U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/88016(DRSS)

Docket No. 50-341 License No. NPF-43

Licensee: The Detroit Edison Company
6400 North Dixie Highway
Newport, MI 48166

Facility Name: Enrico Fermi Nuclear Power Plant, Unit 2

Inspection At: Fermi 2 Site, Newport, Michigan

Inspection Conducted: May 17-20, 1988

Inspectors: J. Foster
J. Foster
Team Leader
6/3/88
Date

M. Smith
M. Smith
6/6/88
Date

Approved By: William Snell
William Snell, Chief
Emergency Preparedness Section
6/6/88
Date

Inspection Summary

Inspection on May 17-20, 1988 (Report No. 50-341/88016(DRSS))
Areas Inspected: Routine, announced inspection of the annual Fermi Unit 2 Emergency Preparedness Exercise involving observations by three NRC representatives of key functions and locations during the exercise (IP 82301).
Results: The licensee demonstrated an adequate response to a simulated accident scenario involving a large radioactive release. Open items from the last Exercise were closed out in this inspection. No violations or deviations were identified. No new Open Items were opened as a result of this inspection.

DETAILS

1. Persons Contacted

a. NRC Observers and Areas Observed

J. Foster, Control Room (CR), Technical Support Center (TSC) Operational Support Center (OSC), Medical Drill
F. Carlson, CR, Emergency Operations Facility (EOF), Medical Drill
M. Smith, TSC, Medical Drill

b. Detroit Edison Company

*B. Sylvia, Senior Vice President
*D. Gipson, Plant Manager
*W. Orser, Vice President, Nuclear Operations
*J. Catola, Vice President, Nuclear Engineering & Services
*J. Mulvehill, Senior Emergency Response Planner
*M. Hoffman, Emergency Response Planner
*M. Cooley, Emergency Response Planner
*R. Kelm, Director Nuclear Security
*B. Heffner, Director, Public Information
*D. Ball, Nuclear Security
*S. Bump, Radiological Engineer
*R. Eberhardt, Radiation Protection Engineer
A. Waite, Registered Nurse
*K. Lindsey, Nuclear Training
*B. Lewis, RET Coordinator
E. Preston, Emergency Director
J. Plona, Tech. Engineer
E. Madsen, Licensing
*B. Williamson, OSC Controller
*D. Gualdoni, OSC Controller
*C. Burt, OSC Controller
*J. Sweeney, TSC Controller
*D. Diroff, Supervisor, Information Management
*E. Gohle, Public Affairs
*B. Cummings, Assistant Radiation Protection Coordinator
*G. Ohlemacher, Principal Engineer
*P. Tarwacki, Senior Nuclear Training Specialist
*L. Goans, General Superintendent Security Operations
*H. Higgins, Health Physics Supervisor - Operations
*L. Goodman, Licensing Supervisor
*R. Stafford, Director, NQA/PS
*R. Lenart, General Director, Nuclear Engineering
*C. Gelletly, General Supervisor, P.E.
*L. Baumgart, Work Leader, Nuclear Training
D. Niemyer, Health Physics
M. Boucher, Health Physics
*G. Foster, Supervisor - Rate Case

c. Others

R. Martin, Mercy Memorial Hospital, Assistant Director, Emergency Services
J. Kilpatrick, Radiation Management Corp.
J. Peltier, EMTS observer

*Indicates those licensee personnel who attended the May 20, 1988 exit meeting.

2. Licensee Action on Previously Identified Open Items

a. (Closed) Open Item 341/87029-02: Personnel reporting to the Technical Support Center (TSC) in the previous exercise did not adequately frisk themselves for contamination or properly zero their direct reading dosimeters. The licensee had installed a whole body frisker at the entrance to the TSC, and provided additional training in health physics practices and concerns. During this exercise, such concerns and practices were adequately demonstrated, including: knowledge of use of dosimeters; use of inplant surveys to plan entry team routes (Operations Support Center); and frisking practices. This item is closed.

b. (Closed) Open Item 341/87029-03: Exercise Weakness: Unsatisfactory demonstration of assembly and accountability in the previous exercise. During the 1987 exercise, assembly and accountability was declared completed within 30 minutes, but over 70 people were not accounted for, and actions taken to determine if those not accounted for were actually missing were inadequate. During this annual exercise, Assembly and Accountability was essentially complete in 28 minutes, with 23 personnel unaccounted for. Prompt actions were taken to determine if these individuals were actually missing, and all were accounted for within 46 minutes. This item is closed.

c. (Closed) Open Item 341/87029-04: During the 1987 exercise, there was a lack of adequate records retention in the Operations Support Center (OSC) and inadequate procedural guidance on key staff duties. The licensee has revised the procedures for the OSC, and both records retention (logs, checklists and other documentation) and procedures were adequate during this exercise. This item is closed.

d. (Closed) Open Item 341/87029-05: In the last exercise, OSC supervisory personnel were unable to maintain an adequate awareness of the various inplant teams' progress on assigned tasks. During this exercise, a status board tracked the composition, task, and general status (remarks) of each inplant team. OSC supervisory personnel maintained good awareness of each team's status. This item is closed.

e. (Closed) Open Item 341/87029-06: During the 1987 exercise, inplant survey results were not effectively utilized for inplant team briefings. A new status board in the OSC contains building maps which were annotated with radiation survey results and utilized to both select team routings and brief team leaders on radiation levels. This item is closed.

f. (Closed) Open Item 341/87029-09: Exercise Weakness: Inadequate health physics support was provided by licensee personnel to ambulance and hospital staff during the last exercise. An adequate medical drill was observed on May 19, 1988, as described in Section 5.e of this report. This item is closed.

3. General

A daytime exercise of the licensee's Radiological Emergency Response Preparedness (RERP) plan was conducted at t e Enrico Fermi Nuclear Power Plant on May 18, 1988. The exercise tested the licensee's capabilities to respond to a hypothetical accident scenario resulting in a major radioactive release. A separate medical drill was held on May 19, 1988.

The counties of Wayne and Monroe participated fully in this exercise. This was a partial participation exercise for the State of Michigan.

Attachment 1 describes the scope and objectives of the exercise and Attachment 2 describes the exercise scenario.

4. General Observations

a. Procedure

The exercise was conducted in accordance with 10 CFR 50, Appendix E requirements using the Radiological Emergency Response Preparedness (RERP) Plan and the Emergency Plan Implementing Procedures (EPIPs).

b. Coordination

The licensee's response was coordinated, orderly, and timely. If the events had been real, the actions taken by the licensee would have been sufficient to permit the State and local authorities to take appropriate actions to protect the health and safety of the public.

c. Observers

Licensee observers monitored and critiqued this exercise along with three NRC observers. Federal Emergency Management Administration (FEMA) representatives monitored the off-site response of State and county agencies. FEMA findings will be presented in a separate report.

d. Exercise Critiques

The licensee held facility and controller critiques at the Emergency Operations Facility after the exercise on May 18, 1988. The NRC discussed the observed strengths and weaknesses during the exit interview held on May 20, 1988. Personnel who attended the NRC exit interview are listed in Section 1. A public critique was also held on the morning of May 20, 1988, to present the preliminary findings of the NRC and FEMA.

5. Specific Observations

a. Control Room (CR)

Control Room personnel reacted promptly and properly to simulated accident conditions presented to them via the simulator. They were familiar with their procedures (Emergency Operating Procedures, Emergency Plan Implementing Procedures, Technical Specifications) and referred to them as necessary. Emergency conditions were properly and rapidly classified in accordance with the applicable procedure.

Operators demonstrated good Control Room practice and decorum, maintaining low noise levels, and repeating instructions and instrument readings. Control of the control rod sequences, levels, and movement using the services of a full-time reactor engineer and Shift Technical Advisor was excellent. Control Room personnel maintained adequate logs to allow reconstruction of significant actions taken during the simulated emergency, although the details contained in paperwork (forms) could be improved.

Public address announcements were made following event classifications, alerting plant personnel to the current emergency classification and the reason for the current plant status. Notification procedures were followed, including use of a checkoff list designed to ensure that all required notifications were made within the required times. Communications properly included identification that they were part of the exercise.

Some problems were encountered with the inability of; or inaccuracies in the simulator to properly model plant conditions, such as in the area of radiological readings. Controllers worked around these problems but not all had been foreseen, i.e., the steam line radiation monitors did not give high enough readings to initiate the Alert emergency classification.

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

b. Technical Support Center (TSC)

The Technical Support Center was quickly activated, and procedures, logs, and checklists were properly utilized. Noise levels were adequately controlled, and plant parameter status boards were well maintained during the entire exercise.

In general, the TSC staff worked well together and functioned as a team. Timely briefings were conducted by the Emergency Director. Procedures were followed and adequate logs were maintained. The TSC was fully staffed and assumed command and control within 30 minutes of the Alert declaration as required by Procedure EP 301-1. Access control was established and maintained throughout the exercise.

TSC habitability was adequately established and maintained. Direct Reading Dosimeters (DRDs) were available and issued at the security desk. Chargers were available and used by security and Health Physics technicians to zero dosimeters. Personnel correctly read dosimeters and signed out DRDs under their own signatures. Personnel were instructed to read dosimeters at regular intervals during the exercise.

A step off pad was established and a whole body frisker was available for personnel monitoring. On several occasions the inspector observed personnel correctly using the whole body frisker to frisk themselves prior to entering the TSC.

The Health Physics technician adequately maintained TSC habitability by performing walkthroughs with a survey meter at regular intervals. Floor wipe samples were taken, a continuous air monitor was functioning, and an air sample was collected in the access control area.

Dose assessment capabilities were adequately demonstrated in the TSC. The ERIS and IBM systems were used to track the plume and projected doses. Protective action recommendations were agreed upon with State and EOF personnel. Excellent use of status boards and sector maps was demonstrated by the Dose Assessment Team. Constant communication was maintained with the OSC by the Rad-Chem advisor in the TSC.

Communications were quickly established between the Control Room, OSC and EOF by various communicators. Notification of offsite authorities of the Site Area Emergency was completed within an adequate timeframe. However, timely notification of the State of Michigan was hampered by the last minute addition of an extra call to the State by the Emergency Director prior to the official Site Area Emergency declaration. This call was made at the request of the State Emergency Director. Performing this call tied up the lines to be used for State notifications and led to the State and counties being notified last instead of first.

Adequate recommendations were made by the TSC Engineering Support personnel. This group worked well as a team in an effort to identify the source of the radioactive release while advising the Emergency Director on actions to take to maintain plant stability. Materials (drawings, schematics, procedures) necessary for the group's troubleshooting efforts were readily available in the TSC resource/information center.

It was noted that, contrary to the guidance provided in NUREG-0654, Section II.B.4, the licensee's procedures, as worded, delegated one of the Emergency Coordinator's non-delegateable responsibilities. The responsibility for Emergency Classification remains with the Emergency Director (in the TSC) even when the Emergency Officer (in the EOF) takes command of utility emergency response activities. This apparent procedural inconsistency with NRC guidance was discussed with licensee personnel. Licensee personnel committed to revising the wording of procedures to clarify their intent that the Emergency Coordinator would have final approval authority on accident classifications.

Based on the above findings, this portion of the licensee's program is acceptable. However, the following item should be considered for improvement:

- Revise the wording in the procedures to clarify the responsibility for final approval/authority for accident classifications.

c. Operational Support Center (OSC)

The OSC was staffed and operational in a timely manner. Key personnel in the OSC displayed knowledge of plant maintenance and troubleshooting activities. In general, the OSC staff demonstrated technical expertise in their functional areas. OSC habitability was quickly determined and monitored frequently.

The Operational Support Center is located adjacent to the Control Room and is the main Control Room access way. The OSC is a controlled clean area requiring a full body frisk, utilizing a portal monitor, for admittance. A continuous air monitor was observed in operation near the Control Room access door, and habitability checks were adequate.

It was noted that using the simulator Control Room to "drive" an exercise does cause one artificial effect; if the event were real, OSC management personnel would have rapid access to direct plant information in the adjacent (actual) Control Room.

Assembly and Accountability proceeded in an orderly manner, and was essentially complete in 28 minutes, with 23 personnel missing. Prompt actions were taken to determine if these individuals were actually missing, and all were accounted for within 46 minutes.

Control Room personnel properly followed their procedure, announcing the names of 6 unaccounted for personnel over the public address system, asking them to report their positions to the Control Room. Licensee personnel indicated that a total of 234 people were accounted for in the protected area of the plant.

The operation of the OSC appeared, at times, to be somewhat inefficient. Several personnel appeared to be performing tasks without the direction or knowledge of the OSC Coordinator. Status boards had not been set up to track the availability of personnel available to the OSC, but this information was placed on an unused section of one status board.

Tracking of inplant teams was adequately organized. There was a formalized method (status board) to accomplish team tracking, and a consistent method of preparing, briefing, and tracking of inplant teams to indicate the what, when, and where of team activities. Inplant team information, including team number, team composition, task, and general comments (including indications of completion) was placed on the OSC "Technical Log" board. It was noted that the OSC staff, early in the exercise, were annotating the list of personnel available to indicate which individuals had been sent out with teams, but this practice was later discontinued. This appeared to be a good practice, which should be proceduralized.

Status boards, while improved from the last exercise, still require revision to be efficient. One board should have a listing of major events, one board a listing of available personnel, and one board should have inplant team information such as team number, team composition, tasks assigned, and present status. The building floor map board should contain a location for dose units (mR/Hr or R/Hr). As noted above, much of this information was tracked, but not on status boards designed to contain the information.

Inplant surveys were adequately updated and utilized on plant survey maps. Recent surveys were used to plan inplant routes for repair teams.

Based on the above findings, this portion of the licensee's program is acceptable. However, the following item should be considered for improvement:

- Develop additional status boards and procedures to track major events, available personnel and inplant team information.

d. Post-Accident Sampling System (PASS)

Post accident sampling was not observed during this exercise.

e. Medical Drill

Medical needs of the injured person were attended to with proper consideration for radiological controls and hazards. Realism was satisfactory and simulation was used only in the interests of safety. Drill participants exhibited good attitudes and consistently worked in a professional manner.

At the plant site, respect for the radiological control barrier was proper. At no time was the barrier at the edge of the radioactive contamination zone violated. Onsite control of radioactive contamination was satisfactory.

The onsite nurse could have changed her gloves several times to minimize cross-contamination of equipment, victim, and wound. It appeared that onsite nurses could benefit from additional exercises and practice in plant radiological procedures such as Radiation Work Permit (RWP) use and what to do with dose readings from dosimeters.

The timeliness of providing medical care and transporting the injured man was adequate. The floor of the ambulance was covered with herculite, and the attendants used gloves.

The hospital was advised by phone call from the licensee that an injured, contaminated man would be arriving. Radio contact with the ambulance kept the hospital apprized of approximate arrival time.

Hospital personnel prepared the "cast room", per procedure, for the contaminated patient's arrival. Plastic sheeting was placed on the floor from the building entrance to the room (access to this door has been paved by the hospital), contaminated area boundary ropes, signs (including "this is a drill") were in place, dosimetry was issued. Attending personnel wore double gowns, surgical masks, and surgical gloves. Survey equipment was available, functional, and within the required calibration date. The cast room was well prepared with plastic sheeting and cloth sheets on surfaces likely to become contaminated. Labeled plastic barrels with plastic bag liners were available for contaminated articles. A large, labeled tank was in place to receive contaminated fluids. A small lead ("pig") container was present to contain any highly radioactive materials.

The Health Physics (HP) technician stationed outside the hospital treatment room controlled the spread of contamination by the ambulance attendants. The HP technician inside the treatment room provided adequate guidance to the medical staff on methods to minimize contamination, decontaminate the patient, and dispose of contaminated items. The contamination control by the ambulance and medical staff and actions on the part of the HP technicians to provide adequate HP guidance was considered satisfactory. The "inside" HP requested that attending personnel remove one set of gloves midway through the decontamination and patient examination

procedure, and this was considered excellent guidance. It was noted that the HPs could provide more information to hospital personnel as to general radiation hazard levels as patient decontamination proceeds.

Based on the above findings, the portion of the licensee's program is acceptable. However, the following item should be considered for improvement:

- Develop onsite medical support awareness of ALARA practices to minimize cross contamination and also an awareness of RWP use and knowledge of dose readings from dosimeters.

f. Emergency Operations Facility (EOF)

The EOF was promptly staffed in an orderly fashion. Personnel were well trained, professional and worked well together. Procedures, logs and checklists were utilized properly. Noise levels were adequately controlled. Plant parameter status boards, dose assessment status boards and protective actions implementation status boards were adequately maintained. Dosimetry was issued and properly used during the exercise. Habitability checks were made at regular intervals throughout the exercise.

The EOF established and maintained adequate communications with other emergency response facilities, the State of Michigan and other offsite agencies. Fifteen minute notifications were made within the required time frame. The NRC notification was made within one hour. Notification status boards lagged behind somewhat due to their dependence on the message systems for their information, e.g., Alert information remained on the board for 25 minutes following the declaration of a Site Area Emergency. Briefings were held periodically during the exercise, often in the form of announcements. Briefings did not give details of such things as the nature of release or core status, although this information was available. The briefings would be more effective if formalized by conducting them at periodic intervals (e.g., hourly) with an overview of all information available.

The use of logs and forms was adequate, however, more care and detail should be used with an eye to reconstruction of events.

Field teams were effectively used to monitor the plume dimensions and intensity and many plume traverses were made. Field team data was constantly compared to dose predictions to check for accuracy and inconsistencies.

It was noted that the RaDose program (IBM personal computer dose assessment method) as currently implemented, prevents recalculations during printing of results of a calculation. This could be corrected by installation of a print buffer on the IBM personal

Computer. Also, differences in the results of the two dose assessment methods were noted by dose assessment personnel, and they found that the two systems treat radioiodine doses differently. It is not uncommon for different dose assessment models to produce differing results, but it is useful to understand the reasons for the resulting differences. It would be worthwhile to document the differences between the two models and place this documentation in the relevant procedure, so dose assessment personnel do not spend unneeded time researching dose estimate differences.

Based on the above findings, this portion of the licensee's program is acceptable. However, the following items should be considered for improvement:

- Briefings by the Emergency Officer should be more formal and contain relevant plant status, release data and protective action recommendations.

- Consider documentation of dose assessment differences and their placement in relevant procedures.

6. Exercise Scenario and Control

The licensee's exercise scenario was challenging, including: numerous equipment failures, meteorological changes and assembly/accountability. The degree of challenge in this exercise adequately tested the licensee's ability to protect the public health and safety.

Exercise control was considered adequate. No prompting by controllers was noted.

It was considered worthwhile that the players in the simulator Control Room were given some 30 minutes to become accustomed to the initial conditions of the scenario. However, the general environment of the simulator and initial conditions would be more realistic if some equipment had been "tagged out", some systems were in alarm, and possibly a Limiting Condition for Operation (LCO) was in progress for a system.

The TSC was provided with simulated ERIS displays, including containment integrity, radiation release, radiation release trend, and plume maps for segmented or straight-line gaussian plumes. These simulations considerably enhanced the realism of the exercise for TSC staff.

7. Licensee Critiques

The licensee held three levels of exercise critiques, one at each individual facility immediately following the exercise, a critique for controllers/observers following the facility critiques, and a formal presentation at the Exit Interview. NRC personnel attended these critiques and determined that significant exercise deficiencies were adequately addressed by licensee personnel.

8. Exit Interview

The NRC exit interview was held on May 20, 1988, with the licensee representatives denoted in Section 1. The NRC Team Leader discussed the scope and findings of the inspection. The licensee was also asked if any of the information discussed during the exit was proprietary. The licensee responded that none of the information was proprietary.

Attachments:
1. Scope of Participation and Exercise Objectives
2. Scenario Event Summary

OBJECTIVES

The Specific objectives of FERMEX 88 will demonstrate:

1. The adequacy of the RERP Plan and its Implementing Procedures and test the proficiency of the Emergency Response Organization to select and use the appropriate procedures for response to the emergency.

2. The capability of the Control Room operators to respond to a radiological incident at Fermi 2, by manipulating the simulator controls, with a minimum of exercise messages and exercise Controller interface and to use the Simulator Control Room communications to conduct an exercise. (The Simulator is not being evaluated).

3. The integrated capability of the Emergency Response Organization to respond to a simulated emergency event.

4. The effectiveness of the interfaces among the Simulator Control Room and the permanent Emergency Response facilities, (Operational Support Center, Technical Support Center, and Emergency Operations Facility).

5. The adequacy and effectiveness of the permanent TSC emergency communications network between Fermi 2, the State of Michigan, Monroe County, Wayne County and Canada.

6. Proficiency in recognizing, understanding, and applying the Emergency Action Levels in classifying emergency events.

7. The capability of the Simulator Control Room to properly use the procedures and forms provided for notification of the State and local governmental agencies within 15 minutes of classification of the emergency event and provide followup reports on a periodic basis.

8. The capability of the Control Room to notify the NRC within 1 hour of declaration of the emergency event.

9. The capability of the TSC and EOF (when functional) to properly notify State and local governmental agencies within 15 minutes of classification of the event, and provide followup reports on a periodic basis.

10. The capability to perform timely and effective offsite dose assessment based on plant conditions, potential/actual radiological releases, and meteorological conditions through the use of computer software.

11. The capability to recommend to the responsible State officials protective actions for the general public in the 10-mile EPZ based on plant conditions, potential and/or actual radiological releases and meteorological data on a timely basis (within 15 minutes of declaring a GENERAL EMERGENCY).

12. The capability of the Offsite Radiological Emergency Teams (RETs) to locate and track the plume.

13. The capability of the Offsite RETs to collect environmental samples and obtain air samples as may be requested.

14. The use of personnel dosimetry by the Emergency Response Organization in the Control Room, OSC, TSC and EOF.

15. The capability of Health Physics personnel to establish control points at the TSC and EOF and perform routine radiological surveys in the facilities.

16. The capability of Health Physics personnel to perform inplant surveys with the proper procedures and instrumentation.

17. The capability to authorize exceeding 10 CFR 20 exposure limits within the plant when requested.

18. The capability to obtain iodine grab samples, analyze, and properly use the results in offsite dose assessment.

19. The capability to obtain and analyze PASS samples as may be requested.

20. To perform Assembly and Accountability within 30 minutes.

21. The capability of the Personnel Monitoring Team to establish and maintain a vehicle and personnel contamination control area.

22. The capability to update the media at the JPIC at the Site Area or General Emergency classification or when a significant change in Emergency Classification, Meteorological Conditions, Radiation Release, and Protective Action Recommendations occurs.

23. The capability to provide the news media with up-to-date coordinated, comprehensive media briefings at least hourly once the Joint Public Information Team (JPIT) is available.

24. The capability to respond as fully as possible to all relevant JPIC media inquiries no later than the next scheduled media briefing.

The following objectives pertaining to an injured and contaminated individual will be demonstrated on May 19, 1988:

1. The capability of the onsite medical team to promptly and appropriately respond to when notified of an injured and contaminated individual.

2. The capability to render immediate care onsite and transport of the injured and contaminated individual to a designated hospital for treatment.

3. The capabilities of health physics personnel to maintain proper contamination control.

4. The capabilities of health physics personnel to survey and release medical equipment used in treatment of contaminated individual.

5. The capabilities of health physics personnel to provide appropriate Dosimetry to offsite emergency medical support personnel.

PART 2: (EXERCISE SCENARIO)

CONTROLLED INFORMATION

FERMEX 88
SEQUENCE OF EVENTS

SCENARIO 24 HOUR CLOCK TIME	SCENARIO TIME HR: MIN	SIMULATOR MALFUNCTION TIME HR: MIN	KEY EVENTS
0700	0000		Reactor Power - 95% to 100% of rated thermal power
0730	0030		Loss of 6 North Feed Water Heater.
		D-21-177-01,02,03 @ 2% D-21-177-04,05,06, 07, at 2%	Offgas and Main Steam Line radiation levels increase due to fuel clad cracking.
0815	0115	B-31-018-02	Loss of Recirc pump "B" inboard seal.
0830	0130		Chemistry Reports 4.1. microcuries per gram Dose Equivalent I-131 from Coolant Sample.
0835	0135		NSS declares Unusual Event and assumes position of Emergency Director IAW EP 101, Tab 9 Notifications to state and local governments and the NRC are made according to EP-290. Power reduction is commenced according to the Action Statement of Technical Specification 3.4.5.2.
0930	0230	E41-053-01	Inadvertent HPCI start with injection to the vessel. o Reactor Power increases due to addition of cold water. o 5% gap release results from rapid power increase cracking fuel cladding. o Main Steam Line isolation valves shut on high radiation in Main Steam Line. o Reactor scrams on high Main Steam Line radiation. o Safety relief valves open to relieve excess reactor vessel pressure.

EVENT SUMMARY - FERMEX 88

SCENARIO 24 HOUR CLOCK TIME	SCENARIO TIME HR: MIN	SIMULATOR MALFUNCTION TIME, HR: MIN	KEY EVENTS
			o Reactor Building ventilation isolates.
			o Standby Gas Treatment System auto starts.
			o Control Room ventilation shifts to recirc mode.
			o Containment High Range Radiation Monitors reading 6400 Rad/Hr due to fission gases released to drywell from SRV's lifting.
			The following significant alarms will be received in the Control Room as a result of the transient:
			o 3D82 - Main steam line radiation upscale/inop channel trip.
			o 3D83 - Main steam line channel A/B/C/D radiation monitor upscale.
			o 3D86 - Main steam line isolation valve closure channel trip.
			o 3D73 - Trip actuators A1/A2 tripped.
			o 3D74 - Trip actuators B1/B2 tripped.
		TDF-3D43	o 3D43 - Div I/II containment area radiation monitor trouble.
			o 1D61 - SRV open.
			o 2D74 - Div I/II Low-low set armed.
			o 17D14 - Div I/II SGTS auto start.

EVENT SUMMARY SCENARIO

SCENARIO 24 HOUR CLOCK TIME	SCENARIO TIME HR: MIN	SIMULATOR MALFUNCTION TIME, HR: MIN	KEY EVENTS
0940	0240		Reactor cooldown at less than 90°F/Hr commenced. One of the following methods will be used for the cooldown: o HPCI o RCIC
0945	0245		Emergency Director declares an Alert in accordance with EP-101, Tab 9. Notifications to state and local governments and the NRC are made according to EP-290. Assembly and Accountability announced IAW EP-530.
1015	0315		TSC is declared functional
1015	0315	B-31-018-04	Loss of Recirc pump inboard seal o Drywell temperature and pressure increase due to leakage from seals. o All low pressure Emergency Core Cooling Systems and Emergency Diesel Generators may start depending upon initial Reactor Pressure.
1016	0316	G33:M102 :M106 VM:102 VM:106	CHRRM's Reading increases to 4600 Rads/hr. G33-F106 does not shut due to open motor lead in drywell penetration X-105A when operator attempts to shut the valve. G33-F102 blows fuses due to short in drywell penetration X-105A when operator attempts to shut the valve.
1030	0330		Emergency Director declares Site Area Emergency in accordance with EP-101 Tab 9, loss of two (2) fission product barriers. Notifications to state and local governments and the NRC are made according to EP-290.

EVENT SUMMARY SCENARIO

SCENARIO 24 HOUR CLOCK TIME	SCENARIO TIME HR: MIN	SIMULATOR MALFUNCTION TIME, HR: MIN	KEY EVENTS
1035	0335		Team dispatched from OSC to investigate failure of G33-F102 and G33-F106 valves.
1110	0410		Torus Drywell Pressure decreases due to crack in Torus welded seam.
			CT-2B reading increases too 400 uc/cc.
			Projected Dose Rate at the Site Boundary exceeds 1R/Hr.
			The Emergency Director declares a General Emergency IAW EP-101, Tab 1 or Tab 9.
			Notifications and Protective Action Recommendation made to the State of Michigan according to EP-290 and EP-545. Notification made to the NRC according to EP-290.
1130	0430		The EOF is declared functional.
1140	0440		Team(s) dispatched from OSC to investigate potential loss of Primary Containment.
1230 to 1430	0530 to 0730		Exercise Terminates when repairs are adequate to isolate B Recirc pump and Primary Containment is restored.