

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-254/90018(DRSS); 50-265/90018(DRSS)

Docket Nos. 50-254; 50-265

Licenses No. DPR-29; DPR-30

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

Facility Name: Quad Cities Nuclear Generating Station, Units 1 and 2

Inspection At: Quad Cities Station, Cordova, Illinois

Inspection Conducted: December 4-7, 1990

Inspectors:

W. Snell for
T. Ploski

12/21/90
Date

H. J. Simons
H. Simons

12-21-90
Date

Accompanying Inspectors: R. Bocanegra
D. Schultz

Approved By:

W. Snell
William Snell, Chief
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12/21/90
Date

Inspection Summary

Inspection on December 4-7, 1990 (Reports No. 50-254/90018 (DRSS);
No. 50-265/90018(DRSS))

Areas Inspected: Routine, announced inspection (IP 82301 and IP 82302) of the Quad Cities Station's annual emergency preparedness exercise, involving five NRC representatives, and review of licensee actions on previously identified items.

Results: Overall response to a challenging scenario was acceptable to allow offsite officials to take appropriate actions to protect the public. The scenario's major challenging aspects were the initiation of a major release, having elevated and ground level components, and a major wind shift (over 60 degrees) during roughly the same one hour period, which was before the

Emergency Operations Facility (EOF) was fully staffed. Two Exercise Weaknesses were identified. Overall response to an onsite medical emergency was inadequate with respect to: initial medical and contamination assessments of the victim; contamination control techniques of the onscene responders; and onscene command and control. The second weakness related to the Technical Support Center's (TSC's) dose assessment staff. They inadequately evaluated the following items and did not notify State officials of these items in a timely manner: initiation of an abnormal release beyond Technical Specification limits; determination that the release included significant amounts of radioiodines and particulates; and that the significant wind direction shift necessitated adding at least several downwind sectors located in Iowa to the current protective action recommendation. Recently arriving EOF staff did, however, effectively interface with State officials regarding the nature of the release and the effects of the shifting winds on offsite protective actions.

TSC staff were slow to initiate efforts to restore power to the Unit 2 annunciators; however, control room personnel took proper compensatory measures until the power supply was restored. TSC staff were also somewhat slow to relate increasing drywell radiation levels to loss of cladding, due, to some extent, to no cladding damage being postulated in the scenario's initial conditions. However, a General Emergency was correctly declared in a timely manner.

TSC and EOF staffs were effectively challenged by a response cell of controllers, portraying NRC duty officers, who insisted on open line communications; however, several improvements were suggested regarding better completion of proceduralized event notification worksheets and better awareness by control room communicators that the NRC may require them to maintain open line communications.

DETAILS

1. Persons Contacted

a. NRC Representatives and Areas Observed

T. Ploski, Control Room (CR), Emergency Operations Facility (EOF)
H. Simons, Operational Support Center (OSC) and Inplant Teams
R. Bocanegra, CR, OSC and Inplant Teams
D. Schultz, Technical Support Center (TSC)
J. Strasma, Joint Public Information Center (JPIC)

b. Licensee Representatives

R. Robey, Production Superintendent
J. Sirovy, Services Director
J. Hoeller, Training Supervisor
C. Smith, Nuclear Quality Programs Superintendent
D. Hoogheem, GSEP Coordinator
L. Kreuder, GSEP Coordinator
R. Carson, Corporate Emergency Planning Supervisor

The above and 15 other licensee representatives attended the December 6, 1990 interview.

2. Licensee Action on Previously Identified Items (IP 82301 and 82701)

(Closed) Open Item No. 265/88019-03: During the 1988 exercise, the licensee's protective measures staff in the Emergency Operations Facility (EOF) did not adequately acquire and evaluate measurements made by the States' field survey teams.

As indicated in Section 5.f of this inspection report, EOF staff acquired and utilized offsite radiological measurements from the States of Illinois and Iowa. The data from the State of Illinois was particularly useful since these data indicated the presence of radioiodines in the simulated release.

This item is closed.

(Closed) Open Item No. 265/88019-05: During the 1988 exercise, EOF staff failed to maintain an adequate awareness of the status of protective actions being implemented by offsite officials.

As indicated in Section 5.f of this report, the EOF's Manager of Emergency Operations (MEO) participated in a number of teleconferences with counterparts from the States of Illinois and Iowa. Among the topics discussed in one or more of these conversations were the protective actions being implemented in each State and the status of completion of simulated offsite evacuations. The EOF's Government Liaison Manager had also determined the completion status of these evacuations by contacting

the States. The MEO informed all EOF staff of the protective actions being implemented in each State and their status of completion.

This item is closed.

(Closed) Open Item No. 254/90015-01: During the August 1990 routine inspection, several emergency lighting fixtures were found inoperable in the EOF and the adjacent Joint Public Information Center (JPIC). There were inadequate provisions for maintaining this equipment.

Emergency lighting fixtures had been repaired and were operable during the December 1990 inspection. The inspector reviewed an approved purchase order between the licensee and a vendor for the quarterly inspection of emergency lighting fixtures in the EOF and JPIC. The purchase order included provisions for repair services on an as needed basis. The purchase order was effective for the period from January 1991 through December 1992.

This item is closed.

3. General (IP 82301)

A daytime exercise of the licensee's Generating Stations Emergency Plan (GSEP) and Quad Cities Annex to the GSEP was conducted at the Quad Cities Station on December 5, 1990. The exercise tested the licensee's, States', and counties' capabilities to respond to an accident scenario which included a simulated, major radioactive release. The attachments to this report consist of the licensee's scope of participation and exercise objectives plus a scenario narrative summary. This was a partial scale exercise for Illinois, a partial scale Ingestion Pathway exercise for Iowa, and a full scale exercise for Rock Island and Whiteside Counties in Illinois and for Scott and Clinton Counties in Iowa.

4. General Observations (IP 82301)

a. Procedures

This exercise was conducted in accordance with 10 CFR 50, Appendix E requirements using the GSEP, Quad Cities Annex, and the Emergency Plan Implementing Procedures (EPIPs) of the licensee's onsite and offsite emergency organizations.

b. Observes

Licensee observers monitored and critiqued this exercise, as did five NRC evaluators. State and local responses were observed by about 20 FEMA V and about 20 FEMA VII evaluators in Illinois and Iowa, respectively. FEMA Regions V and VII will issue separate reports documenting their findings.

c. Coordination

The licensee's response was generally coordinated, orderly, and timely. If scenario events had been real, actions taken by the

licensee's emergency organization would have been sufficient to allow State and local officials to take appropriate actions to protect public health and safety.

d. Critique

The licensee held preliminary critiques following the exercise. The NRC exit interview was held on December 6, 1990. A public critique was held in Cordova, Illinois on December 7, 1990, at which time the NRC Region III and FEMA Regions V and VII evaluators summarized their preliminary findings regarding the licensee's and offsite agencies' exercise performances, respectively.

5. Specific Observations IP 82301)

a. Control Room (CR)

Upon receiving a report that a worker had been found unconscious and bleeding from a head wound, the Shift Engineer (SE) quickly ordered a first aid team to the scene and arranged for an ambulance to respond to the plant site. The security force was notified to prepare for the ambulance's arrival.

The SE showed continued concern for the victim's medical and contamination status. However, almost 25 minutes elapsed before the SE received a report that the victim was contaminated. In general, reports from the accident scene were infrequent and not very informative. At one point, the SE felt it necessary to page onscene responders in order to obtain an update on the situation.

Upon learning that the victim was contaminated, the SE promptly and correctly declared an Unusual Event. Calls were simulated to the hospital and to the ambulance service to inform them that the victim was contaminated. The Shift Control Room Engineer (SCRE) completed a Nuclear Accident Reporting System (NARS) message form for the States and an Event Notification Worksheet (ENW) for the NRC. An onshift communicator then completed the initial notifications of the States and the NRC within the regulatory time limits.

Between roughly 8:20 a.m. and 8:50 a.m., CR personnel adequately responded to a partial loss of condenser vacuum for Unit 2. An operator kept the SE adequately informed of the corrective actions taken in the CR and in the plant in response to this situation. At 9:00 a.m., the SE correctly declared an Alert for a simulated loss of Unit 2 annunciators. Several operators were quickly sent to the auxiliary electrical room to investigate this problem. An associated report of smoke caused the fire brigade to also be dispatched to that room. Within about 25 minutes, the cause of the smoke and the loss of annunciators was correctly determined to be a burnt out power supply circuit card. Meanwhile, CR operators indicated how they would directly monitor the CR panels until a reserve annunciator power supply could be energized.

The Oncall Duty Person and future Station Director (SD) reported to the CR within 10 minutes of the Alert declaration. They were adequately briefed on previous and ongoing abnormal conditions and response efforts prior to departing for the Technical Support Center (TSC). Soon after their departure, the SE was informed of an apparent filter clogging problem with the operating control rod drive pump. The SE prudently decided to shut down the pump and to place the other pump online, rather than to begin a gradual reactor shutdown with the Unit 2 annunciators still inoperable.

Meanwhile, a second communicator had arrived in the CR to establish and maintain open line communications with the TSC and Operational Support Center (OSC), which had both been activated following the Alert declaration. The first communicator had already completed the initial notifications to the States and the NRC for the Alert declaration within the regulatory time limits, using a NARS form and an ENW which had again been prepared by the SCRE. The ENW did not, however, clearly indicate what was Unit 2's operating mode or whether there had been any other abnormal onsite conditions. A remotely located response cell of controllers portrayed the NRC Headquarters Operations Officer receiving the Alert notification. The communicator exhibited uncertainty when he was asked to maintain open line communications by the simulated NRC. The SE informed him that he must do so upon NRC request.

Following a brief teleconference with the SD, who was now in the TSC, the SE informed his crew that command and control of onsite emergency response activities had been transferred to the SD at 9:45 a.m. Up to that time, the SE and SCRE had maintained adequately detailed logs of their actions and decisions to facilitate later evaluations.

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

- ° Persons used as communicators to the NRC should be reminded of the requirement to maintain open line communications upon NRC request.
- ° Persons completing Event Notification Worksheets used by these communicators should ensure that all relevant portions of these forms are completed, so that the communicator is adequately knowledgeable of onsite conditions.

b. Onsite Medical Response

The exercise began with a response to a simulated injured electrician, who had fallen and injured his head. As indicated in the following paragraphs, the overall response to the onsite injury was inadequate, with respect to the following: initial assessment of the victim's medical and contamination conditions; contamination control techniques demonstrated by the responders; and onscene command and control. Several unrealistic aspects of the staging of the accident scene were also evident, and may have initially contributed to performance inadequacies.

A controller, who also portrayed the electrician's coworker, called the CR to report the accident. The victim was supposedly unconscious and bleeding excessively; however, the victim's protective clothing exhibited only a small area of red. The first aid team reached the scene about eight minutes after the accident was reported. Meanwhile, a security guard had walked past the accident scene, which was not identified as being used for exercise purposes, and made no effort to assist or to even ask what was happening.

The responders came very well equipped with a large first aid kit on a cart and a gurney. Over four minutes elapsed before one of the Radiation Protection Technicians (RPTs) applied a pressure pack to stop the supposed severe bleeding. Although the equipment was available, no effort was made to take the victim's blood pressure, or to determine his pulse, eye response, or attempt to cover him with an available blanket to prevent potential shock effects. Instead, the victim's vital signs were reported as being "normal" on a slip of paper accompanying him to a turbine building trackway, where the first aid team eventually brought him using the gurney. The scenario had postulated that the victim's pulse was weak and his breathing was irregular.

Regarding the victim's contamination status, the responders failed to conduct an adequate survey. The onscene controller finally told them that the wound area was contaminated. The responders had removed some of the victim's protective clothing and had taken several smears of areas of the victim that had been covered by the protective clothing. The onscene controller's prompting the RPTs to inform them of the victim's contamination was appropriate so that the SE would declare the Unusual Event postulated in the scenario. The controller had given the RPTs ample opportunity to survey the victim before concluding that their efforts were insufficient.

Regarding contamination control, some responders had reached the victim by passing through the area where he had supposedly stumbled before becoming unconscious. While rubber gloves were readily available, only one of the three RPTs put on gloves. The lead RPT, who had administered the pressure pack to the wound, did not wear gloves and was later observed to be rubbing his nose and stroking his mustache. The RPTs made inadequate efforts to survey the immediate area and to post any simulated, contaminated portions of the accident scene. After transporting the victim to the turbine building trackway, the RPTs did not survey themselves or describe a plan for surveying their route from the accident scene to the location where the victim would have been placed in an ambulance.

Although the RPT administering to the victim appeared to be in charge of the RPTs, several operations personnel were also at the accident scene. No one demonstrated good overall command at the scene to better ensure that any additional support was quickly summoned, or to ensure that the scene and route to the trackway were surveyed and posted as necessary, or to ensure that the CR was kept adequately informed of activities at the scene. A fire watch individual was

observed to walk through the accident scene several times without being stopped by any of the participants.

The overall response to the medical emergency was inadequate with respect to: assessments of the victim's medical and contamination conditions; contamination control at the scene and the route to the trackway; personal contamination control techniques; and onscene command and control. This is an Exercise Weakness (No. 50-254/90018-01).

No violations or deviations were identified; however, one Exercise Weakness was identified.

c. Technical Support Center (TSC)

The SD assumed overall command and control of the licensee's response from the TSC approximately 45 minutes after the Alert declaration. Key and support personnel had promptly reported to the facility and were ready to fulfill their duties when the transfer of command took place. Access control and habitability surveys were initiated and maintained per procedures, as were dedicated communications lines with the CR and other emergency response facilities.

Technical staff were effective in monitoring and tracking procedure implementation by CR personnel. However, TSC staff were slow to dispatch an inplant team to restore power to the Unit 2 annunciators once the cause of the power loss had been determined to be a failed power supply circuit card. The team was not dispatched from the OSC until approximately 30 minutes later. Annunciator power was finally restored at 10:45 a.m. Implementation of steps in procedure QOA 6900-4, "Loss of Unit 2 125VDC Supply", should have resulted in a more timely restoration of the annunciators' power supply. Meanwhile, CR personnel had to simulate maintaining direct monitoring of their panels.

The SD promptly and correctly declared a Site Area Emergency for an Anticipated Transient Without a SCRAM (ATWS) that occurred at 11:01 a.m. State and NRC officials were initially notified of this occurrence within the regulatory time limits. TSC technical staff soon noted that one safety relief valve had apparently failed to close, providing a release pathway to the primary containment. The valve's status was soon verified based on further contact with the CR. Containment radiation levels began to increase soon after 11:00 a.m., and reached 500 R/hour by 11:45 a.m. However, the Technical Director and other technical staff were slow to believe this indication of clad damage. They apparently did not quickly relate a recirculation pump vibration alarm to the increasing containment radiation level. (The scenario had postulated that the vibration alarm was due to a part breaking off the pump. The part initiated clad damage as it reached the core.) At the exit interview, the licensee indicated that its nuclear stations' Emergency Action Levels (EALs) were already under revision to better indicate how containment radiation levels can be directly

used as an indicator of the loss of the cladding fission product barrier, without waiting for reactor coolant sample analysis results.

The decision to assemble and account for all onsite personnel was promptly made after the Site Area Emergency declaration. Assembly was simulated, since the licensee had successfully conducted an assembly/accountability drill earlier in 1990 to satisfy the emergency plan's annual commitment. The SD and appropriate staff demonstrated the capability to select a proper evacuation route for non-essential onsite personnel that would not place the evacuees downwind of the plant. The decision to evacuate the nonessentials was made following receipt of a report that the accountability process had been completed.

Despite some uncertainty over the reason for the increasing containment radiation level, which had risen from 15 to 500 R/hour between 11:05 and 11:45 a.m., the SD conservatively declared a General Emergency at 11:51 a.m. due to the trend in this parameter and uncertainty about continued primary containment integrity. State and NRC officials were initially notified of this emergency reclassification well within the regulatory time limits. The initial Protective Action Recommendation (PAR) was to shelter within a two mile radius of the plant and to shelter from two to ten miles north northeast through east of the plant.

The TSC's dose assessment staff had noted the increase in containment radiation level. Their further review of protective action decision making guidance, regarding a General Emergency coupled with the uncertainty of containment integrity, correctly resulted in a revised PAR issued at approximately 12:07 p.m. The correct PAR revision was to evacuate, rather than to shelter the two mile radius around the plant, with no changes to the PAR for areas further from the plant. State officials were informed of this revised PAR within five minutes of the SD's approval; however, the situation was still described as having a potential release even though the plant's stack monitor data had begun to slowly trend upwards since 11:40 a.m.

The TSC's dose assessment staff did not adequately assess the simulated release in a timely manner. This resulted in an untimely notification to State officials that an abnormal release had begun, and that the release probably included a greater percentage of radioiodines and particulates than might otherwise be expected.

Step 5 of procedure QEP 300-TI, "State of Illinois NARS Form - Instructions for Use", indicates that the NARS Form should indicate that a "release is occurring" if the monitored release rate meets or exceeds the Unusual Event emergency action level value of $2.78E + 5$ microcuries per second. Based on the scenario's data for stack flow rate and radionuclide emissions in micro Curies per cubic centimeter, this setpoint value was exceeded at noon. At 12:15 p.m., TSC staff received a report that steam was leaking from some reactor building blowout panels, which meant that not all of the

release was being filtered by the Standby Gas Treatment System (SBGTS). The breach of primary containment was later determined to be due to an improperly loosened control rod drive hatch, as postulated by the scenario. While TSC dose assessment staff correctly recognized that the release was now both elevated and ground level in nature, they did not recognize that its radioiodine and particulate content was probably higher than it would be for a purely elevated release through the SBGTS. At about 12:20 p.m., dose assessment staff received an unclear report regarding the iodine and cesium content of the elevated portion of the release, determined using a Victoreen monitoring system. The report was unclear in that the units of measure were omitted. Dose assessment staff incorrectly assumed the units to be mCi/cc instead of mCi/sec, resulting in an underestimation of the release's radioiodine and particulate components by roughly a factor of E+7. Two offsite survey teams had been dispatched following the Alert declaration. Although they obtained air samples downwind of the plant after the release began, dose assessment staff did not properly reposition them so that preliminary sample analyses could be conducted in the field to verify the presence of radioiodines and particulate in the release.

The TSC's dose assessment staff was simultaneously challenged by another factor that influenced their evaluations. Between about 12:10 p.m. and 12:50 p.m., the scenario included a gradual wind direction shift of about 60 degrees in a counter clockwise direction, so that the plume's trajectory was gradually changing from the northeast towards the northwest. The affected downwind sectors were, therefore, changing since about 12:20 p.m. At 12:50 p.m., an exercise controller issued a contingency message which resulted in the licensee's NARS message No. 6. The licensee later indicated that this contingency message was issued to ensure that the wind direction shift being evaluated by TSC staff was properly reflected in the revised PAR; however, NARS message No. 6, which was transmitted at 12:51 p.m., was also the TSC staff's first official notification to the States that the previously described "potential release" was now occurring.

In summary, TSC staff did not adequately analyze the following items and then inform State officials of these items in a timely manner: the commencement of an abnormal release; the existence of significant iodines and particulate components in the release; and the changes in affected downwind sectors to include portions of Iowa in addition to Illinois portions of the EPZ. This is an Exercise Weakness (No. 50-254/90018-02).

As indicated in Section 5.f, the EOF's Manager of Emergency Operations (MEO) had several discussions with Illinois and Iowa counterparts between about 12:15 and 1:00 p.m., while TSC staff were attempting to determine the nature of the release and the impact of the shifting winds on their current PAR. From these discussions, the MEO and both State counterparts were well aware that a major release had begun, which included significant amounts of iodines and particulate. The MEO also learned of the revised protective actions chosen by both States due to the shifting winds, even as the TSC's SD, who was still in command and control, authorized the transmission of NARS message No. 6.

No violations or deviations were identified; however, one Exercise Weakness was identified.

d. Operational Support Center (OSC) and Inplant Teams

The OSC was activated after the Alert declaration. The facility was fully operation, with ample staff available for assignment, in about 20 minutes.

Several status boards were effectively utilized to track inplant team assignments and the availability of technicians for assignment. Significant events information was displayed using an overhead projector. The TSC's Public Address (PA) system was audible in the OSC, and was another means to keep persons within the OSC adequately informed of events and decisions.

Approximately 20 teams were formed during the exercise, including two off-site survey teams and a search and rescue team that was kept on standby. The inspectors accompanied several inplant teams and observed a number of the teams during their briefings and debriefings. The teams were adequately briefed on their assignments. With the exception of the team sent to restore power to the Unit 2 annunciators, all teams were dispatched in a timely manner. The annunciator repair team's dispatch was delayed for about 30 minutes. Inplant teams demonstrated good knowledge of their assigned tasks, good exposure and contamination control techniques, and maintained adequate communications with their OSC supervisors. Team debriefings were adequate. Briefings and debriefings were conducted near the main work table in the OSC. Although conditions occasionally became somewhat congested and noisy in this area, no instance was identified which resulted in inadequate briefings or debriefings.

Team briefings adequately addressed simulated radiation hazards to the teams, based on information available in the OSC. Team members were issued appropriate dosimetry. Briefings addressed protective clothing needs when appropriate. RPTs accompanied the teams as needed. Simulated exposures received by individual technicians were well tracked by OSC staff.

A post accident sampling team was dispatched shortly before 10:00 a.m. The team was not observed by the inspectors. The analyses of the reactor coolant sample that was collected by the team were available to TSC decisionmakers within three hours of the decision to obtain this sample.

No violations or deviations were identified.

e. Emergency Operations Facility (EOF)

The EOF was activated following the Site Area Emergency declaration, in accordance with procedures. Access control was established and maintained. An executive management center has been added to the

EOF since the previous exercise. This room was equipped similar to the Executive Team's workspace in the NRC Operations Center, and was effectively used as a meeting room by key EOF staff, and as a location from which key staff could teleconference with State decisionmakers.

EOF staff began arriving between 11:45 a.m. and noon. They were generally efficient in preparing to assume their duties. The Manager of Emergency Operations (MEO) was among the early arrivals. He had apparently received updated plant status information while enroute to the facility. This update enabled the MEO and his Technical Support Manager (TSM) to provide a good initial briefing to EOF staff and to be able to adequately respond to questions from a State official who telephoned the MEO shortly after noon.

The MEO initially informed his staff and the TSC's SD of his goal of assuming overall command and control at 12:30 p.m. The orderly transfer of lead responsibility for the licensee's response did not occur until almost 1:00 p.m. This delay was reasonable, and was largely due to recent increases in the release rate and ongoing changes in wind direction, both of which resulted in several conference calls with the SD and then with Illinois and Iowa officials.

By the time of the MEO's arrival in the EOF, the initial PAR was being revised to evacuate within a two mile radius of the plant and to shelter from two to ten miles in the three downwind sectors in Illinois which were roughly north through northeast of the plant. The MEO became involved in another conference call with Illinois and Iowa officials at about 12:40 p.m. to discuss the continuing wind shift and the States' plans to implement protective actions which differed from the TSC's revised PAR. The EOF's protective measures staff verified the wind shift detected by their TSC counterparts. Due to the uncertainties in the release duration and further wind shifts, the MEO essentially concurred in the Iowa officials' decision to evacuate all of Iowa's plume pathway EPZ out to 10 miles from the plant, and the Illinois officials' decision to continue evacuating all sectors north through east of the plant out to 10 miles. State officials were then given verbal updates on plant status, the current understanding of the release paths, and containment radiation level information to supplement periodic messages transmitted by TSC staff. The MEO then briefed EOF staff on the States' protective action decisions.

Based on discussions between the MEO and State officials, EOF protective measures staff learned that the release contained greater amounts of radiiodines than the TSC's protective measures staff had earlier indicated. After 1:00 p.m., EOF staff began receiving radiological survey results from Iowa's field teams, and considered these data and the Iowa teams' deployment when determining how to further deploy the licensee's field teams in Iowa.

The MEO and his Government Liaison Manager obtained information from both States on the status of the simulated offsite

evacuations. The MEO then shared this information with all EOF staff during one of his periodic update briefings.

At 1:30 p.m., the MEO, key EOF staff, and the SD conferred on the best means to terminate the release. It was agreed that the containment's control rod drive hatch was still inaccessible and that a stuck open safety relief valve could not yet be closed. The most likely way to significantly reduce the release was to further decrease reactor pressure by operating the shutdown cooling system.

Operating this system involved sending a volunteer inplant team into a simulated radiation field of about 10 Rem per hour to manually open a valve. TSC staff determined the optimum route to this valve and estimated the teams' exposures. The EOF's TSM and HP Director ensured that the simulated exposure risks to these volunteers and their exposure histories were adequately known so that the MEO could make an informed decision on whether or not to authorize their simulated exposure beyond normal regulatory limits. The MEO properly authorized the mission and the emergency worker exposure limits, and notified Illinois and Iowa officials of the strategy being implemented to reduce the release. A 48 hour time jump in the exercise scenario occurred before this inplant team could be dispatched.

After the time jump, EOF and TSC staffs were instructed to demonstrate planning for the next eight hour shift. Key EOF and TSC staff teleconferenced to consolidate their thoughts. It was agreed to remain in a General Emergency classification and to continue onsite and offsite surveys. Offsite survey activities would be coordinated with the States and the Department of Energy. Investigations to determine the root causes of equipment failures would continue. Additional samples of the reactor coolant and containment atmosphere would be taken and analyzed to refine earlier core damage estimates. The emergency response facilities and the Joint Public Information Center (JPIC) would remain continually staffed. The MEO concluded exercise activities by providing State officials with a summary of these recovery planning decisions.

No violations or deviations were identified.

f. Joint Public Information Center (JPIC)

The JPIC, located in the same building as the EOF, was activated following the Site Area Emergency declaration per procedures.

The licensee's corporate, operations, and Health Physics spokes - persons effectively coordinated with their State counterparts before and during press briefings. Their presentations were not limited to the details contained in the press releases issued by licensee staff. The spokespersons were responsive to questions from the audience, which included several media roleplayers and at least one actual media representative. The licensee spokespersons followed up on any questions for which they did not have immediate answers. A licensee representative remained in the media briefing area between

scheduled press briefings in the event that the media had additional information needs. Scheduled press briefings were adequate in number and frequency.

The licensee issued five hardcopy press releases, which were adequately detailed and accurate, based on the information known at the times of issuance. The releases included concise explanations of jargon, and exhibited good continuity of information. Several press releases listed the local Emergency Broadcast Stations' and frequencies, and appropriately instructed persons to tune to these stations for detailed information on protective action decisions that had been made by offsite officials.

No violations or deviations were identified.

6. Exercise Scenario and Controller Actions (IP 82302)

The exercise objectives and complete scenario manuals were submitted in accordance with the established schedule.

The scenario was particularly challenging to TSC staff since it included the initiation of a major release, having elevated and ground level components, and a substantial wind shift of about 75 degrees within about a one hour time period. The timing of these significant changes, in addition to the natures of earlier scenario events, made it extremely unlikely that EOF staff would be prepared to relieve their TSC counterparts of responsibilities associated with emergency classification and offsite protective action decision making before these changes occurred. Instead, EOF staff were in the midst of activating their facility and were also trying to respond to the States' information needs while the release was greatly increasing and the wind direction was significantly shifting. Thus, transfer of command and control from the TSC to the EOF was somewhat delayed by the timing of these changes in the scenario.

Other challenging aspects of the scenario included the need to dispatch approximately 20 teams from the OSC, including a post accident sampling team and two field survey teams. The EOF's emergency management center was demonstrated for the first time in an evaluated exercise. The licensee effectively challenged TSC and EOF staffs by utilizing a response cell of controllers to portray NRC duty officers and to maintain open line communications with these controllers. Several licensee personnel in the TSC and EOF also roleplayed early arriving NRC Site Team staff.

No improper controller actions were observed. The onscene controller at the medical emergency gave the responders ample time to determine that the victim was contaminated before informing them of the contaminated wound area in order to preserve the scenario's time line. EOF controller properly allowed freeplay to continue so that the MEO and various TSC and EOF staffs could demonstrate how they would plan an inplant team's mission that involved authorization of simulated exposures beyond administrative and normal regulatory limits. This successful demonstration was beyond the scenario's objectives.

The licensee's lead controller presented a preliminary summary of self-identified performance weaknesses prior to the exit interview. These findings were generally in good agreement with the inspectors' preliminary findings.

No violations or deviations were identified.

7. Exit Interview (IP 82301)

On December 7, 1990, the inspectors met with those licensee representatives listed in Section 1 to present and discuss the preliminary inspection findings. The inspectors expressed concern over the length of time needed to restore the Unit 2 annunciator's power supply, since the relevant procedure was straightforward. Concern was expressed over the tardy realization by some TSC staff that containment radiation levels of several hundred Rad/hour constituted a breach of the cladding fission product barrier. The licensee indicated that revision of relevant EALs for all of the licensee's nuclear stations should correct this problem. The EAL revision was being initiated in response to an NRC concern identified at another of the licensee's nuclear stations, and was being applied to all six stations.

The licensee was informed that overall response to a challenging scenario was acceptable to allow offsite officials to protect public health and safety; however, several weaknesses were identified. Overall response to an onsite medical emergency was inadequate and was an Exercise Weakness. Inadequate aspects related to initial medical and contamination assessments, contamination control practices, and onscene command and control. The licensee indicated that the next medical drill was planned for early 1991, and was an opportunity to demonstrate corrective actions.

The licensee was also informed that the TSC dose assessment staff's performance was inadequate and was an Exercise Weakness with respect to the following: recognition when an abnormal release had begun; recognition that the release contained significant amounts of iodines and particulate; and revision of the PAR to adequately reflect a major wind direction shift. Recognizing these items and then informing State officials should both have been more timely.

The licensee was also informed that personnel completing proceduralized Event Notification Worksheets and those communicating the worksheets information to NRC Duty Officers should be reminded of the requirements to provide complete information and to maintain open line communications from the CR upon NRC request.

Attachments:

1. Licensee's Exercise Objectives
2. Scenario Narrative Summary