April 19, 2002

Mr. Jack Skolds
President and CNO
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
5th Floor
Warrenville, IL 60555

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

Dear Mr. Skolds:

On March 30, 2002, the NRC completed an inspection at your Three Mile Island Unit 1 facility. The enclosed report documents the inspection findings that were discussed on April 4, 2002, 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.

No findings of significance were identified, however, an apparent violation (AV) from NRC Inspection Report 2001-008 was determined to be a violation of NRC requirements and to be an issue of very low safety significance. Because of the very low significance and because the problem has been entered into your corrective action process (CAP), the NRC is treating this issue as a non-cited violation (NCV) in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny this non-cited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Three Mile Island Unit 1 facility.

Immediately following the terrorist attacks on the World Trade Center and the Pentagon, the NRC issued an advisory recommending that nuclear power plant licensees go to the highest level of security, and all promptly did so. With continued uncertainty about the possibility of additional terrorist activities, the Nation's nuclear power plants remain at the highest level of security and the NRC continues to monitor the situation. This advisory was followed by additional advisories, and although the specific actions are not releasable to the public, they generally include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with law enforcement and military authorities, and more

limited access of personnel and vehicles to the sites. The NRC has conducted various audits of your response to these advisories and your ability to respond to terrorist attacks with the capabilities of the current design basis threat (DBT). On February 25, 2002, the NRC issued an Order to all nuclear power plant licensees, requiring them to take certain additional interim compensatory measures to address the generalized high-level threat environment. With the issuance of the Order, we will evaluate AmerGen's compliance with these interim requirements.

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 610-337-5146 if you have any questions regarding this letter.

Sincerely,

/RA/

John F. Rogge, Chief
Projects Branch 7
Division of Reactor Projects

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

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

cc w/encl: Exelon Generation Company, LLC - Correspondence Control Desk
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Plant Manager
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U.S. NUCLEAR REGULATORY COMMISSION

REGION 1

Docket No:	50-289
License No:	DPR-50
Report No:	50-289/02-02
Licensee:	AmerGen Energy Company, LLC (AmerGen)
Facility:	Three Mile Island Station, Unit 1
Location:	PO Box 480 Middletown, PA 17057
Dates:	February 10 - March 30, 2002
Inspectors:	J. Daniel Orr, Senior Resident Inspector Craig W. Smith, Resident Inspector Paul H. Bisset, Senior Operations Engineer, DRS John G. Caruso, Senior Operations Engineer, DRS Gregory C. Smith, Senior Physical Security Inspector, DRS
Approved by:	John F. Rogge, Chief Projects Branch 7 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000289/02-02, on 2/10 - 3/30/2002, AmerGen Energy Company, LLC, Three Mile Island Unit 1, integrated resident inspector report.

The report covered a seven-week period of inspection by resident inspectors, region-based senior operations engineers and physical security inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at http://www.nrc.gov/reactors/operating/oversight.html

A. Inspector Identified Findings

- No findings of significance were identified.

B. Licensee Identified Violations

- No violations were identified.

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.

1. REACTOR SAFETY

Initiating Events/Mitigating Systems/Barrier Integrity [REACTOR - R]

1R04 Equipment Alignments

a. Inspection Scope

The inspectors conducted partial system walkdowns on the decay heat closed cooling water system and the nuclear services river water system. The inspectors verified the system alignments were in accordance with operating procedures 1104-13 “Decay Heat Closed Cycle Cooling System,” and 1104-30 “Nuclear River Water,” and that operating parameters were consistent with the plant operating condition. Both systems perform risk significant functions and the walkdowns were performed to ensure redundant equipment was properly aligned during planned outages on the ‘A’ decay heat closed cooling water pump and the ‘B’ nuclear services river water pump.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted fire protection inspections in the entire emergency diesel generator building and the general areas at the 305-foot elevation in the fuel handling and auxiliary buildings. 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 fire hazard analysis report. The plant walkdowns 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 plans and equipment for consistency with the design requirements and risk analysis assumptions. The inspectors reviewed the final safety analysis and related flood analysis documents and identified risk significant areas that can be affected by external floods. The inspectors walked down risk significant areas of the plant to verify flood control equipment and mitigating plans were in place and capable of performing their design functions. The inspectors reviewed emergency procedure 1202-32, "Flood," for areas where operator actions are credited for coping with flooding to verify the procedure could achieve the desired actions. The inspectors sampled AmerGen's corrective action data base to determine if problems concerning external flood control measures were being identified at an appropriate threshold and properly addressed for resolution.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

A review was conducted of recent operating history documentation found in inspection reports, licensee event reports (LERs), the licensee's corrective action program, and the most recent NRC plant issues matrix. The senior resident inspector was also consulted for insights regarding licensed operators' performance. These reviews did not detect any operational events that were indicative of possible training deficiencies.

The following inspection activities were performed using NUREG 1021, Rev. 8, "Operator Licensing Examination Standards for Power Reactors," Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program," Appendix A, "Checklist for Evaluating Facility Testing Material."

The operating exams administered the week of January 28, 2002, a sample of several other operating exams administered to crews during prior exam weeks, as well as a sample of the biennial written exams administered in 2001, were reviewed for quality and performance.

In addition, on February 15, 2002, an in-office assessment of the 2002 annual operating exam individual and crew failure rates was performed using the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." These statistics do not include one individual who was away completing supervisory training at the time and will be tested in the near future. The biennial written exam was not administered this exam cycle. The SDP review verified the following:

1. Crew pass rates were greater than 80 percent. (Pass rate was 100 percent.)

2. Individual pass rate on the simulator test was greater than or equal to 80 percent. (Pass rate was 93.8 percent.)

3. Individual pass rates on the job performance measures (JPM) of the operating exam were greater than 80 percent. (Pass rate was 97.9 percent.)

4. More than 75 percent of the individuals passed all portions of the exam. (All portions of the examination were passed by 91.8 percent of the individuals.)

Observations were made of the dynamic simulator exams and job performance measures administered during the week of January 28, 2002. These observations included facility evaluations of crew and individual performance during the dynamic simulator exams and individual performance of 5 JPMs. The remediation plans for individual failures over the past two-year requalification program cycle were reviewed to assess the effectiveness of the remedial training. There were no crew failures during this period. License reactivations for the past two-year requalification program cycle were also reviewed to ensure that 10 CFR 55.53 license conditions and applicable program requirements were met. Instructors and training/operations management, as well as a sample of individual licensed operators, were interviewed for feedback regarding the implementation of the licensed operator requalification program. Simulator performance and fidelity were reviewed for conformance to the reference plant control room. A sample of records for requalification training attendance, program feedback, reporting, and medical examinations were reviewed for compliance with license conditions, including NRC regulations.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors verified AmerGen's implementation of the maintenance rule for a recent equipment problem involving the 'B' static inverter failure that deenergized the 'B' vital bus and also an emergent oil seal repair to the 'B' decay heat closed cooling water pump. The aspects of maintenance rule implementation inspected included safety significance classification, a(2) performance monitoring or a(1) goal setting and corrective actions, and maintenance preventable functional failure determinations. 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 1082, "NRC 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 three risk significant maintenance activities: a leak seal repair to a high pressure injection check valve, (MU-V-107B); a planned outage on the 'A' nuclear service river water pump; and, a permanent modification to the 'D' static inverter. The inspectors reviewed the risk assessment of these 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."

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed operability evaluations for three degraded equipment issues affecting risk significant systems or components: spent fuel pool system boundary valve leakage to the borated water storage tank; intermittent 'B' reactor coolant flow transmitter failures in the 'C' reactor protection system channel; and level errors between two intermediate closed cooling water surge tank level instruments. 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.

b. Findings

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 work activities on risk significant equipment:

- 'C' Static inverter modification
- 'A' Emergency feedwater flow control valve current-to-pressure controller replacement
- 'B' Nuclear service river water pump replacement

The inspectors verified that the post-maintenance test procedures and test activities were adequate to verify operability and functional capability prior to the affected systems being returned to service.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed portions of and reviewed the results of surveillances on the engineered safeguards actuation system (ESAS) and the reactor protection system. The surveillances were performed by AmerGen technicians and operators using procedures 1303-5.2, “Emergency Loading Sequence and High Pressure Injection Logic Channel/Component Test,” and 1303-4.1A, “RPS Channel A Test.” The inspectors verified, based on the test results, that the systems met technical specification and procedural requirements. The inspectors reviewed AmerGen’s corrective action program for problems identified during previous performances of the tests to determine if problems involving surveillance testing were being identified and resolved at an appropriate threshold.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

On February 17, 2002, a radiological controls technician performing routine surveys inside the reactor building identified minor leakage to the ‘B’ high pressure injection header check valve (MU-V-107B) mechanical pressure boundary. Operators monitored the leak rate daily, which remained stable. Engineers prepared a design package to repair the leak by injecting sealant into existing vent holes in the valve body and through specially adapted valve bonnet studs. Maintenance technicians completed the temporary repairs to MU-V-107B on March 12, 2002. The inspectors verified that the installation of the modification was consistent with the written documentation and that there were no adverse effects on system operability.

b. Findings

No findings of significance were identified.

Emergency Preparedness [EP]

1EP6 Drill Evaluation

a. Inspection Scope

On March 12, 2002, the inspectors observed a simulator scenario 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 simulator participants' classifications and notifications.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Physical Protection [PP]

3PP1 Access Authorization Program

a. Inspection Scope

The following activities were conducted to determine the effectiveness of the licensee's behavior observation portion of the personnel screening and fitness-for-duty programs as measured against the requirements of 10 CFR 26.22 and the Licensees Fitness for Duty Program documents.

Five supervisors representing the Operations, Maintenance, Radiation Protection, Security, and Emergency Planning departments were interviewed on February 13, 2002, regarding their understanding of behavior observation responsibilities and the ability to recognize aberrant behavior traits. Two (2) Access Authorization/Fitness-for-Duty self-assessments, two semi-annual Fitness for Duty performance data reports, an audit, and event reports and security log events for the four previous quarters were reviewed during February 11-13, 2002. On February 13, 2002, five (5) individuals who perform escort duties were interviewed to establish their knowledge level of those duties. Behavior observation training procedures and records were reviewed on February 12, 2002.

b. Findings

No findings of significance were identified.

3PP2 Access Control

a. Inspection Scope

The following activities were conducted during the inspection period to verify that the licensee has effective site access controls, and equipment in place designed to detect and prevent the introduction of contraband (firearms, explosives, incendiary devices) into the protected area as measured against 10 CFR 73.55(d) and the Physical Security Plan and Procedures.

Site access control activities were observed, including personnel and package processing through the search equipment during peak ingress periods on February 12 and 13, 2002. Two vehicle searches were observed on February 13, 2002. On February 13, 2002, testing of all access control equipment, including metal detectors, explosive material detectors, and X-ray examination equipment, was observed. The Access Control event log, an audit, and three (3) self-assessments were also reviewed.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA3 Event Follow-up

.1 (Closed) Licensee Event Report 50-289/2002-001-00: Vital Power Supply Failure due to Blown Fuse and (Closed) Apparent Violation 50-289/01-08-01. This licensee event report reported a condition that could have prevented the fulfillment of the safety function of systems that are needed to remove residual decay heat. The same condition, details, and an apparent violation were described in NRC Inspection Report 50-289/01-08 in section R15.1. The problem involved an unreliable condition affecting all four safety-related static inverters that powered vital instrumentation and control circuits. Specifically, a loss of multiple static inverters would cause a reactor trip, initiate the engineered safeguards actuation system, remove ESAS override capability, affect control of emergency feedwater, and cause a loss of accident and post-accident monitoring instrumentation. The unreliable inverter condition existed only during loss of offsite power events and for only about 42 hours while the TMI plant was in hot shutdown. The unreliable inverter condition also previously existed in cold shutdown conditions. This condition was identified through 'B' emergency diesel generator (EDG) and power transfer testing. Two of the inverters and associated vital busses, 'A' and 'C' were also not impacted during this period because of differences in 'A' and 'B' EDG voltage regulator setpoints. AmerGen, subsequently, administratively controlled both EDG voltage regulator setpoints to eliminate the unreliable condition. Other corrective actions were also completed on the inverters and were described in NRC Inspection Report 50-289/01-08.

The unreliable inverter condition was introduced during modification activities while TMI was in cold shutdown conditions. Hot shutdown conditions were established for the first

time after TMI completed its recent refueling outage. AmerGen had not yet begun the TMI reactor startup. Since this condition existed during both cold shutdown and hot shutdown conditions, the shutdown and at power significance determination processes (SDPs) were applied to assess the risk significance of this problem. The significance of this problem was also only applied to the 'B' and 'D' inverters. The 'A' and 'C' inverters did not exhibit similar problems during EDG and power transfer testing because the 'A' EDG voltage regulator controlled at a lower bus voltage. During shutdown conditions, the loss of the inverters would not prevent normal decay heat removal from functioning following a loss of offsite power. Therefore, in accordance with the shutdown operations SDP, this issue is of very low safety significance. The inspectors used phase 1 of the at power SDP and determined that since an actual loss of a safety function did not occur, (emergency feedwater flow would still be available through redundant flow paths to both steam generators for decay heat removal), and a technical specification allowed outage time was not exceeded, this issue screened to green.

More details regarding the apparent cause and corrective actions of this issue were described in NRC Inspection Report 50-289/01-08, section R15.1. The inspectors did not identify any new issue in this LER. This LER is closed. The Apparent Violation 50-289/01-08-01 was opened pending NRC review of the risk significance. As just described, the risk significance was determined to be of very low safety significance, green, and this unresolved item is closed. The inspectors also determined that the apparent violation described in NRC Inspection Report 50-289/01-08, section R15.1, was a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." However, because of the very low safety significance of this finding, and because AmerGen entered the issue into its corrective action process (CR90391), this violation is being treated as a non-cited violation **(NCV 50-289/01-08-01)**.

.2 (Closed) Licensee Event Report 50-289/2001-001-02, Supplement 2, Emergency Feedwater Pump 2A Inoperable Greater than the Technical Specification Allowable Outage Time Due to an Incorrect Operability Determination. This LER provides supplemental information and extends a completion date by six months for one remaining long term corrective action. The inspectors verified that interim corrective actions are adequately addressing the one remaining long term corrective action. No other changes were made to the LER. This LER is closed.

4OA6 Management Meetings

Exit Meeting Summary

On April 4, 2002, the resident inspectors presented the inspection results to members of AmerGen management led by Mr. Bruce Williams. The security program and licensed operator requalification program inspection results were previously presented to members of AmerGen management. AmerGen acknowledged the findings presented. AmerGen did not indicate that any of the information presented at the exit meetings was proprietary.

ATTACHMENT

SUPPLEMENTAL INFORMATION

a. Key Points of Contact

M. Bruecks, Site Security Manager
G. Gellrich, Plant Manager
J. Stanley, Acting Director, Site Engineering
D. McDermott, Director, Maintenance
G. Rumbold, Manager, Regulatory Assurance
S. Queen, Senior Manager, Plant Engineering
J. Robertson, Plant Operations Director
B. Williams, Vice President, TMI Unit I

b. Items Opened, Closed, and Discussed

Closed

50-289/02-001-00	LER	Vital Power Supply Failure due to Blown Fuse
50-289/01-001-02,2	LER	Emergency Feedwater Pump 2A Inoperable Greater than the Technical Specification Allowable Outage Time Due to an Incorrect Operability Determination
50-289/01-08-01	AV	Inadequate Corrective Actions for Safety-Related Inverter Problems

Opened and Closed

50-289/01-08-01	NCV	Inadequate Corrective Actions for Safety-Related Inverter Problems

c. Acronyms

ADAMS	Agencywide Documents and Management System
AmerGen	AmerGen Energy Company, LLC
AV	Apparent Violation
CAP	Corrective Action Process
CFR	Code of Federal Regulations
DBT	Design Basis Threat
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
ESAS	Engineered Safeguards Actuation System
IR	Inspection Report
JPM	Job Performance Measures
LER	Licensee Event Report
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
PARs	Publicly Available Records
SDP	Significance Determination Process
SSC	Structures, Systems, or Components
TMI	Three Mile Island, Unit 1