

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-237/91014(DRSS); 50-249/91013(DRSS)

Docket Nos. 50-237, 50-249

Licenses No. DPR-19; DPR-25

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

Facility Name: Dresden Nuclear Generating Station, Units 2 and 3

Inspection At: Dresden Site, Morris, Illinois

Inspection Conducted: May 22-23, 1991

Inspectors: *T. Ploski*
T. Ploski

5/31/91
Date

H. Simons
H. Simons

5-31-91
Date

Approved By: *ROY* Roy J. Caniano, Chief
Radiological Controls and
Emergency Preparedness Section

5-31-91
Date

Inspection Summary

Inspection on May 22-23, 1991 (Report No. 50-237/91014(DRSS);
No. 50-249/91013(DRSS))

Areas Inspected: Routine, announced inspection of the following aspects of the Dresden Station's emergency preparedness program: licensee action on previously identified items (IP 82701); actual emergency plan activations (IP 92700); annual medical drill (IP 82701); and onsite meteorological monitoring program (IP 84750). The inspection involved two NRC inspectors. Results: No violations or deviations were identified. Both Unusual Events declared since January 1, 1991 were properly classified. State and NRC officials were notified in a very timely and adequately detailed manner following each declaration and each event termination.

The onsite meteorological monitoring system has been well maintained. Onsite meteorological data are readily available in the Control Room, Technical Support Center, and Emergency Operations Facility. There is reasonable assurance that the monitoring system will be operable and providing data that are representative of local conditions in the event of an emergency at the Dresden Station.

Overall player performance during the annual medical drill was good. The licensee's drill critique was objective and in good overall agreement with the inspectors' observations. However, several problems in staging and controlling the drill were also noted, which detracted from the benefits derived from conducting the drill.

DETAILS

1. Persons Contacted

E. Eenigenburg, Station Manager
J. Kotowski, Production Superintendent
L. Gerner, Technical Superintendent
D. Saccomondo, Health Physics Supervisor
K. Peterman, Regulatory Assurance Supervisor
D. Lowenstein, Regulatory Assurance Analyst
R. Holman, Emergency Preparedness Coordinator
B. Mayer, Nuclear Quality Programs Staff
K. Yaks, Nuclear Safety Administrator

The above persons attended the NRC exit interview on May 23, 1991.

The inspectors also contacted other licensee personnel during the course of the inspection.

2. Licensee Action on Previously Identified Items (IP 82701)

(Open) Open Item No. 237/90007-03: During a 1990 inspection, it was determined that criteria listed in the station's Emergency Action Levels (EALs) were too restrictive to ensure timely event classification for the loss of the integrity of the reactor coolant system or primary containment as fission product barriers.

This EAL concern is generic to the licensee's six nuclear stations. Resolution of this concern was still in the onsite and offsite review process. EAL revisions were expected to be submitted as part of the 1991 revisions to each station's site specific annex to the licensee's generic emergency plan. This item remains open.

3. Emergency Plan Activations (IP 92700)

Between January 1 and mid-May 1991, the licensee activated its emergency plan on two occasions. Both Unusual Events were correctly classified in a very timely manner. State and NRC officials were initially notified well within the regulatory time limits. Comparison of licensee and NRC records associated with the March 4 and March 13 events indicated that the NRC was provided with well detailed and accurate information. State and NRC officials were notified in a timely manner after both Unusual Events had been terminated.

The licensee's Emergency Preparedness Coordinators (EPCs) conducted detailed evaluations of both plan activations in accordance with procedural requirements. Corrective actions were initiated on the very few minor problems identified during the self-evaluations.

No violations or deviations were identified.

4. Medical Drill

a. Player Performance Observations

Overall player performance was good. The first responder at the accident scene, a Radiation Protection Technician (RPT), promptly began assessing both victims' injuries including checks for fractures. The RPT gave an adequate initial briefing to the Shift Foreman (SF) who assumed onscene command. The SF promptly called the Control Room (CR) with the initial medical assessments of the victims and correctly requested an ambulance. The SF kept the CR frequently and accurately updated on the victims' medical status and the status of onscene activities.

Security was promptly notified of the request for an ambulance for the injured workers. Security properly opened both access gates and posted guards for compensatory security measures. A security guard with visitor badges and TLDs was awaiting the arrival of the ambulance to escort the ambulance personnel. A security escort vehicle was also prepared and waiting to escort the ambulance to the scene. When the ambulance arrived, the security guard quickly boarded the ambulance, got the names of the Emergency Medical Technicians (EMTs), and assigned them visitor badges. Initially, the guard forgot to distribute a badge to one of the EMTs, but he was quickly reminded by the EMT and corrected his mistake. Virtually no time was lost due to these security measures. The security vehicle escort to the accident scene facilitated the response.

Additional RPTs arrived within three to five minutes of the initial call for assistance from the first responders. The SF and RPTs showed proper concern for the victims' medical status versus the radiological concerns at the accident scene. An air sample was begun and several initial smears at the accident scene were taken. However, the RPT who removed and held the air sample filter paper did not wear gloves or use tweezers. The filter was counted, bagged and labelled. However, the inspector did not observe that all of the smear samples were bagged and labelled after at least some were counted.

The contaminated area was adequately roped off. This potentially contaminated area was expanded, largely to ensure that the responders had ample room. Herculite, clean protective clothing and eventually clean plastic bags were used to create clean pathways for the EMTs and gurney within the controlled area. This was good improvisation and excellent use of the available materials.

The CR kept the SF advised of the ambulance's response status. The SF coordinated with Security to ensure the victims' badges were confiscated. These and other items handled by the SF were properly considered to be potentially contaminated.

The ambulance arrived at a doorway closest to the accident scene about 25 minutes after it was requested. Each EMT gathered various

information from different licensee responders regarding the accident, injuries and contamination. All of the information exchanged appeared to be accurate; however, this type of exchange of information resulted in repetitions of much of the information. In addition, contaminated areas and boundaries may not have been fully understood by all the EMTs. An initial briefing of the situation for the lead EMT (or all EMTs) by the licensee responder in command and control at the scene would have facilitated the EMTs response, enhanced their understanding of the situation, and probably prevented one EMT from becoming contaminated (simulated). Priority treatment was properly given to the more severely injured victim.

Extraordinary consideration had been given to preventing the spread of contamination by placing herculite, clean protective clothing, and plastic bags on the contaminated floor to provide a clean surface for the gurney to expedite the victims' transfer to the ambulance. As the victim was being transported to the ambulance from the contaminated area, inappropriate attention was given to frisking the EMTs, their equipment, and the gurney as they were trying to rapidly exit the contaminated area with the critically injured person. One EMT was frustrated at this situation and told an RPT to hurry. At this point the RPT tried to hurry. This resulted in inadequate surveys of personnel and equipment and wasted valuable time. Time was also wasted while surveying the wheels of the gurney. This was unnecessary since the gurney's wheels had never touched anything other than the clean herculite.

After a portion of the Technical Support Center staff were in place, the SF gave a thorough update on the victims' medical status and the status of onscene activities to the Radiation Protection Director. As the ambulance left the site, there was very little delay as the guard exited the ambulance and collected the visitor badges.

The lesser injured victim was carefully transported out the controlled area and placed in the ambulance, which was now simulated to be a second ambulance. The SF and an RPT adequately demonstrated how the SF and the items he was carrying would have been taken to a decon room and surveyed for contamination.

No violations or deviations were identified.

b. Drill Control

One instance of improper controller interaction with a player was noted. The ambulance driver asked a controller for the extent of the one victim's injuries as the victim was being placed in the ambulance. The controller noted that the driver was uninformed of the situation. However, the controller proceeded to provide this information to the player instead of more appropriately directing him to obtain that information from another player.

As indicated in the following paragraphs, the licensee's failure to provide controllers at several key locations caused needless

confusion and detracted from the overall training benefits to be derived from this medical drill. The licensee should ensure that knowledgeable controllers are provided at all key locations, regardless of the level of NRC or FEMA evaluation activities.

The medical drill included the participation of the Coal City Rescue Squad, Morris Hospital staff, Loyola Medical Center staff and an affiliated "med-evac" helicopter service. The Loyola Medical Center's and the helicopter service's participations were limited. Upon learning of the extent of the more severely burned victim's injuries, Morris Hospital staff were to contact Loyola in order to have a helicopter dispatched to the plant site where licensee and ambulance service personnel would transfer this victim from the ambulance to the helicopter. The portion of the drill involving this victim would then be terminated, while the less severely injured person would be transported to Morris Hospital, where hospital staff and the licensee's RPTs would demonstrate their response capabilities.

On the morning of the drill, the inspectors learned that there was some uncertainty whether the helicopter would be dispatched to the plant or to Morris Hospital. The licensee failed to provide a drill controller at the hospital for the early portion of the drill. When participating hospital staff learned of the more severely injured victim's condition, they properly decided to contact Loyola Medical Center. However, since they were unaware that the drill was to include actual dispatch of the helicopter, they informed the Medical Center staff to simulate sending the helicopter. At the critique, the licensee indicated that this simulation request apparently confused the Medical Center staff and/or the helicopter service, since prior arrangements had been made to make the helicopter available for the drill. As the drill progressed, onsite drill controllers were informed why the helicopter had not been dispatched.

At the critique, the licensee noted that no controller was available at the ambulance service's dispatch center to ensure that scheduled participants responded to the plant site. The inspectors understood that an ambulance crew, which had just completed a real response to a vehicle accident on a local roadway, were dispatched to the plant instead of the crew who were apparently pre-selected to participate.

The accident scene was located near a protective clothing dress out area, which was temporarily closed during the drill. After the victims had been placed in the ambulance, participants exhibited uncertainty regarding what area or personnel survey and decontamination activities were to be demonstrated. Since the onscene controllers had to proceed to Morris Hospital to assume other controller duties, the lead controller, an inspector and a Nuclear Quality Programs (NQP) representative made an ad hoc agreement that only a few participants needed to demonstrate how they would perform personnel contamination control, monitoring and decontamination. The Shift Foreman, who was one of the early responders and had been in the simulated contaminated zone, one

radiation technician and one other responder were chosen. They adequately demonstrated how the potentially contaminated responders would don protective clothing to minimize contamination spread before proceeding to a decontamination station where survey and decontamination of one individual was demonstrated and discussed, respectively, with the inspector and the NQP representative. No controller was available to control or evaluate this portion of the drill.

No violations or deviations were identified.

5. Onsite Meteorological Monitoring Program (IP 84750)

The inspectors accompanied the vendor's technician during a weekly visit to the monitoring site. Program records from January 1989 through January 1991 were reviewed. Monitoring program descriptions in the current and draft revisions to the Dresden Annex to the emergency plan were reviewed and discussed. Onsite meteorological data availability in the Control Room (CR), Technical Support Center (TSC) and Emergency Operations Facility (EOF) was determined. As indicated in the following paragraphs, there is reasonable assurance that, in the event of an emergency at the Dresden Station, the onsite meteorological monitoring system will be operable and capable of providing good quality data to licensee, State and Federal emergency responders.

The instrumented tower's location has changed several times since the program began in the 1960s. The program's description was significantly improved and accurate with one exception in the draft revision to the Dresden Annex, which will be submitted for NRC review later this year. The tower's current location was inadequately described in the draft document. The tower's correct location was, however, correctly described in the current revision of the Dresden Annex. The licensee should ensure that the Dresden Annex retains an accurate description of the monitoring tower's location.

The instrumented tower was located in a relatively flat, grassy field about 0.5 miles west southwest from the Unit 2 reactor building. Wind speed and direction sensors were mounted at the 35, 150 and 300 foot tower elevations. Ambient temperature was measured at the 35 foot elevation, while temperature difference measurements were being made between the 35 to 150 foot elevations and the 35 to 300 foot elevations. Dewpoint temperature sensors were mounted at the 35, 150 and 300 foot elevations. A precipitation gauge was located near the tower. Monitoring program software included the capability to compute the standard deviation of the wind direction fluctuation (σ_{θ}) as a backup means of categorizing atmospheric stability. Monitoring program records indicated that the accuracies of the wind speed, wind direction, temperature and temperature difference measurement systems satisfied the criteria of ANSI/ANS 2.5 (1984) and Regulatory Guide 1.23. All monitoring systems and analog chart recorders were operable when the monitoring site was visited. The equipment calibrations were current.

No tall structures or tall vegetation were close enough to the tower to adversely affect the meteorological measurements. The wind sensors were

mounted on booms which extended sufficiently far from the tower to minimize the tower's influence on wind measurements. The wind sensors' booms were oriented in an appropriate direction. Several microwave antennas were mounted on the tower at sufficiently different elevations from the meteorological sensors so that the meteorological measurements would not be affected. Wind sensors' transmitters were equipped with heater elements to reduce the potential for moisture buildup near or below the freezing point. The tower was grounded to reduce the adverse effects of lightning damage to the monitoring equipment. Monitoring program electronics and analog strip charts were housed in an environmentally controlled shelter near the tower.

The same vendor has been responsible for maintaining the monitoring program for many years and for providing site-specific forecasts or estimates of current meteorological conditions upon licensee request. The contract for these services was in effect through 1992. It also included provisions for weekly inspections of the monitoring site and equipment, six systems calibrations per year, periodic replacement of wind sensors, periodic bath tests of temperature probes, emergency repair and calibration services, and daily remote interrogation of the meteorological data by persons qualified to assess the data's reasonableness. Calibration frequency was in excess of that stated in ANSI/ANS 2.5 and Regulatory Guide 1.23. This increased frequency and periodic replacement of wind sensors were good practices to increase the likelihood of higher valid data recovery rates.

Onsite data were available as less than one minute averages using a computer terminal in the CR. The licensee was in the latter stages of installing its "A-Model", which would have a CR readout. In the event of a monitored release in excess of setpoints listed in the Emergency Action Levels, the A-Model's automatic output in the CR would include time averaged onsite meteorological data. Onsite meteorological data were available as one minute or fifteen minute running averages using computer terminals in the TSC and EOF. Onsite meteorological data from the monitoring programs at the nearby Braidwood and LaSalle Stations could also be accessed using the TSC's and EOF's computer terminals in the event that the Dresden Station's tower was out of service or could not otherwise be accessed by computer.

The vendor's periodic reports included data recovery rate statistics for individual parameters following completion of the vendor's data validation activities. The validated data recovery rate for any parameter which could be utilized in offsite dose calculations was at least 98.5 percent in 1989 and at least 98.9 percent in 1990. These recovery rates exceed the 90 percent recovery rate criteria stated in ANSI/ANS 2.5 and Regulatory Guide 1.23.

The vendor's periodic reports also included calibration records and summaries of scheduled and non-scheduled maintenance activities. These records indicated that the vendor had fulfilled the contractual requirements for these services. The records did not indicate that there had been lengthy or frequently recurring data collection problems, such as could occur following a lightning strike or vandalism.

On March 12-13, 1991, a late winter storm system moved through northern Illinois. Precipitation in the area encompassing the Dresden, LaSalle and Braidwood Nuclear Stations was reported to have been in the form of freezing rain which later changed to snow. Strong winds and large amounts of precipitation were associated with this storm system. Between about 0245 and 0250 hours on March 13, the Shift Engineers (SEs) at these three stations conservatively and correctly declared Unusual Events due to the loss of the means to make offsite dose assessments. This capability was considered to have been lost due to the adverse affects of icing on the wind sensors such that their measurements were obviously erroneous or questionable. Temperature difference measurements, which are also inputs to offsite dose calculation methodologies, were unaffected by the freezing precipitation. However, precipitation rates and local temperature conditions were apparently sufficiently adverse to overcome the operability of all three stations' wind sensors' heater elements, which would mainly affect the sensors' shafts and transmitters, but not also the anemometer cup assemblies and wind vanes.

Prior to declaring their Unusual Events, the three SEs conferred to ensure themselves that all three towers' wind sensors were adversely affected and that reliable wind measurements from the nearest National Weather Service station at Marseilles, Illinois, were also unavailable due to the storm's effects. The Dresden Station's Unusual Event was terminated within about twelve hours after a vendor technician climbed the icy tower to free at least one measurement level of wind sensors of their ice buildup.

Based on the existing provisions for maintaining and calibrating the monitoring system, the 1989 and 1990 valid data recovery rates achieved, and the provisions for frequent remote interrogations of the monitoring system's stored meteorological data, there is reasonable assurance that the onsite monitoring system would be operable and capable of providing good quality measurements of local meteorological conditions in the event that these data are needed by licensee, State and Federal emergency response organizations.

No violations or deviations were identified.

6. Exit Interview

On May 23, 1991, the inspectors met with those licensee representatives listed in Section 1 to present and discuss the preliminary inspection findings. The licensee indicated that none of the matters discussed were proprietary in nature.

The licensee was informed that both Unusual Events declared since January 1, 1991 were properly classified. State and NRC officials were initially notified in a very timely and adequately detailed manner following each declaration and each event termination.

The onsite meteorological monitoring system has been well maintained. Onsite meteorological data are readily available in the Control Room, Technical Support Center, and Emergency Operations Facility. There is reasonable assurance that the monitoring system will be operable and

providing data that are representative of local conditions in the event of an emergency at the Dresden Station.

Overall player performance during the annual medical drill was good. The licensee's drill critique was objective and in good overall agreement with the inspectors' observations. However, several problems in staging and controlling the drill were also noted, which detracted from the benefits derived from conducting the drill.