NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-289/89-16
50-320/89-07

Docket Nos. 50-289
50-320

License Nos. DPR-50
DPR-73 Priority ____ Category C

Licensee: GPU Nuclear Corporation
P. O. Box 480
Middletown, Pennsylvania 17057

Facility Name: Three Mile Island Nuclear Station, Units 1 and 2

Inspection At: Middletown, Pennsylvania

Inspection Conducted: August 14-18, 1989

Inspector: Richard H. Stumbaugh 8/30/89
J. Furia, Radiation Specialist, ERPS date

Approved By: Robert J. Bores 8/30/89
R. Bores, Chief, Effluents Radiation Protection Section, FRSSB date

Inspection Summary: Inspection on August 14-18, 1989
(Combined Inspection Report Nos. 50-289/89-16; 50-320/89-07)

Areas Inspected: Routine unannounced inspection of the solid radioactive waste systems, transportation, and liquid and gaseous effluents programs including: management controls, audits, quality assurance; and implementation of the above programs.

Results: Within the areas inspected, no violations or deviations were noted.

DETAILS

1.0 Personnel Contacted

1.1 Licensee Personnel

* M. Roche, Director, TMI-2
* E. Schrull, Licensing Engineer, TMI-2
* J. Byrne, Manager, TMI-2 Licensing
  D. Turner, Radcon Director, TMI-2
  S. Williams, Radiological Engineer, TMI-1
  H. Arnold, Chemistry Lab Foreman, TMI-2
* D. Hassler, Licensing Engineer, TMI-1
* B. Mehler, Radwaste Operations Manager, TMI-1
  G. Graybill, Chemist, TMI-2
* W. Conaway, Radwaste Support Manager
* P. Carmel, Waste Management Manager
  F. Telenko, Supervisor, Radwaste Operations, TMI-2
  J. Dullinger, Engineering, TMI-1
  R. Runowski, Engineering, TMI-1
* E. Juteau, Waste Disposal, TMI-2
  L. Edwards, Operations Quality Assurance
* C. Incorvati, TMI Quality Assurance Audit Manager
* S. Livin, Defueling Director, TMI-2
* D. Ethridge, Radiological Engineering Manager, TMI-1
* W. Marshall, Manager, Plant Operations, TMI-2
* R. Sieglitz, Manager, Waste Management, TMI-2

1.2 NRC Personnel

  L. Person, Low Level Waste Management, NMSS
  Y. Shao, Low Level Waste Management, NMSS
* T. Moslak, Resident Inspector
* F. Young, Senior Resident Inspector
* R. Brady, Resident Inspector

* Denotes those present at the exit meeting on August 18, 1989.

2.0 Purpose

The purpose of this routine inspection was to review the licensee's program in the following areas.

.The licensee's ability at TMI-1 and TMI-2 to properly prepare, package and ship licensed radioactive materials for transfer and disposal.

.The licensee's ability to measure liquid and gaseous radioactive effluents during normal and emergency operations at TMI-1.

3.0 Transportation and Solid Radwaste

In accordance with plant procedures, preparation of wastes was the responsibility of each unit's Radwaste Operations Department, with the transportation of solid radwaste the responsibility of the Unit 2 Waste Management staff. TMI-1 was in the process of preparing to acquire responsibility for the shipping operations in anticipation of the termination of the TMI-2 Radwaste Operations Department.

3.1 Quality Assurance /Quality Control

The Quality Assurance/Quality control program at TMI involved Quality Assurance (QA) audits of TMI and principle vendor activities; Operations QA (OQA) monitoring of radwaste activities; and Quality Control (QC) inspections of incoming waste containers and transportation casks. These programs were conducted in accordance with the TMI Quality Assurance Plan.

As part of this inspection, QA audit reports for inplant activities and two principle radwaste service vendors were reviewed. Audit report S-TMI-89-04, dated May 24, 1989, examined the radwaste programs at both TMI-1 and TMI-2. The scope and technical depth of this audit was found to be exceptionally good. The audit identified two findings and six recommendations which were responded to and resolved in a timely manner. None of the findings involved a significant safety issue. Audit report O-COM-88-08, issued in June 1988, was conducted at Chem Nuclear Systems, Inc., which supplied solidification and dewatering services, liners, High Integrity Containers (HIC) and shipping casks to TMI. This audit was conducted by the GPU Nuclear Audit staff from Parsippany, New Jersey. All identified findings were promptly resolved. Audit O-TMI-88-02, dated June 3, 1988, was conducted at Westinghouse Radiological Services Division (now Westinghouse RS), which supplied waste processing and liners to TMI-1. This audit was conducted by the TMI QA Audit Department and identified five findings which were resolved in a timely manner.

OQA performed monitoring reviews of the Process Control Program at both TMI-1 and TMI-2, and of the packaging and shipping activities at TMI-2. Review of the Monitoring Reports generated for 1989 demonstrate that this function was performed in accordance with the QA Plan. QC performed inspections of all incoming shipping containers and radwaste liners and HICs utilized at both TMI-1 and TMI-2 in accordance with the QA Plan. The inspector had no further questions in this area.

3.2 Transportation

As part of this inspection, the inspector reviewed the records of the 11 radioactive material shipments listed below.

Shipment #	Date	Activity (Ci)	Type
1-89-007	2/14/89	34.658	HIC
1-89-023	6/5/89	1.378	liner
2-89-002	1/5/89	0.00216	laundry
2-89-009	2/1/89	1029.136	liner
2-89-010	2/8/89	1094.739	liner
2-89-015	2/17/89	154959.0	fuel debris
2-89-016	2/17/89	87255.0	fuel debris
2-89-024	3/1/89	1013.947	SDS Vessel
2-89-026	3/15/89	2416.76	HIC
2-89-038	3/29/89	1.345	DAW
2-89-054	5/15/89	1068.3	HIC

All records were found to be complete, and to accurately classify the material in accordance with 10 CFR 71 and 49 CFR Parts 100-179. As part of this inspection, the following procedures were reviewed.

1501-ADM-4410.01, Rev 1-00, "Receipt of Radioactive Material at Three Mile Island"

9100-ADM-4400.03, Rev 2, "Surveying of Radioactive Waste Packages"

9100-ADM-4250.06, Rev 1, "Solid Radioactive Waste Shipment Records"

1104-28D, Rev 12, "Packaging Non-Compactable Trash"

1104-28J, Rev 8, "Off-Site Shipments of Non-Waste Radioactive Material"

1104-28S, Rev 0, "Packaging of Radioactive Material for Shipment Offsite to a Volume Reduction Vendor"

These procedures were found to be comprehensive in scope and to adequately reflect existing radwaste processing.

3.3 Radwaste

In accordance with plant procedures, TMI-1 processed liquids through an evaporator system, with the evaporator bottoms

solidified by Westinghouse RS in liners, and through demineralizer beds with the spent resins also dewatered by Westinghouse RS. Spent filters were stored on site in a shielded HIC. Dry Active Waste (DAW) was sorted into compactable and non-compactable material and bulk loaded in a SeaVan for shipment to an offsite contractor, SEG. TMI-2 generated spent resins in the SDS and Epicor systems, which were solidified or dewatered by Chem Nuclear Systems, Inc. Both of these systems were utilized at a very reduced rate, due to the pending completion of defueling. Dry Active Wastes were segregated by both units, with some decontamination of recoverable materials being accomplished on site. Laundry was sent off to INS for cleaning. As part of this inspection, the following procedures were reviewed.

1501-ADM-4450.01, Rev 2-01, "Packaging of Radioactive Waste for Disposal at a Commercial Disposal Facility"

4231-OPS-3233.02, Rev 1-01, "Operation of the Chem-Nuclear Cement Solidification Unit 125"

4231-OPS-3233.03, Rev 2-01, "Process Control Plan for CNSI Cement Solidification System"

9100-ADM-4450.01, Rev 1, "Curie Estimates for Radioactive Material Shipments"

1104-28A, Rev 19, "Radioactive Waste Solidification - Hittman"

1104-28C, Rev 12, "Primary Resin and Precoat Processing - Hittman"

1104-28F, Rev 3, "Packaging Non-Routine Radioactive Waste"

1104-28I, Rev 11, "Waste Solidification Process Control Program"

These procedures were found to be comprehensive in scope and to adequately reflect existing radwaste processing.

Scaling factors for plant wastes were evaluated on an annual basis for all waste streams in accordance with plant procedures. This exceeded the recommended sampling frequency set forth in the NRC Branch Technical Position for Waste Classification.

3.4 Training

Training in the areas of transportation and radwaste was divided into two programs, one for Engineers, Radwaste Foremen and Radwaste Material Coordinators and the other for Radcon personnel. The training program for the first group was conducted in accordance with Procedure 7813-PGD-2640, Rev 5, "Radioactive Waste Supervisor Training Program Units 1 and 2", utilizing Training Program 11.3.01.040, Rev 4, "Radwaste Supervisor Training". This program was given as a twelve-hour classroom presentation followed by a comprehensive examination for both initial and biennial requalification. Radcon personnel were given a block of training on survey and contamination limits for shipping as part of the initial Radcon training program. These training programs were found to meet the requirements of NRC IE Bulletin 79-19.

4.0 Effluents

The radioactive effluents program was divided between Chemistry which provides analysis of liquid and gaseous samples; Radiological Controls which performs dose calculations; Instrumentation and Control which performs electronic and source calibration of the Radiation Monitoring System (RMS); Operations which conducts the releases; and Engineering which conducts testing of the Air Cleaning Systems.

4.1 Liquid and Gaseous Releases

The Chemistry Department is responsible for analyzing liquid and gaseous samples prior to release. A release is initiated by the issuance of a release request from the Operations Department. Radiological Controls performs a preliminary dose calculation, and signs off on a Release Permit, which is then sent to the Operations Department for the actual release. As part of this inspection, four gaseous and six liquid, and 16 continuous liquid Release Permits for 1989 were examined and found to properly control the effluent releases. Radioisotopic analyses were conducted in accordance with industry standards. As part of this inspection, the following procedures pertaining to the release of liquid and gaseous effluents were reviewed.

9100-ADM-4250.01, Rev 4, "Releasing Radioactive Liquid Waste"

9100-ADM-4250.02, Rev 2, "Releasing Radioactive Gaseous Waste"

9100-ADM-4250.09, Rev 7, "Tracking Continuous Releases from the Turbine Building Sump"

These procedures were found to be adequate, and the inspector had no further questions in this area.

4.2 Monitor Calibration

Source calibration of the RMS was the responsibility of the I & C Department with technical assistance from the Engineering Department. Liquid and gaseous effluent monitors were calibrated once using primary calibration sources traceable to the National Institute of Standards and Technology (NIST), and then calibrated quarterly utilizing secondary calibration standards, in accordance with plant procedures. As part of this inspection the calibration records of the Liquid Radwaste Effluent Monitor RM-L-6, Waste Gas Decay Tank Noble Gas Activity Monitor RM-A-7, and Condenser Vent Noble Gas Activity Monitors RM-A-5 and RM-A-15 were examined and found to be complete and in accordance with Plant Technical Specifications. In addition, the following calibration procedures were examined by the inspector.

1302-3.1, Rev 51, "R. M. S. Calibration"

1302-17.6, Rev 2, "RM-A5 and A15 Calibration"

These procedures were found to be adequate and the inspector had no further questions in this area.

4.3 Air Cleaning Systems

Testing of the air cleaning systems was the responsibility of the Engineering Department. The licensee utilized Nuclear Consulting Services to perform air flow, HEPA filter and charcoal adsorber testing. As part of this inspection, the documentation for the testing conducted in 1988 and 1989 was examined. Testing was conducted twice on the Control Building Emergency Vent Air Treatment System, in June 1988 and June 1989; twice for the Fuel Handling Building ESF Air Treatment System in February and June 1988; twice for the Reactor Building Purge Air Treatment System in June and August 1988; and once for the Auxiliary and Fuel Handling Building Air Treatment System in June 1988. All tests were performed in accordance with ANSI/ASME N510-1980. There were no test failures, and the inspector had no further questions in this area.

4.4 Audits

The TMI QA Audit Department conducted biennial audits of the effluents program in accordance with plant Technical Specifications. Audit S-TMI-89-01, dated April 11, 1989 was the most recent audit conducted in this area and was reviewed by the inspector. There were no findings in the audit report which required follow-up or resolution. The technical scope and depth of this audit was excellent. The inspector had no further questions in this area.

5.0 Exit Interview

The inspector met the licensee representatives (denoted in Section 1) at the conclusion of the inspection on August 18, 1989. The inspectors summarized the purpose, scope, and findings of the inspection. At no time during the inspection did the inspector provide any written information to the licensee.