

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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Reports No: 50-456/97004(DRS); 50-457/97004(DRS)

Licensee: Commonwealth Edison (ComEd)

Facility: Braidwood Nuclear Plant, Units 1 and 2

Location: RR #1, Box 79
Braceville, IL 60407

Dates: March 3-7, 1997

Inspectors: R. Jickling, Emergency Preparedness Analyst
J. Foster, Sr. Emergency Preparedness Analyst

Approved by: J. Creed, Chief, Plant Support Branch 1
Division of Reactor Safety

EXECUTIVE SUMMARY

Braidwood Nuclear Plant, Units 1 and 2
NRC Inspection Reports 50-456/97004; 50-457/97004

This inspection included a review of the Emergency Preparedness (EP) program, an aspect of Plant Support. This was an announced inspection conducted by two regional emergency preparedness analysts.

The emergency preparedness program was effective in maintaining and improving operational readiness of your emergency response facilities, equipment, and personnel. Emergency response facilities, equipment, and supplies were in excellent material condition. Interviews with emergency response personnel demonstrated excellent knowledge of emergency implementing procedures and responsibilities. Management support was clearly a factor in the program's improvement over the last two years. However, a problem was identified with the 1996 Site Quality Verification audit report of the emergency preparedness program.

- Licensee personnel performed proper classifications and timely notifications during an actual activation of the Emergency Plan. (Section P1.1)
- The overall effectiveness of the licensee's emergency preparedness training and organization was excellent. (Sections P5 and P6)
- Emergency response facilities and equipment were well maintained and in an excellent state of operational readiness. (Section P2.1)
- Interviews with key emergency response organization personnel demonstrated excellent knowledge of the emergency implementing procedures and responsibilities. (Section P5)
- A violation was identified concerning the failure of the auditing team to evaluate and document the adequacy of offsite interface with the State of Illinois. (Section P7)
- The inspectors completed Temporary Instruction 2515/134, "Licensee Onshift Dose Assessment Capabilities," and verified the licensee's capabilities met the requirements. (Section P9)

Report Details

IV. Plant Support

P1 Conduct of Emergency Preparedness (EP) Activities

P1.1 Actual Emergency Plan Activations

a. Inspection Scope (82701)

The inspectors reviewed records and documentation packages regarding plant response for emergency plan activations that occurred during 1996. Also, the inspectors reviewed the procedure for the EP staff's assessment of plant response for actual emergency plan activations.

b. Observations and Findings

An Unusual Event was declared at 12:50 p.m. on January 18, 1996, due to a loss of both Unit 2 Station Auxiliary Transformers, lasting greater than 15 minutes. The event was terminated at 3:22 a.m. on January 20, 1996, after offsite power was restored from a System Auxiliary Transformer.

In accordance with procedure BwZS 100-1, "Review of Actual Emergency Events." The licensee's EP staff conducted an assessment of plant personnel's emergency response for the January 18, 1996 Unusual Event. Documents and records related to the event had been organized into a complete, detailed package. The EP group's summary report of the event had been provided to corporate EP staff to complete the procedure. Documents reviewed indicated that the event classification and related notifications to offsite authorities and the NRC were made properly and in a timely manner.

Also, the inspectors reviewed a new Nuclear Station Work Procedure (NSWP) A-07, "Event Response Guidelines," dated February 12, 1997, developed to provide guidance on the event response process. The procedure provided for decisions to be made regarding the need for establishing an Event Response Team (ERT) based on the significance of an event, guidance for ERT activities, and resulting reports.

c. Conclusions

The Unusual Event was properly classified and notifications to offsite authorities and the NRC Operations Officer were made in a timely manner. Plant EP staff had performed an excellent review of the event in a timely manner, using the applicable procedure.

P2 Status of EP Facilities, Equipment, and Resources

P2.1 Material Condition of Emergency Response Facilities

a. Inspection Scope (82701)

The inspectors evaluated the material condition of the Control Room, Technical Support Center (TSC), Operations Support Center (OSC), Emergency Operations Facility (EOF), and the Generating Stations Emergency Plan (GSEP) van. Field monitoring kits were also inspected. The licensee demonstrated the operability of numerous pieces of equipment, including radiological survey instruments, dose assessment and plant data computers, and communications equipment.

b. Observations and Findings

The control room was in excellent material condition with current EP procedures available. The FTS 2000 phone system was verified operable.

The TSC's material condition was excellent. Numerous facility enhancements and upgrades were discussed and demonstrated. Computers and monitors in the TSC have been upgraded, a speaker phone had been installed for TSC briefings and updates so the OSC, Corporate EOF and Mazon EOF could listen, and the HMI (Human Management Interface) Operator Interface which provided control room plant data information in the TSC had been installed. A TSC priorities status board with definitions of the priority levels had also been added.

The OSC was in excellent material condition. An innovative OSC benchmarking meeting was conducted last Fall. The benchmarking included all six ComEd sites, and initiated standardization of the site's OSCs and procedures. This resulted in three new status boards in Braidwood's OSC for status updates, facility staffing, and response team tracking. Improved three-way loop phones connected the OSC, TSC, and control room for communicating data and as a command and control line for facility directors.

The GSEP van was in excellent material condition. Supplies were available in appropriate quantities. Procedures reviewed by the inspectors were current and available. Instruments and equipment were verified functional and calibration dates were current. The van and portable generators were run to verify they were functional. Numerous upgrades to the van were identified.

The EOF was in excellent material condition. Telephones, computer terminals, and other equipment were demonstrated to be functional. Current procedures were available and the facility was in an excellent state of readiness. The licensee provided an effective demonstration of the dose assessment computer systems.

Records for the prompt alert and notification sirens for 1996 and 1995 were reviewed by the inspectors. Annual operability for 1996 was 97.5 percent with 95 percent for the lowest month's average. The 1995 annual operability average was

97.1 percent with 95.9 percent for the lowest month's average. Siren operability exceeded the acceptability limit of greater than or equal to 90 percent.

c. Conclusions

Overall, emergency response facilities were in excellent material condition. Several facility enhancements were noted in each facility. Prompt Alert and Notification System (PANS) sirens were well maintained.

P3 EP Procedures and Documentation

a. Inspection Scope (82701)

The inspectors reviewed a selection of licensee emergency plan implementing procedures (EPIPs) and emergency plan sections. Also, the Nuclear Tracking System (NTS) issues assigned to the Emergency Preparedness Group were reviewed.

b. Observations and Findings

BwZP 200-1, "Braidwood Emergency Action Levels," Revision 7, October 22, 1996, was reviewed by the inspectors. This revision added a 15 minute limitation for the Emergency Director to evaluate conditions and determine the correct classification level for the emergency. This was an enhancement to the procedure. The 15 minute limit was allowed by NRC guidance (NRR's Position Paper, EPPOS #2). This limitation did not allow delay of classification for up to 15 minutes, but allowed up to 15 minutes to make a proper emergency classification. This procedure clearly identified timeliness limitations for emergency classification.

Also, this procedure noted if an event momentarily satisfied one Emergency Action Level (EAL) and stabilized at an EAL for a lower classification, the declaration was to be made according to the highest initiating conditions reached. Discussions with corporate and site EP staff indicated that with the use of the Nuclear Management and Resources Council (NUMARC) EALs, the opportunity to transit through a higher classification and stabilize at a lower classification would be minimized.

BwZP 1000-2, "Offsite Notifications," Revision 6, October 22, 1996, was reviewed by the inspectors. A recent change was that the "Additional Information" section of the Nuclear Accident Reporting System (NARS) form should only be used to explain why a NARS form is being issued, not for a change in the classification. Discussion with the licensee indicated that the offsite agencies that receive the NARS form had an EAL manual that explained each of the EALs and the potential impact on the public, and agreed additional information would not be needed.

The inspectors reviewed two NTS issues that had been assigned to the EP group: Item 456-103-96-01900, "Failure of Tone Alert Radios to Activate When Receiving a Shortened Activation Signal," and Item 456-200-96-04303, "TSC Operability."

Both items were required to be addressed within one month. They clearly identified persons responsible, and were appropriately closed.

c. Conclusions

The EPIPS reviewed were clear and easy to use. The NTS was effective relative to EP issues and the method to track and close these issues. No problems were identified in the procedures or documents reviewed.

P5 Staff Training and Qualification in EP

a. Inspection Scope (82701)

The inspectors reviewed various aspects of the licensee's training program. The reviews included interviews with selected key emergency response organization (ERO) personnel (Acting Station Director and a Unit Supervisor who performs as a communicator in the control room), course critique forms, attendance records, examinations, and the Staff Augmentation Call List dated February 26, 1997. In addition to the key ERO personnel interviews, the inspectors observed performance of approximately 20 facility personnel during a TSC table-top training session. Also, selected training instructor modules were reviewed, including S-2, "Generic GSEP," dated July 29, 1996, S-4, "Communications Systems," dated October 21, 1996, and S-5, "Assessment, Classification, and Notification," dated August 5, 1996.

b. Observations and Findings

Interviews with two key emergency response personnel indicated excellent knowledge of procedures and emergency responsibilities. A TSC table top training session observed by the inspectors provided an adequate scenario and provided more than two thirds of the class "hands on" training with the procedures for answering response type questions.

Records indicated that drills and training were formally critiqued. The training critique forms indicated that the training had been of very good quality and the performance based table-top training and drills were considered effective by the participants.

Files from the training records tracking program were compared with the Staff Augmentation Call List to verify ERO personnel listed on the call list were qualified. All ERO personnel reviewed were currently qualified for their emergency response positions. Training modules reviewed were of outline format with convenient references, notes, and questions included in the margins.

Numerous training enhancements and upgrades were discussed with EP personnel. Two highlights included the use of performance-based training which included table top training and quarterly drills. Positive feedback was noted on most training feedback forms. Secondly, an effective, professional ten minute video tape of basic

onsite and offsite EP response was to be used for all Nuclear General Employee Training and was to be distributed to all the ComEd sites.

c. Conclusions

Training files were organized and complete. Modules reviewed were recently revised and detailed. Improvements in EP training were indicated by the use of performance-based training and enhancements made to the program.

P6 EP Organization and Administration

No significant changes have been made to the EP organization since the last inspection. Discussions with site and corporate EP staff indicated excellent management support. Upgrades and enhancements, plus the EP Coordinator's and Trainer's proactive approach to the program have produced significant improvement in the overall program. Management support was clearly a factor in the program's improvement over the last two years. Additionally, the EP Coordinator and Trainer have had direct involvement in public relations by facilitating Braidwood tours for various Federal, State, and local agency emergency response staffs.

P7 Quality Assurance in EP Activities

a. Inspection Scope (82701)

The inspectors reviewed the Emergency Preparedness Program Peer Review report, issued October 31, 1996, conducted by corporate EP personnel. Also reviewed was the Site Quality Verification (SQV) Audit Report QAA-#20-96-05, "Emergency Plan and Implementing Procedures," dated March 22, 1996.

b. Observations and Findings

The corporate peer review, which used NRC inspection module 82701 as the outline for the review, concluded that the Braidwood EP program is in "very good to excellent condition," and noted that continuing EP program improvements had been made.

The SQV staff's audit concluded that the station had been effectively maintaining the GSEP program, and that it was one of the best maintained programs of the Commonwealth sites. No findings or recommendations resulted from the audit.

The EP audit, conducted by SQV staff, contained an evaluation of the effectiveness of offsite interfaces which was required by 10 CFR 50.54(t). The evaluation of the adequacy of offsite interface had been accomplished by SQV's review of training records, face to face and telephone interviews, review of communications drill records, and observation of a communications drill. Also, a detailed standardized list of questions had been used during the interviews.

The inspectors identified that the offsite agencies evaluated involved local and county personnel only; contacts with state representatives were not performed. The corporate EP staff had provided the names and numbers for the State contacts to the SQV staff, the SQV staff attempted to contact State personnel for the evaluation but were initially unsuccessful in evaluating the interface. There was no followup action to identify whether the evaluation was completed. Discussion with SQV audit staff indicated that other contacts had been made with state representatives from the Illinois Emergency Management Agency (IEMA) and the Illinois Department of Nuclear Safety (IDNS). However, the evaluation of the adequacy of State interface had not been formally evaluated or documented. During discussions with corporate and site EP staff, the licensee considered actions to correct and prevent this from recurring which included that interface with the State of Illinois would be more efficient if conducted by the corporate office staff.

10 CFR 50.54(t) states in part, that the review of the EP program shall include an evaluation for adequacy of interfaces with State and local governments and of licensee drills, exercises, capabilities, and procedures, and that the results of the review shall be documented, reported to corporate and plant management. The failure of SQV to perform and document an evaluation for State interface adequacy is a violation of 10 CFR 50.54(t) (Violation Nos. 50-456/97004-01 and 50-457/97004-01).

c. Conclusions

The licensee's audits of the EP program, including the corporate peer review provided adequate evaluation of the program. However, a violation was identified for failure to complete the evaluation of State interface during the 1996 annual review of the Emergency Preparedness program.

P9 Temporary Instruction 2515/134 Onshift Dose Assessment

a. Inspection Scope (TI 2515/134)

The inspectors discussed onshift dose assessment capabilities and provisions with licensee personnel, reviewed the EIPs, and inspected the equipment and programs used for dose assessment.

b. Observations and Findings

The Generating Stations Emergency Plan (GSEP), Section 7.3.3, "Offsite Dose Calculations," addressed dose assessment capabilities. The plan indicated that control room personnel would rely on the Class A computer model (A-model) for dose assessment

Braidwood and other ComEd sites utilized three dose assessment models:

- A-model: run continuously with control room printout
- B-model: "MESOREM," primary accident offsite dose model
- C-model: back calculated releases from field team measurements

Procedure BwZP-1000-7, "A-Model Operation," described the A-model, the conditions which would cause the system to alarm, and its interface with control room personnel. The system was designed to run continuously; assess containment radiation levels, vent stack release rates, and meteorological conditions and compare them with appropriate Emergency Action Level (EAL) values. The program would then provide an event classification, downwind dose and dose rate projections at predetermined distances. The system would automatically print out alarm messages, informational messages, and reports in the control room.

Corporate Emergency Plan Implementing Procedure (CEPIP) 3220-01, "Dose Assessment B Model (MESOREM96, Revision 2)," Revision 3, dated October 1996, was reviewed. No concerns were identified.

The inspectors reviewed Training Module G3-EP-XL-S25, "ODCS Specialist," Revision 1, dated January 30, 1997. The module appropriately described the three dose calculation models, and advised the ODCS specialist to switch the A-model printout from the control room to the TSC. Training also properly cautioned that the A-model is only accurate when the plant was operating with four fans in operation. The training module also contained adequate information for logging onto the computer system and interacting with the dose assessment models.

c. Conclusions

Licensee capability, equipment, procedures, and training for onshift dose assessment were adequate. This TI is closed. Documentation utilized for closing this TI is attached as Attachment A.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on March 7, 1997. The licensee acknowledged the findings presented. No proprietary information was identified.

Attachment: Form for Documentation of On-Shift Dose Assessment Capability

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Tulon, Station Manager
R. Wegner, Operations Manager
A. Haeger, Health Physics and Chemistry Supervisor
R. Flessner, Site Quality Verification Director
M. Vonk, Emergency Preparedness Director
D. Stobaugh, Emergency Preparedness Onsite Programs Administrator
K. Appel, Emergency Preparedness Coordinator
M. Ray, Emergency Preparedness Trainer
L. Rhoden, Training Supervisor
T. Simpkin, Regulatory Assurance Supervisor
M. Cassidy, Regulatory Assurance
M. Turbak, Site Quality Verification
J. Barr, Site Quality Verification

INSPECTION PROCEDURES USED

IP 82701 Operational Status of the Emergency Preparedness Program
TI 2515/134 Licensee Onshift Dose Assessment Capabilities

ITEMS OPEN, CLOSED, AND DISCUSSED

Opened

50-456/457-9700-01 VIO Failure to evaluate and document the adequacy of
offsite interface with the State of Illinois.

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
CEPIP	Corporate Emergency Plan Implementing Procedure
EAL	Emergency Action Level
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPIP	Emergency Plan Implementing Procedures
EPPOS	NRC EP Position Paper from NRR
ERT	Event Response Team
GSEP	Generating Stations Emergency Plan
HMI	Human Management Interface
IFI	Inspection Follow-up Item
IDNS	Illinois Department of Nuclear Safety
IEMA	Illinois Emergency Management Agency
LER	Licensee Event Report
MESOREM	Dose Assessment Program
NARS	Nuclear Accident Reporting System
NSWP	Nuclear Station Work Procedure
NUMARC	Nuclear Management and Resources Council
NTS	Nuclear Tracking System
ODCS	Offsite Dose Calculation System
OSC	Operations Support Center
PDR	Public Document Room
STA	Shift Technical Advisor
SQV	Site Quality Verification
TI	Temporary Instruction
TSC	Technical Support Center
UFSAR	Updated Final Safety Analysis Report
VIO	Violation

Braidwood/ Units 1 & 2 / 50-456, 50-457

Commonwealth Edison Company (ComEd)

10/16/96

SITE/UNIT/DOCKET #s

LICENSEE

DATE

4.01 DOSE ASSESSMENT COMMITMENT IN EMERGENCY PLAN					
Acceptance Criteria (Refer to page 1 of this Appendix for further detail on the acceptance criteria)	Person(s) Contacted	Position Title(s)	Plan Section containing commitment	Revision No. and Date	Meets acceptance criteria?
Section 4.01 Item 1 Emergency Plan contains commitment for on-shift dose assessment capability.	Kevin Appel	EP Coordinator	GSEP 7.3.3	Rev. 7F 01/95	Yes.
Section 4.01 Item 2 Emergency Plan contains commitment for backup dose assessment capability.	Kevin Appel	EP Coordinator	GSEP 7.3.3, would call personnel to use "B" model: GSEP 6.3.1, PAR flowchart.	Rev. 7I 02/96	Yes.
04.02 ON-SHIFT DOSE ASSESSMENT EMERGENCY PLAN IMPLEMENTING PROCEDURE					
	Person(s) contacted	Position Title(s)	Procedure/Indication	Revision No. and Date	Meets acceptance criteria?
Section 4.02 Item 1 Procedure initiates dose assessment	Kevin Appel	EP Coordinator	EPIP BwZP 1000-7, "A-model Operation";	Rev. 1 03/16/95	Yes.
Section 4.02 Item 2 Indications initiate dose assessment	Kevin Appel	EP Coordinator	None - "A model" operates continuously, unless INOP. Effluent monitors.	N/A	Yes.
Section 4.02 Item 3 Procedure for performing dose assessment available.	Kevin Appel	EP Coordinator	EPIP BwZP 200-3, "Station Release Rate Determination"; CEPIP 3220-01, "Dose Assessment B Model".	Rev. 0, 1/19/94 Rev 2, 4/96.	Yes.
04.03 ON-SHIFT DOSE ASSESSMENT TRAINING					
	Person(s) contacted	Position Title(s)	Personnel Trained (Title/#)		Meets acceptance criteria?
Section 4.03 Item 1 On-shift Personnel trained for dose assessment	Kevin Appel	EP Coordinator	Unit Supervisors, Shift Engineers, STAs, approx. 18 individuals	N/A	Yes.