March 10, 2004

Mr. Christopher M. Crane
President and CEO
AmerGen Energy Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

SUBJECT: THREE MILE ISLAND UNIT 1 DECEMBER 8, 2003, NRC EVALUATED EMERGENCY PREPAREDNESS DRILL - INSPECTION REPORT NO. 05000289/2003009

Dear Mr. Crane:

The enclosed report documents an inspection of a drill that involved Three Mile Island Unit 1 on December 8, 2003. This inspection primarily focused on the emergency operation facility's (EOF) ability to support simultaneous events at two sites. This drill was conducted at the direction of the Commission as a condition for the re-location of the Three Mile Island EOF from Harrisburg to your Coatesville, Pennsylvania facility which also functions as the EOF for your Limerick (used for this drill's objective) and Peach Bottom stations. Specifically, the inspectors evaluated the adequacy of communications and resources to respond to concurrent simulated conditions at Three Mile Island and Limerick. The inspectors evaluated your drill report for this drill as well as for similar multi-site drills on August 27 and December 4, 2003, to assess your organization's ability to critique these types of drills. The inspectors discussed the findings of this inspection with Mr. George Gellrich, Three Mile Island Plant Manager, and other members of your staff from Limerick, Three Mile Island, and Kennett Square at a exit meeting conducted via tele-conference on January 30, 2004.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, no findings of significance were identified. We have determined you met commitments made to the Commission as conditions for the re-location of the Three Mile Island EOF.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions regarding this report, please contact me at (610) 337-5183.

Sincerely,

***/RA/***

Richard J. Conte, Chief
Operations Support Branch
Division of Reactor Safety

Docket No: 50-289
License No: DPR-50

Enclosure: Inspection Report No. 05000289/2003009

cc w/encl:
Chief Operating Officer, AmerGen
Site Vice President - TMI Unit 1, AmerGen
Plant Manager - TMI, Unit 1, AmerGen
Regulatory Assurance Manager - TMI, Unit 1, AmerGen
Senior Vice President - Nuclear Services, AmerGen
Vice President - Mid-Atlantic Operations, AmerGen
Vice President - Operations Support, AmerGen
Vice President - Licensing and Regulatory Affairs, AmerGen
Director Licensing - AmerGen
Manager Licensing - TMI, AmerGen
Vice President - General Counsel and Secretary, AmerGen
Correspondence Control Desk - AmerGen
Chairman, Board of County Commissioners of Dauphin County
Chairman, Board of Supervisors of Londonderry Township
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U. S. NUCLEAR REGULATORY COMMISSION REGION I

REGION I

| | |
|---|---|
| Docket No: | 50-289 |
| License No: | DPR-50 |
| Report No: | 05000289/2003009 |
| Licensee: | Exelon Nuclear, LLC |
| Facilities: | Three Mile Island and Limerick Generating Station |
| Locations: | Middletown, Pennsylvania<br>Harrisburg, Pennsylvania<br>Limerick, Pennsylvania |
| Dates: | December 8, 2003 to January 30, 2004 |
| Inspectors: | D. Silk, Sr. Emergency Preparedness Inspector, Division of Reactor Safety (DRS), (Lead)<br>J. Brand, Resident Inspector, TMI, Branch 7, Division of Reactor Projects, (DRP)<br>P. Elkmann, Emergency Preparedness Inspector, DRS, NRC Region IV<br>J. Hernandez, Reactor Engineer, Branch 7, DRP<br>R. Jickling, Emergency Preparedness Inspector, DRS, NRC Region III<br>D. Kern, Senior Resident Inspector, TMI, Branch 7, DRP<br>R. Moody, Emergency Preparedness Specialist, NRR<br>D. Schneck, Emergency Preparedness Specialist, NRR<br>C. Smith, Senior Resident Inspector, Peach Bottom, Branch 4, DRP<br>K. Williams, Emergency Preparedness Specialist, NRR |
| Approved by: | Richard J. Conte, Chief<br>Operational Safety Branch<br>Division of Reactor Safety |

Enclosure

## SUMMARY OF FINDINGS

IR 05000289/2003-009; 12/8/03 - 01/30/04; Three Mile Island; Emergency Preparedness Report for Multi-site Drill.

This inspection was conducted by region based inspectors from NRC Regions I, III, and IV and specialists from NRR. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. NRC-Identified Findings

Cornerstone: Emergency Preparedness

- No findings of significance were identified.

### B. Licensee-Identified Findings

- No findings of significance were identified.

Report Details

## 1. REACTOR SAFETY

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluation

The TMI resident inspectors supporting this inspection effort were evaluating the on-site portion of the drill in accordance with the Baseline Inspection Procedure 71114.06, Drill Evaluation. The results of their on-site evaluation are documented in IR 05000289/2003-005.

## 4. OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed Exelon's drill report findings for their three dual site drills conducted in 2003. This review was conducted to determine if significant performance trends exist and to determine the effectiveness and timeliness of licensee corrective actions based upon the significance of the Emergency Response Organization (ERO) performance issues identified during these types of drills. The inspectors verified that issues identified during the December 8, 2003, drill were entered into Exelon's corrective action program (See attachment listing condition reports). The inspection was conducted in accordance with NRC Inspection Procedure 82001, Attachment 01, 10 CFR 50.47(b)(14), and Appendix E IV.F.2.g were used as reference criteria

b. Findings

No findings of significance were identified.

4OA5 Multi-Site Drill

History and Background

On March 18, 2003, the Commission approved the relocation of the Three Mile Island (TMI) emergency operations Facility (EOF) from Harrisburg to , Pennsylvania with its integration into the combined EOF serving the Peach Bottom Atomic Power Station and the Limerick Generating Station. In Staff Requirements Memorandum (SRM) SECY 03-0033, the Commission directed the staff to closely monitor the licensee's consolidation effort and ensure through the NRC Inspection Program that communication and coordination between the licensee, the public, and County, State and Federal Agencies are not adversely impacted by the consolidation. In response to the SRM, the NRC observed and evaluated the April 22, 2003, TMI full-participation exercise which utilized the s EOF. During that exercise, the NRC determined that the consolidation effort had no adverse impact on the overall operation of the EOF or the

communication and coordination between AmerGen, the public, County, State and Federal agencies.

The December 8, 2003, drill inspection effort was also the result of the Commission's approval to permit TMI to move their EOF. That approval contained two conditions. First, there was an acknowledgment of an Exelon commitment to perform a multi-site drill during calendar year 2003. Second, the NRC staff was tasked with evaluating this drill. The Commission specifically directed that an NRC inspector familiar with the Exelon, Illinois combined EOF under similar circumstances be involved in this drill evaluation. An NRC inspector from Region III, who was familiar with Exelon, Illinois emergency preparedness reviewed the objectives and scenario prior to the drill. Also, a former Exelon, Illinois employee, who was a health physicist and emergency preparedness specialist in their headquarters EP group, who now is an NRC emergency preparedness inspector in Region IV, was evaluating this drill in the EOF.

a. Inspection Scope

The overall objective of this inspection effort was to determine if the licensee's EOF could support simultaneous emergencies at two sites. To accomplish this, the NRC evaluators were positioned at TMI (simulator, technical support center (TSC), and operational support center (OSC)), the joint public information center (JPIC) in Harrisburg, the Pennsylvania Emergency Management Agency (PEMA) emergency operations center (EOC) in Harrisburg (limited participation by the State), the Limerick TSC (limited staffing), and the EOF and emergency news center (ENC) in .

The evaluation team primarily focused on three areas: 1) the ERO's communication of information to the State, 2) the coordinated dissemination of information to the public, and 3) the adequacy of resources available at the EOF. To assess the first area, the evaluator at the EOC (who was deliberately not provided a copy of the scenario in advance) observed the flow of information into the EOC. After the drill he debriefed the evaluation team on his observations of what events occurred at which site and when. The team then compared his account of the drills events with their own observations to determine if an acceptable and timely flow of information existed during the drill. The second area was assessed by the evaluators at the two news centers who observed media briefings and reviewed press releases to determine if information was disseminated to the public from these two locations in an accurate, timely and coordinated manner. Thirdly, the evaluators at the EOF assessed if there was adequate equipment, staffing, and coordination at the EOF to response to simultaneous events.

The team reviewed the licensee's drill report for this drill, as well as, drill reports for similar multi-site drills that were conducted on August 27 and December 4, 2003. This review assessed the licensee's ability to critique their overall performance and their ability to identify and correct performance or equipment deficiencies related to multi-site drills.

The team leader reviewed the scenarios used by the Exelon for the August 27, December 4 and December 8, 2003, drills. This review checked for duplication of scenarios and to assess the adequacy of the drill scenarios.

The team used 10 CFR 50.47(b)(14); 10CFR 50 Appendix E.IV.F.2.g; NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants;" NUREG-0696, "Functional Criteria for Emergency Response Facilities;" NRC inspection Procedure 71114 Attachment 1, "Exercise Evaluation;" and the licensee's emergency plan as references and criteria.

b. Findings and Observations

No findings of significance were identified.

The evaluation team had several observations from this inspection. First, the licensee voluntarily performed other dual site drills with the sites supported by the EOF. On August 27, 2003, a drill involved TMI and Limerick. The December 4, 2003, drill involved TMI and Peach Bottom. The December 8 drill again involved TMI and Limerick. Second, the licensee scenarios for each of the drills had varied malfunctions, or combination of malfunctions, and Emergency Action Levels (EAL). (TMI's emergency EALs were similar in each drill due to the fact that all three scenarios had casualties which impacted the fission product barriers.) In all three drills, TMI escalated to a general emergency (GE) while the other sites went to a site area emergency (SAE), SAE, and an alert, respectively. The drill observed by the NRC on December 8, 2003, was the least complex. It involved a simulated tornado striking the Limerick site. It should be noted, however, that there are no standards for emergency plan drill scenario complexity and that Exelon committed to Regional management to go to an alert at the second site. However, the licensee challenged itself by conducting a total of three dual site drills with two of them having the second site going to an SAE. Also it should be noted that the licensee invited offsite participation in these drills and there were various degrees of offsite participation.

In conclusion, the licensee met the criteria set forth by the inspection team of (1) timely and accurate communications with offsite agencies; (2) timely and coordinated dissemination of information to the public through the two news centers; and (3) adequate resources were available in the EOF to support simultaneous events at two sites. See Attachment 1 for a time line of events and actions that occurred during the drill.

40A6 Meetings, Including Exit

The inspectors presented the inspection results to Mr. George Gellrich, and other members of the licensee's staff at the conclusion of the inspection on January 30, 2004. The licensee had no objections to the NRC findings or observations. No proprietary information was provided to the inspectors during this inspection.

## ATTACHMENT 1

## KEY POINTS OF CONTACT

Licensee Personnel

C. Arnone, Emergency Preparedness Director
A. Coppa, Limerick Emergency Preparedness Coordinator
R. DeGregorio, Site Vice President
G. Gellrich, TMI Plant Manager
B. Hanson, Limerick Plant Manager
R. Harding, Regulatory Assurance Staff
R. Kaminski, Emergency Preparedness, KSA
J. Karkoska, Emergency Preparedness Manager
R. Mandick, Limerick Emergency Preparedness Staff

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed/Discussed

None

## LIST OF DOCUMENTS REVIEWED

March 20, 2003 letter from Richard J. Laufer, Office of Nuclear Reactor Regulation to John Skolds, Chairman Amergen Energy Company regarding approval of the consolidation of the TMI EOF into the common EOF for Peach Bottom and Limerick stations.
SECY-03-0033
Emergency Response Organization Required Reading Package 2003-19
TMI/Limerick 12/08/03 Dual Site Drill Preparation Plan
EOF/ENC/JPIC Operation Strategy for Dual Station Event
Dual Station Drill Player Briefing
TMI Player Briefing December 4 and 8, 2003, Team D Drill (TMI TSC)
Dual Station Drills 12/04 and 12/08 Controller Briefing
Three Mile Island August 27, 2003 Training Drill Evaluation Report
Peach Bottom December 4, 2003 Drill Findings and Observation Report
Three Mile Island 2003 Dual Station Drill Findings and Observation Report (December 8, 2003)

## CONDITION REPORTS GENERATED

| Number | Brief Description |
|---|---|
| 190953 | Improve scenario validation process: The “B” battery discharged during the drill due to the loss of power. The battery was needed to support the scenario. This was not identified during validation because of time compression during validation. |
| 190957 | Dispatching ambulance during the medical drill: There was a mis-communication between the EMS director and the staff regarding the call out method. |
| 191144 | ERDS, radiological field data control, and scenario validation: TMI ERDS could not connect to the NRC circuit at the beginning of the drill; Offsite radiological data was not properly controlled during the drill; and some scenario validation issues were identified. |
| 191567 | Reinforce expectations on finding player replacements: The designated victim for the medical drill was directed to support the station without obtaining a replacement. A replacement had to be found during the drill. |
| 191578 | Evaluate need for more status boards: Possibly needed to capture more information. |
| 191584 | Coordination and communications during the medical drill: Improve quality of the notification generated from the control room as part of the initial NRC notification. |
| 191596: | Improvements for TSC ERO performance: Dispatching and tracking OSC teams. |
| 191610 | Improvements for OSC ERO performance: Briefings for OSC personnel on plant status, and equipment operability checks. |
| 192536 | Improvements for EOF ERO performance: Improve communication of protective action decision between Pennsylvania and EOF. Also, minor performance issues at JPIC, enhancements recommended. |
| 192538 | Miscellaneous JPIC/ENC equipment issues: Various equipment process issues. |
| 192540 | Evaluate JPIC coordinator checklist with respect to JPIC activation: Procedural enhancements for the JPIC. |
| 192541 | Need opportunities for PEMA to become familiar with news center operations: Program administration and maintenance issues pertaining to the JPIC. |
| 192544 | Field monitoring team radio: The radio could not be used from the EOF to communicate with the TMI field monitoring teams. Alternate method (cell phones) was used successfully. |
| 192545 | EOF ERO performance: EOF communication with filed monitoring teams. |

## LIST OF ACRONYMS

| | |
|---|---|
| EAL | Energy Action Level |
| ENC | Emergency News Center |
| EOC | Emergency Operations Center |
| EOF | Emergency Operations Facility |
| EP | Emergency Preparedness |
| ERO | Emergency Response Organization |
| GE | General Emergency |
| JPIC | Joint Public Information Center |
| OA | Other Activities |
| OSC | Operations Support Center |
| PAR | Protective Action Recommendation |
| PEMA | Pennsylvania Emergency Management Agency |
| RSPS | Risk Significant Planning Standard |
| SAE | Site Area Emergency |
| SRM | Staff Requirements Memorandum |
| TMI | Three Mile Island |
| TSC | Technical Support Center |

## ATTACHMENT 2

### The Three Mile Island / Limerick Drill Scenario Time Line

0745 Drill commences at TMI.
0750 High wind speeds (50-55 mph) are noted on recorder and plant computer.
0805 TMI informed that two local plants have tripped due to grid instabilities.
0810 At TMI a faulty relay in the integrated control system results in a continuous rod withdrawal event in the automatic mode at 100% power. RCS pressure increases and pressurizer safety valves open early.
0812 TMI pressurizer safety valves opening for a second time (EAL entry condition).
0822 TMI ERO pagers activated.
0824 ERO Pagers sound for the Three Mile Island Alert.
0824 TMI declares an alert based on pressurizer safety valves lifting (FA1).
0832 Alert notification from TMI received by PEMA duty office (DO). Declaration time was 0824. EAL number was FA1. There were indications of a loss or possible loss of reactor coolant system integrity. Current conditions do not threaten public safety. All counties were on the ring-down line and received the same information.
0834 State individual arrives at EOF (pre-staged).
0842 PEMA DO calls Bureau of Radiological Control (BRC) per procedure. BRC is not participating in the drill.
0845 Tornado impacts Limerick.
0848 First player arrives in dose assessment area.
0851 Alert declared at Limerick.
0857 Pagers activated for Limerick Alert.
0857 ERO pagers sound for the Limerick Alert.
0857 EOF informed that Limerick declared an alert.
0858 Alert notification form Limerick received by DO. Declaration time was 0851. EAL number was HA3. A tornado event has occurred that threatens vital equipment. Current plant conditions do not threaten public safety. All counties were on the ring-down line.
0901 Loss of offsite power and reactor trip at TMI.
0901 Failure of primary radio to TMI environmental monitoring teams.
0902 EDG “B” started but failed to load at TMI.
0904 Wind Speed not available on TMI plant computer.
0904 EOF informed of minimum staffing achieved for TMI.
0905 Dose Assessment team complete.
0907 TMI assembling two environmental monitoring teams. Communications via backup cell phones.
0908 Corporate Emergency Director briefing (notifies of two events - one at TMI and the other at Limerick). TMI lost offsite power at 0902 hrs and tripped Established priorities to respond to TMI then address Limerick issue.
0912 EOF informed from TMI of a contaminated-injured person taken offsite to hospital. Also, Loss of RCS barrier at TMI.
0913 TMI lost safety bus 1E (4 kV) on loss of offsite power. Internal communications for Limerick to be made on GREEN paper vs. white for TMI.
0914 EOF activated for TMI.

0915 Limerick TSC receives report from AO about spray pond A/C spray networks are damaged.
0916 Limerick TSC activated (skeleton crew of 14).
0917 EOF briefed on Limerick alert based on a tornado touching down causing damage to A&C Emergency Spray ponds, alert declared at 0851 HA3.
0919 TMI news center activated.
0920 Exelon PEMA Liaison arrives at PEMA EOC.
0920 EOF informed that all fission product barriers are intact for Limerick.
0921 EOF informed that TMI corrected to Potential Loss of the RCS Barrier.
0923 Exelon PEMA Liaison briefs PEMA person acting as the communications cell. Liaison has been in contact EOF via cell phone while traveling and shares the following information: For Limerick - trains A and C of the Spray Pond network and trains A and C Cooling Tower Pump Structure damaged. For TMI - There is a contaminated/injured individual, loss of off-site power, and a reactor trip.
0923 EOF informed that at TMI wind speed and wind direction reading 0 on plant computer. EOF rad team questioning possible loss of the met tower - team to verify. Report from TMI of tornado-like wind conditions with probably damage to the tower.
0926 RM call to Limerick TSC.
0928 EOF Director informed CED that TMI met the criteria for a second alert (MA1 - loss of offsite power).
0929 EOF briefed to establish resources to respond to two events.
0930 Limerick TSC assumed command and control from simulator control room.
0930 AO reports to Limerick TSC that pump station pump house sustained minor structural damage.
0930 EOF Brief: EOF has sufficient resources to handle 2nd event. Tornado sighted at Limerick at 0845 near cooling towers. Damage to the A & C spray ponds. Alert declared at 0857. Both units remain at 100% power.
0932 EOF activated for Limerick. Established team response: green-Limerick, white-TMI. Meteorological tower down - obtaining data from NWS. Command and Control not established, clarified TMI EAL declaration to be at 0824 versus 825, and Limerick at 0851 not 0857.
0933 EOF received report from Limerick that D3 diesel-generator is inoperable.
0934 EOF received corrected time for Limerick Alert to 0851.
0936 JPIC for Limerick activated.
0937 Rad Group Brief.
0938 EOF informed of Limerick briefing environmental monitoring teams and that some TMI rad monitor data may be suspect.
0941 Radio communication problem to Limerick environmental monitoring teams.
0942 EOF initiated turnover sheet with TMI-TSC.
0947 TMI : environmental teams are in the field ; initial measurements are background
0950 Transfer dose assessment from TMI to EOF. Radio communications with Limerick are restored.
0950 JPIC activated.
0950 First Limerick news release issued.
0951 EOF informed that TMI recognizes two potential release paths (the Steam Driven AFW pump and from the lifting safety valve).
0952 Transfer environmental monitoring teams from TMI to EOF.
0953 Limerick TSC ready to initiate turnover waiting for CED.

0955 EOF brief: Contaminated-injured person is still on site at TMI and waiting for offsite ambulance to arrive. Offsite power is still unavailable at TMI. Command and Control for TMI to be assumed at end of brief.
0955 First TMI news release issued.
0958 Command and Control assumed for TMI; non-delegables of PARs and notifications assumed.
1000 RM informed team in EOF that Limerick will maintain dose assessment but transfer environmental monitoring team to EOF with goal of 1005 hours.
1000 First press briefing conducted. (TMI news center tied in via phone.)
1003 EOF received answer from TMI on which monitors were lost on the loss of power.
1004 Transfer of environmental monitoring teams from Limerick to EOF (the teams are being simulated by a controller in the EOF).
1006 EOF Rad team informed that both TMI release paths are monitored.
1006 Limerick turnover to EOF: Alert declared at 0851. State and counties notified at 0858. Established contact with the NRC (had to reestablish contact w/NRC). Completed accountability at 0959 based on industrial safety issues. ERDS activated at 0907. Command and control to be assumed at 1015 for Limerick.
1008 EOF informed of minor change in TMI wind direction to 318.°
1010 RM went to State briefing.
1010 TMI control room receives “Radiation Level Hi” annunciator. RM-G-22 & 23 steady at 1.4 R/hr.
1011 EOF Brief: EOF take command and control for Limerick at 1015. EOF will assume non-delegables of PARs and notification from Limerick. Limerick remains in an Alert. Priority is to repair diesel-generator and spray ponds. Both units remain at 100% power. Radiation levels for TMI are increasing.
1013 EOF is informed rapid increase in containment rad monitor and main steam line rad monitors at TMI. A release is in progress.
1015 Delegable responsibilities (PARs, offsite notifications) transferred to the EOF from Limerick.
1017 Briefing given to state at EOF regarding TMI and Limerick. The contaminated-injured person at was TMI taken to Harrisburg Hospital. The radiation release at TMI occurring through the atmospheric dump valves.
1017 EOF Rad team informed of adverse wind conditions at Limerick.
1021 EOF Rad team informed that Limerick environmental monitoring teams in the field.
1022 Liaison informs communications cell that command and control has been transferred to the EOF for Limerick at 1015 and for TMI at 0958.
1022 TMI declares a site area emergency (SAE) due to potential loss of the RCS barrier and loss of fuel clad barrier.
1024 EOF informed of fuel damage at 1015 at TMI with a SAE declared at 1022 due to the loss of two fission product barriers. Dose assessment on TMI to using gap release.
1025 Limerick TSC informed that TMI was at a site area emergency (SAE).
1029 Exelon contractor arrives at EOF. EOF aware of slight increase in TMI main steam line radiation monitors.

1029 PEMA DO receives SAE notification for TMI. Declaration time was 1022. EAL number was FS1. Loss or potential loss of 2 of 3 fission product barriers. There is an airborne non-routine radiological release in progress. All counties also received the information on the ring-down line.
1031 EOF dose assessment results for TMI:~2 mrem TEDE and ~20 mrem Thyroid CDE at 2 miles.
1033 EOF informed that at TMI 250 cpm on a frisker at two miles.
1034 EOF Brief: Both units at Limerick are at 100% power. Spray pond repair expected by 1200 hours. Conditions are stable at Limerick.
1035 PEMA notifies counties to sound sirens at 1045.
1035 Environmental team directed to take air sample at location w/250 cpm.
1036 Liaison and communications cell unclear on whether contaminated/injured individual was sent to a Hershey hospital or a Harrisburg hospital. Information exchanged indicated that the individual had been treated and released by this time. Liaison and communications cell are aware that the grid is stable for TMI.
1039 EOF Rad team will transfer dose assessment from Limerick to EOF at 1040 hours.
1041 Siren sounding information transmitted to EOF.
1042 EOF made decision not to take air samples at Limerick unless a release occurs.
1045 Limerick dose assessment results: << 1 mrem for both TEDE and Thyroid CDE.
1046 EOF informed that at TMI protected area accountability was started 1034 and site evacuation was initiated to Harrisburg via the North Gate.
1048 EOF Brief: Offsite Sirens sounded at TMI at 1045 hours. EAS message to be broadcast at 1048. TMI using blackout diesel generator to feed vital busses.
1054 Rad Brief.
1056 TMI: TEDE = 2 mrem & Thyroid CDE = 30 mrem (summed from both release paths); wind speed at 9 mph, wind direction from 316°, E stability, duration four hours.
1059 PEMA receives report of no change in Limerick or TMI status.
1101 EOF informed of TMI air sample results: 450 net cpm iodine cartridge & 3950 net cpm filter; volume = 300 L.
1104 EOF informed of loss of main steam line rad monitor at TMI.
1104 PEMA informed by EOF that an evacuation of non-essential personnel had started at TMI at 1034. Also, learned that accountability was completed at 1055, all evacuated personnel from TMI were sent to the Harrisburg JPIC, and that the NRC Operations Center was activated at 1047.
1105 EOF informed of TMI air sample: 7E-7 µCi/cc = 4.5 rem Thyroid CDE over 10 hour shift (for KI).
1106 EOF brief: At TMI there is a loss of two additional vital busses. Also, loss of steam-generator monitoring. At Limerick, the spray pond was repaired at 1059 and must do post maintenance testing before return to service.
1109 Approval of press releases.
1110 PEMA informed by EOF that the A and C trains had been restored at Limerick at 1059.
1111 Controller inject into scenario-simulator being backed up 5 minutes for TMI only inadvertent loss of Power for vital busses B&D to be reset at 1115.
1112 TMI radiation monitor data available.
1115 Second press briefing conducted.
1124 EOF informed that at TMI second environmental monitoring team measures greater than background at point SSE31. The team is to take an air sample.
1125 Tube leak occurs on OTSG “A” at TMI.

1125 EOF informed of rapid radiation level increase in main steam line A at TMI; General Emergency (GE) levels exceeded. RM questioning change to loss all three fission product barriers.
1129 TMI PAR flowchart discussion among rad team. Controller Inject - air sample result is 2.5E-8 µC/cc and not GE level.
1130 Dose assessment for TMI: 365 mrem TEDE and 6100 mrem Thyroid CDE .
1131 Indications available that OTSG "A" tube leak is greater than 1 gpm and pathway to atmosphere exists.
1132 EOF informed of a report of 15 mR/h from environmental monitoring team at point SE11 (~2 miles out) at TMI. Measured before air sample started.
1136 Dose assessment for TMI: 1.1 rem TEDE at Site Boundary & 10 rem Thyroid CDE.
1137 EOF requests that TMI environmental teams check dosimeters.
1138 EOF informed that at TMI there is loss of Containment Barrier. GE declared at 1139.
1139 TMI declares a GE based on loss of containment (indication existed at 1125) FG1 (loss of PC barrier, and fuel clad, and potential loss of RCS).
1140 EOF Brief: TMI General Emergency at 1139. Dose assessment at TMI: 1.5 rem TEDE at site boundary and 24 rem Thyroid CED. Evacuation based on dose is 2 mile radius all sectors. 10 mile doses projections at TMI: 125 mrem TEDE & 2 rem Thyroid CDE.
1140 Some information about 43mR/hr at TMI, but no information regarding where or when detected. Also, some sampling for iodine was underway.
1142 Limerick TSC informed that TMI declared a GE at 1139.
1143 For TMI plant based PAR: evacuate 5 mile radius all sectors. There are two rad team covering the two release points - one elevated from the valve and one ground-level from the steam driven pump.
1144 PAR and notification made to the state from EOF regarding TMI: Evacuate 0-5 miles (technical description loss or potential loss of three of three barriers).
1145 Dose assessment for Limerick: 1E-3 mrem for TEDE and Thyroid CDE at site boundary
1145 PEMA DO receives GE notification from TMI. Declaration time was 1139. EAL number was FG1. A loss or potential loss of three of three fission product barriers. There is an airborne non-routine radiological release in progress. All counties also received the information on the ring-down line. (The Liaison could not explain to the NRC inspector which fission product barriers were lost or potentially lost. He was aware of reactor coolant leakage greater than 1 gpm.)
1146 EOF informed that TMI air sample #2 results are off-scale high on GM frisker for both filter and iodine cartridges; sample taken at 2 miles; individual dosimeter doses are 25 mrem and 30 mrem; RM - arrange to transfer the sample and bring it back to the station for counting / do not send environmental teams through the plume / calculate KI for the maximum count rate on the meter.
1148 Phonecall discussion between PEMA communications cell and Emergency Director at the EOF. Exelon recommended evacuation of 5 mile radius and distribution of KI.
1149 Exelon provides PAR to State to evacuate 5 miles all sectors with KI distributed to the evacuated population. State asks (a) how/when will licensee stop the release?, (b) how to validate the source term and fuel damage assumptions? (c) what is the extent of fuel damage? States comments that field team data is not available.
1156 PEMA declares evacuation of 10 mile radius and KI distribution to same area. PEMA directs sirens to be sounded at 1206.
1157 EOF contacts TMI about how to get air sample onto site; use South Gate ?
1157 Limerick is entering recovery.

1159 EOF informed that steam-driven pump at TMI was isolated at 1130 ; Rad team states that one release path is probably secure.
1200 EOF informed that maximum instrument count rate 50,000cpm = 3E-5 µCi/cc = 110 rem Thyroid CDE at TMI.
1201 EOF Brief: TMI PAR is to evacuate 5 miles all sectors.
1202 RM recommends KI for environmental monitoring teams (signs worksheet) at TMI.
1205 RM briefs CED about KI recommendation for environmental teams.
1207 Dose assessment at TMI: 400 mremTEDE & 6500 mrem Thyroid CDE at site boundary ; 10 miles doses are 110 mrem TEDE & 1800 mrem Thyroid CDE.
1212 PEMA Protective Action Decision communicated to EOF via liaison.
1214 CED discusses with the RM the need to talk to the ED in the TSC about KI for the teams; only he can give permission.
1215 Third press briefing conducted.
1219 EOF briefing on TMI: Crosstie in progress to the battery bus. Priority is to cool down and maintain at least 25° subcooling. Another priority is to establish an ETA to isolate the A steam generator. Two additional environmental monitoring teams are being staged. EOF relief crews will arrive at 1800 hours. So far Exelon has done three dual press briefings in the JIC and issued three TMI press releases and two Limerick press releases.
1223 EOF Brief : Tests of the spray pond at Limerick are satisfactory but not yet declared operable. Reviewing checklists for event stand down.
1224 Announcement in EOF: State has implemented evacuation to 10 miles all sectors with KI to the public. EAS message broadcast at 1210 hours with sirens.
1225 Trains A and C are available at Limerick. Operability determination being performed. TSC performing recovery checklist.
1225 TMI is cooling down at the maximum rate. Maintaining subcooling margin greater than 25 degrees. The auxiliary feedwater pump is being secured and motor driven feed pump started.
1226 EOF Rad team discusses moving environmental teams further down wind at TMI.
1227 EOF informed that the high air sample was just picked up from the Blue Team at TMI.
1229 RM recommending KI for the environmental teams.
1229 Drill terminated.