Equipment Operators report to the OSC, it was not noted what personnel should do if already in the

plant on a control room assigned task when the OSC is activated. This situation should be planned for and covered during classroom discussion.

Two individuals with key positions in the TSC were interviewed regarding their emergency response responsibilities. They demonstrated a thorough grasp of the duties and responsibilities assigned to them in the Emergency Plan and Emergency Plan Implementing Procedures. They were also knowledgeable as to the documentation (forms) needed to accomplish their functions.

A sample of records of drills and exercises since conducted in 1993 and early 1994 were reviewed. Records indicated that these drills and exercises were properly conducted and adequately critiqued.

The final report for the July 28, 1993 GSEP exercise, dated August 12, 1993 was reviewed. The report was adequately detailed, with section VII containing 8 minor problems, 124 Suggested Improvement Items, and 10 Exercise Conduct items. Discussion indicated that selected improvement items were tracked by the Emergency Preparedness and State Programs (EPSP) group.

Station personnel indicated that minor items are handled by the EPC personally without a formal tracking system, while major items would be placed on the Nuclear Tracking System. Audit findings and other items are tracked by proceduralized, formalized, computerized systems.

No violations or deviations were identified.

f. Independent and Internal Reviews and Audits

Records of 1993 independent assessments of the Zion Station's EP program were reviewed. Audit QAA 22-93-02 (technical audit) satisfied the requirements of 10 CFR 50.54(t). This audit covered technical staff, chemistry, emergency preparedness, ODCM, and CECO support functions. The audit was performed between June 14, 1993 and July 15, 1993. Records indicated very good followup on the concerns identified during this audit. SQV Field Monitoring Report (FMR) 22-93-11-033 specifically addressed the adequacy of the interface with offsite agencies.

Records also indicated that Nuclear Quality Programs staff monitored a variety of EP program activities on about a monthly frequency since January 1993. These activities included various drills and the associated critiques, communications equipment tests and followup on items identified during the 1993 audit.

The 1993 portion of the audit performed to evaluate the adequacy of interface with offsite authorities (per 10 CFR 50.54(t)) was made available through a notice of availability attached to a

letter dated October 18, 1993 regarding the November 4, 1993 annual dinner meeting for offsite emergency response personnel. This notice included the name of the individual to contact to obtain the results of the evaluation.

No violations or deviations were identified.

g. Control Room Evacuation

Zion Procedure AOP-7.4, "Control Room Inaccessibility", dated June 10, 1993 was reviewed. The procedure provides operator guidance for plant control in the event of a worst-case fire and generic guidance when the control room is to be evacuated for any "condition or situation causing the Control Room to become uninhabitable." The procedure provides highly detailed guidance as to operator actions and sequence of actions to be taken after control room evacuation. The procedure does not provide criteria as to when control room evacuation must be evaluated, e.g., extensive smoke, excessive heat, high radiation levels, or toxic/flammable gasses.

Procedure FOP-1, "Safe Shutdown Procedure for a fire in the Main Control Room", dated January 13, 1994 was also reviewed. This procedure deals exclusively with actions to be taken in case of a control room fire. FOP-3, "Safe Shutdown for a Fire in the Inner Cable Spreading Room", FOP-4, "Safe Shutdown for a Fire in the Outer Cable Spreading Room", and FOP-4, "Safe Shutdown for a Fire in the Auxiliary Electric Equipment Room", contained similar guidance, but various actions differed, as appropriate.

Procedures AOP-7.4 and FOP-1 provided guidance on handling GSEP related concerns, and required event classification per EPIP 330-1, notifications per EPIP 100-1, and activation of the ERDS system per EPIP 100-2. Appendix "A" of AOP-7.4 calls for the Shift Engineer to classify the event and implement the GSEP at the "earliest opportunity." Appendix "G" of the procedure requires the TSC Shift Supervisor to report to the TSC.

No violations or deviations were identified.

4. Exit Meeting

The scope and findings of the inspection were discussed with licensee representatives (Section 1) at the conclusion of the inspection on February 18, 1994. Specific key items discussed during the exit meeting are summarized below. Licensee representatives did not identify any documents or processes reviewed during the inspection as proprietary.

- Overall maintenance and operational readiness of the EP program was considered excellent.

- Emergency lighting in the Emergency Operations Facility was virtually nonexistent.
- The Zion site organization of Emergency Preparedness, with the Emergency Preparedness Instructor reporting to the EP Coordinator, was a strength.
- Minor suggestions had been made to the EP staff for lesson plan and procedural improvements. A more detailed "Return" guidance document would be beneficial.