U. S. Nuclear Regulatory Commission Region 1

Report No.	50-289/90-07
Docket No.	50-289
License No.	DPR-50
Licensee:	GPU Nuclear Corporation P. O. Box 480 Middletown, Pennsylvania 17057-0191
Facility Name	Three Mile Land Nuclear Generating Station Unit

Inspection Conducted: March 19-23, 1990

Inspection At:

Londonderry Township, Harrisburg, Hershey, and Susquehanna Township, Pennsylvania

Inspectors:

larlen 2. Amat

date

No. 1

C. G. Amato, Emergency Preparedness Specialist, Region I

E. F. Fox, Jr., Sr. Emergency Preparedness Spc-ialist, Region I

Approved:

9005310263 9005 PDR ADOCK 0500

PDR

and Cont W. J. Lazarus, Chief, Emergency

Preparedness Section, Division of Radiation Safety and Safeguards

15-190 date

Inspection Summary: Inspection on January 19-23, 1990 (Inspection Report No. 50-289/90-07)

Areas Inspected: Announced, routine, safety inspection of the licensee's emergency preparedness program. The inspection areas included: the emergency preparedness program; emergency response facilities, equipment, instrumentation and supplies; organization and management control; training; response to actual conditions requiring emergency classification; and off-site activities.

No violations, deviations or unresolved items were identified. Results:

1.0 P-- jtacted

The following personnel were contacted. Unless noted otherwise, personnel listed below are GPU Nuclear Corporation staff.

- D. Bedell, Communications Manager, TMI Communications Office
- * R. Cook, PWR Group Leader, Department of Environmental Resources, Commonwealth of Pennsylvania
- * G. Giangi, Manager, Emergency Preparedness Department
- * D. Hassler, Licensing Engineer, Corporate Services Division R. Hippert, Director, Office of Plant Preparation, Pennsylvania Emergency Management Agency

J. Grisewood, Lead Off-Site Emergency Planner, GPU Fmergency Preparedness Department

- M. Roche, Director, TMI Unit 2 Division and Vice President
- * D. Laudermilch, Support Training Manager, TMI Training Center K. Miller, Director, Division of Health Physics, Penn State Codege of Medicine, Hershey Medical Center
- J. Semanko, Director, Ambulatory Care Services, Harrisburg Hospital
 * G. Simonetti, TMI Emergency Preparedness Department Manager D. Stein, RN, Manager, Emergency Services, Penn State College of Medicine, Hershey Medical Center

W. Thompson, Operator Training Manager, TMI Training Center M. Wertz, Director, Dauphin County Emergency Management Agency

* Denotes those personnel who attended the exit meeting.

2.0 Emergency Plan and Implementing Procedures

To determine it the standards of 10 CFR 50.47(b)(16) and the requirements of 10 CFR 50.54(q) and Section G of Appendix E to 10 CFR 50 are met, the inspectors reviewed the Emergency Plan and Implementing Procedures.

2.1 The development and maintenance of the GPU Nuclear Corporation Emergency Plan for both GPU nuclear sites is the responsibility of the GPU Corporate Emergency Preparedness Department. The TMI Emergency Preparedness Department is responsible for developing and maintaining TMC Emergency Plan Implementing Procedures. GPU Nuclear TMC Emergency Plan Implementing Procedures. GPU Nuclear TMC Emergency Preparedness Department Procedure, "Emergency Preparedness Department Procedure Control of the Emergency Plan and Implementing Procedure changes. The Administrator for Document Control was interviewed and distribution records checked on a sampling basis. Control and distribution were in accord with procedures and records were current.

2.2 No changes to the Emergency Plan have been made since the last routine, safety inspection. Changes to the Implementing Procedures were acceptable and the inspectors concluded they did not result in a decrease of emergency preparedness effectiveness.

Based on the above review, this portion of the licensee's emergency preparedness program is acceptable.

3.0 Emergency Response Facilities (ERFs)

ERFs are designed and maintained to meet the standards of 10 CFR 50.47(b)(8) and (b)(9), and the requirements of Section IV of Appendix E to 10 CFR 50, Supplement I to NUREG-0737 and Regulatory Guide 1.97. Equipment, instrumentation, supplies, status boards, maps, safety system diagrams, plans, procedures, and communication systems were reviewed or tested on a sampling basis for each of the six TMI ERFs inspected.

- 3.1 ERFs were maintained in a state of readiness. Instrumentation was functional and within the calibration period. Communication systems tested satisfactorily. All equipment tested functioned properly. Rapid facsimile machines are also available which can transmit simultaneously to multiple terminals and electronically verify transmission receipt. Plans and Procedures were current.
- 3.2 The Emergency Operations Facility diesel electric generator is automatically tested once a week. The test is not observed and the generator is not loaded. Each time the diesent tarts a counter is incremented. A contractor checks the counsel on a scheduled basis. If the expected count is not observed, then faile to start is suspected. The contractor will then trouble shoot the diesel electric generator. This contractor also performs routine preventive maintenance, corrective maintenance, and maintains the fuel supply.
- 3.3 The Emergency Operations Facility is located within an office building staffed by GPU personnel some of whom were aware of the test but had not been instructed as to actions to be taken in the event the diesel failed to start (the diesel's noise was barely audible in the office area). Licensee

management when advised of this "test" procedure agreed to review the matter.

Based on the above findings, but with the exception of the diesel test, this portion of the licensee's emergency preparedness program is acceptable.

4.0 Organization and Management Control

The GPU Nuclear Corporation emergency preparedness program structure was reviewed, personnel were interviewed and activities evaluated to ascertain if GPU Nuclear Corporation is maintaining and controlling an emergency preparedness program required by 10 CFR 50.54(t) which meets the standards of 10 CFR 50.47(b) and the requirements of Section IV of Appendix E to 10 CFR 50.

- 4.1 GPU Nuclear Corporation effected a significant reorganization. Some functions were consolidated and the number of divisions reduced from thirteen to eight. The Emergency Preparedness Department (EPD) was assigned to the Nuclear Assurance Division (NAD) headed by a former Oyster Creek Division Director. The EPD manager reports directly to the NAD Director. The structure of the EPD and the TMI Emergency Preparedness Department was not changed. Staff functions remained the same and there were no personnel changes. The staff numbers six plus a secretary and the manager. One and a half full time staff are assigned to off-site emergency planing. The inspectors concluded the reorganization did not decrease emergency preparedness effectiveness.
- 4.2 The Training Department and the Communication Office support the emergency preparedness program. The Training Department was not affected by the reorganization. The Communication Division was reclassified as an Office. Communication Office staffing level for emergency preparedness response was not changed. The inspectors concluded this reorganization did not decrease emergency preparedness effectiveness.

Based on the above review, this portion of the licensee's emergency preparedness program is acceptable.

5.0 Training

Emergency preparedness lesson plans, training matrix, examinations, training and attendance records and the Emergency Response Organization qualification roster were reviewed. Training Department staff were interviewed. This was done to verify that emergency preparedness training is in compliance with 10 CFR 50.47(b)(15) and Section IV. F of Appendix E to 10 CFR 50. The status of off-site training and accident management training was also reviewed.

- 5.1 Emergency preparedness training policies for the GPU Nuclear Corporation are stated in "Emergency Preparedness Training Program" (6200-PGD-2685). The policies in this document are intended to ensure uniform training at GPU nuclear sites and headquarters. The training policy specifies performance based training. To do this, program elements are developed from job analysis. Training is scheduled on a monthly basis so essential personnel remain current in their qualifications. Three matrices are exhibits to the policy statement which correlate training requirements with duty positions in the Emergency Response Organization.
- 5.2 Emergency preparedness training is consistent with training policies. Training is scheduled on a regular basis over the course of a year. Training is current. Over 200 TMI staff are qualified for one or more Emergency Response Organization positions. Three staff members are qualified for each Emergency Response Organization position including decision making and managerial positions. Lesson plans have been developed and periodically reviewed. Emergency preparedness examination questions were balanced among topics and manimum reliance was placed on multiple choice questions.
- 5.3 Accident management training has begun. Engineers assigned to the Technical Support Center (TSC) were trained in symptom based Emergency Operating Procedures (called Abnormal Operating Transient Guidelines). A computer system, the Basic Principles Trainer, has been programmed to model six or seven Design Basis Accidents. Classroom instruction was augmented using this system. This activity is classified as Support Management Training and was developed in response to NRC concerns regarding the training of Technical Support Center engineers to analyze severe accidents. GFU Nuclear reviews this training periodically and considers it an evolving program which will go beyond design basis accidents. The Emergency Preparedness Department is considering adopting this form of training for Emergency Directors and Emergency Support Directors.

- 5.4 Training of volunteer fire company and ambulance company members who would come on site to support licensee emergency response activities was current. Medical training for support hospital staffs was given by a medical consultant. Training for Emergency Planning Zone emergency workers is offered. Eleven courses have been developed. Letters attesting to this training which state the number trained and topics covered were sent to the Pennsylvania Emergency Management Agency (PEMA) which each year sends a letter to U. S. Federal Emergency Management Agency, Region- III certifying to the completion of this training. PEMA trains County personnel.
- 5.5 Drills are a form of training. Thirteen drills were held last year at TMI. This number of drills exceeds NRC requirements. These drills included shift and quarterly drills which encompassed Health Physics, medical, chemistry, environmental sampling and radiation control drills.

Based on the above review and observations, this portion of the licensee's emergency preparednes program is acceptable.

6.0 Independent Audits/Reviews

An independent review/audit is required at least every twelve months by 10 CFR 50.54(t) and Unit 1 Technical Specifications, Appendix A, Section 6.5.3. NRC regulations require a determination for adequacy of the licensec, Commonwealth and local government interface. Provisions shall be made so the results of the interface determination are available to Commonwealth and local governments. The licensee's Technical Specifications, Appendix A, Section 6.5.2 require an independent safety review of the 50.54(t) audit/review report.

- 6.1 The 50.54(t) audit/review was conducted by the Site Audit Department during the second calendar quarter of 1989, and an Audit Report issued (No. S-TMI-89-11). The audit included emergency preparedness training, public information, observation of a drill, auditing of a training session, siren surveillance, action item tracking system, and contacts with off-site officials. The Commonwealth/local government/licensee interface was determined to be add ate and the audit findings were communicated to the Commonwealth and County Governments. There were no audit findings, and two minor deficiencies were corrected on-the-spot. Four enhancement recommendations were also made.
- 6.2 The Technical Specifications-required independent safety reviev was completed. There were n nuclear safety related findings.

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

7.0 Notification and Communications

Communications systems were checked to ascertain if the standards of 10 CFR 50.47(b)(5) and (b)(6), the requirements of Sections IV. D. 1 and E.9 of Appendix E to 10 CFR 50, and the guidance of NRC Information Notice 86-97 were met.

- 7.1 A contractor maintains and test sirens on a biweekly and quarterly basis in accordance with GPU procedure "Prompt Notification System Testing Program" (9417-SUR-1300.09). Test results are reported to the Pennsylvania Emergency Management Agency (PEMA) on a quarterly basis. PEMA composites results on an annual basis and reports this result to U.S. Federal Emergency Management Agency, Region-III. Siren availability was 98.3% for 1989. The contractor performs routine, preventive and corrective maintenance. All siten decoders were rewired to reduce the number of inadvertent soundings that have occurred. Siren sounding within the five County area about TMI will be coordinated by the PEMA.
- 7.2 The TMI Emergency Preparedness Department reviews communication systems quarterly and updates an inventory of these as necessary. Dedicated and commercial phone lines, radio and microwice a systems comprise the emergency communication system. The device system can be expanded to several hundred channels on showing device. The inspectors reviewed this list and concluded independent, redundant and diverse communication capability is available. The Health Physics Network Thones were located as required by the NRC and tested satisfactorily.
- 7.3 TMI lost normal telephone communications, in past years, due to causes beyond the licensee's control. As a result, there we delays in off-site emergency communications (see NRC RI Inspectic port 50-289/87-14, Section 4.0). The control room established communications with the NRC using the microwave system. But a delay was encountered contacting the Dauphin County Emergency Operations Center. In order to avoid a repetition of this communication delay, the licensee has continued to work with the PEMA to increase back-up system reliability including providing access to PEMA's emergency radio system. PEMA has classified TMI as a mobile base station; the licensee has purchased a number of radios

called PEMA Radios (PEMARS) operating on this frequency and installed these in the Unit-1 Emergency Command Center and the Emergency Operations Facility. Transmission from TMI using PEMARS will be received in the operations area of PEMA and the Emergency Operations Centers (EOC) for each of the five Counties. In addition, PEMA has implemented a 24-hour operational status at it's EOC making it the Commonwealth Warning Point.

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

8.0 Public Information and Off-Site Activities

Correspondence, documentation and records, and personnel were interviewed to determine if the standards of 10 CFR 50.47(b)(5) and (b)(12), and the requirements of Sections IV. D. 3. and IV. F. of Appendix E to 10 CFR 50 were met.

- 8.1 TMI Public Information personnel continue to support the Emergency Preparedness Prcgran. Staff members are radiation worker and Emergency Director/Emergency Support Director qualified, vital area access cleared, subject to fitness for duty rules and are on call. These individuals report to the Emergency Command Center following declaration of an Unusual Event and prepare press releases. GPU procedure "Emergency Public Information Plan and Implementing Procedure" (8200-IMP-1720.01) applies.
- 8.2 A telephone book insert appears in the Bell and General Telephone directories for all Emergency Planning Zone (EPZ) communities. About 100,000 brochures were mailed to all residents, employers and institutions within the ten mile EPZ. A mass media briefing was held before the annual exercise and a briefing packet prepared for attendees. Quarterly newsletters are also prepared for EPZ residents and a second for about 600 EPZ emergency workers. One newsletter summarizes brochure information and another is mailed before the annual exercise.
- 8.3 The licensee maintains an on-going interface with Commonwealth and County governments. Commonwealth and County officials were contacted to determine their evaluation of the licensee's support. They responded they were very pleased. All Letters of Agreement for off-site responders to support the licensee in the even of an accident are current. Emergency Action Levels were called to the attention of Pennsylvania's

Bureau of Radiation Protection on March 5, 1990 and Protective Action Recommendations were reviewed during training.

8.4 An All Hazard Emergency Response Plan was developed for the communities about TMI (see NRC RI Inspection Report 50-289/89-02, Section 12.4). This plan classified emergencies only as Limited or General and a correlation v as given with NRC's four classifications. The plan has now been revised so NRC's four Emergency Action Levels are included in an attachment.

8.5 The Radiation Emergency Areas at the support hospitals in Harrisburg and Hershey were inspected to determine the adequacy of licensee support and maintenance. Medical, Health Physics, security and public information plans and procedures were current. Supplies and equipment matched the inventory list. Survey equipment was functional and within the stated calibration period. A decontamination facility is available. Arrangements to transport injured/over exposed personnel by helicopter have been arranged. The Emergency Medicine Department at each hospital has been certified as Level I by the American Hospital Association. The Hershey Center is also classified as a Trauma Center. A number of physicians at each hospital are certified in Emergency Medicine as are many nurses.

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

9.0 Emergency Response Organization Fitness For Duty Rules

To determine if the licensee has developed administrative procedures required by 10 CFR 26 applicable to Emergency Response Organization personnel on call and in back-up status, the inspectors interviewed personnel and reviewed documentation.

9.1 The licensee has developed a GPU Nuclear Corporation procedure, entitled "Fitness-For-Duty Program", 1000-ADM-2002.06 Rev. 0. Section 4.1 delineates requirements for Emergency Response Organization personnel who are listed for an on-duty team. These personnel are classified as "on-cail". They are required to respond fit for duty on a one hour response basis. If they are unable to respond or respond fit for duty, they shall make provisions for an alternate. Security Officers and Emergency Response Facility managers are tasked with evaluation of personnel upon responding.

10.0 Response to Actual Events

Actual event history was reviewed to determine if the licensee's actions were in compliance with the standards of 10 CFR 50.47(b)(4) and (b)(5), and the requirements of Section IV.B and IV.F of Appendix E to 10 CFR 50.

10.1 During power ascension, a primary-to-secondary loop leak developed. The indication for this was elevated condenser off-gas readings. Since the readings were observed when Xenon equilibrium activity had not been attained, these readings could not be used to reliably quantify the leak rate. A mass balance indicated a leak rate of 0.5 gallons per minute which is below the threshold for declaration of an Unusual Event. The error band for this calculation is plus or minus one gallon per minute. The NRC Resident Inspectors were informed as were the Pennsylvania Emergency Management Agency, and the Emergency Operations Centers for each of the five Counties.

On-and off-site monitoring teams were dispatched, the pressurized ion chambers ringing the plant were read, and worst case projected dose calculations were made using default release times of two and eight hours. Measurements did not indicate elevated levels of on-site, out of-plant or environmental radioactivity and calculated projected doses and dose commitment values were in the low mrem range for worst case scenarios. Two days later, based on chemistry analysis, the licensee informed the NRC the leak rate had been in the range of 1.5 to 1.8 gallons per minute. These values exceed the threshold for declaration of an Unusual Event. The licensee was preparing a thirty day report per 10 CFR 50.72(b)(i)(A), and the licensee was investigating, at the time of this inspection, potential methods which would enable quantification of leak rates under nonequilibrium conditions for Xenon activity. For additional details refer to NRC Inspection Report 50-289/90-06. €" e

122

N 26 16

Based on the above review, the inspectors concluded that the licensee correctly follored approved procedures and continuing analyses, and took additional, conservative steps to protect staff and public health and safety.

11.0 Exit Meeting

2

1

An exit meeting was held on March 23, 1990 with licensee personnel identified in Section 1 of this report. The inspectors presented the results of the inspection and advised the licensee no violations, deviations or unresolved items were identified. Licensee management acknowledged these findings and indicated they would evaluate them and take appropriate corrective action regarding the items identified.

-

C

0

.