

April 28, 2003

Mr. John Skolds  
Chairman and CEO  
AmerGen Energy Company, LLC  
4300 Winfield Road  
5<sup>th</sup> Floor  
Warrenville, IL 60555

SUBJECT: THREE MILE ISLAND STATION, UNIT 1 - NRC INSPECTION REPORT  
50-289/03-02

Dear Mr. Skolds:

On March 29, 2003, the Nuclear Regulatory Commission (NRC) completed an inspection at your Three Mile Island, Unit 1 facility. The enclosed report documents the inspection findings that were discussed April 10, 2003 with Mr. Bruce Williams and other members of your staff.

This inspection examined 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified.

Since the terrorist attacks on September 11, 2001, the NRC has issued two Orders (dated February 25, 2002 and January 7, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over personnel access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the Order dated February 25, 2002. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) 2002, and the remaining inspections are scheduled for completion in CY 2003. Additionally, table-top security drills were conducted at several licensee facilities to evaluate the impact of expanded adversary characteristics and the ICMs on licensee protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For CY 2003, the NRC will continue to monitor overall safeguards and security controls, conduct inspections, and resume force-on-force exercises at selected power plants. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

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).

We appreciate your cooperation. Please contact me at 610-337-5225 if you have any questions regarding this letter.

Sincerely,

**/RA/**

Neil S. Perry, Chief  
Reactor Projects Branch 7  
Division of Reactor Projects

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

Enclosure: NRC Inspection Report 50-289/03-02  
Attachment: Supplemental Information

cc w/encl:

AmerGen Energy Company - Correspondence Control Desk  
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Vice President, TMI Unit 1  
Vice President, Mid-Atlantic Operations Support  
Vice President, General Counsel and Secretary, AmerGen Energy Company, LLC  
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R. Janati, Chief, Division of Nuclear Safety  
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U.S. NUCLEAR REGULATORY COMMISSION

REGION 1

Docket No: 50-289

License No: DPR-50

Report No: 50-289/03-02

Licensee: AmerGen Energy Company, LLC (AmerGen)

Facility: Three Mile Island Station, Unit 1

Location: PO Box 480  
Middletown, PA 17057

Dates: December 29, 2002 - March 29, 2003

Inspectors: J. Daniel Orr, Senior Resident Inspector  
Craig W. Smith, Senior Resident Inspector  
Jeffrey Herrera, Acting Resident Inspector

Approved by: Neil S. Perry, Chief  
Projects Branch 7  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000289/2003-02; 12/29/2002-03/29/2003; AmerGen Energy Company, LLC; Three Mile Island, Unit 1; routine report.

The report covered a thirteen-week period of inspection by resident inspectors. No inspection findings were identified. 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 and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Findings

None.

## REPORT DETAILS

### Summary of Plant Status

AmerGen Energy Company, LLC (AmerGen), operated Three Mile Island, Unit 1 (TMI) at or near 100 percent power throughout the inspection period with the exception of a brief reduction in power to 90 percent on March 8, 2003, for scheduled turbine valve testing.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

The inspectors walked down risk significant areas of TMI for several days in late January 2003 and assessed AmerGen's protection for cold weather conditions. The local temperatures were subfreezing for several days. The inspectors were sensitive to instrument line conditions and the potential for unheated ventilation. The walkdown included the intermediate building, emergency diesel generator rooms, the intake screen and pump house structure, the boric acid water storage tank area and tunnel, the condensate storage tank doghouses, the fuel handling building and the auxiliary building. Main control room indicators for outside tank levels and localized building temperatures were reviewed. The inspectors reviewed all action requests for January 2003 to verify if AmerGen was identifying and resolving cold weather equipment problems. The inspectors reviewed implementation of AmerGen administrative procedure OP-AA-108-109, "Seasonal Readiness," for cold weather conditions.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignments

##### a. Inspection Scope

The inspectors conducted three partial system walkdowns on the following systems and components:

- 'B' low pressure injection (LPI) system on February 4, 2003, while the 'A' LPI pump was out of service for maintenance
- both trains of engineered safeguards actuation system (ESAS) equipment, on February 20-21, 2003, during scheduled ESAS surveillance testing
- 'B' high pressure injection (HPI) system on February 25, 2003, while the 'A' HPI pump was out of service for maintenance

The systems were chosen based on their high risk significance. The partial system walkdowns were conducted on the redundant equipment to ensure that trains relied on

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to remain operable for accident mitigation was properly aligned and protected. The inspectors verified the systems were aligned in accordance with operating procedures OP-TM-212-000, "Decay Heat Removal System;" 1104-2, "Makeup and Purification System;" and 1105-3, "Safeguards Actuation System." The inspectors verified system parameters were within the required band for current plant conditions as determined by TMI operating logs.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted nine fire protection inspections for the following plant fire zones:

- 'P' 480 volt safety-related bus rooms
- 'S' 480 volt safety-related bus rooms
- 'A' building spray pump and decay heat pump vault
- 'B' building spray pump and decay heat pump vault
- auxiliary building 281 foot general area
- 'A,' 'B,' and 'C' makeup and purification pump rooms
- 'B' engineered safeguards motor control center
- control building east battery area
- control building west battery area

The rooms and areas were selected based on enclosing equipment important to safety. The inspectors conducted plant walkdowns and verified the areas were as described in the TMI fire hazard analysis report. The plant walkdowns were conducted throughout the inspection period and included observations of combustible material control, fire detection and suppression equipment operability, and compensatory measures established for degraded fire protection equipment.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed AmerGen's external flooding mitigation strategy during periods of elevated river water levels the weeks of February 17 and March 17, 2003. The inspectors verified compensatory measures outlined in emergency procedure 1202-32,



“Flood,” provided adequate protection against flood damage for risk significant equipment located in the intake structure.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed an operator requalification training session on January 29, 2003, conducted on the plant reference simulator. The inspectors reviewed the lesson plans, assessed operator performance during the training sessions, and observed the evaluator’s critique of the training scenario. The inspectors referenced the operating procedures used by the licensed operators in response to the scenario. The scenario was unannounced to the operators and included an emergency diesel generator failure followed by an eventual and total loss of all steam generator feedwater sources.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors verified AmerGen’s implementation of the maintenance rule for the control building chilled water system and for a reactor building emergency cooling coil back pressure regulating valve test failure. The inspectors reviewed AmerGen’s performance monitoring plan for the control building chilled water system and the functional failure evaluation for the regulating valve test failure. The chilled water system is a maintenance rule a(2) system.

The inspectors referenced 10 CFR 50.65, “Requirements for monitoring the effectiveness of maintenance at nuclear power plants,” NUMARC 93-01, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Plants,” and AmerGen administrative procedure ER-AA-310-1000 series, “Maintenance Rule.”

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed AmerGen's planning and risk assessments for the following risk significant activities:

- work schedule extension for the 'C' nuclear services closed cooling water pump outage concurrent with the 'B' emergency diesel generator monthly surveillance test on January 9, 2003
- emergent troubleshooting activities to investigate reactor coolant system flow measurement anomalies in the 'A' reactor protection system (RPS) channel on February 24, 2003
- planned 'B' LPI system outage on February 4, 2003
- planned ESAS testing on February 20-21, 2003
- emergent nuclear instrument indication variations on the 'B' RPS channel with the 'A' RPS channel bypassed on March 18, 2003

The inspectors reviewed the risk assessment of these planned and emergent maintenance activities with respect to 10 CFR 50.65(a)(4). The inspectors referenced AmerGen administrative procedure 1082.1, "TMI Risk Management Program," and NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." In addition to the documents reviewed, the inspectors walked down the protected equipment and maintenance locations to verify that risk was managed in accordance with AmerGen's risk evaluation documents.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions

a. Inspection Scope

The inspectors reviewed conduct of a planned power reduction to 90 percent on March 8, 2003, for turbine valve full stroke testing. The inspectors verified control room operator actions and plant response were consistent with the guidance provided in operating procedures 1102-4, "Power Operation," and 1106-1, "Turbine Generator."

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed operability evaluations for the following degraded equipment issues:

- instrument anomalies associated with the 'A' once-through steam generator main steam line radiation monitor on January 13, 2003
- instrument anomalies with the reactor coolant system flow rate input to the 'A' RPS channel on February 26, 2003
- oil addition to the 'A' LPI pump after the pump was run for ESAS testing on February 20, 2003
- HPI injection system low flow alarm surveillance test failure on February 26, 2003
- instrument anomalies associated with the reactor building particulate radiation detector on March 12, 2003

The inspectors verified the degraded conditions were properly characterized, the operability of the affected systems was properly justified, and no unrecognized increase in plant risk resulted from the equipment issues. The inspectors referenced Inspection Manual Part 9900, "Operable/Operability - Ensuring the Functional Capability of a System Component," to determine acceptability of AmerGen's operability evaluations.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed AmerGen's permanent plant modification to install two additional spent fuel storage racks in the spent fuel pool the week of March 17, 2003. The inspectors verified the installation was in accordance with the design basis as outlined in engineering change request (ECR) 02-01005 and that the modification conformed with the licensing basis approved by the NRC in technical specification amendment 164, dated April 27, 1992.

Findings

- b. No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed post-maintenance tests performed by AmerGen in conjunction with the following maintenance activities:

- 'B' motor driven emergency feedwater pump preventive maintenance on March 25, 2003
- 'C' nuclear river water pump replacement on March 3, 2003
- 'A' HPI train motor operated valve diagnostic testing on February 26, 2003
- 'B' LPI train scheduled system outage on February 4, 2003

- station blackout diesel generator triennial overhaul on January 31, 2003
- 'C' nuclear service closed cooling water pump motor replacement on January 6, 2003

The inspectors verified that the post-maintenance test procedures, activities, and results were adequate to verify operability and functional capability as described in NRC Inspection Procedure 71111.19, "Post-Maintenance Testing," prior to the affected systems being returned to service. The inspectors also walked down the maintenance locations and verified that maintenance was properly authorized by senior reactor operators and conducted in accordance with procedures.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed portions and reviewed results of the following surveillance tests:

- heat sink protection system main feedwater isolation logic test on March 26, 2003
- reactor building air monitoring system containment isolation valve quarterly inservice test on March 25, 2003
- 'B' RPS channel monthly calibration test February 18, 2003
- 'A' RPS channel reactor coolant system signal calibration test on February 11, 2003
- turbine driven emergency feedwater pump quarterly in-service test on February 6, 2003
- decay river water system quarterly inservice test on February 24, 2003

The inspectors verified that test results were within procedure requirements, technical specification requirements, and in-service testing program requirements as applicable.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

On January 23, 2003, equipment operators identified a reactor coolant system leak source inside containment on a compression fitting connected to the reactor coolant system inventory tracking system (RCITS). The calculated reactor coolant system leak

rate at the time was 0.1 gallons per minute. On January 25, 2003, operators isolated the direct leak path from reactor coolant system to the leaking fitting by shutting the RCITS isolation valves from the decay heat drop line. The inspectors verified AmerGen's actions resulting in the isolation of the RCITS did not adversely affect the safety functions of important safety systems.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

On January 27, 2003, the inspectors observed an emergency preparedness drill that AmerGen credited toward the Drill/Exercise Performance NRC performance indicator. The inspectors evaluated the opportunities for classification and notification of the emergency action levels presented in the simulator scenario. The inspectors verified that AmerGen correctly evaluated the drill participants' classifications and notifications in accordance with TMI's emergency plan implementing documents.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA2 Identification and Resolution of Problems

The inspectors devoted 10 to 15 percent of their inspection time in each baseline inspection procedure assessing AmerGen's problem identification and resolution (PI&R) appropriate to each inspection area.

Use of Operating Experience Corrective Action Follow-up

a. Inspection Scope

The inspectors reviewed AmerGen's use of industry operating experience for two specific risk significant issues:

- NRC event report dated August 24, 2002, discussed the identification of gas voids in the emergency core cooling system piping at Beaver Valley Power Station Unit 2

- NRC Information Notice 2001-19, dated December 17, 2001, discussed improper maintenance and reassembly of automatic oil bubblers that led to the failure of safety related pumps at several nuclear power plants.

The inspectors reviewed AmerGen's response to these industry issues in accordance with the guidelines established in AmerGen administrative procedure LS-AA-125, "Corrective Action Program Procedure."

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On April 10, 2003, the resident inspectors presented the inspection results to Mr. Bruce Williams and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

**SUPPLEMENTAL INFORMATION****KEY POINTS OF CONTACT**Licensee Personnel

K. Bartes, Plant Operations Director  
G. Chick, Director, Maintenance  
L. Clewett, Director, Site Engineering  
G. Gellrich, Plant Manager  
G. Rombold, Manager, Regulatory Assurance  
B. Williams, Vice President, TMI Unit I

**LIST OF ACRONYMS**

|         |  |
|---------|--|
| ADAMS   | Agencywide Documents and Management System       |
| AmerGen | AmerGen Energy Company, LLC                      |
| CY      | Calendar Year                                    |
| DRP     | Division of Reactor Projects                     |
| ECR     | Engineering Change Request                       |
| ESAS    | Engineered Safeguards Actuation System           |
| HPI     | High Pressure Injection                          |
| ICM     | Interim Compensatory Measures                    |
| IR      | Inspection Report                                |
| LPI     | Low Pressure Injection                           |
| NRC     | Nuclear Regulatory Commission                    |
| PI&R    | Problem Identification and Resolution            |
| RCITS   | Reactor Coolant System Inventory Tracking System |
| RPS     | Reactor Protection System                        |
| TMI     | Three Mile Island, Unit 1                        |