

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection No. 05000320/2009007
Docket No. 05000320
License No. DPR-73
Licensee: GPU Nuclear, Inc.
Facility: Three Mile Island Station, Unit 2
Location: Middletown, PA 17057-0791
Inspection Dates: June 22-24, 2009

Inspector: Laurie A. Kauffman, Health Physicist
Decommissioning Branch
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EXECUTIVE SUMMARY

Three Mile Island Nuclear Station, Unit 2
NRC Inspection Report No. 05000320/2009007

The Three Mile Island Nuclear Station, Unit 2 (TMI-2) has been permanently shutdown since March 1979 and has been in post-defueled monitored storage (PDMS) since December 1993. There is no significant dismantlement underway. The licensee plans to actively decommission TMI-2 in parallel with the decommissioning of Three Mile Island Nuclear Station, Unit 1 (TMI-1) after that unit has been permanently shutdown.

A routine announced safety inspection was conducted from June 22-24, 2009, at TMI-2 by a Region I inspector with support from a project manager from the Office of Federal and State Materials and Environmental Management Programs. The inspection included a review of operations and management oversight, maintenance, corrective action program implementation, and plant support activities while in SAFSTOR status. Specifically, the scope of the inspection included: (1) an evaluation of the condition and operational status of structures, systems and components important to the safe storage of radioactive material; (2) a review of the quality assurance and audit program; (3) a review of the implementation and adequacy of the radiation protection program; (4) an evaluation of the licensee's controls and processes regarding the TMI-2 liquid and gaseous radioactive effluents; and (5) an evaluation of the radioactive waste management and transportation programs.

Operations and Decommissioning

The licensee's organization was adequate to support PDMS activities. Management oversight was adequate for the activities conducted. The licensee effectively implemented the preventive maintenance and surveillance program and associated procedures.

A Non-Cited Violation of Technical Specification 6.5.3.1 was identified for the failure to perform a quality assurance audit of the radioactive waste management program. This finding was determined to be a Severity Level IV violation consistent with Supplement IV.D.9 of the NRC's Enforcement Policy. However, the finding was dispositioned as a Non-Cited Violation, consistent with Section VI.A.1 of the NRC's Enforcement Policy.

Plant Support and Radiological Controls

Implementation and oversight of the PDMS program was effective for the storage of radioactive material. The licensee provided adequate controls to limit exposures of workers to external sources of radiation. Posting and labeling of radioactive materials and radiation areas complied with regulatory requirements. Radiological controls and dose estimates were effective to achieve dose goals. The licensee effectively implemented and maintained the radioactive effluent controls program, the radiological environmental monitoring program, and the radiation protection program. Additionally, the licensee effectively implemented the radioactive waste management and transportation programs.

REPORT DETAILS

1.0 Background

GPU Nuclear, Inc. (GPUN) retains the license for TMI-2 and maintains the facility. Metropolitan Edison Company (MetEd), Jersey Central Power & Light Company (JCP&L), and Pennsylvania Electric Company (Penelec) jointly own TMI-2. GPUN, Met Ed, JCP&L, and Penelec are wholly owned subsidiaries of FirstEnergy Corp.

As part of the sale of TMI-2, GPUN entered into an agreement with AmerGen (now Exelon) for TMI-2 services. Under this agreement and as a contractor subject to GPUN's ultimate direction and control, Exelon provides all services, materials and equipment required to maintain TMI-2 in Post-Defueling Monitored Storage (PDMS). Services provided by Exelon include maintenance and surveillance activities and implementation of the activities required in the Safety Analysis Report, Technical Specifications, and the GPUN PDMS Quality Assurance (QA) Plan (PDMS QA Plan).

2.0 Organization and Management Controls

2.1 Organization and Management Controls; Design Changes and Modifications; and Decommissioning Status

a. Inspection Scope (Inspection Procedures (IPs) 36801, 37801, 71801)

The inspector evaluated recent organization changes and the PDMS QA program outlined in the PDMS QA Plan. The inspector also reviewed the Biennial 10 CFR 50.59 Report, dated February 14, 2008 to verify the implementation of TMI-2 Technical Specifications (TS) 6.8.1.4 and 10 CFR 50.59 requirements.

b. Observations and Findings

No significant organizational changes had been implemented since the previous inspection. However, the organization was in transition regarding the position of the PDMS Manager, Exelon. The effectiveness of this change will be reviewed during the next inspection.

As a result of the non-operating and defueled status of the TMI-2 plant there are no structures, systems, or components in TMI-2 that perform a safety function. During 2006 and 2007 there were no facility modifications, which required a written safety evaluation.

c. Conclusions

The licensee's organization was adequate to support PDMS activities. Management oversight was adequate for the activities conducted.

2.2. Self-Assessment, Auditing, and Corrective Action Programs

a. Inspection Scope (IP 40801)

The inspector reviewed the licensee's program for identifying, resolving, and preventing issues that could impact safety or the quality of decommissioning activities. The inspector reviewed the procedures describing the corrective action program and reviewed several issue reports (IRs), action reports (ARs), and the associated corrective actions. The inspector discussed with cognizant personnel the tracking, current status, and closure of the selected IRs and ARs. The inspector reviewed the PDMS QA Plan, the May 2009 FirstEnergy Fleet Oversight Audit Report TMI-C-09-01, the March 2008 and July 2008 audit reports (NOSA-TMI-08-04 and NOSA-TMI-08-11), and the 2008-2009 and 2009-2010 Master Audit Plans.

The inspector also evaluated the documentation supporting Technical Specification Change Request (TSCR) 86 and the licensee's implementation of the subsequent Amendment No. 63 to License No. DPR-73 for TMI-2. The inspector conducted this review to determine whether the required technical and independent safety reviews were performed prior to submitting the TSCR to the NRC, as the original submittal, dated June 11, 2008, resulted in 14 NRC requests for additional information. Specifically, the inspector reviewed procedure 1000-ADM-1291.01, Revision 35, "Responsible Technical and Independent Safety Review." The inspector reviewed documentation to determine whether the Responsible Technical Review (RTR), Independent Safety Review (ISR), and cross-disciplinary reviews had been conducted, as required by TS 6.5.1.2, 6.5.2.5.c, and 6.5.1.7, and whether the reviewers of this TSCR were qualified as RTR and ISR reviewers. These TS requirements were subsequently relocated to the PDMS QA Plan, Appendix B, per Amendment No. 63 to License No. DPR-73, which was issued on May 1, 2009.

b. Observations and Findings

During the review of TSCR 86, the inspector noted that the required technical and independent safety reviews were performed prior to submitting the TSCR to the NRC. The inspector further noted that the quality of the reviews was not adequate to identify obvious deficiencies in the original TSCR 86 submittal. Although the quality of the reviews was not adequate, the reviews were performed and the reviewers met qualifications, as required, and no violations were identified related to this TSCR.

Technical Specification 6.5.3.1, requires, that audits of unit activities shall be performed in accordance with the TMI-2 PDMS QA Plan. TMI-2 PDMS QA Plan, Section 2.3, requires, in part, that the scope of the PDMS QA Program includes all items and activities which are necessary for safe PDMS operation, maintenance, and surveillance. These items and activities are designated as within "PDMS QA Plan Scope" and include radioactive waste management. The inspector reviewed the PDMS QA program to determine whether biennial audits were being performed in accordance with the PDMS QA Plan. The inspector noted that the TMI-2 radioactive waste management program was not included in the scope of the PDMS Master Audit Plans and that audits were not conducted in 2006 and 2008. During this inspection, the licensee initiated an IR to

investigate the cause of the oversight and entered the issue into the corrective action program.

Based on this review, the inspector determined that, up until April 30, 2009, the failure to perform an audit of the radioactive waste management program was a violation of TS 6.5.3.1. The inspector determined that this was a Severity Level IV violation consistent with Supplement IV.D.9 of the NRC's Enforcement Policy. However, because the licensee initiated a plan to restore compliance within a reasonable time after the violation was identified, entered the issue into the corrective action program (AR-00934651) to prevent recurrence, and because the issue was neither repetitive nor willful, this violation is being treated as a NCV, consistent with VI.A.1 of the NRC Enforcement Policy: **NCV 05000320/2009007-01, Failure to perform audits of the radioactive waste management program according to TS 6.5.3.1.**

The priority for addressing IRs and ARs, and implementation of corrective actions was adequate and based upon safety significance. Corrective actions were established to address identified issues, and were being tracked to closure using the licensee's corrective action program. No adverse trends or safety concerns were identified.

c. Conclusions

A Non-Cited Violation of Technical Specification 6.5.3.1 was identified for the failure to perform a quality assurance audit of the radioactive waste management program. This finding was determined to be a Severity Level IV violation consistent with Supplement IV.D.9 of the NRC's Enforcement Policy. However, the finding was dispositioned as a Non-Cited Violation, consistent with Section VI.A.1 of the NRC's Enforcement Policy.

2.3 Maintenance and Surveillance

a. Inspection Scope (IP 62801)

The inspector reviewed the licensee's preventive maintenance (PM) and surveillance test (ST) program for structures, systems, and components important for maintaining the safe storage of radioactive material. The inspector reviewed selected STs, including the high efficiency particulate absolute (HEPA) air filter dioctyl phthalate (DOP) tests for the reactor building breather, reactor building purge, fuel handling building, auxiliary building, and service building. The inspector also reviewed selected STs for the ventilation heater, the containment isolation airlocks, and the quarterly containment isolation valves. The inspector toured plant areas and discussed aspects of the STs with individuals cognizant of the performance of the above systems and components.

b. Observations and Findings

The inspector verified that the maintenance for selected systems and components had been conducted in accordance with established procedures and met the requirements of the associated TSs. From a review of the STs, the inspector noted that the results of the preventative maintenance and routine surveillances were complete and were within the acceptable tolerance limits. No findings of significance were identified.

c. Conclusions

The licensee effectively implemented the preventive maintenance and surveillance program and associated procedures.

3.0 Plant Support and Radiological Controls

3.1 Occupational Radiation Safety; Radioactive Effluent Control Program; and Radiological Environmental Monitoring Program; Radioactive Waste Management and Transportation

a. Inspection Scope (IPs 83750, 84750, 86750 and 84850)

The inspector reviewed the implementation of the occupational exposure control program associated with the TMI-2 PDMS activities and the implementation of primary containment isolation requirements, TS 3/4.1, *Containment Systems*. The inspection included site tours and reviews of the licensee's annual reactor building entry ST. The inspector reviewed the controls for high radiation areas (HRA), locked high radiation areas (LHRA) and very high radiation areas (VHRA), and conducted field observations of radiological postings and signs.

The inspector evaluated aspects of the occupational radiation protection program, radioactive effluent monitoring program, and the radiological environmental monitoring program (REMP). The inspector reviewed the related implementing procedures and associated surveillance test results. The inspector also reviewed the 2008 Radiological Environmental Monitoring Program Report, the Combined 2008 Annual Radioactive Effluent Release Report, the TMI-2 vent sampling procedures, the TMI-2 sump release permit procedures, and the supporting radioactive liquid and radioactive gaseous effluent release permits and data, from January 2009 through June 2009.

The inspector evaluated the radioactive waste management and transportation programs to determine whether the licensee properly processed, packaged, stored, and shipped radioactive materials. The inspector reviewed the low specific activity dry active waste (DAW) radioactive waste shipments from 2008 and reviewed the 2008 waste stream analysis for dry active waste, required by 10 CFR 61.

b. Observations and Findings

The inspector determined that the licensee adequately implemented the annual reactor entry ST requirements. The licensee performed visual inspections for water intrusion and for the structural integrity and material condition of components. The licensee performed and verified radiation level and airborne activity surveys, radiological surveys and wipes, and analysis of the surveys and wipes. The results of the surveys indicated that water intrusion limits were met, the liquid and gaseous effluent limits were met, and radiological conditions in the facility were stable. The licensee's As Low As Reasonably Achievable (ALARA) report contained a summary of the estimated doses, a comparison of the estimated doses to the actual doses, and a detailed evaluation of the entry. The licensee accurately analyzed and explained the actual total dose. No individuals exceeded the dose and dose rate set-points, and the licensee met the intent of ALARA requirements. The associated radiation work permit was commensurate with the

radiological significance of the task and included the appropriate exposure control measures for the safe implementation of the activity.

The LHRAs and VHRAs were appropriately posted for dose rates and radioactive material. Radiological postings were readily visible, well-maintained, and reflected radiological conditions.

The inspector also reviewed aspects of the licensee's REMP and verified that the licensee collected and analyzed the samples within the required frequencies, sample collection was conducted in accordance with the REMP procedures, and the analytical results met the lower limits of detection.

Radioactive waste shipment records included copies of characterization reports and waste manifest shipping papers and were complete. The licensee met the applicable radioactive waste and transportation requirements for the shipments reviewed. No significant safety issues or concerns were identified.

c. Conclusions

Implementation and oversight of the PDMS program was effective for the storage of radioactive material. The licensee provided adequate controls to limit exposures of workers to external sources of radiation. Posting and labeling of radioactive materials and radiation areas complied with regulatory requirements. Radiological controls and dose estimates were effective to achieve dose goals. The licensee effectively implemented and maintained the radioactive effluent controls program, the radiological environmental monitoring program, and the radiation protection program. Additionally, the licensee effectively implemented the radioactive waste management and transportation programs.

4.0 Exit Meeting

On June 24, 2009, the inspector presented the preliminary inspection results to Mr. Petro, Responsible Engineer, FirstEnergy and other members of your organization, and members of the Exelon management and staff. The inspector confirmed that proprietary information was not provided or examined during the inspection.

PARTIAL LIST OF PERSONS CONTACTED

GPU Nuclear, Inc. (Three Mile Island, Unit 2) and Exelon/AmerGen (Three Mile Island, Unit 1) Personnel

Persons Contacted

J. Cohen, NOS Corporate Auditor, Exelon
E.A. Curry, PDMS Specialist, Exelon
D. Divittore, Radiation Protection Manager, Exelon
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INSPECTION PROCEDURES USED

36801	Organization, Management, and Cost Controls at Permanently Shutdown Reactors
37801	Safety Reviews and Design Changes
40801	Self Assessment and Corrective Action
62801	Maintenance and Surveillance at Permanently Shutdown Reactors
71801	Decommissioning Performance and Status Reviews
83750	Occupational Radiation Exposure
84750	Radioactive Waste Treatment and Effluent and Environmental Monitoring
86750	Solid Radioactive Waste Management and Transportation
84850	Radioactive Waste Management - Inspection of Waste Generator Requirements of 10 CFR Part 20 and 10 CFR Part 61

ITEMS OPEN, CLOSED, AND DISCUSSED

Opened and Closed:

05000320/2009007-01 NCV Failure to perform audits, as required by TS 6.5.3.1

Discussed:

None.

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ALARA	as low as reasonably achievable
AR	action report
CFR	Code of Federal Regulations
DAW	dry active waste
DOP	dioctyl phthalate
HEPA	high efficiency particulate absolute air
HRA	high radiation area
IP	Inspection Procedure
IR	issue report
ISR	Independent Safety Review
LHRA	locked high radiation area
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records System
PDMS	Post-Defueling Monitored Storage
PDMS QA Plan	PDMS Quality Assurance (QA) Plan
PDR	Public Document Room
PM	preventive maintenance
QA	quality assurance
REMP	Radiological Environmental Monitoring Program
RTR	Responsible Technical Review
ST	surveillance test
TMI-1	Three Mile Island Station, Unit 1
TMI-2	Three Mile Island Station, Unit 2
TS	technical specification
TSCR	Technical Specification Change Request
VHRA	very high radiation area